
FCC §15.407(a)& RSS-247 CLAUSE 6.2- POWER SPECTRAL DENSITY

Applicable Standard

According to FCC §15.407(a)

(a) Power limits:

(1) For the band 5.15-5.25 GHz.

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm $10 \log B$, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output

power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(3) For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

According to RSS-247 Clause 6.2:

Frequency band 5150-5250 MHz

6.2.1.1 Power limits

For OEM devices installed in vehicles, the maximum e.i.r.p. shall not exceed 30 mW or $1.76 + 10 \log_{10}B$, dBm, whichever is less stringent. Devices shall implement transmitter power control (TPC) in order to have the capability to operate at least 3 dB below the maximum permitted e.i.r.p. of 30 mW.

For other devices, the maximum e.i.r.p. shall not exceed 200 mW or $10 + 10 \log_{10}B$, dBm, whichever power is less. B is the 99% emission bandwidth in megahertz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

Frequency band 5250-5350 MHz

6.2.2.1 Power limits

For OEM devices installed in vehicles, the maximum e.i.r.p. shall not exceed 30 mW or $1.76 + 10 \log_{10}B$, dBm, whichever is less. Devices shall implement TPC in order to have the capability to operate at least 3 dB below the maximum permitted e.i.r.p. of 30 mW.

Devices, other than devices installed in vehicles, shall comply with the following:

- a) The maximum conducted output power shall not exceed 250 mW or $11 + 10 \log_{10}B$, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band;
- b) The maximum e.i.r.p. shall not exceed 1.0 W or $17 + 10 \log_{10}B$, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

Frequency bands 5470-5600 MHz and 5650-5725 MHz**6.2.3.1 Power limits**

The maximum conducted output power shall not exceed 250 mW or $11 + 10 \log_{10} B$, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.

The maximum e.i.r.p. shall not exceed 1.0 W or $17 + 10 \log_{10} B$, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

Frequency band 5725-5850 MHz**6.2.4.1 Power limits**

For equipment operating in the band 5725-5850 MHz, the minimum 6 dB bandwidth shall be at least 500 kHz.

The maximum conducted output power shall not exceed 1 W. The output power spectral density shall not exceed 30 dBm in any 500 kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the output power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed point-to-point operations exclude the use of point-to-multipoint³ systems, omnidirectional applications and multiple collocated transmitters transmitting the same information.

Test Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU 26	200256	2020-07-07	2021-07-07
R&S	Spectrum Analyzer	FSP 38	100478	2020-07-07	2021-07-07
yzjingcheng	Coaxial Cable	KTRFBU-141-50	41010013	Each Time	/
E-Microwave	Blocking Control	EMDCB-00036	0E01201048	Each Time	/

* **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).

Test Data**Environmental Conditions**

Temperature:	21.7~28.1°C
Relative Humidity:	30~49 %
ATM Pressure:	100.6~102.5kPa
Tester:	Chris Mo
Test Date:	2020-10-21~2020-10-24

Test Mode: Transmitting

Test Result: Compliance. Please refer to the following table and plot.

13 dBi Antenna:
5150-5250 MHz:

Mode	Frequency (MHz)	Maximum Power Spectral Density (dBm/MHz)					
		Chain 0	Chain 1	Chain 2	Chain 3	Total	FCC Limit
802.11 a	5180	3.55	3.76	3.43	3.36	/	10
	5200	2.80	3.86	3.09	3.76	/	10
	5240	3.03	3.21	3.59	2.97	/	10
802.11n ht20	5180	-2.44	-2.53	-3.85	-3.08	3.08	4
	5200	-2.74	-2.72	-3.91	-2.51	3.08	4
	5240	-2.69	-2.36	-3.41	-2.24	3.37	4
802.11n ht40	5190	-2.97	-3.38	-3.97	-3.44	2.60	4
	5230	-2.73	-2.42	-2.83	-2.35	3.44	4
802.11ac vht80	5210	-3.26	-3.84	-4.86	-3.73	2.14	4

Note: This is an Outdoor AP, and this band is Only for FCC Use.

5250-5350MHz:

Mode	Frequency (MHz)	Maximum Power Spectral Density (dBm/MHz)					
		Chain 0	Chain 1	Chain 2	Chain 3	Total	FCC/ISED Limit
802.11 a	5260	-2.83	-2.64	-2.79	-2.64	/	4
	5280	-3.17	-3.10	-3.39	-2.49	/	4
	5320	-2.89	-3.48	-3.88	-3.58	/	4
802.11n ht20	5260	-10.07	-10.49	-11.60	-10.52	-4.61	-2
	5280	-9.34	-9.72	-11.22	-10.33	-4.08	-2
	5320	-9.01	-10.29	-12.13	-11.17	-4.48	-2
802.11n ht40	5270	-9.44	-9.81	-11.25	-9.72	-3.98	-2
	5310	-9.23	-10.67	-11.83	-10.92	-4.54	-2
802.11ac vht80	5290	-9.72	-10.26	-12.15	-11.25	-4.73	-2

5470-5725MHz:

Mode	Frequency (MHz)	Maximum Power Spectral Density (dBm/MHz)					
		Chain 0	Chain 1	Chain 2	Chain 3	Total	FCC/ISED Limit
802.11 a	5500	-2.15	-3.18	-3.72	-2.51	/	4
	5580	-3.01	-3.45	-3.17	-2.68	/	4
	5700	-2.57	-2.78	-3.77	-2.88	/	4
	5720	-2.15	-3.17	-3.21	-3.60	/	4
802.11n ht20	5500	-8.48	-9.27	-10.86	-9.29	-3.37	-2
	5580	-8.31	-9.46	-11.06	-9.21	-3.38	-2
	5700	-8.66	-10.16	-12.17	-9.28	-3.86	-2
	5720	-9.45	-11.35	-12.99	-10.89	-4.97	-2
802.11n ht40	5510	-9.38	-9.87	-11.95	-10.23	-4.24	-2
	5550	-9.47	-10.50	-12.42	-9.99	-4.44	-2
	5670	-9.03	-9.81	-11.81	-9.22	-3.82	-2
	5710	-8.56	-10.26	-11.78	-9.47	-3.84	-2
802.11ac vht80	5530	-10.13	-10.72	-12.43	-11.01	-4.97	-2
	5610	-9.34	-10.92	-12.44	-10.93	-4.75	-2
	5690	-9.11	-8.92	-10.99	-9.10	-3.43	-2

5725-5850 MHz:

Mode	Frequency (MHz)	Maximum Power Spectral Density (dBm/500kHz)					
		Chain 0	Chain 1	Chain 2	Chain 3	Total	FCC/RSS Limit
802.11 a	5745	11.49	11.41	11.05	12.45	/	23
	5785	10.73	11.18	10.18	12.25	/	23
	5825	10.61	11.17	10.56	11.45	/	23
802.11n ht20	5745	9.74	6.92	5.64	7.79	13.80	17
	5785	9.39	6.59	6.00	7.67	13.63	17
	5825	9.01	6.48	5.60	7.32	13.31	17
802.11n ht40	5755	6.06	3.77	2.01	3.95	10.21	17
	5795	5.44	2.77	1.71	3.69	9.64	17
802.11ac vht80	5775	3.58	1.01	-0.09	0.86	7.59	17

Note:

The maximum antenna gain is 13dBi in 5GHz band. The device employed Cyclic Delay Diversity (CDD) for 802.11 MIMO transmitting, per KDB 662911 D01 Multiple Transmitter Output v02r01, for power spectral density (PSD) measurements on the devices:

$$\text{Array Gain} = 10 \log(N_{\text{ANT}}/N_{\text{SS}}) \text{ dB.}$$

So:

$$\text{Directional gain} = G_{\text{ANT}} + \text{Array Gain} = 13\text{dBi} + 10 \cdot \log(4/1) = 19 \text{ dBi}$$

For 5.8GHz band, If measurement bandwidth of Maximum PSD is specified in 500 kHz, add $10\log(500\text{kHz}/\text{RBW})$ to the measured result, whereas RBW (< 500 KHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.

Method SA-3 in KDB 789033 D02 General UNII Test Procedures New Rules v02r01 was used for PSD test.

13dBi:
5150-5250 MHz, Chain 0:

802.11a Low Channel



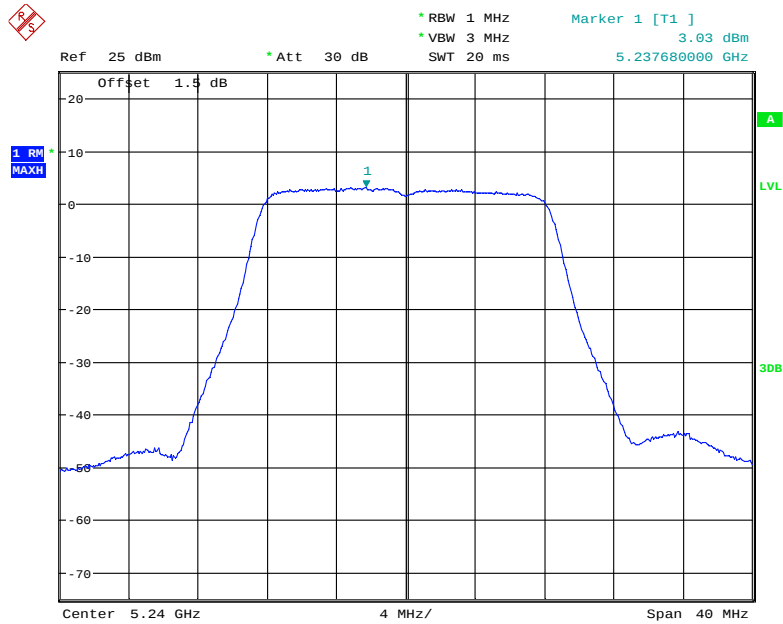
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802.11a Middle Channel



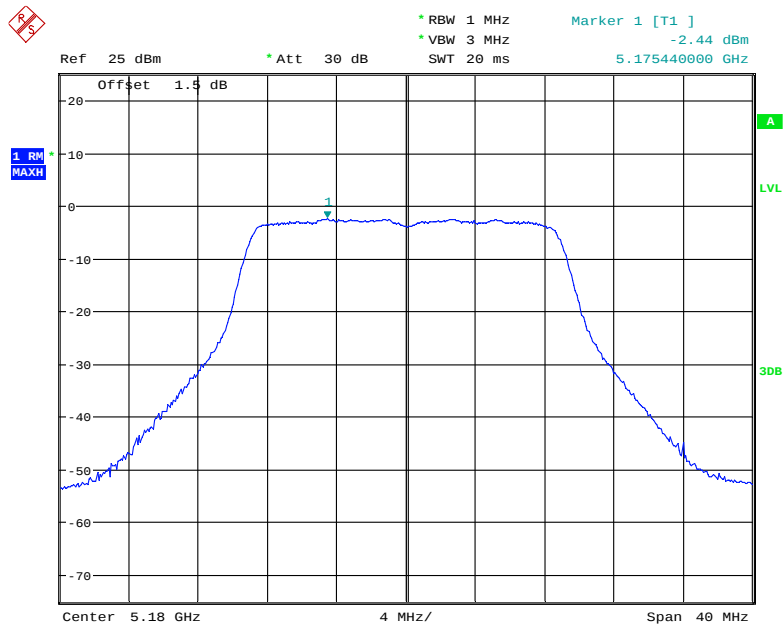
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802.11a High Channel



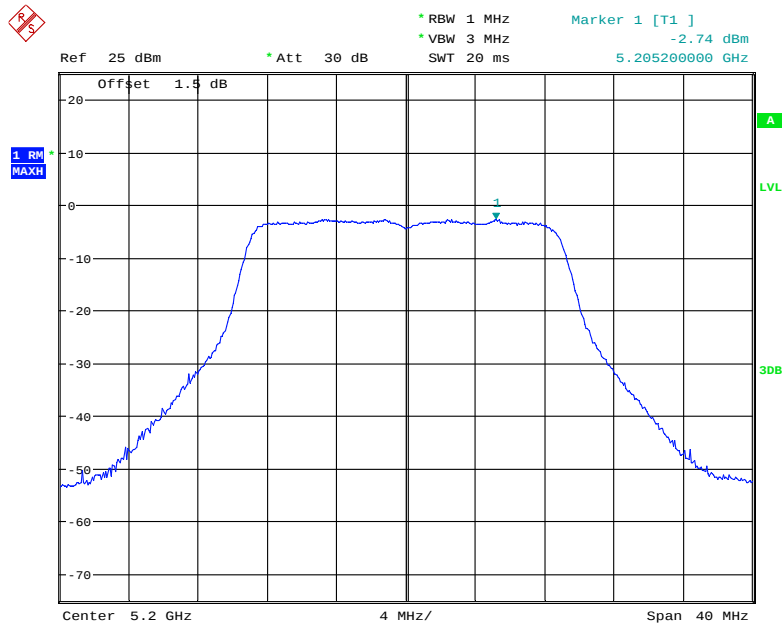
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802.11n ht20 Low Channel



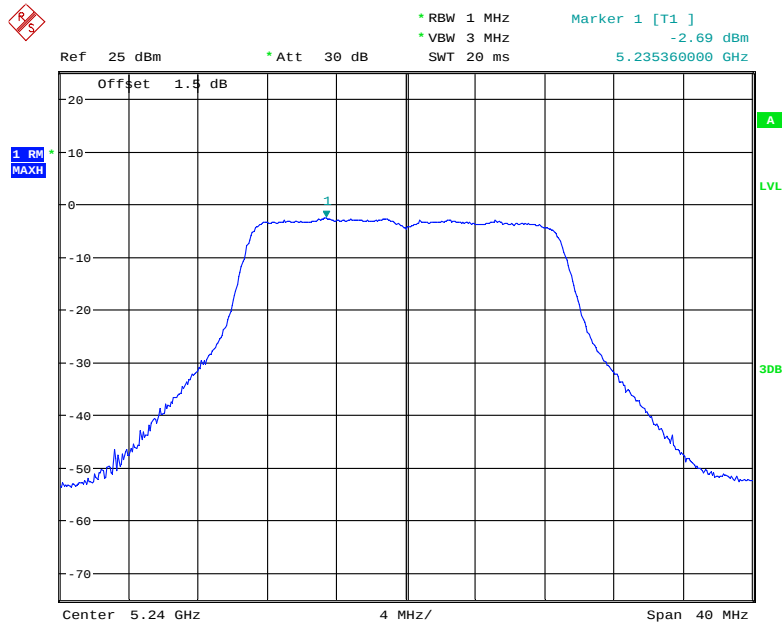
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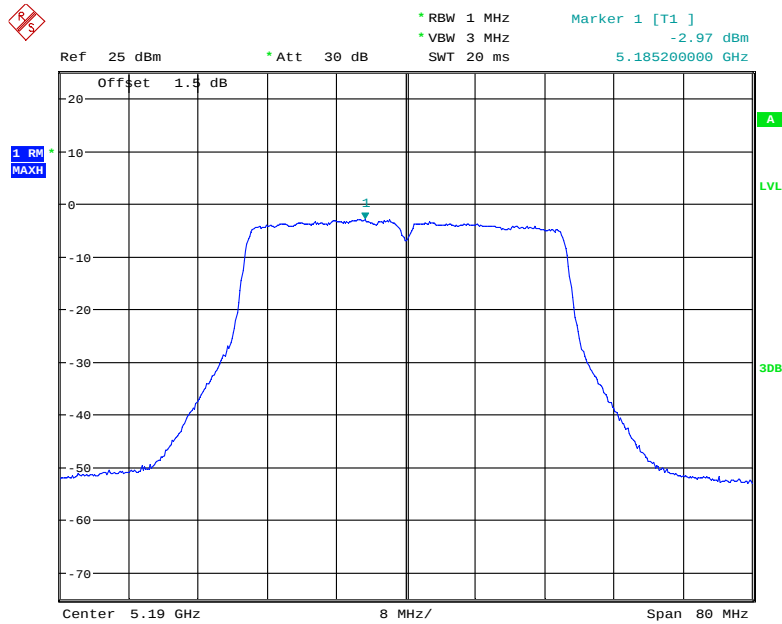
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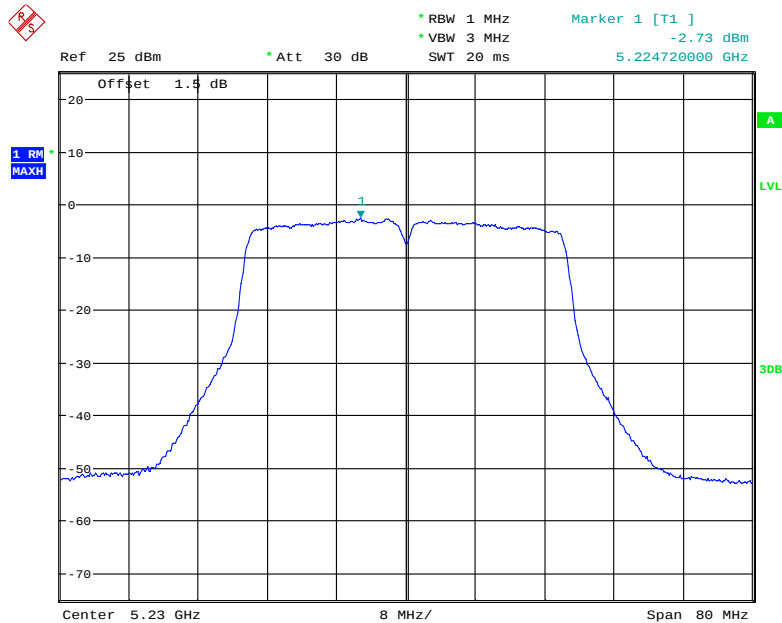
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802.11n ht40 Low Channel



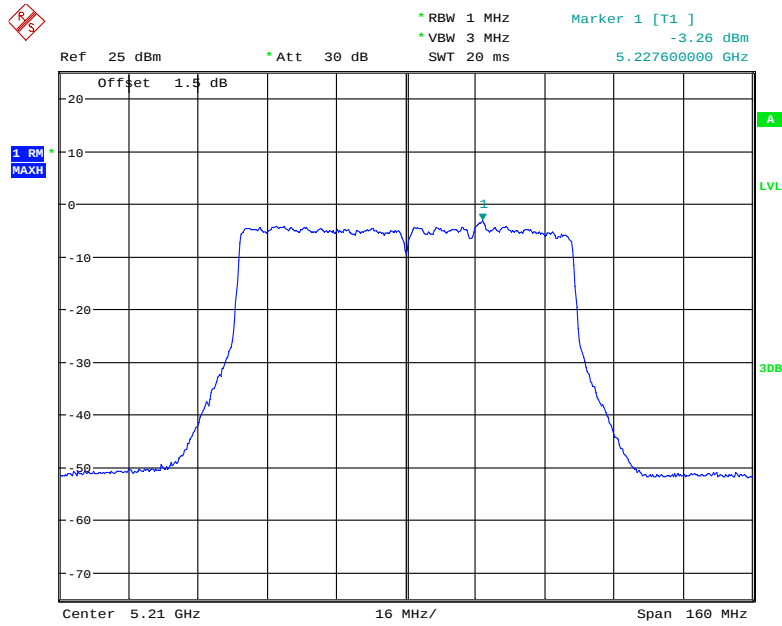
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802.11n ht40 High Channel



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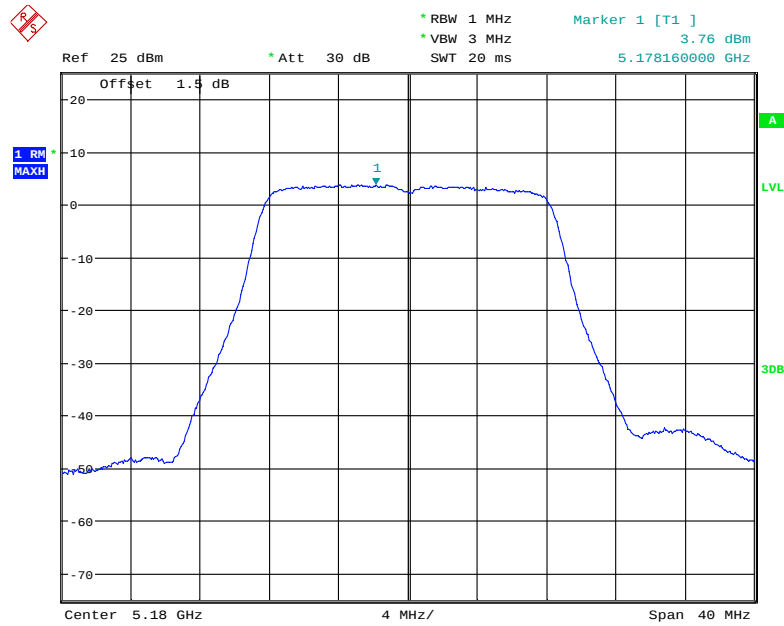
802.11ac vht80 Middle Channel



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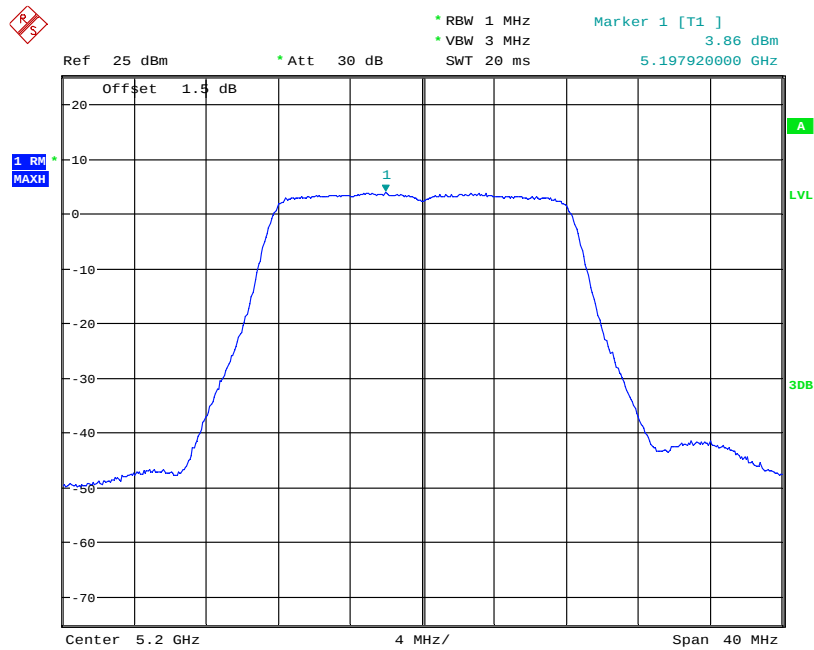
Chain 1:

802.11a Low Channel



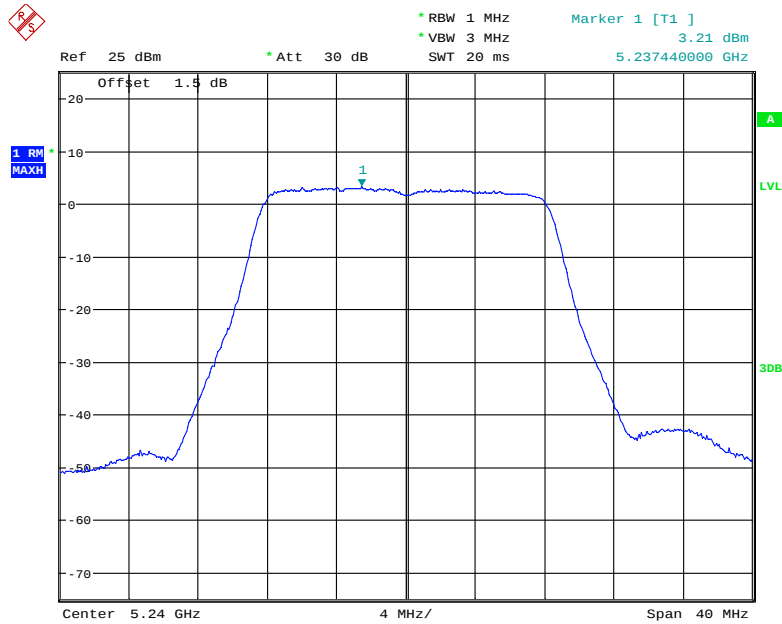
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802.11a Middle Channel



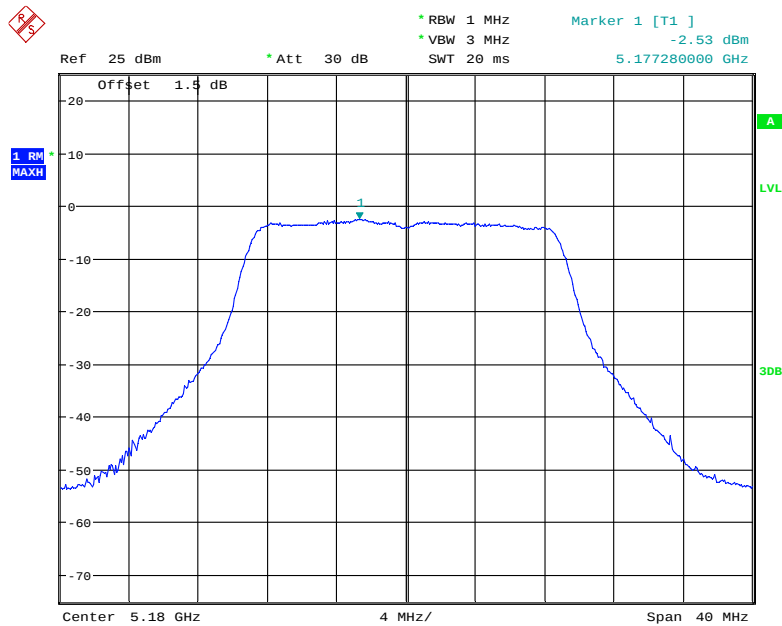
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802.11a High Channel



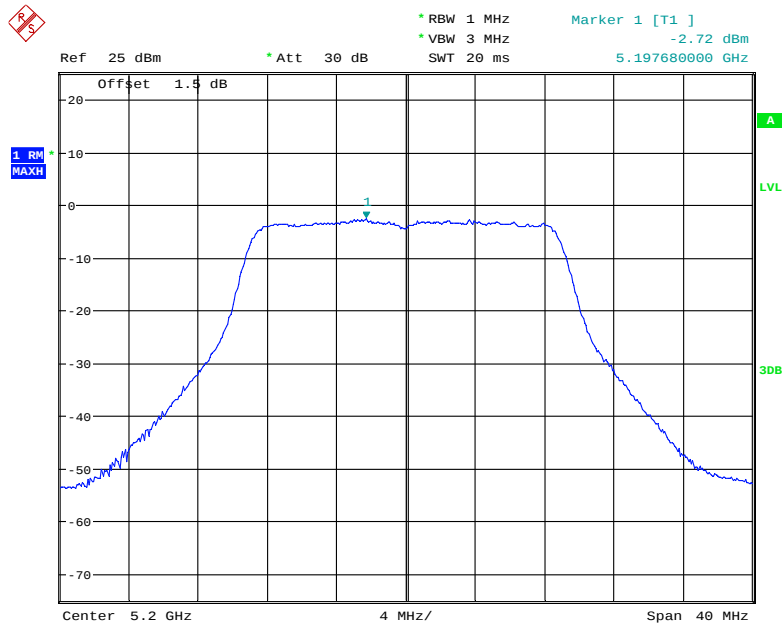
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802.11n ht20 Low Channel



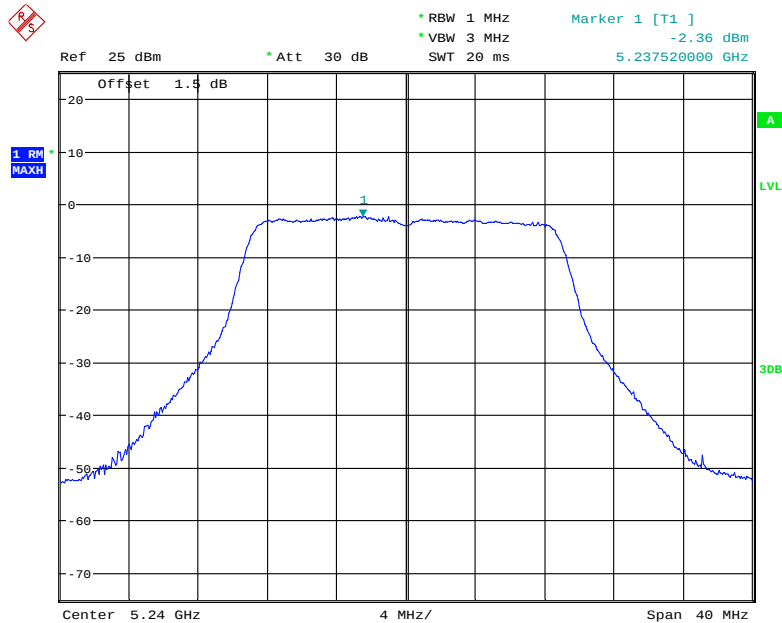
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802.11n ht20 Middle Channel



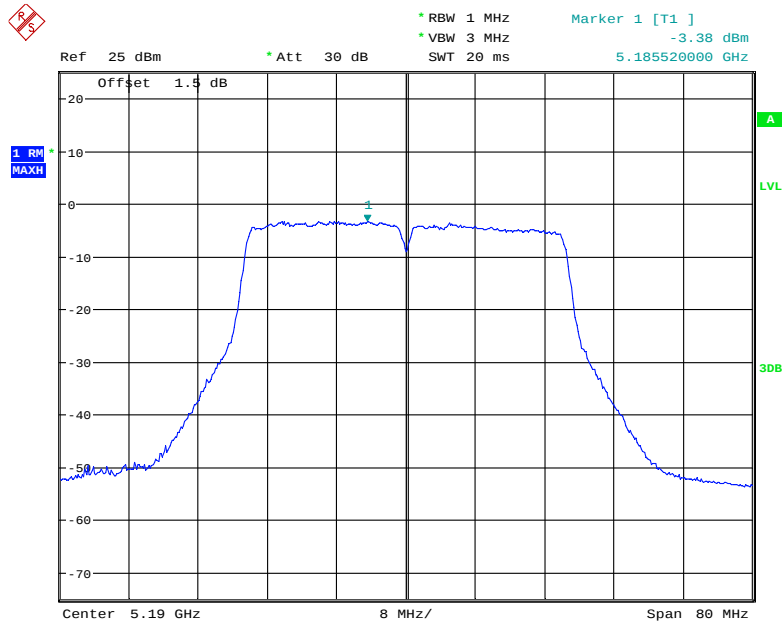
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802.11n ht20 High Channel



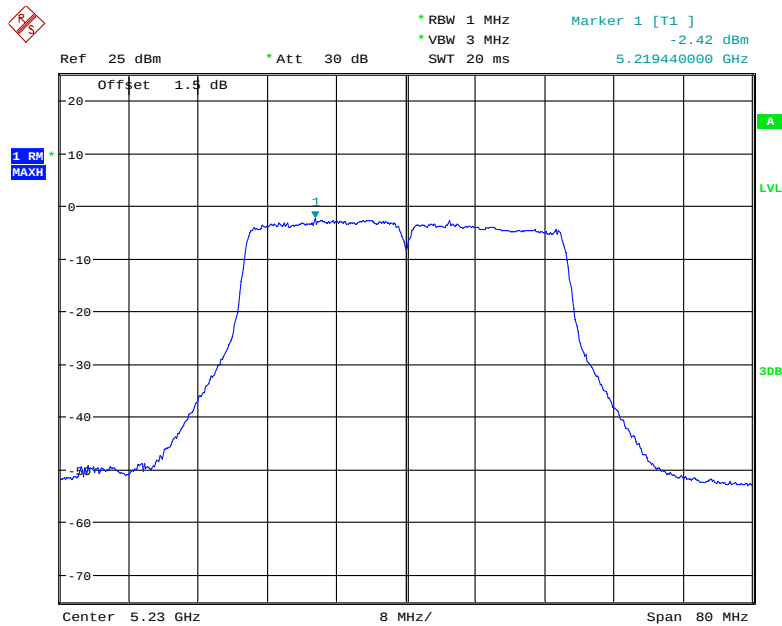
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802.11n ht40 Low Channel



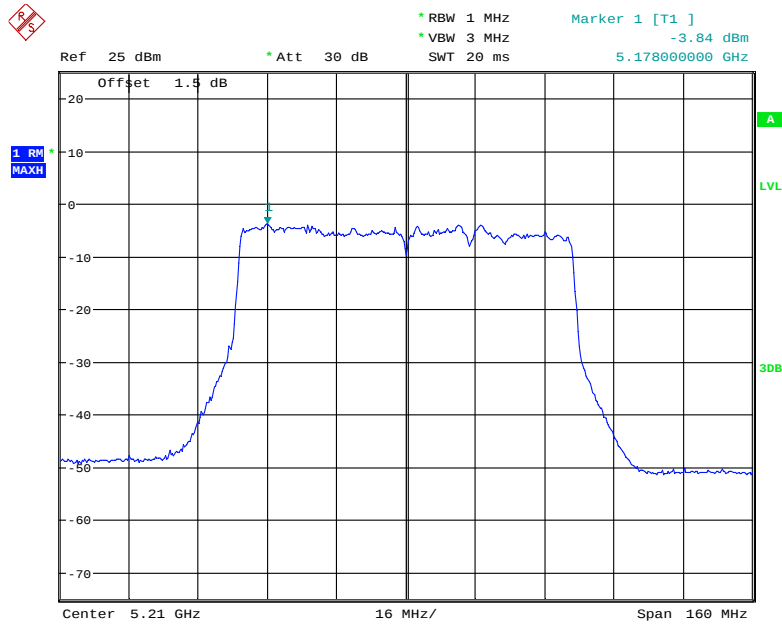
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802.11n ht40 High Channel



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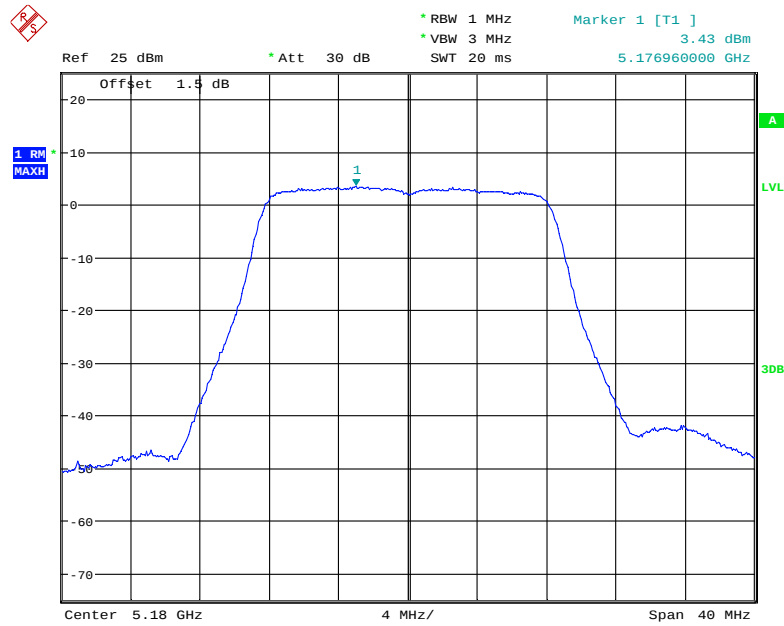
802.11ac vht80 Middle Channel



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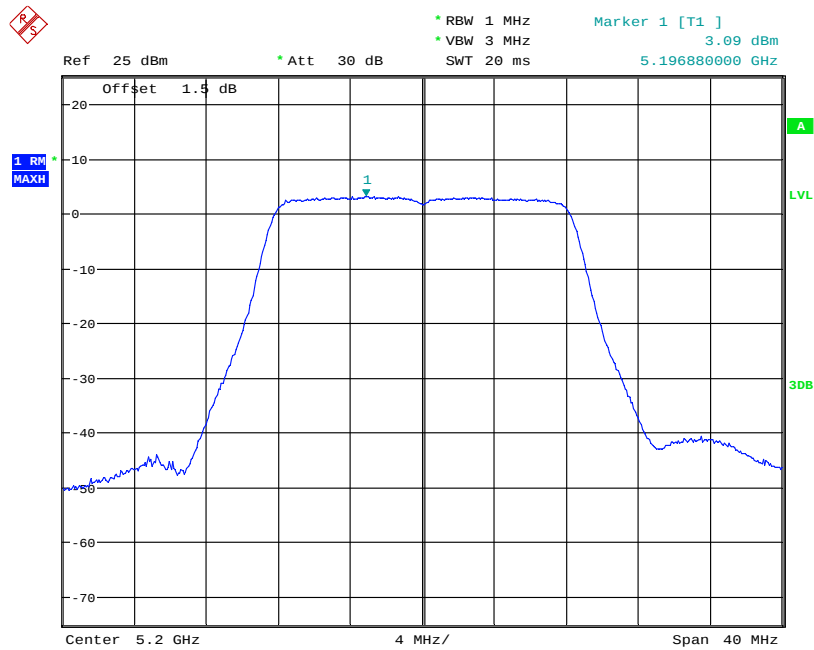
Chain 2:

802.11a Low Channel



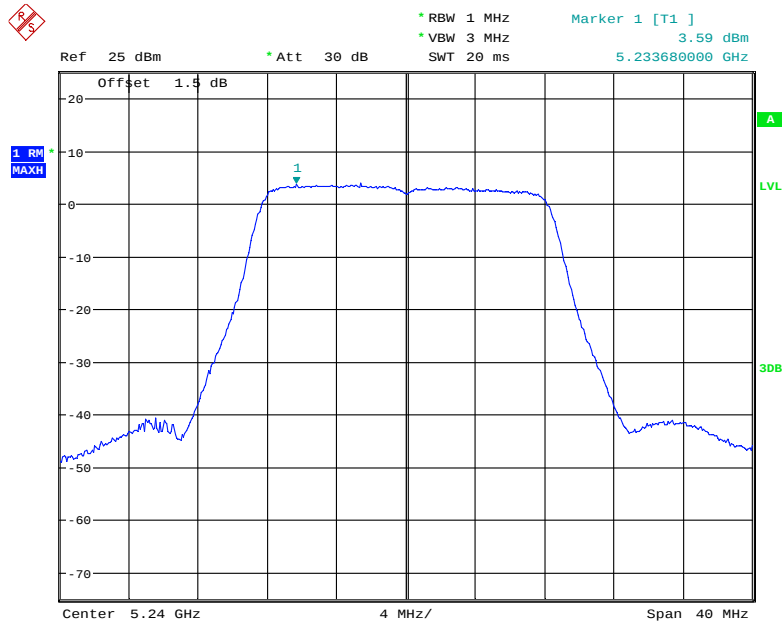
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802.11a Middle Channel



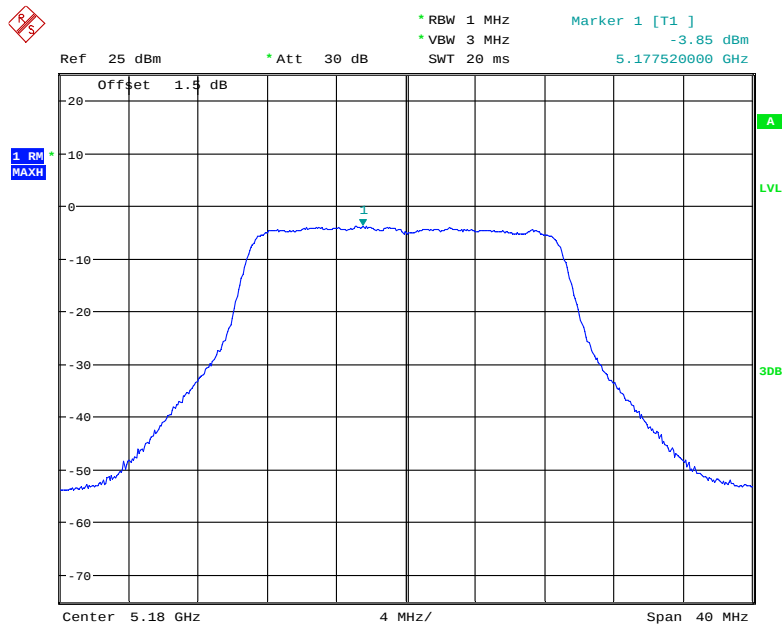
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802.11a High Channel



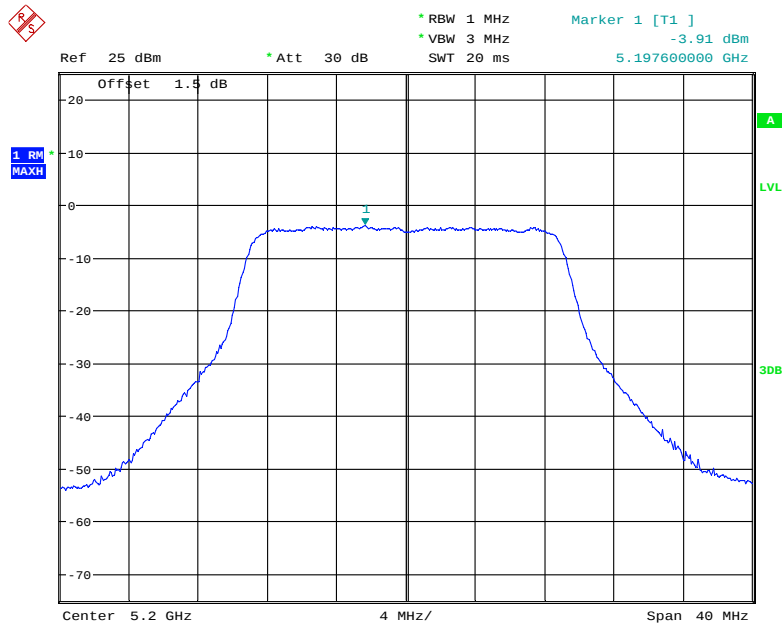
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802.11n ht20 Low Channel



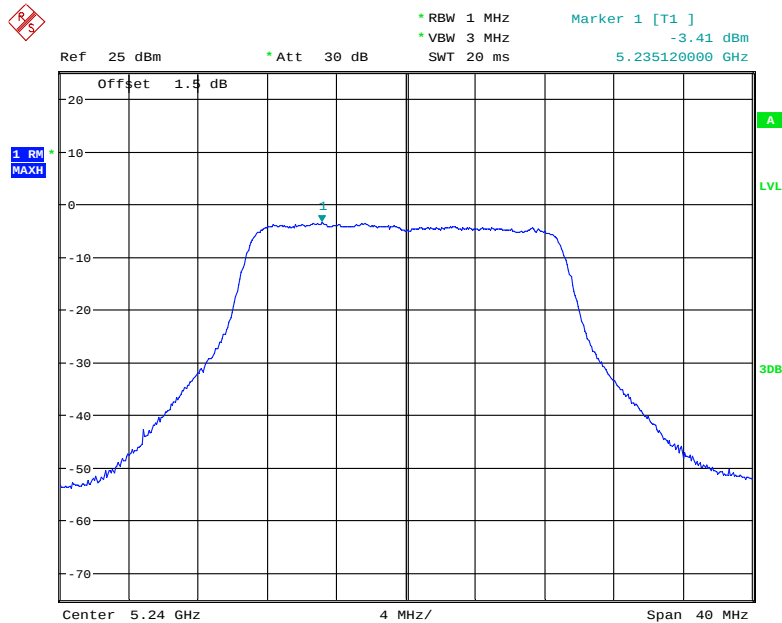
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802.11n ht20 Middle Channel



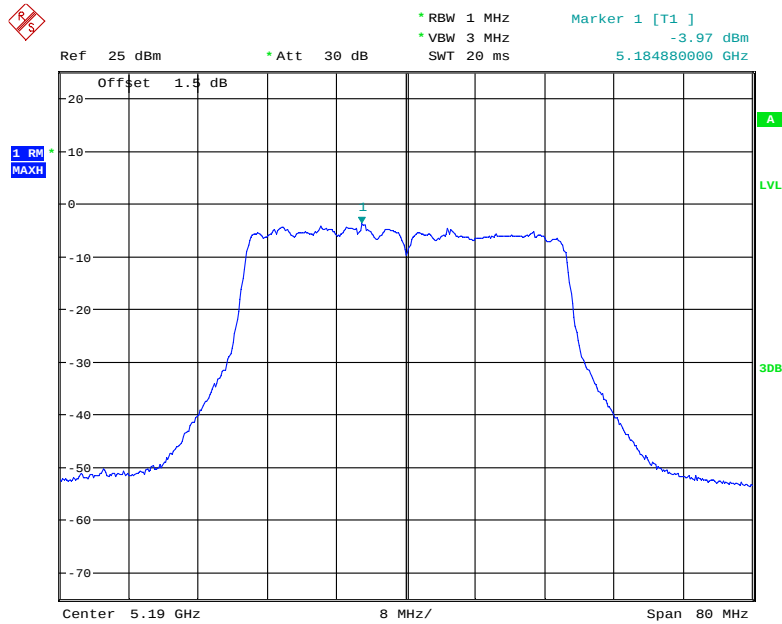
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802.11n ht20 High Channel



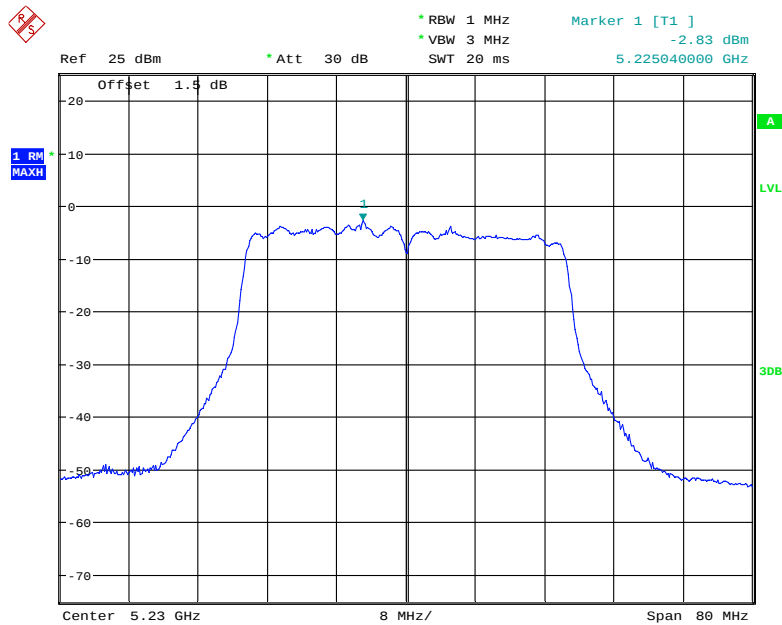
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802.11n ht40 Low Channel



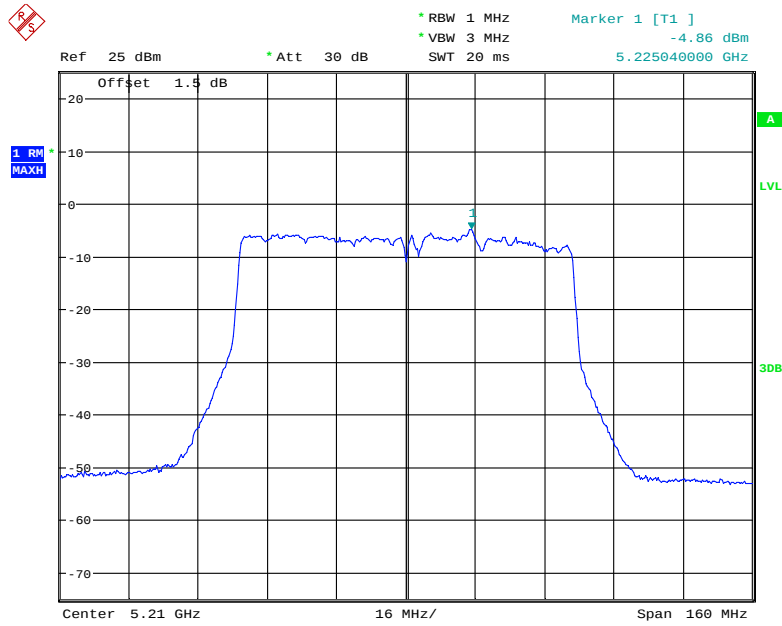
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802.11n ht40 High Channel



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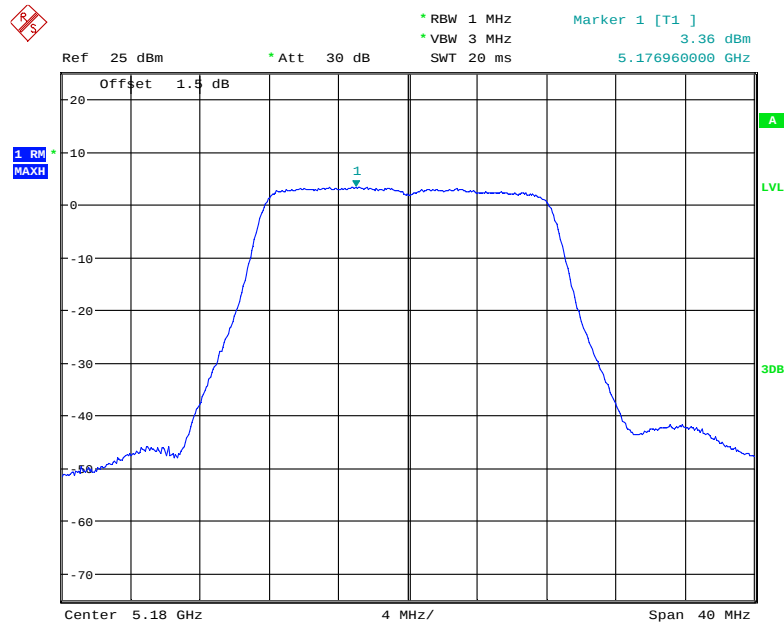
802.11ac vht80 Middle Channel



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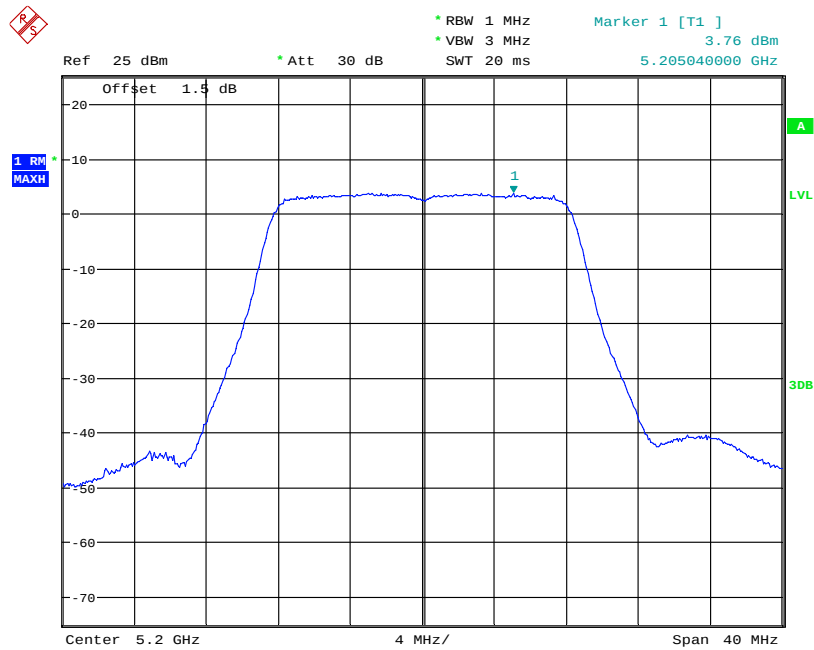
Chain 3:

802.11a Low Channel



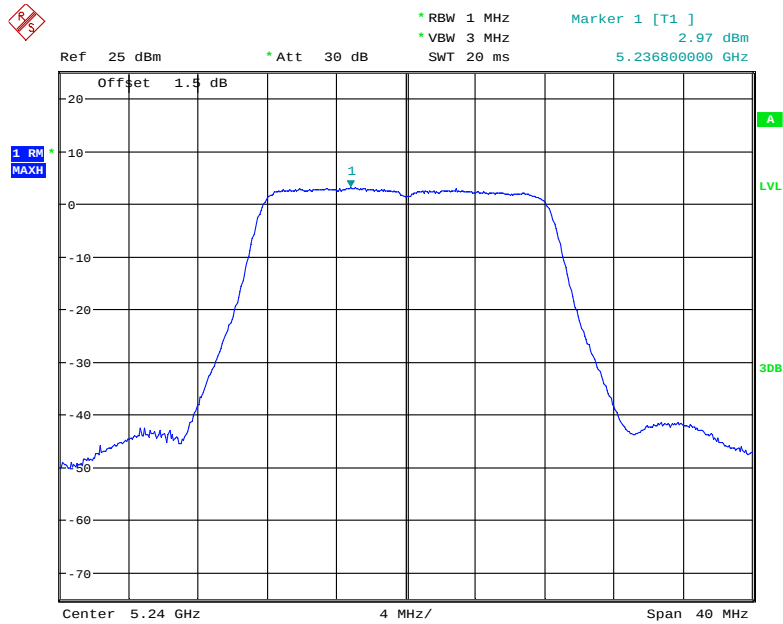
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802.11a Middle Channel



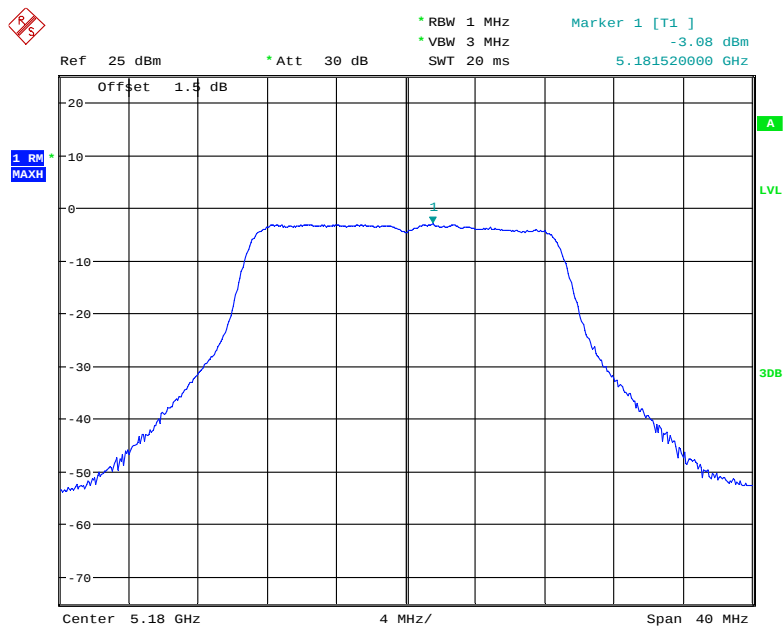
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802.11a High Channel



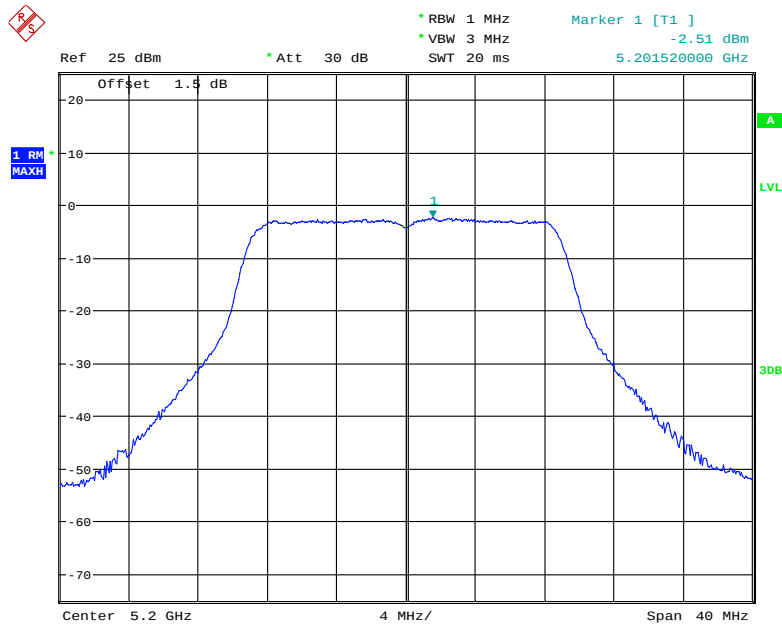
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802.11n ht20 Low Channel



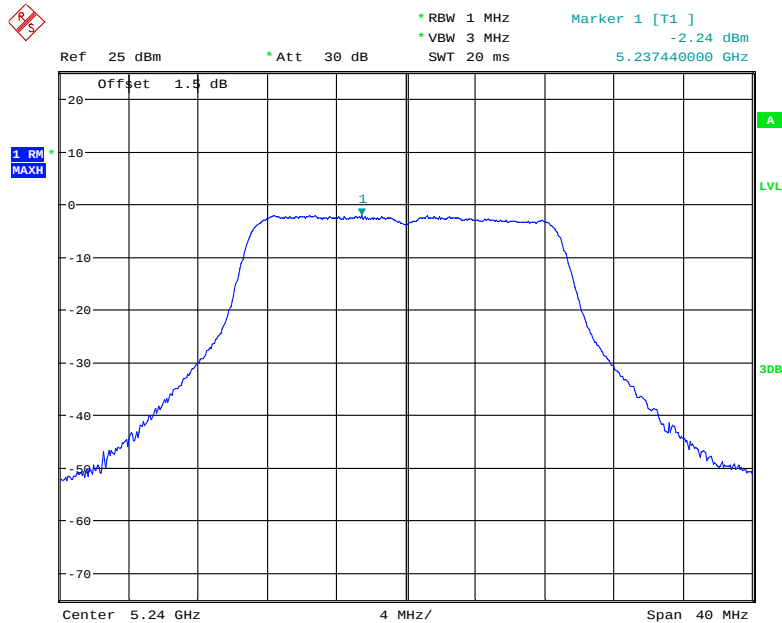
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802.11n ht20 Middle Channel



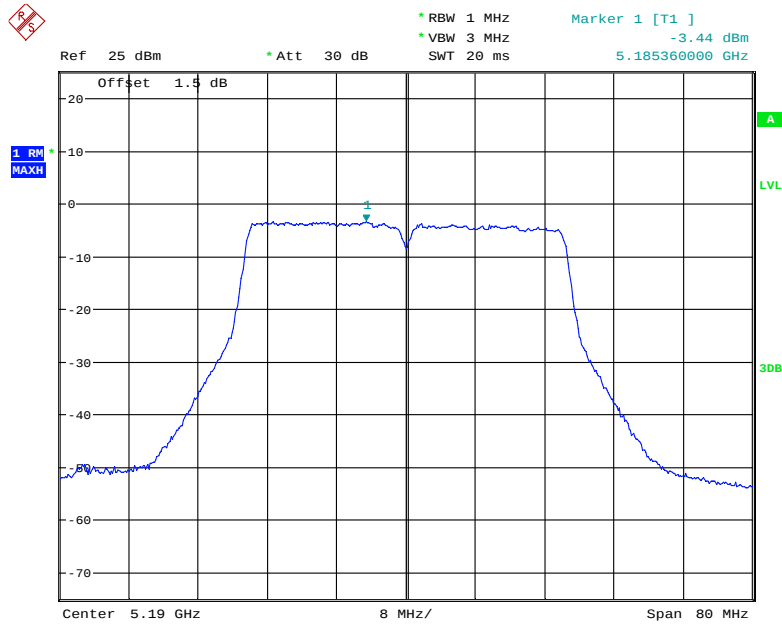
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802.11n ht20 High Channel



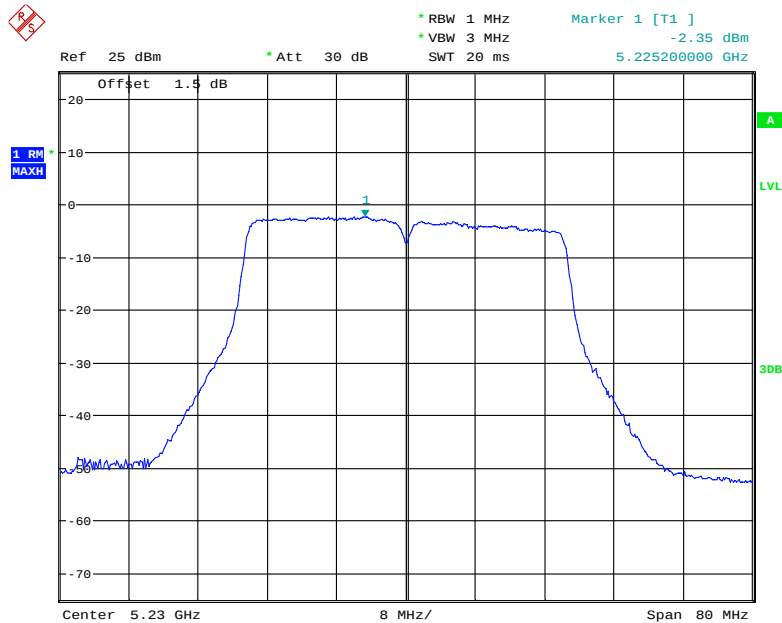
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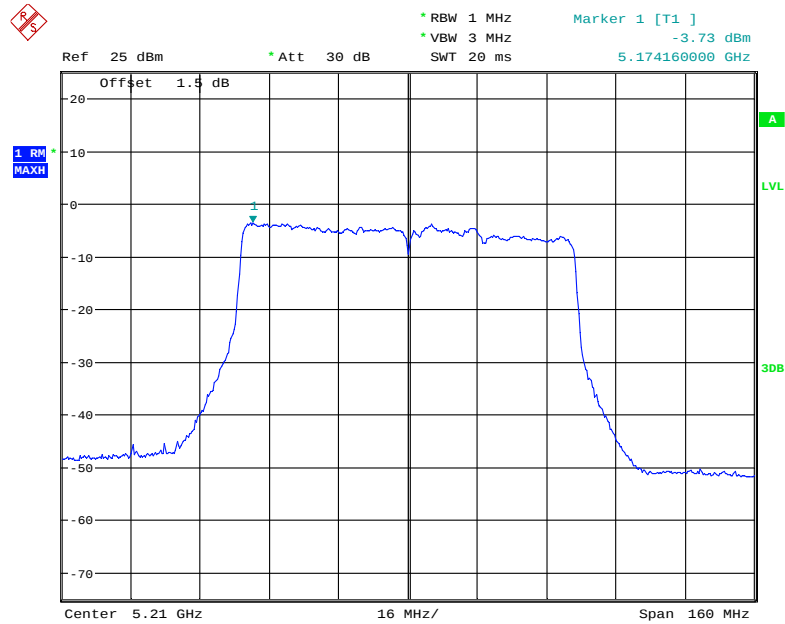
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802.11n ht40 High Channel



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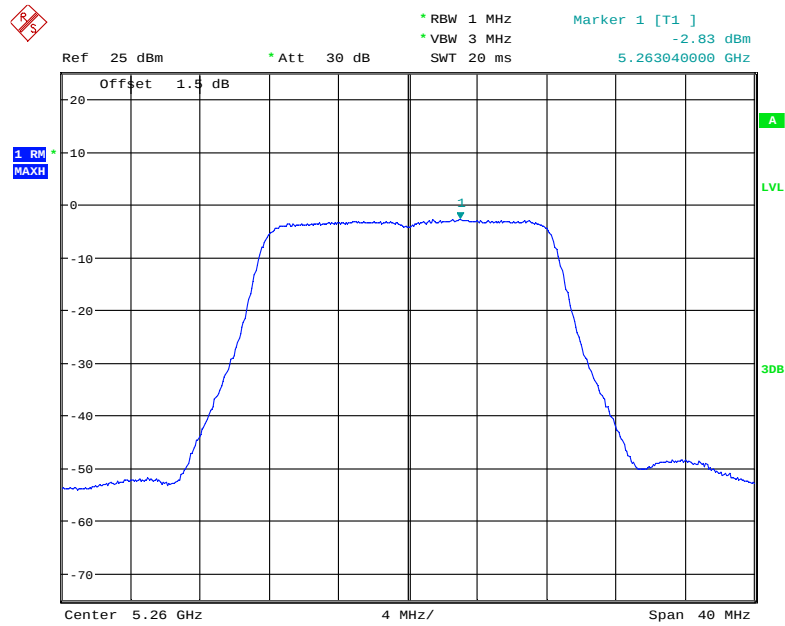
802.11ac vht80 Middle Channel



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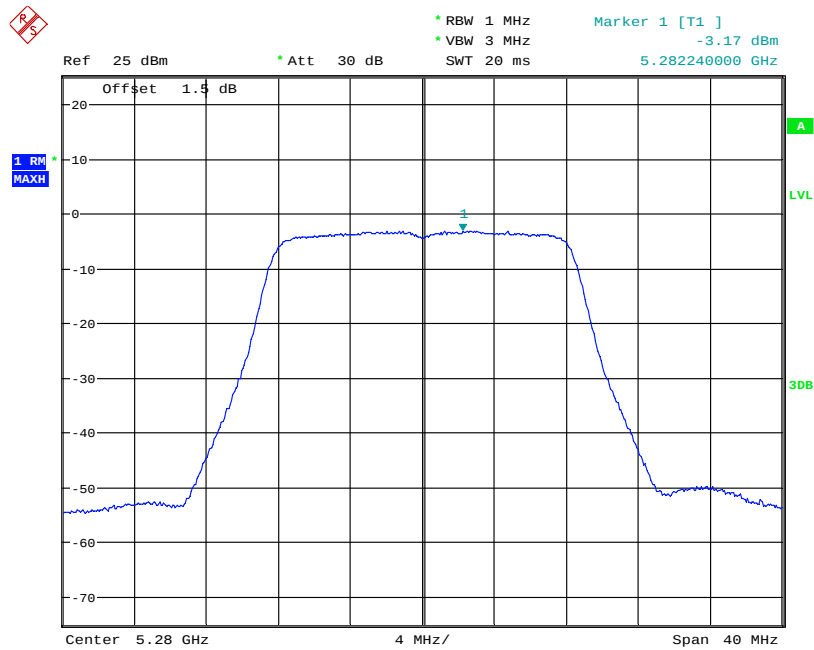
5250-5350MHz, Chain 0:

802.11a Low Channel



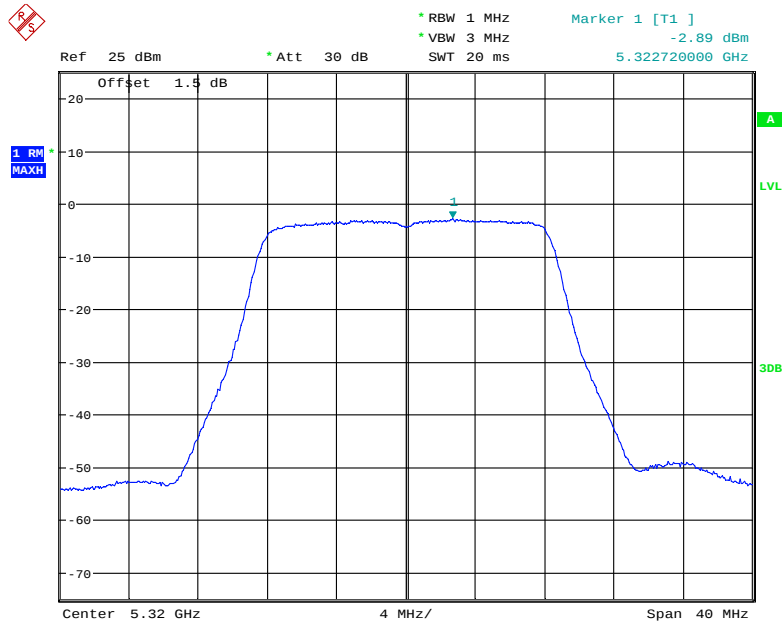
Date: 22.OCT.2020 15:46:38

802.11a Middle Channel



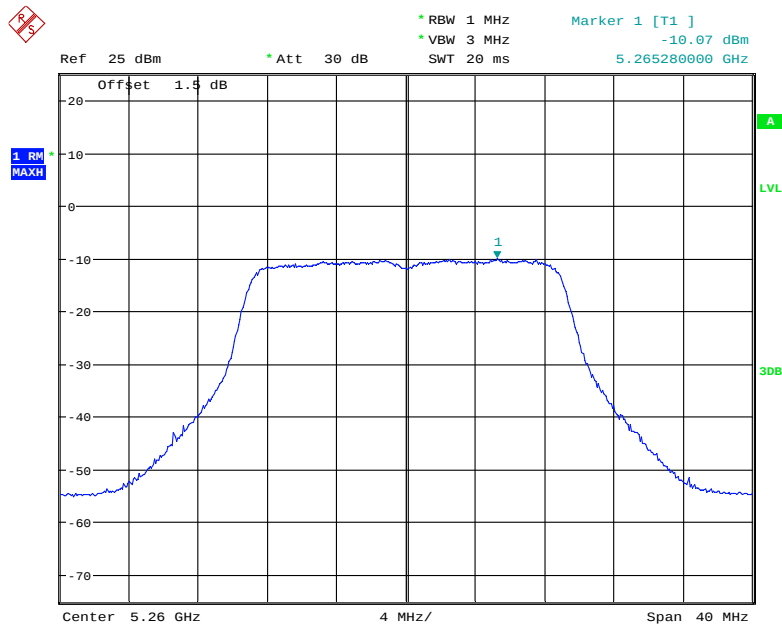
Date: 22.OCT.2020 15:48:40

802.11a High Channel



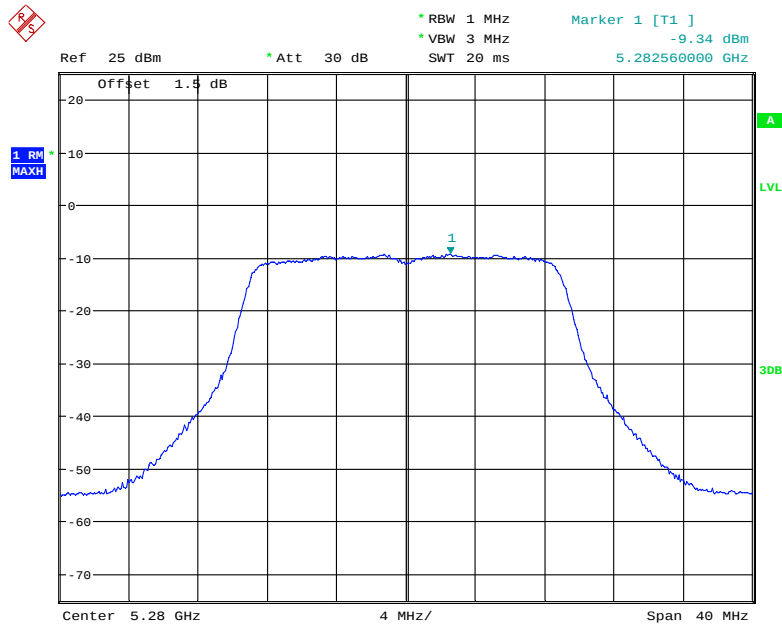
Date: 22.OCT.2020 15:49:44

802.11n ht20 Low Channel



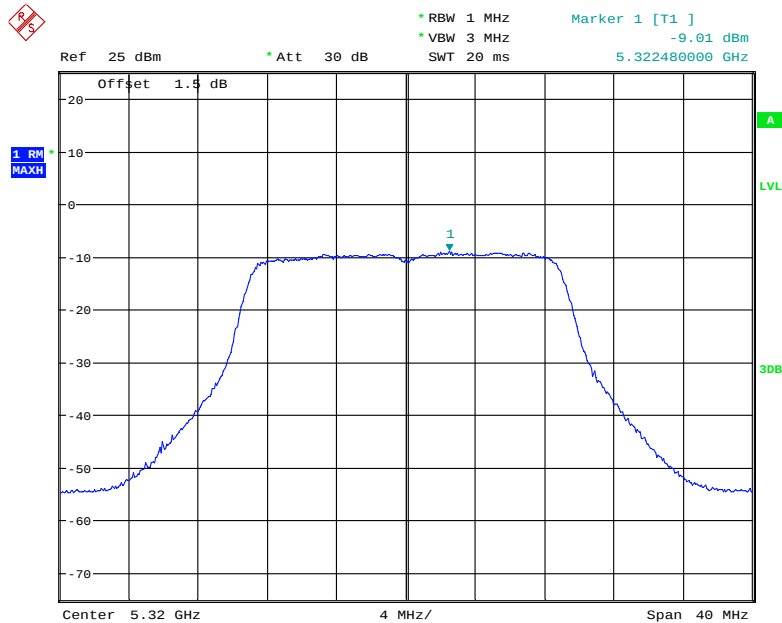
Date: 22.OCT.2020 15:53:17

802.11n ht20 Middle Channel



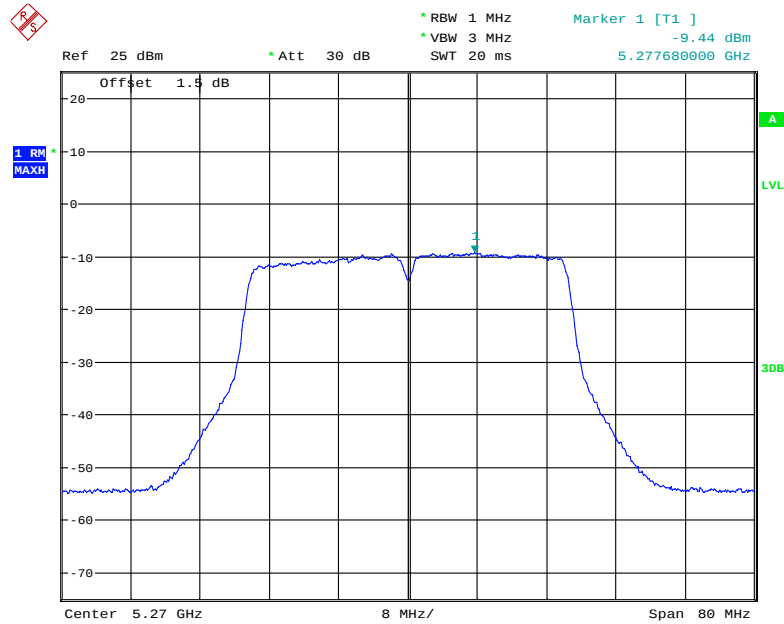
Date: 22.OCT.2020 15:52:17

802.11n ht20 High Channel



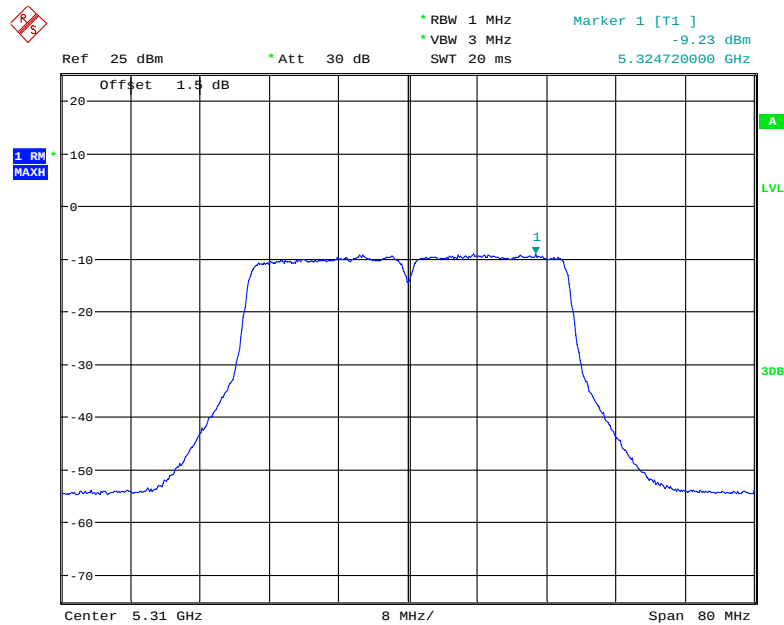
Date: 22.OCT.2020 15:51:16

802.11n ht40 Low Channel



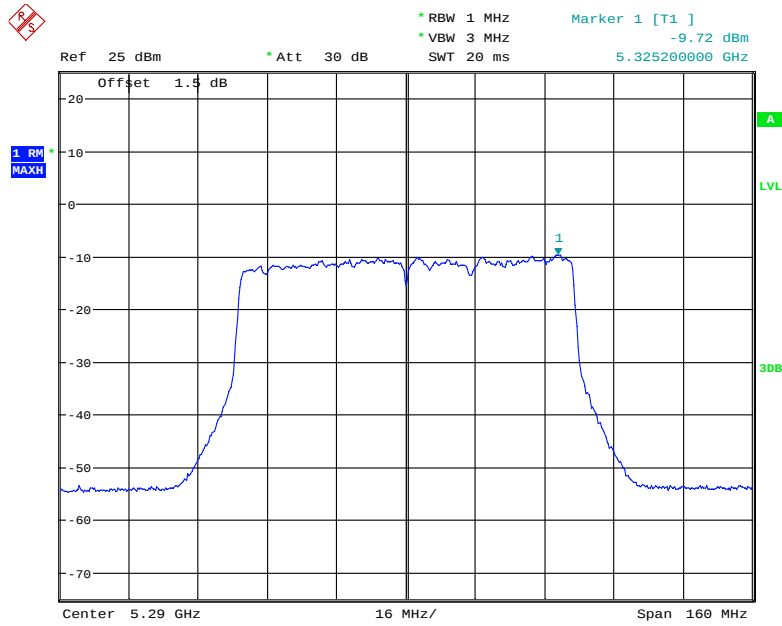
Date: 22.OCT.2020 15:58:18

802.11n ht40 High Channel



Date: 22.OCT.2020 15:59:13

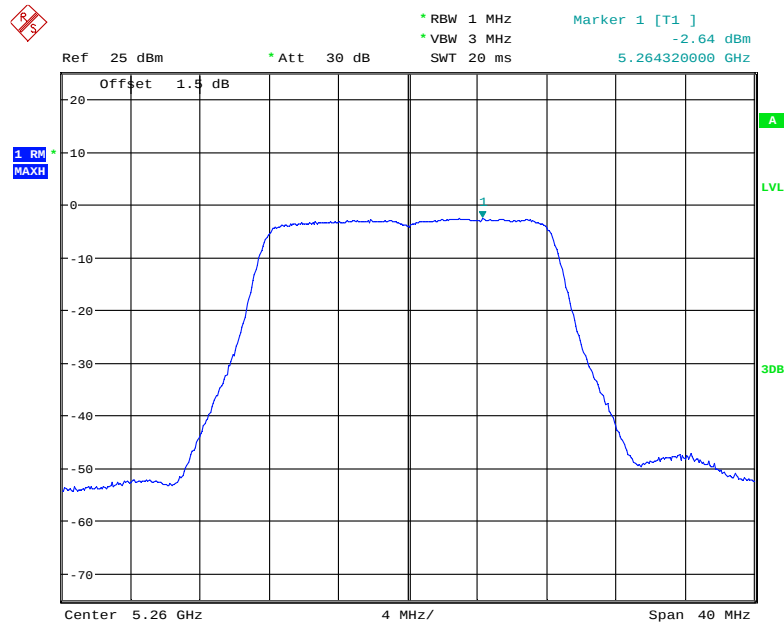
802.11ac vht80 Middle Channel



Date: 22.OCT.2020 16:00:30

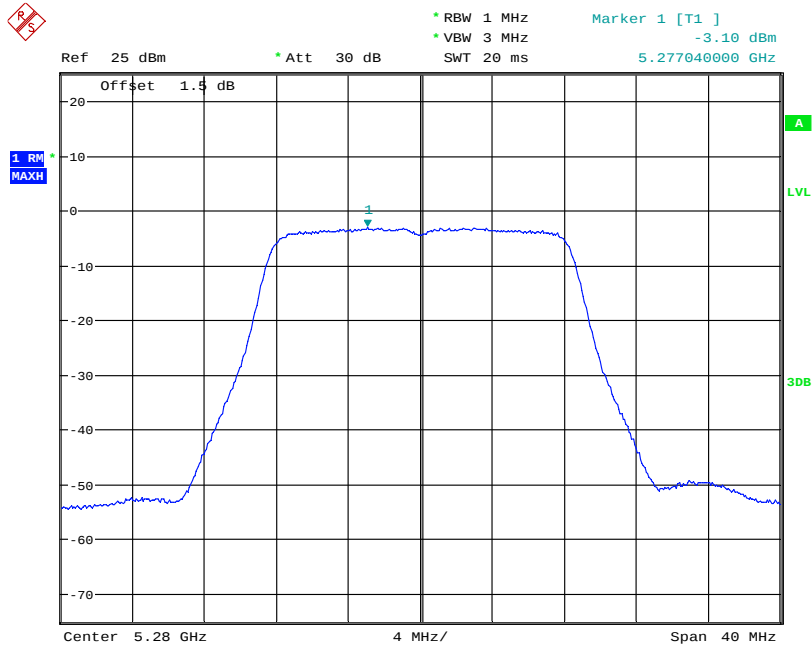
Chain 1:

802.11a Low Channel



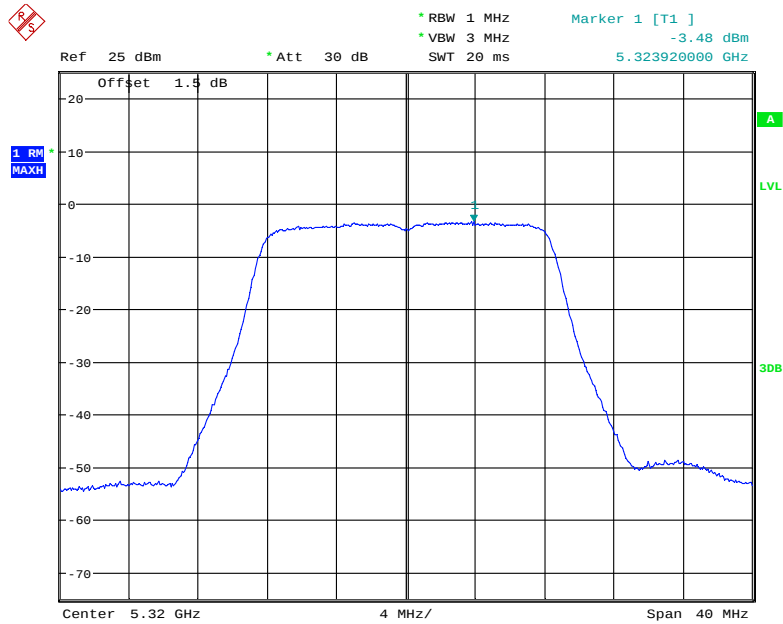
Date: 22.OCT.2020 16:09:25

802.11a Middle Channel



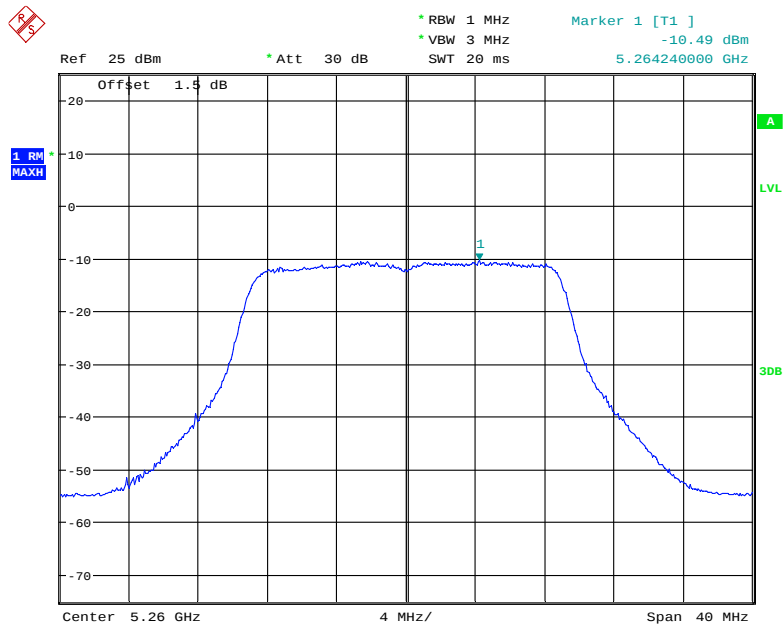
Date: 22.OCT.2020 16:10:10

802.11a High Channel



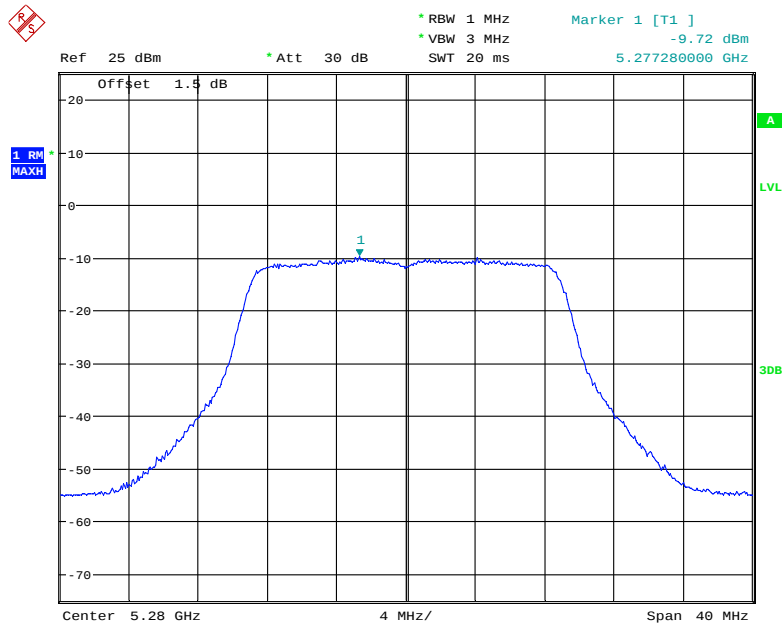
Date: 22.OCT.2020 16:10:34

802.11n ht20 Low Channel



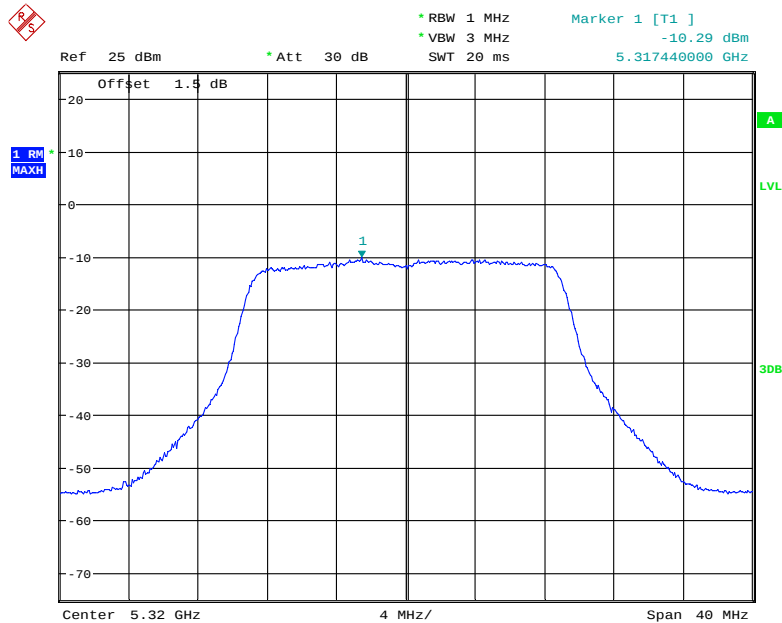
Date: 22.OCT.2020 16:12:37

802.11n ht20 Middle Channel



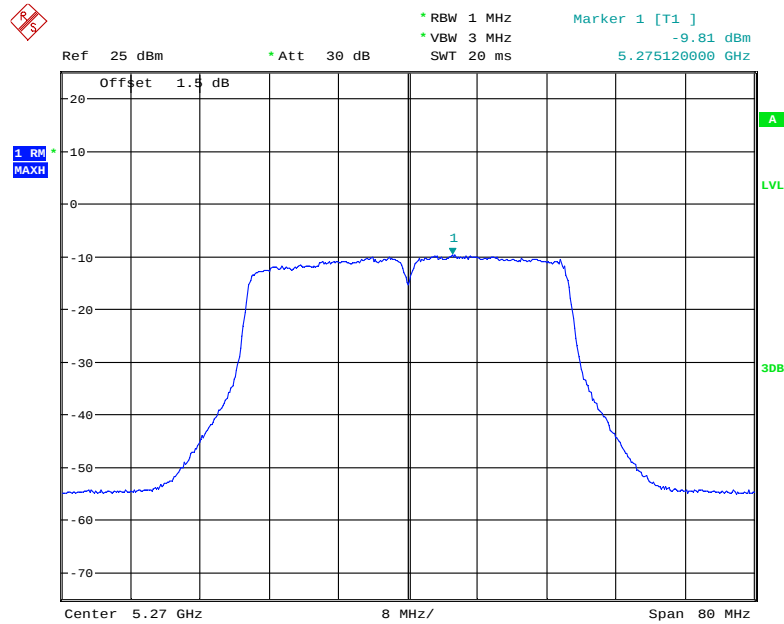
Date: 22.OCT.2020 16:12:02

802.11n ht20 High Channel



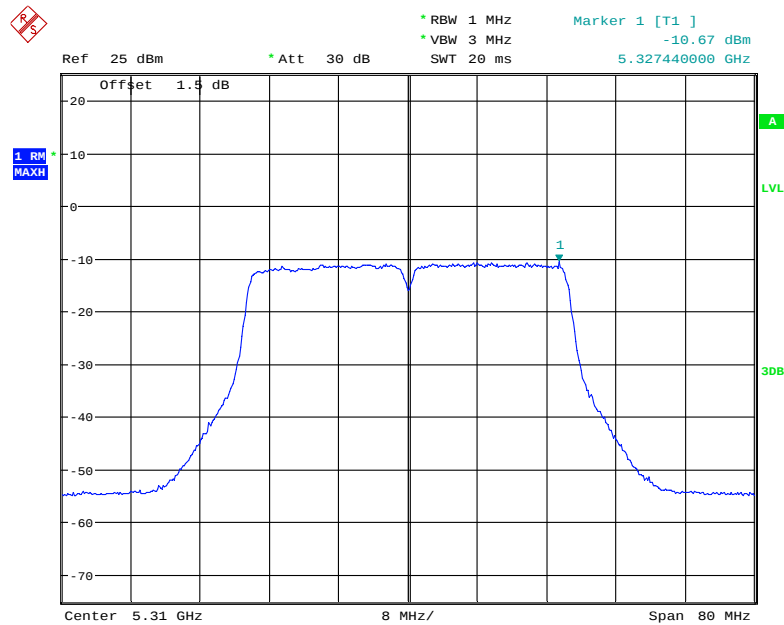
Date: 22.OCT.2020 16:11:20

802.11n ht40 Low Channel



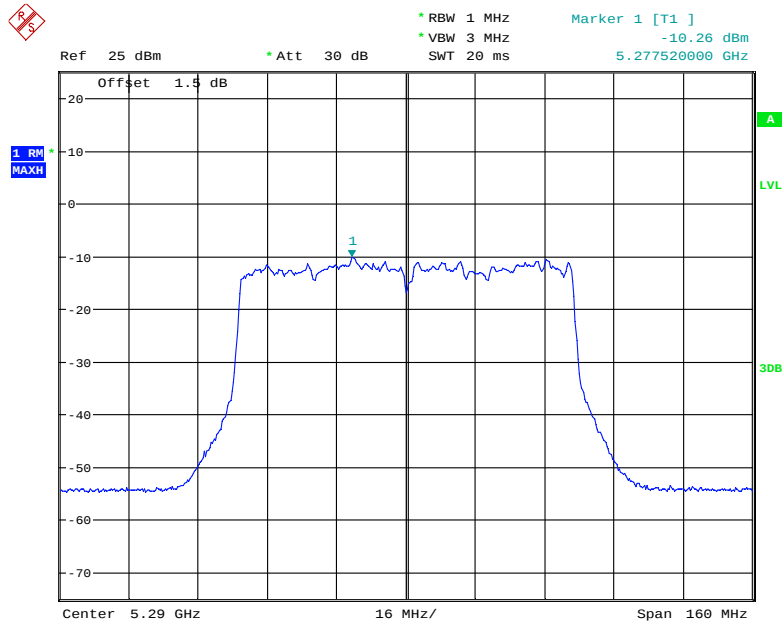
Date: 22.OCT.2020 16:13:25

802.11n ht40 High Channel



Date: 22.OCT.2020 16:13:55

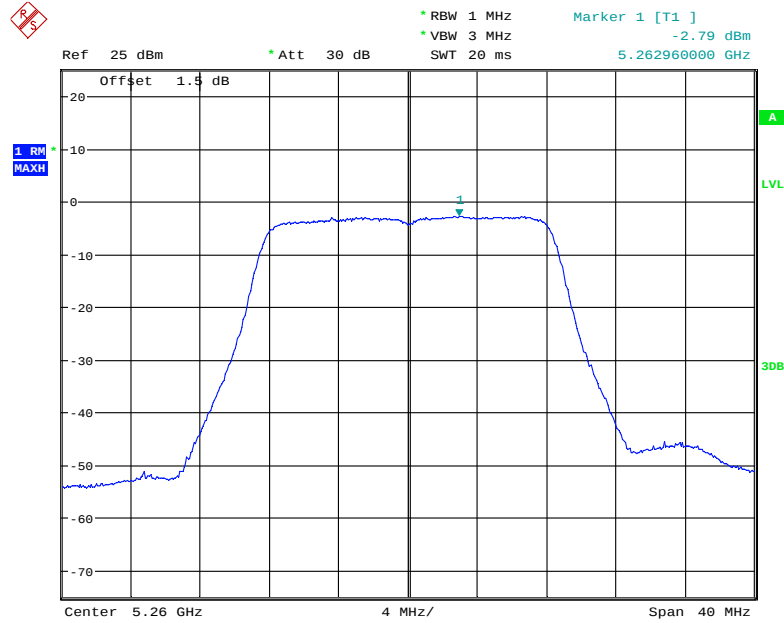
802.11ac vht80 Middle Channel



Date: 22.OCT.2020 16:14:36

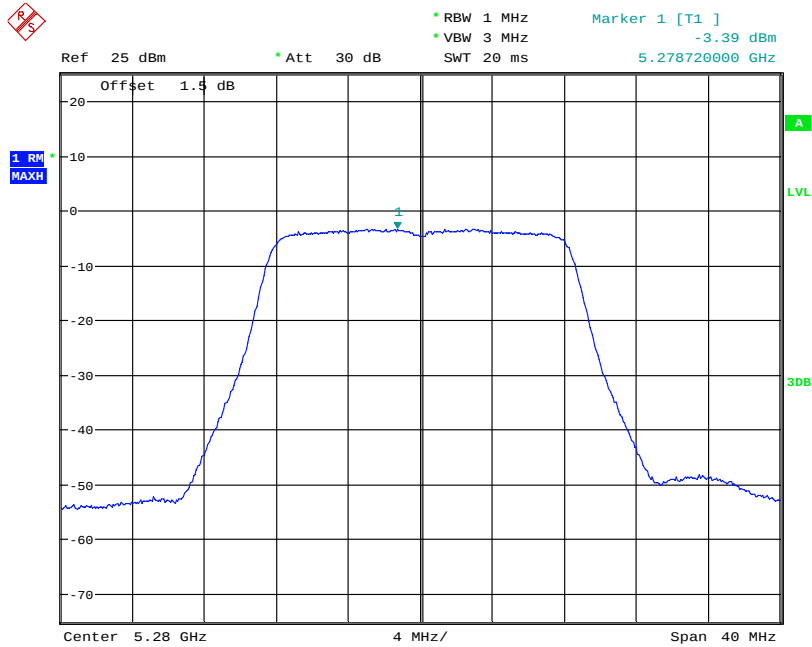
Chain 2:

802.11a Low Channel



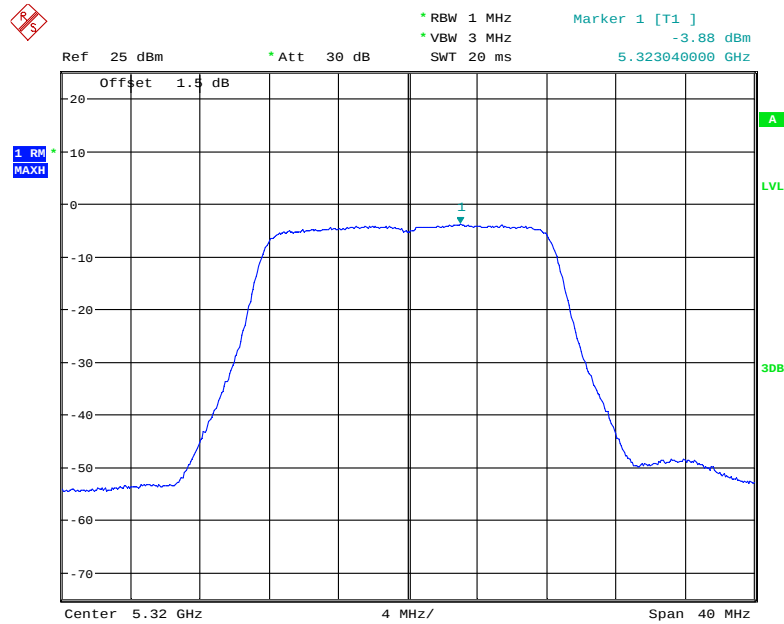
Date: 22.OCT.2020 16:06:34

802.11a Middle Channel



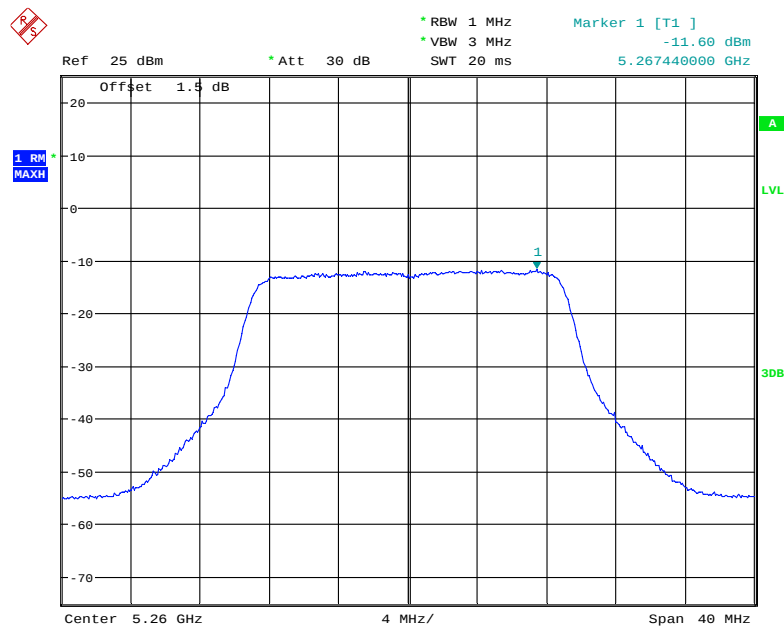
Date: 22.OCT.2020 16:07:27

802.11a High Channel



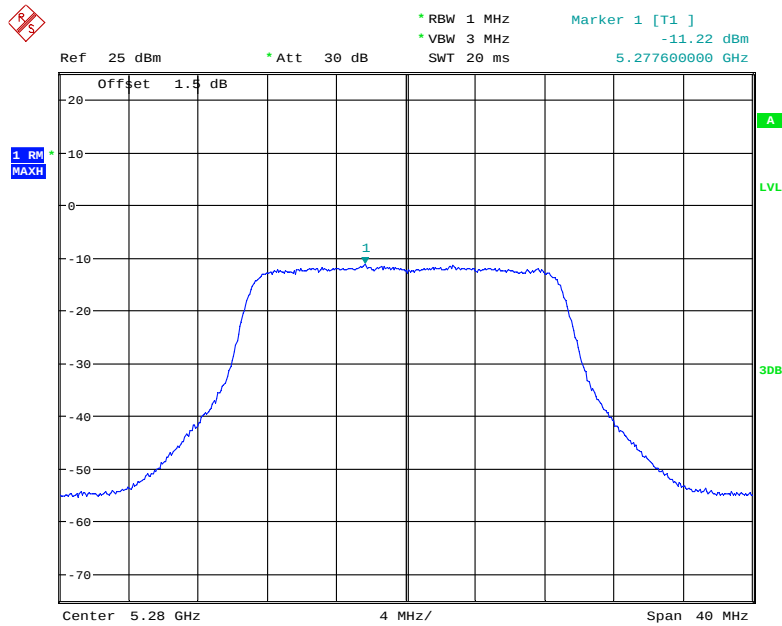
Date: 22.OCT.2020 16:07:51

802.11n ht20 Low Channel



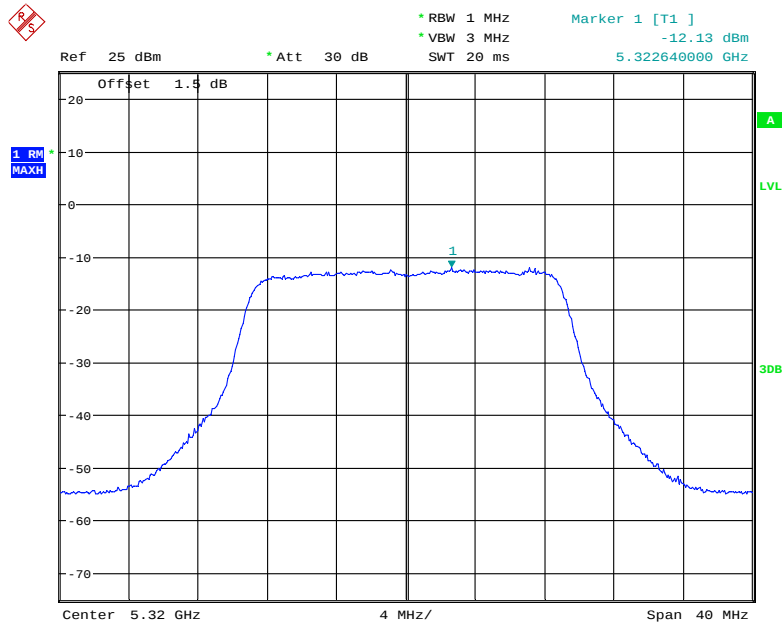
Date: 22.OCT.2020 16:05:12

802.11n ht20 Middle Channel



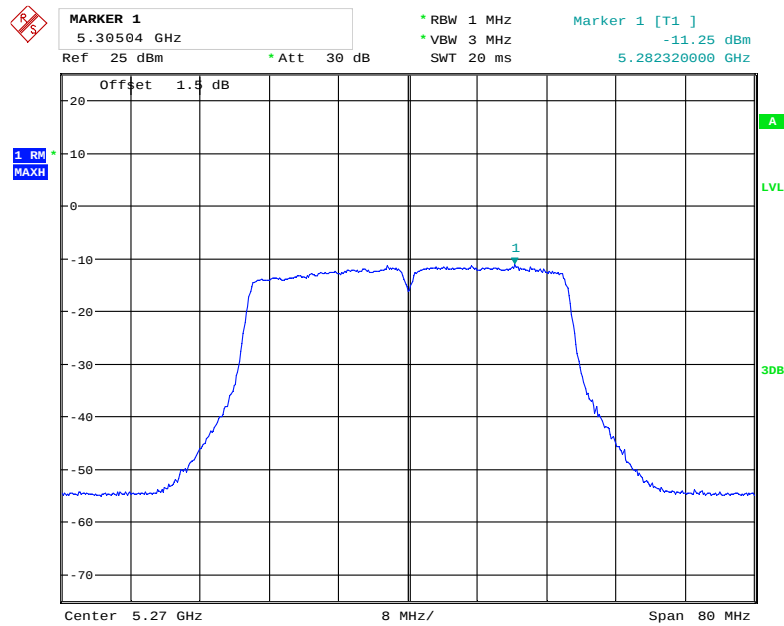
Date: 22.OCT.2020 16:04:47

802.11n ht20 High Channel



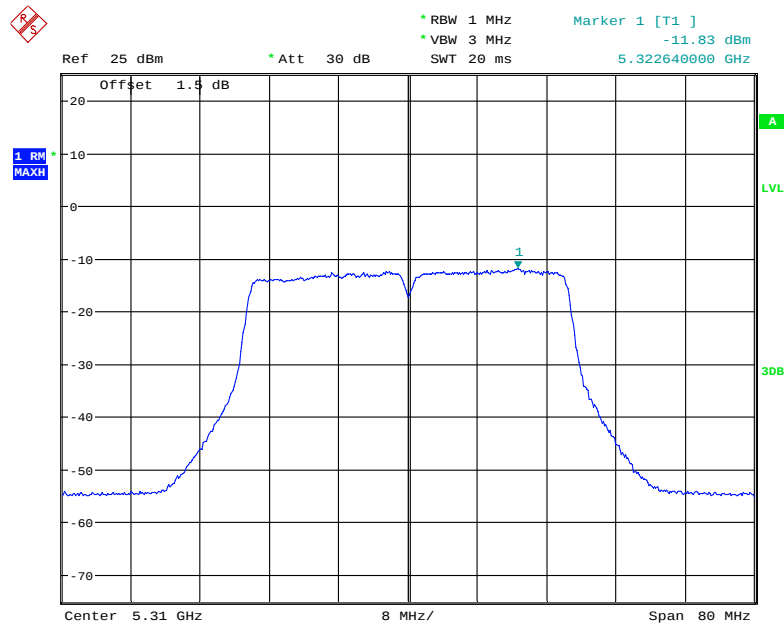
Date: 22.OCT.2020 16:04:07

802.11n ht40 Low Channel



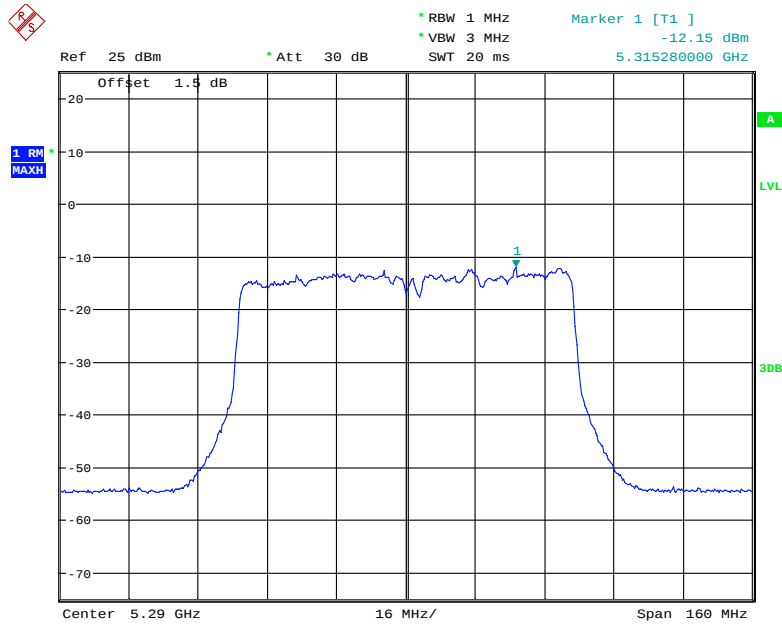
Date: 22.OCT.2020 16:02:54

802.11n ht40 High Channel



Date: 22.OCT.2020 16:03:25

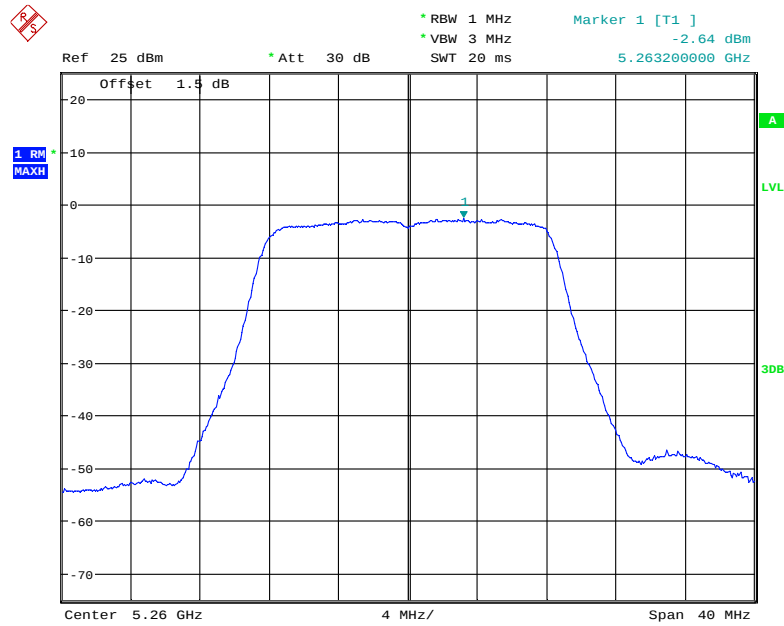
802.11ac vht80 Middle Channel



Date: 22.OCT.2020 16:01:16

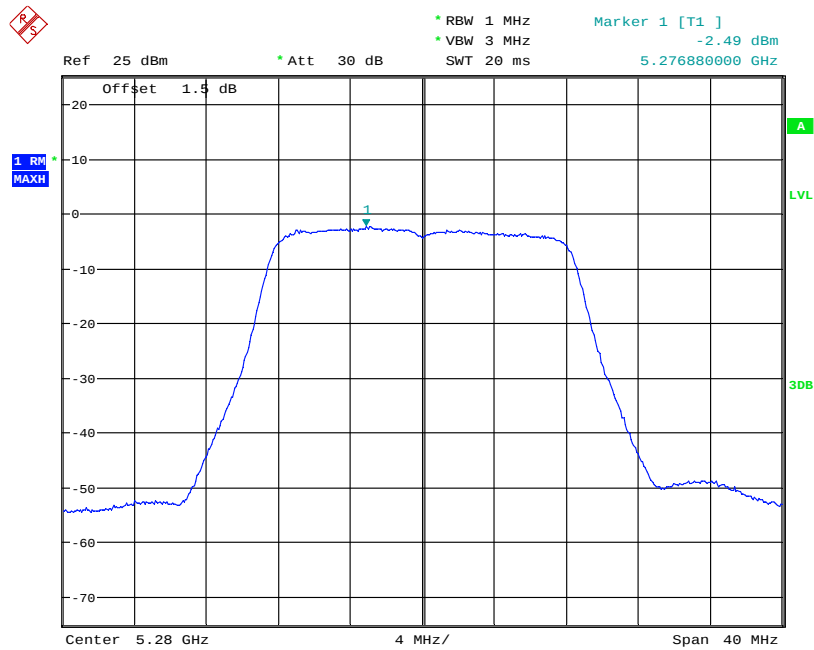
Chain 3:

802.11a Low Channel



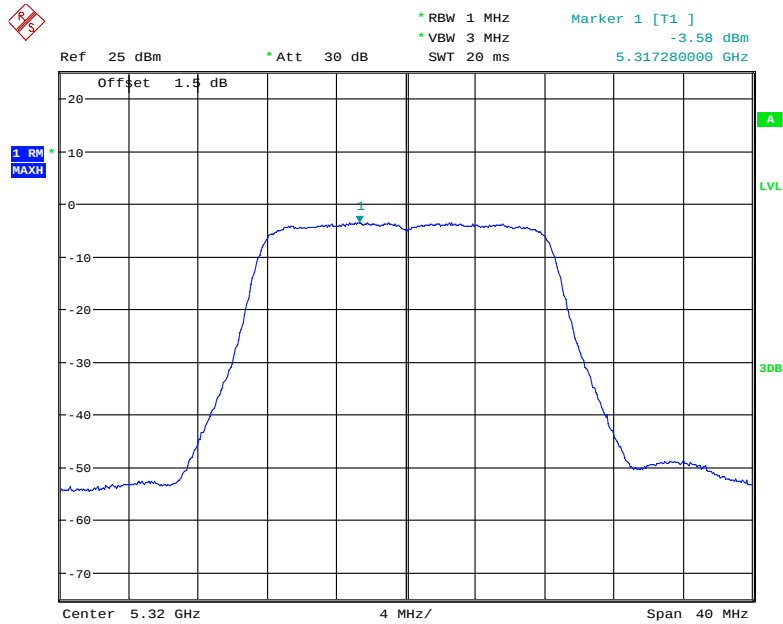
Date: 22.OCT.2020 16:20:53

802.11a Middle Channel



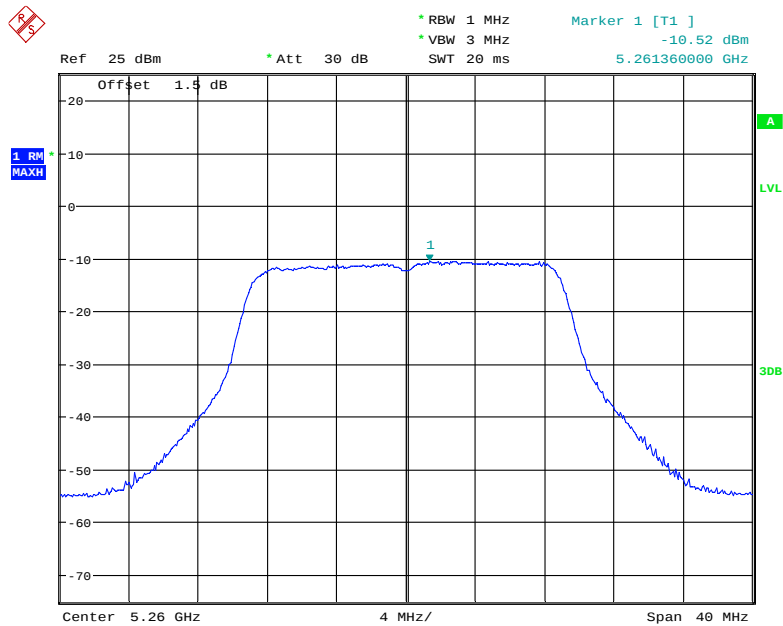
Date: 22.OCT.2020 16:21:24

802.11a High Channel



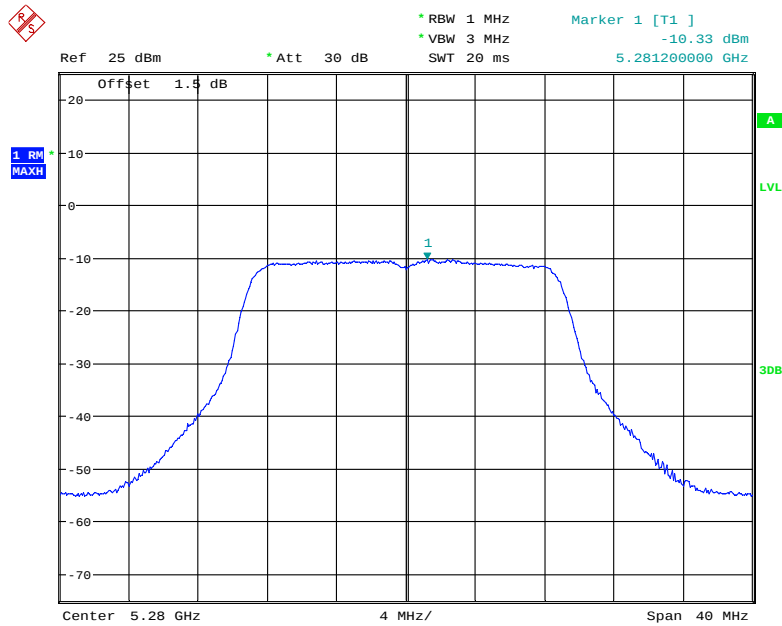
Date: 22.OCT.2020 16:21:56

802.11n ht20 Low Channel



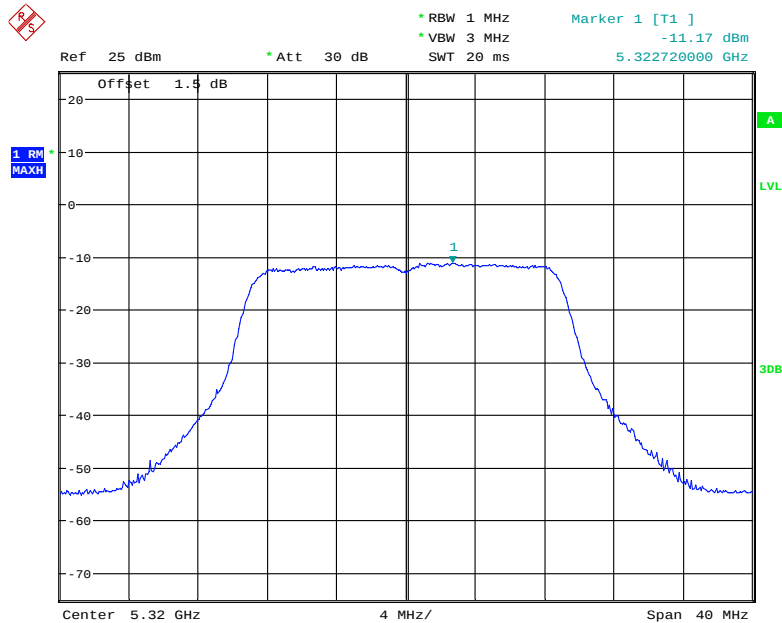
Date: 22.OCT.2020 16:17:48

802.11n ht20 Middle Channel



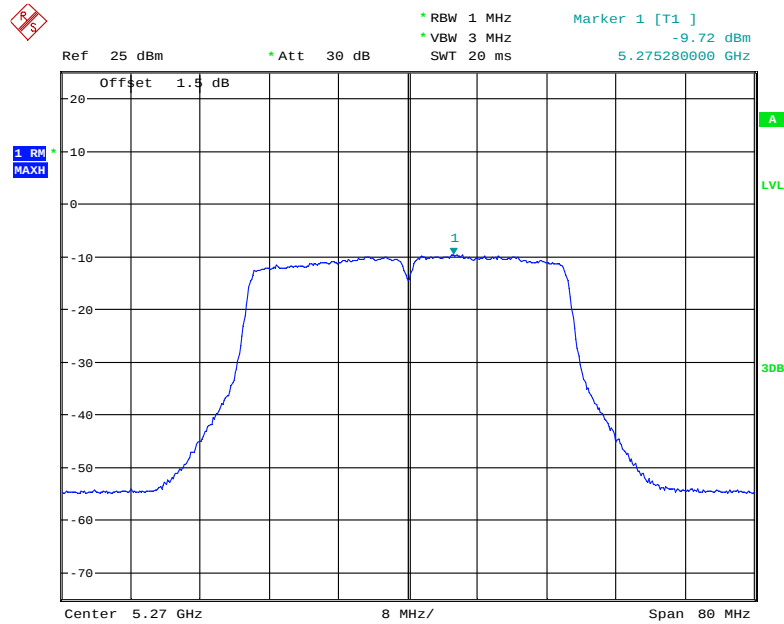
Date: 22.OCT.2020 16:18:18

802.11n ht20 High Channel



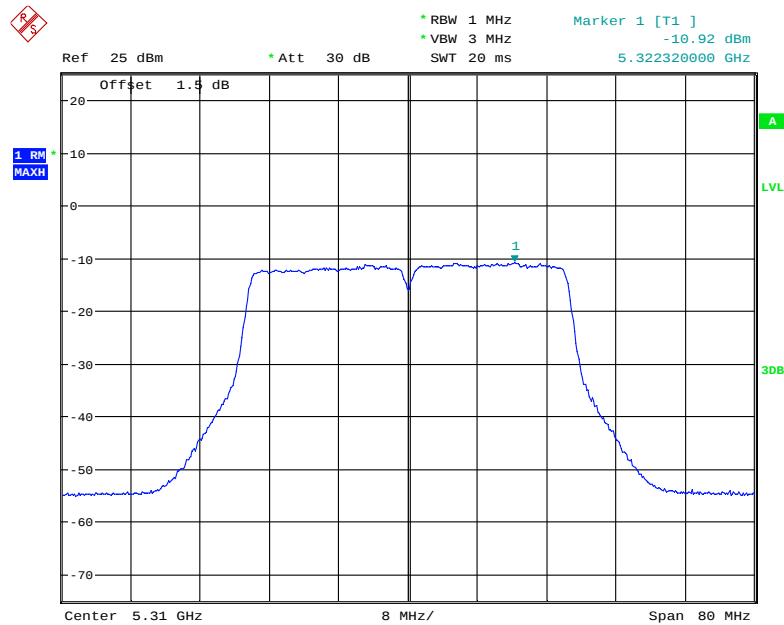
Date: 22.OCT.2020 16:18:42

802.11n ht40 Low Channel



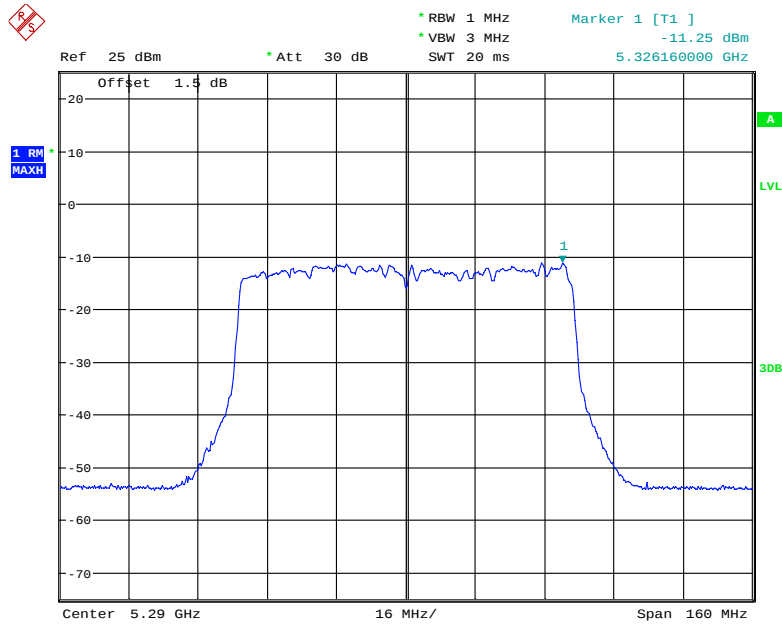
Date: 22.OCT.2020 16:16:24

802.11n ht40 High Channel



Date: 22.OCT.2020 16:16:51

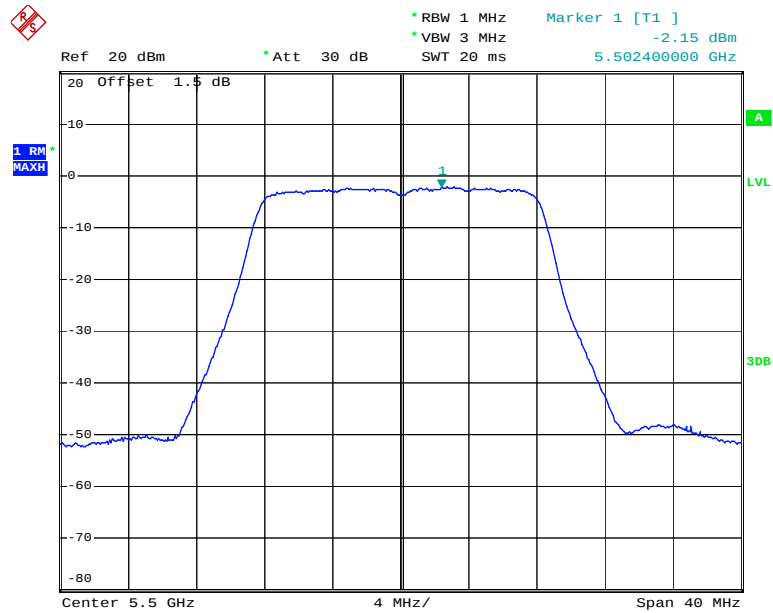
802.11ac vht80 Middle Channel



Date: 22.OCT.2020 16:15:39

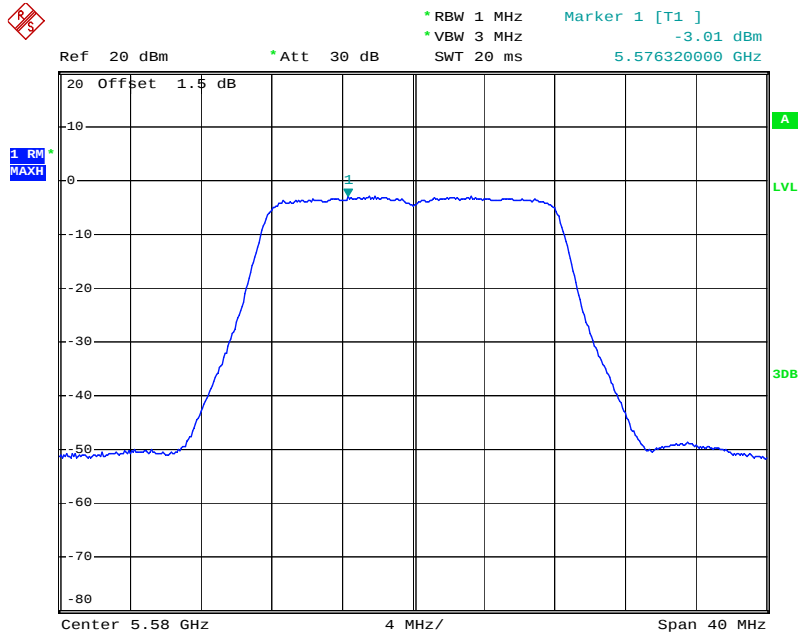
5470-5725MH, Chain 0:

802.11a Low Channel



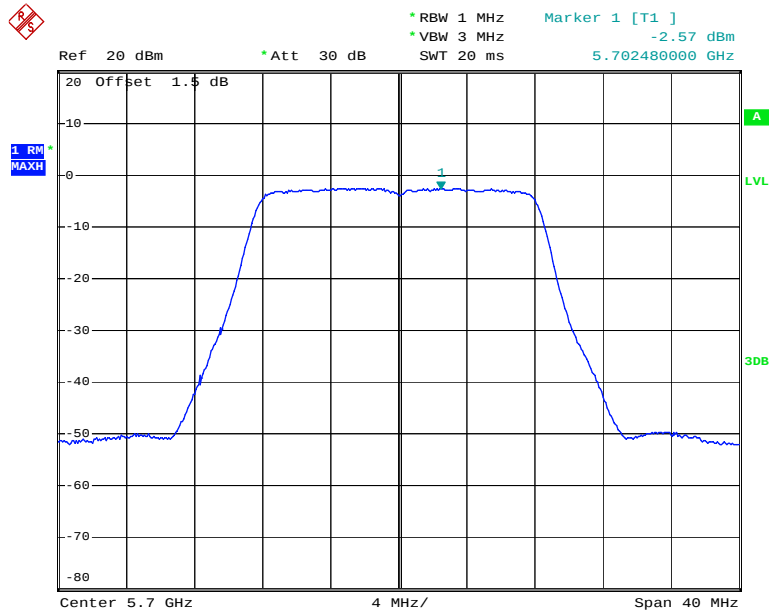
Date: 23.OCT.2020 15:55:50

802.11a Middle Channel



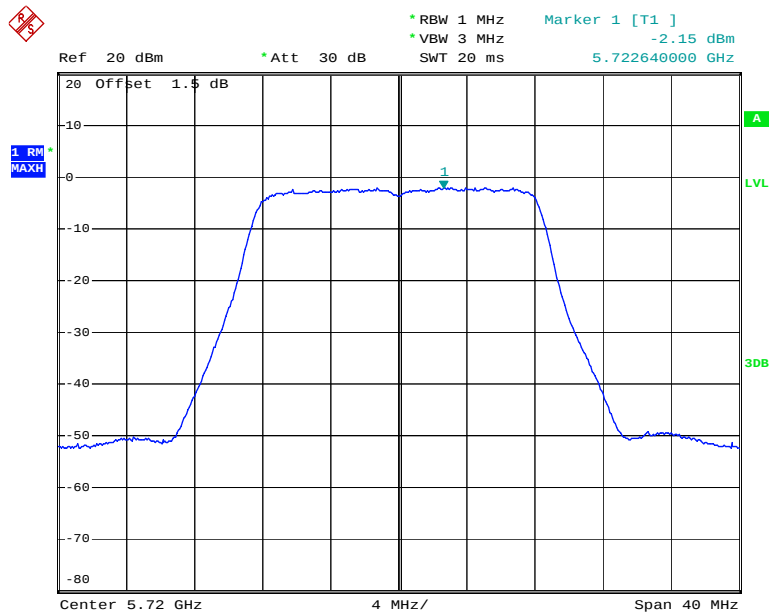
Date: 23.OCT.2020 15:57:35

802.11a High Channel



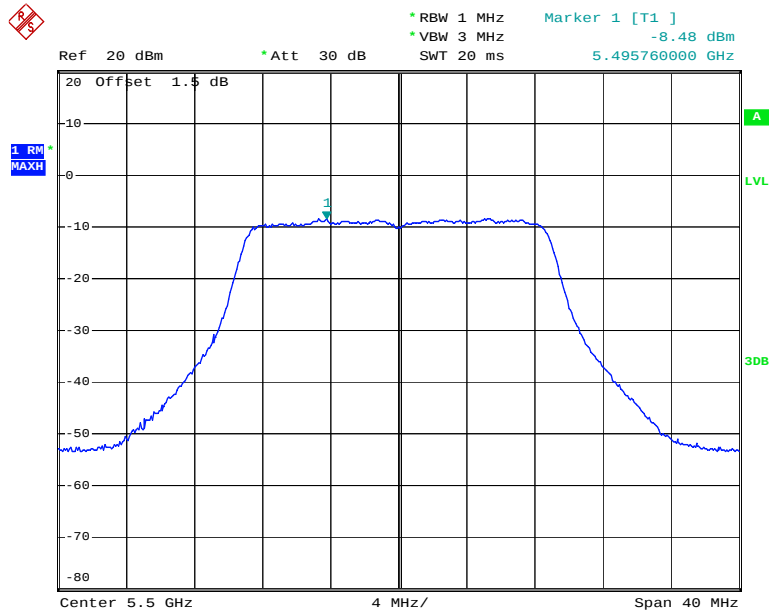
Date: 23.OCT.2020 15:59:39

802.11 a High Channel 5720MHz



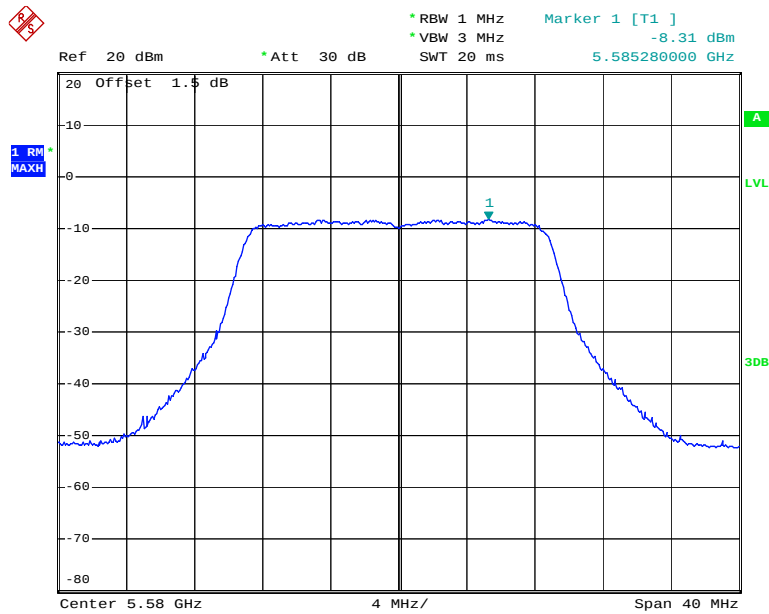
Date: 23.OCT.2020 16:49:27

802.11n ht20 Low Channel



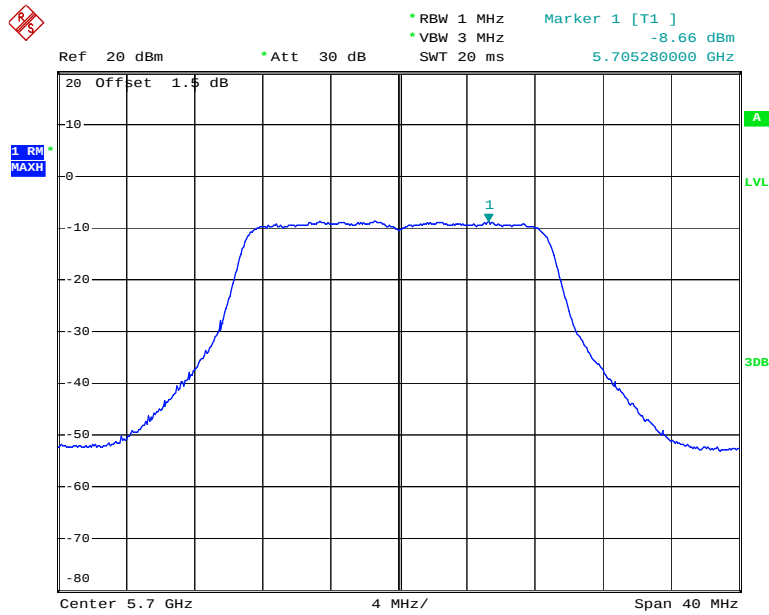
Date: 23.OCT.2020 16:13:07

802.11n ht20 Middle Channel



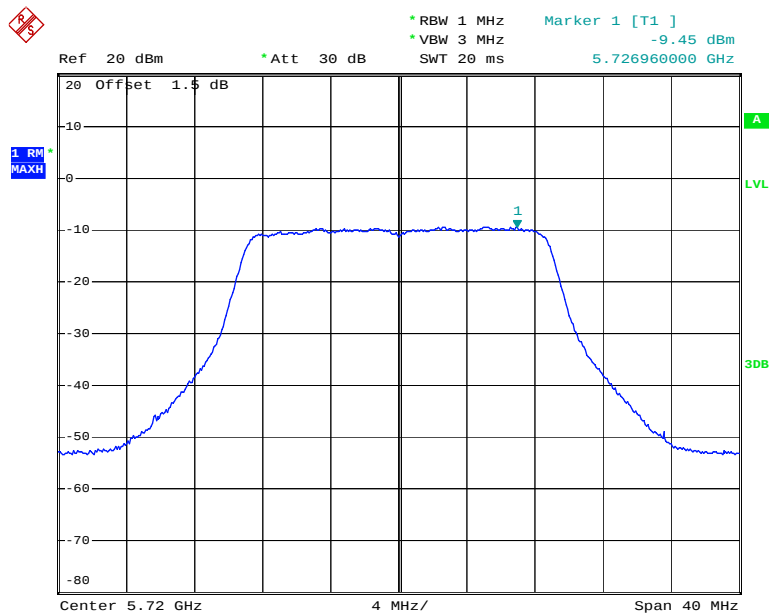
Date: 23.OCT.2020 16:13:59

802.11n ht20 High Channel



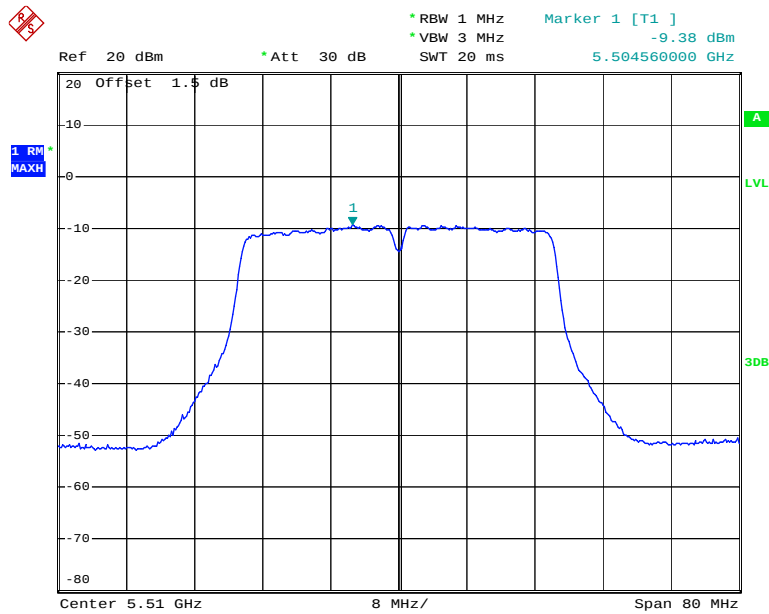
Date: 23.OCT.2020 16:08:22

802.11n ht20 High Channel 5720 MHz



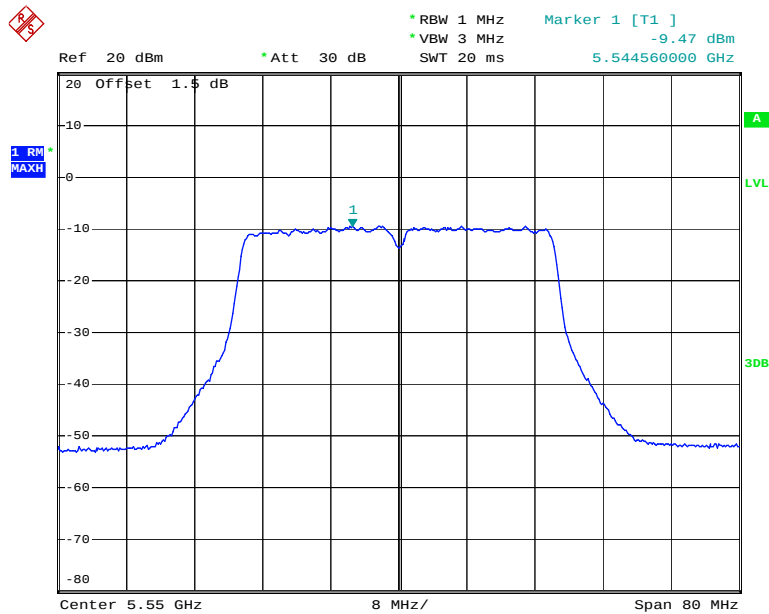
Date: 23.OCT.2020 16:48:17

802.11n ht40 Low Channel



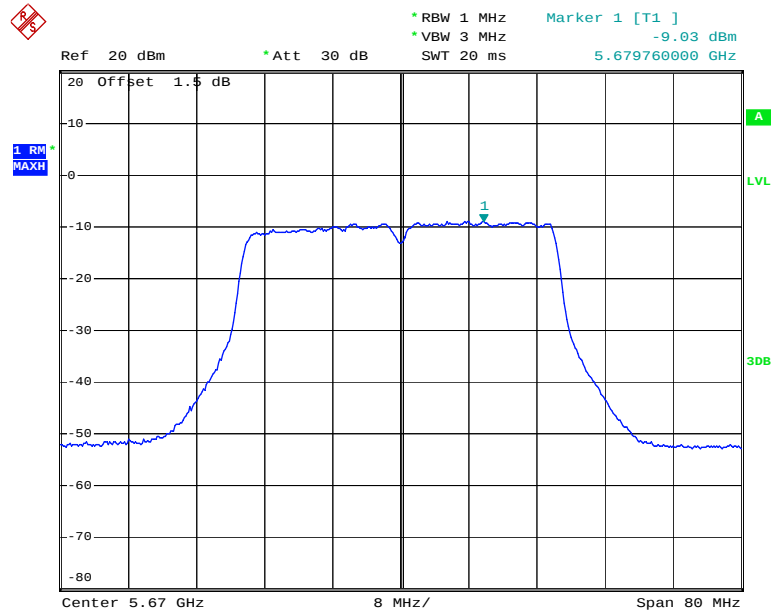
Date: 23.OCT.2020 16:16:30

802.11n ht40 Middle Channel



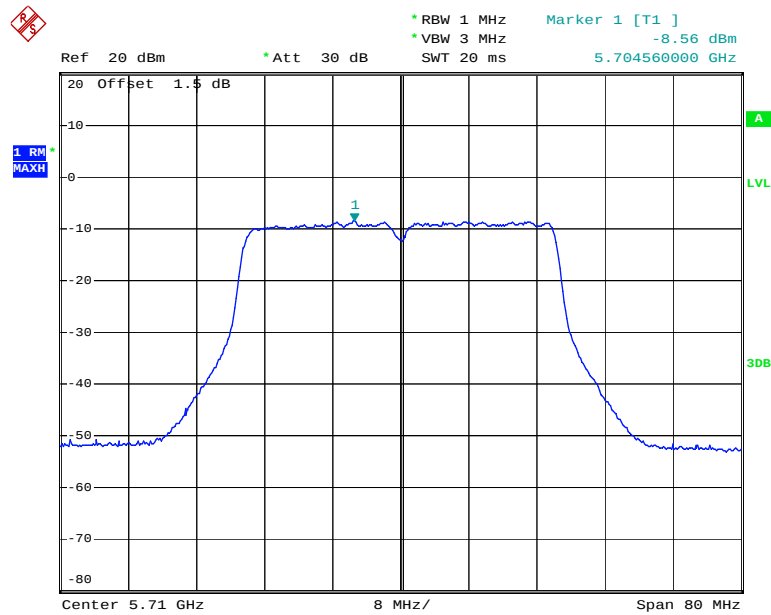
Date: 23.OCT.2020 16:18:31

802.11n ht40 High Channel



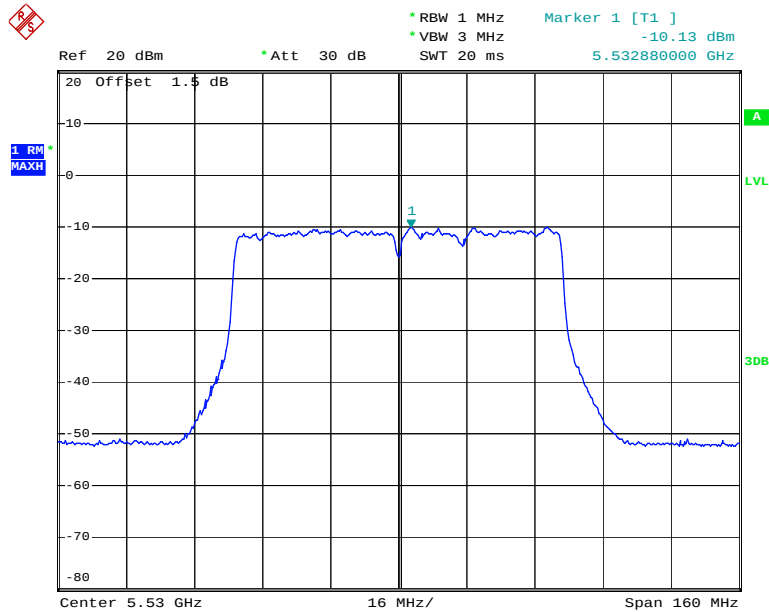
Date: 23.OCT.2020 16:21:06

802.11n ht40 High Channel 5710MHz



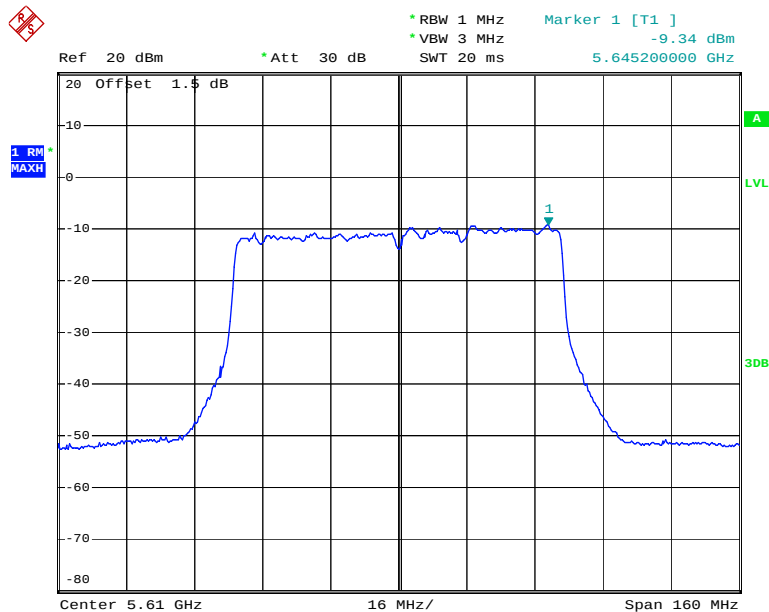
Date: 23.OCT.2020 16:43:11

802.11ac vht80 Low Channel



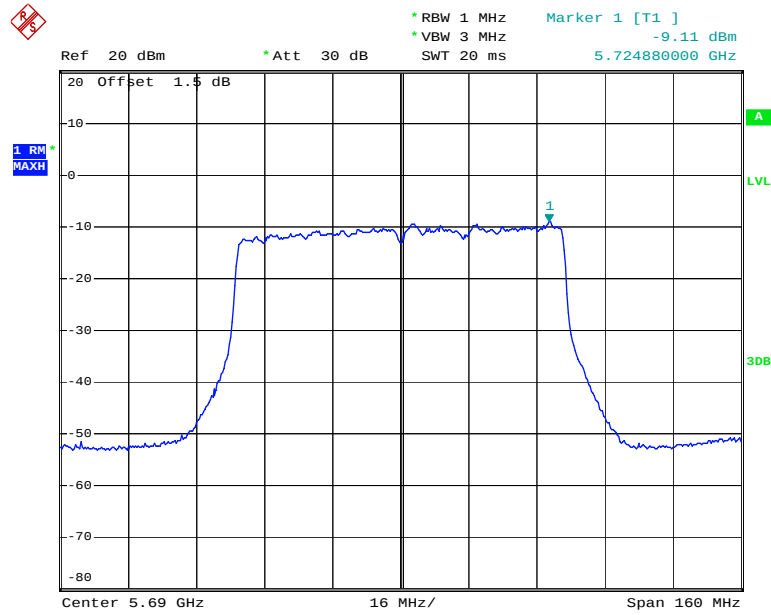
Date: 23.OCT.2020 16:24:26

802.11ac vht80 High Channel 5610MHz



Date: 23.OCT.2020 16:39:57

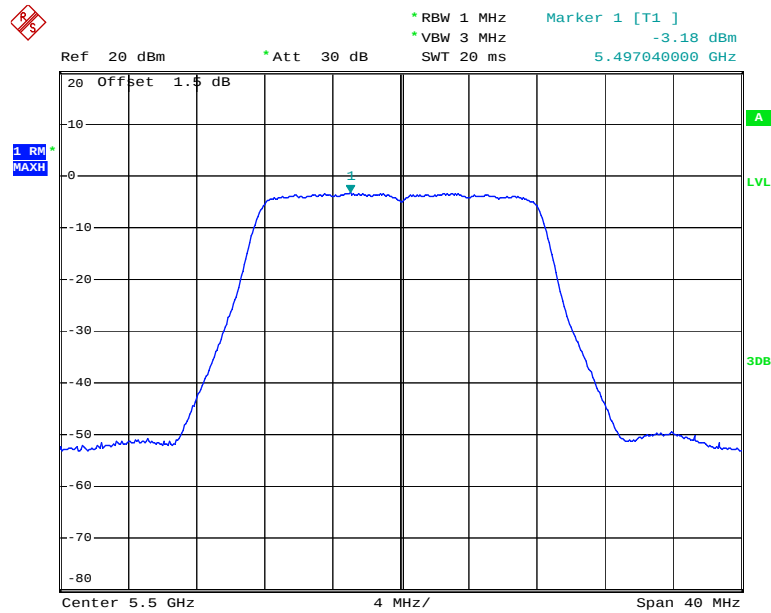
802.11ac vht80 High Channel



Date: 23.OCT.2020 16:25:42

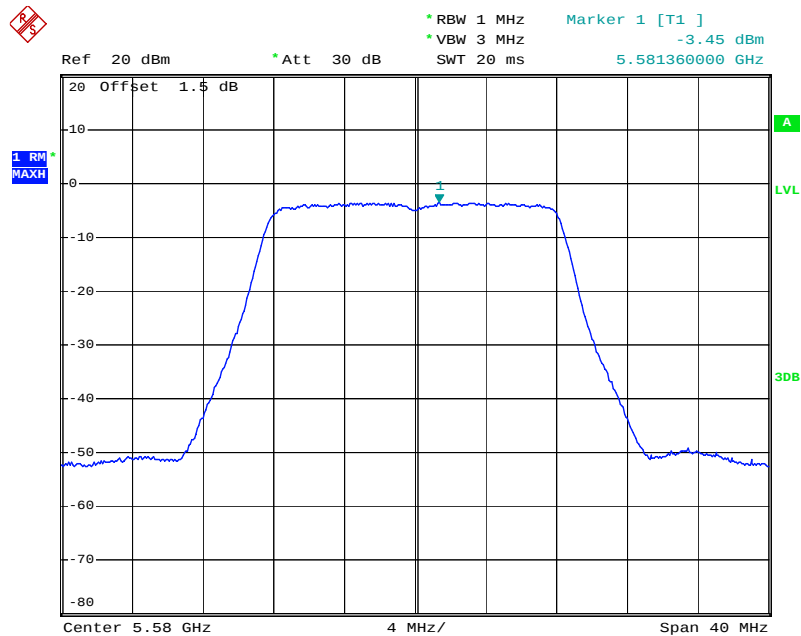
Chain 1:

802.11a Low Channel



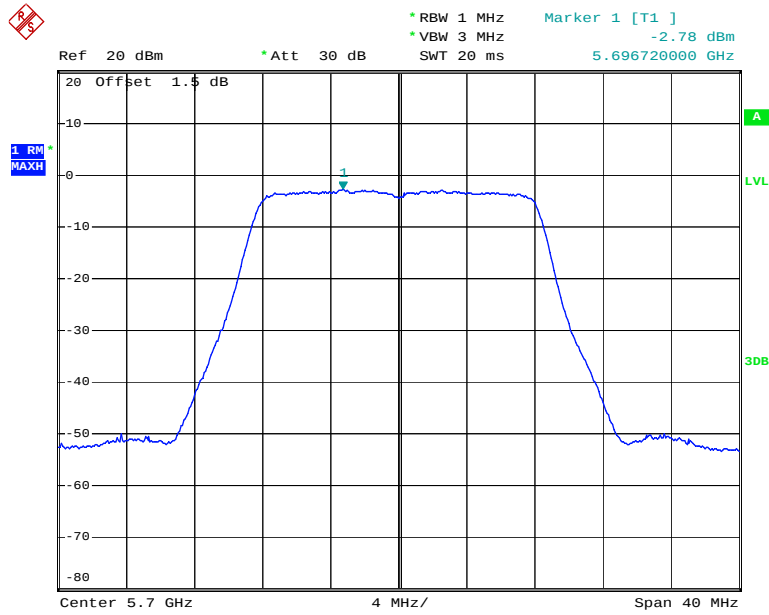
Date: 24.OCT.2020 11:51:26

802.11a Middle Channel



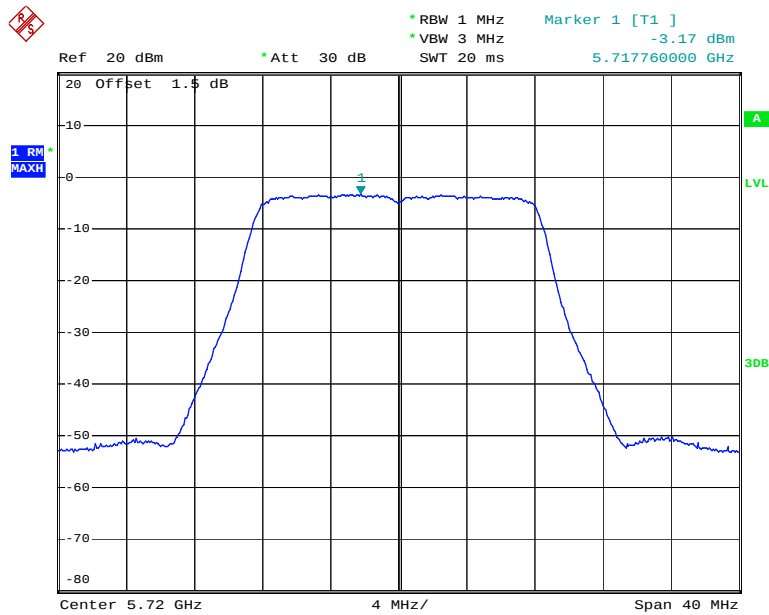
Date: 24.OCT.2020 11:51:00

802.11a High Channel



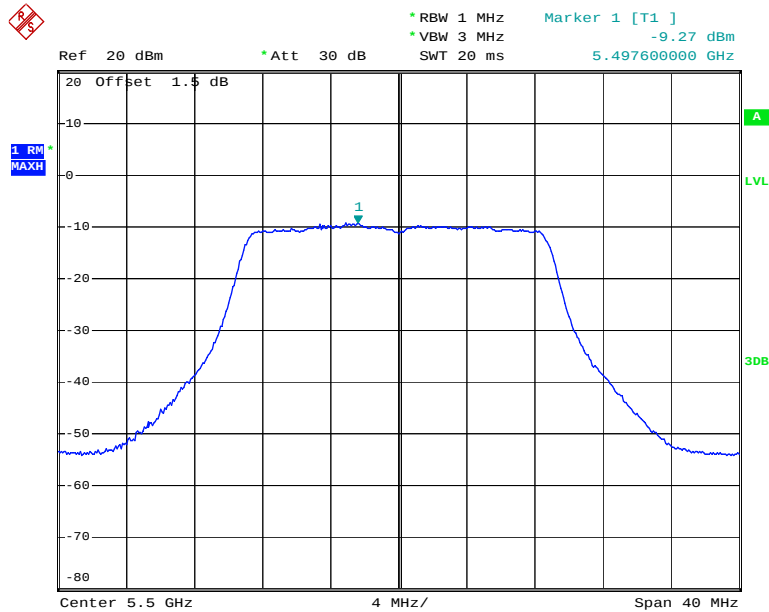
Date: 24.OCT.2020 11:50:34

802.11 a High Channel 5720MHz



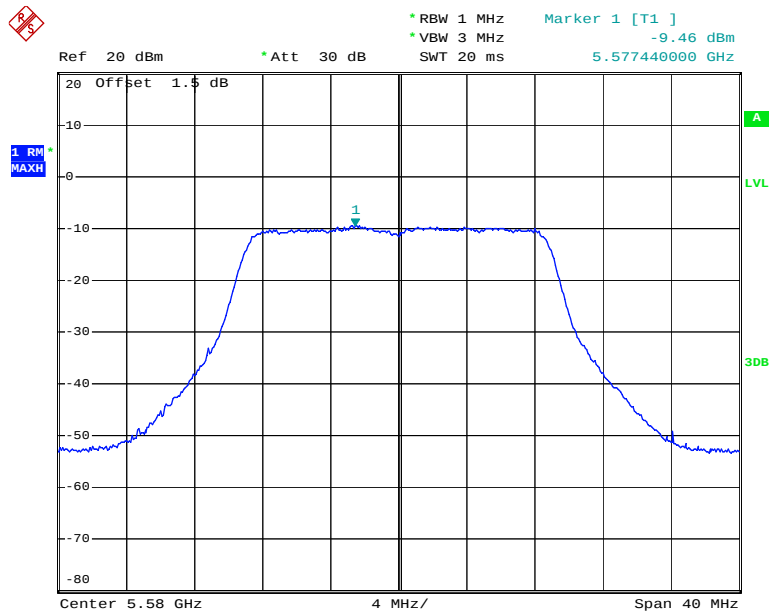
Date: 24.OCT.2020 11:49:47

802.11n ht20 Low Channel



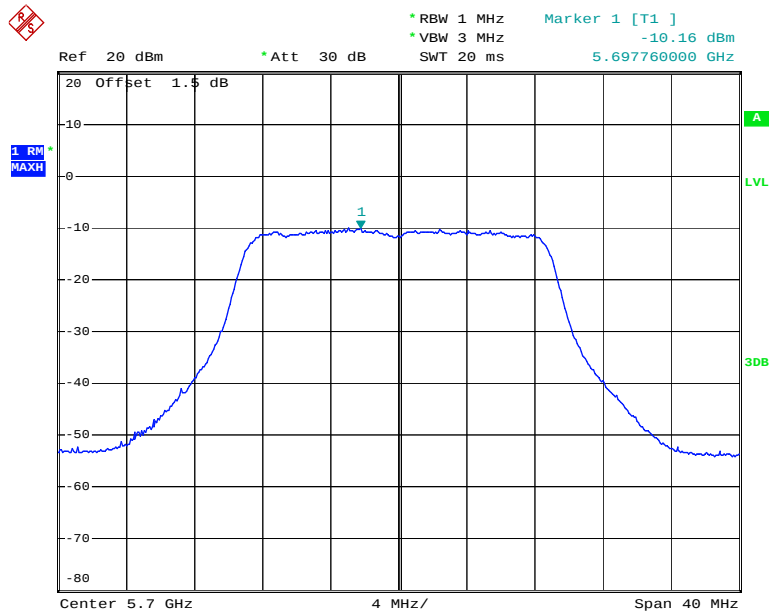
Date: 24.OCT.2020 11:44:51

802.11n ht20 Middle Channel



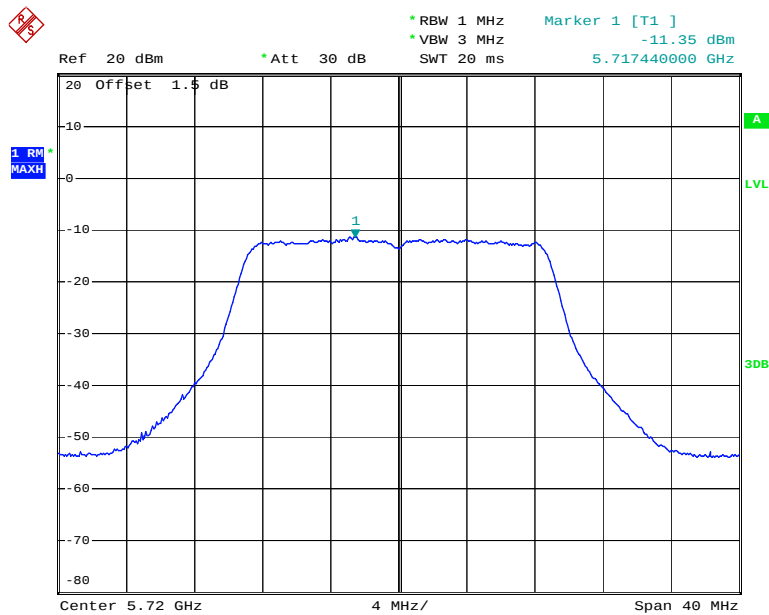
Date: 24.OCT.2020 11:45:28

802.11n ht20 High Channel



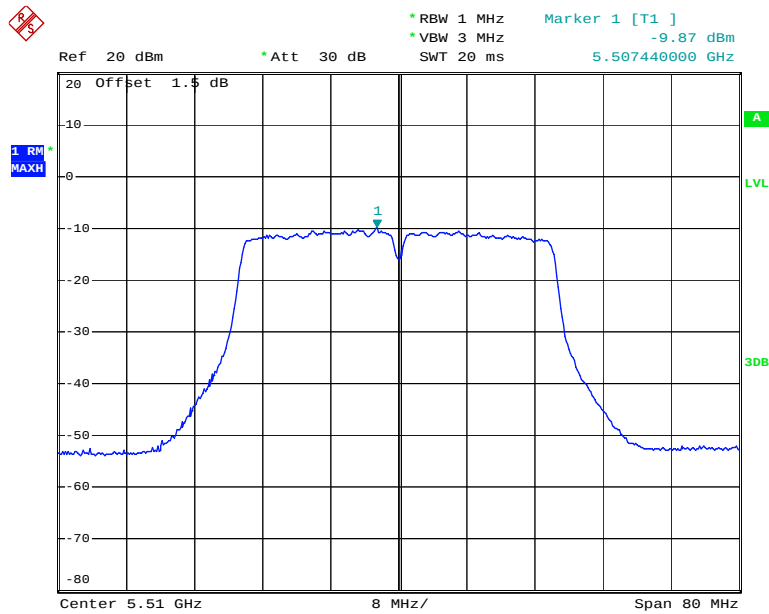
Date: 24.OCT.2020 11:45:54

802.11n ht20 High Channel 5720 MHz



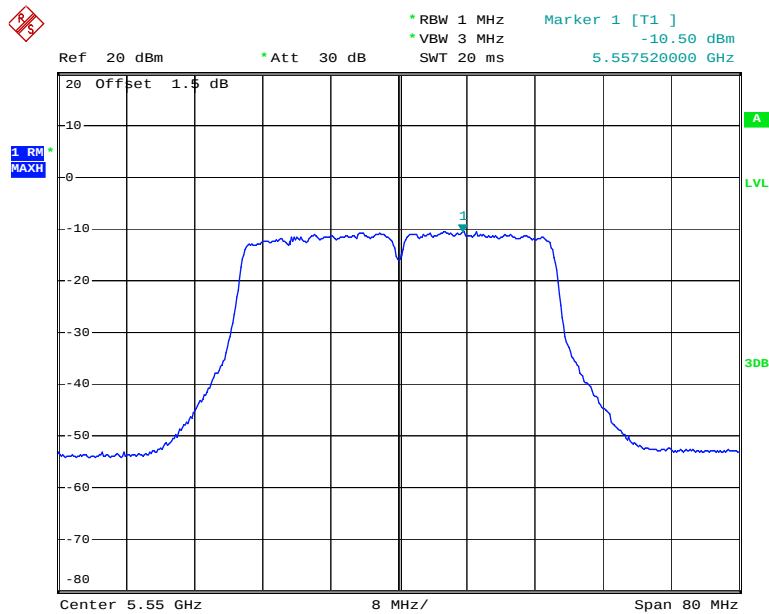
Date: 24.OCT.2020 11:46:32

802.11n ht40 Low Channel



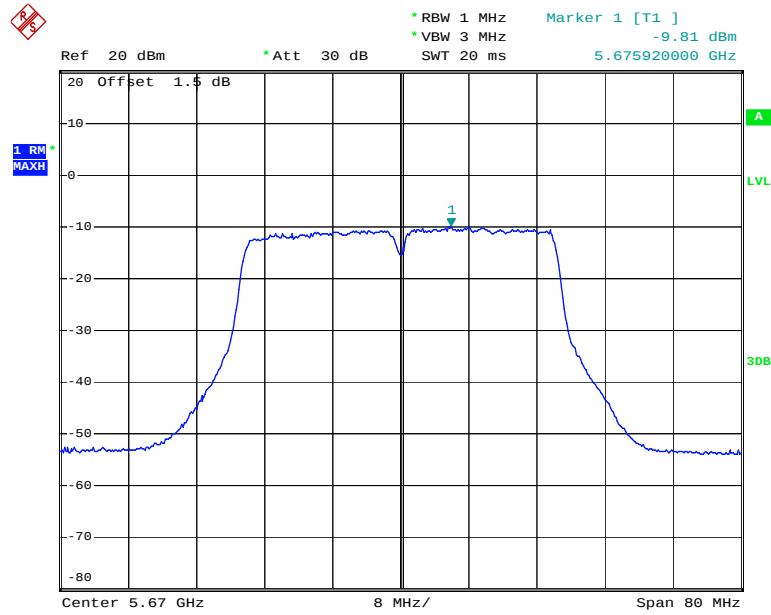
Date: 24.OCT.2020 11:41:41

802.11n ht40 Middle Channel



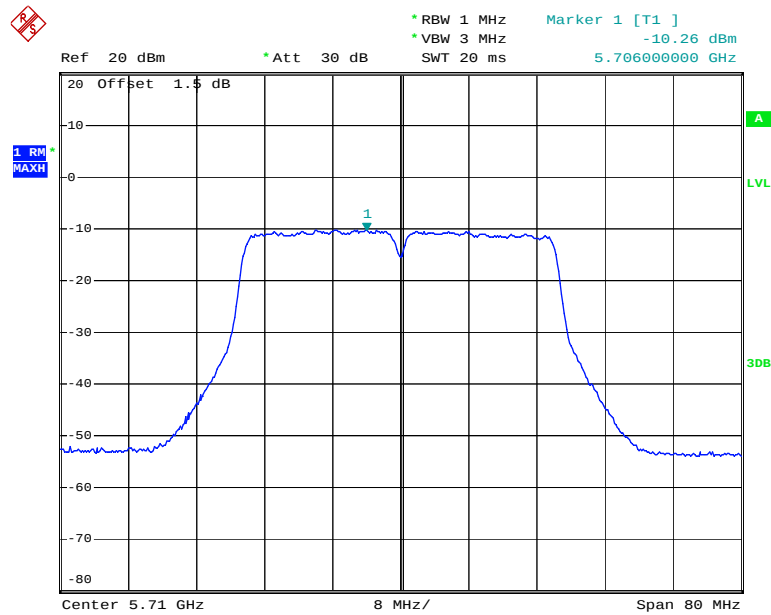
Date: 24.OCT.2020 11:42:04

802.11n ht40 High Channel



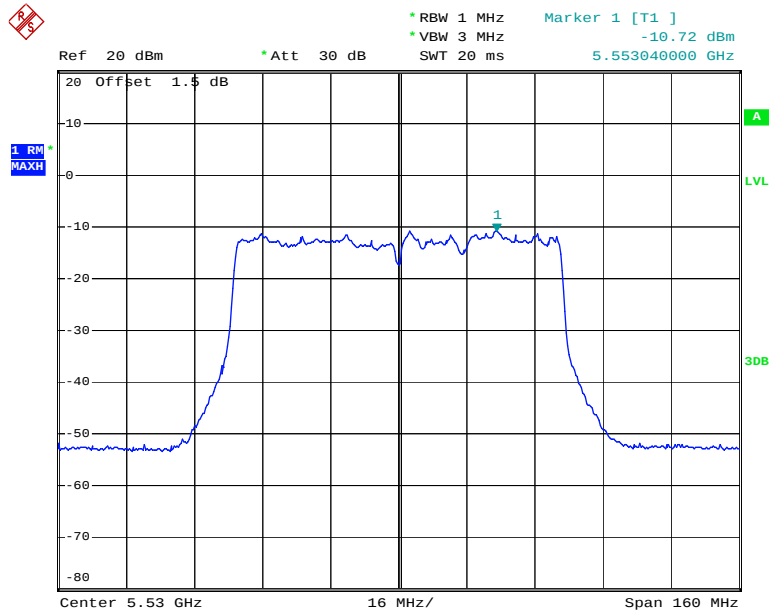
Date: 24.OCT.2020 11:42:33

802.11n ht40 High Channel 5710MHz



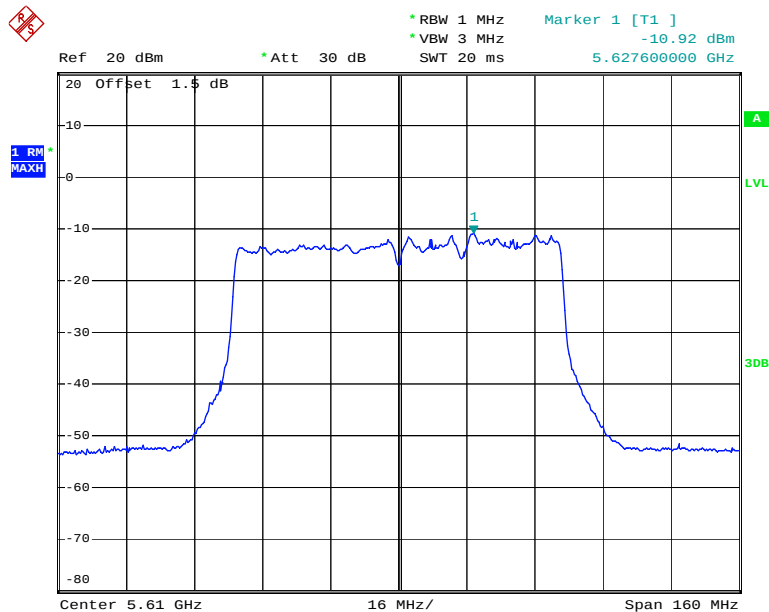
Date: 24.OCT.2020 11:43:10

802.11ac vht80 Low Channel



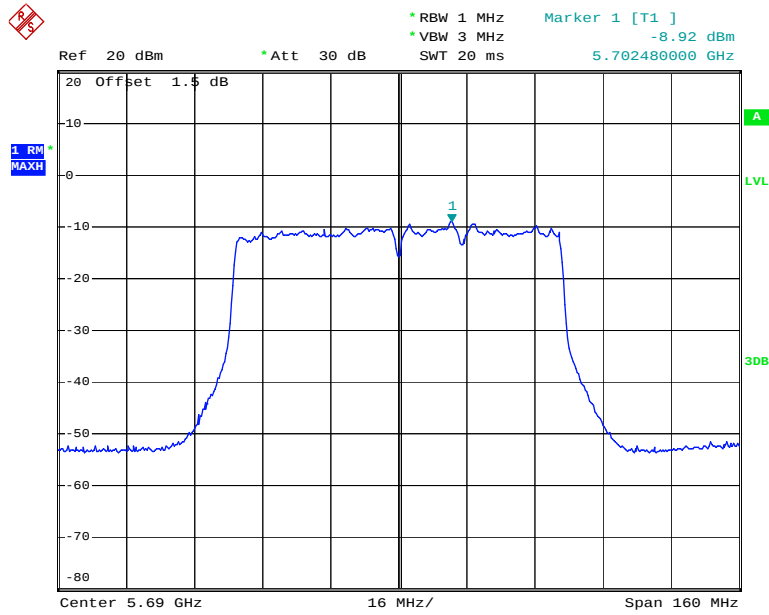
Date: 24.OCT.2020 11:40:49

802.11ac vht80 High Channel 5610MHz



Date: 24.OCT.2020 11:39:32

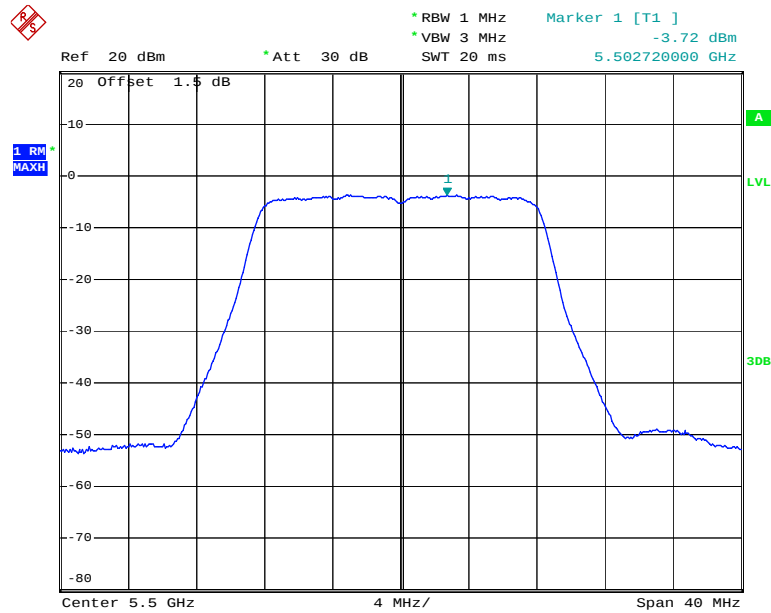
802.11ac vht80 High Channel



Date: 24.OCT.2020 11:40:04

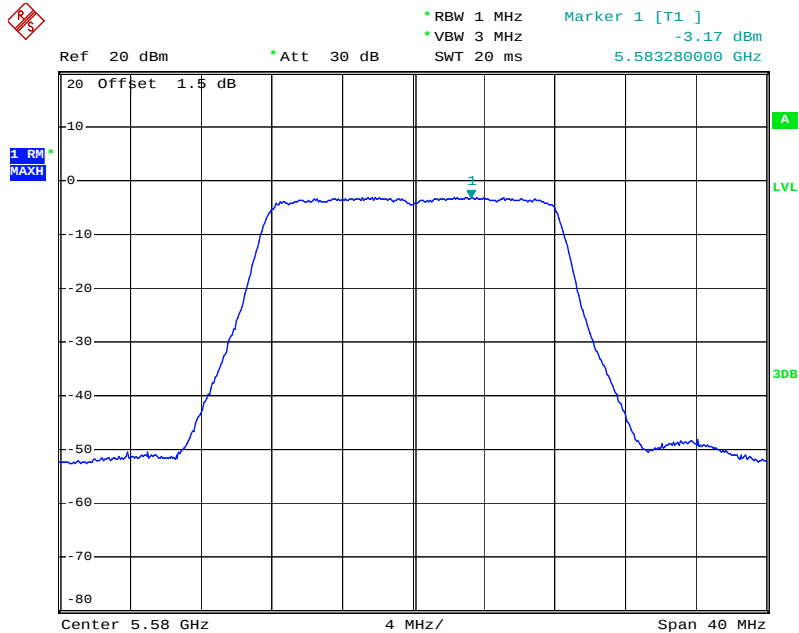
Chain 2:

802.11a Low Channel



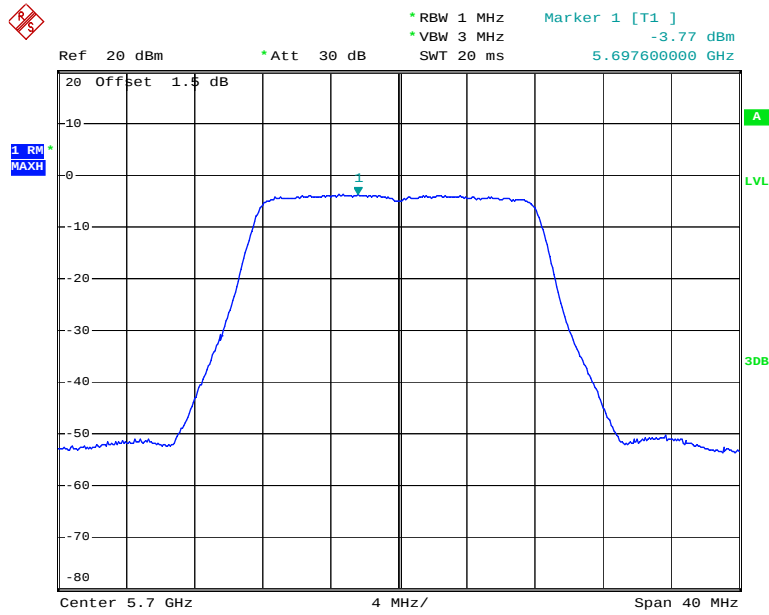
Date: 24.OCT.2020 11:53:37

802.11a Middle Channel



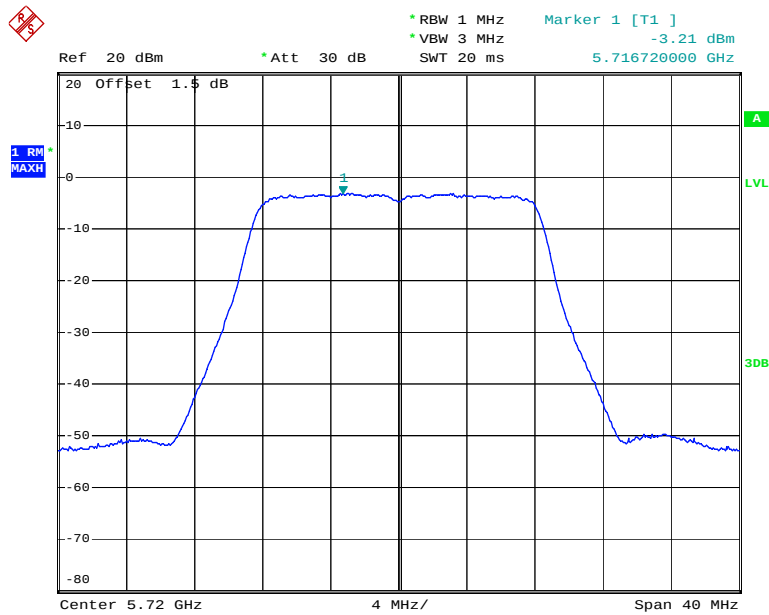
Date: 24.OCT.2020 11:54:28

802.11a High Channel



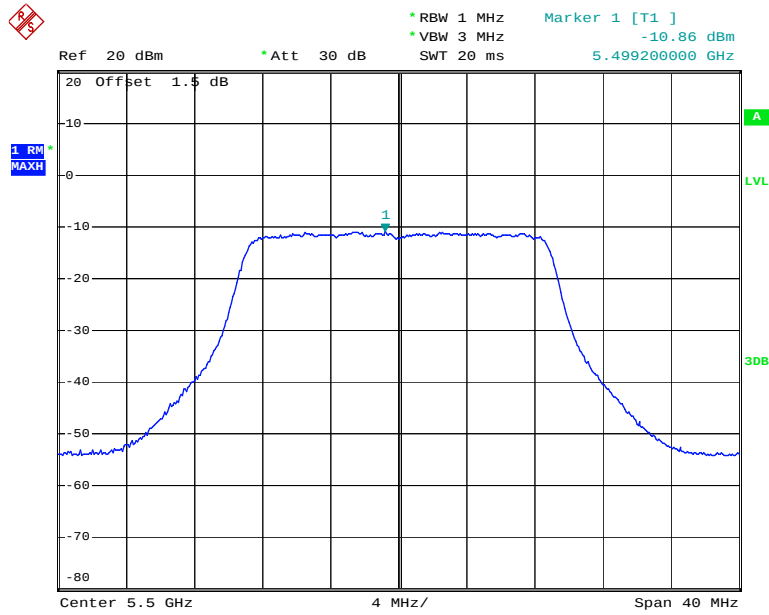
Date: 24.OCT.2020 11:54:55

802.11 a High Channel 5720MHz



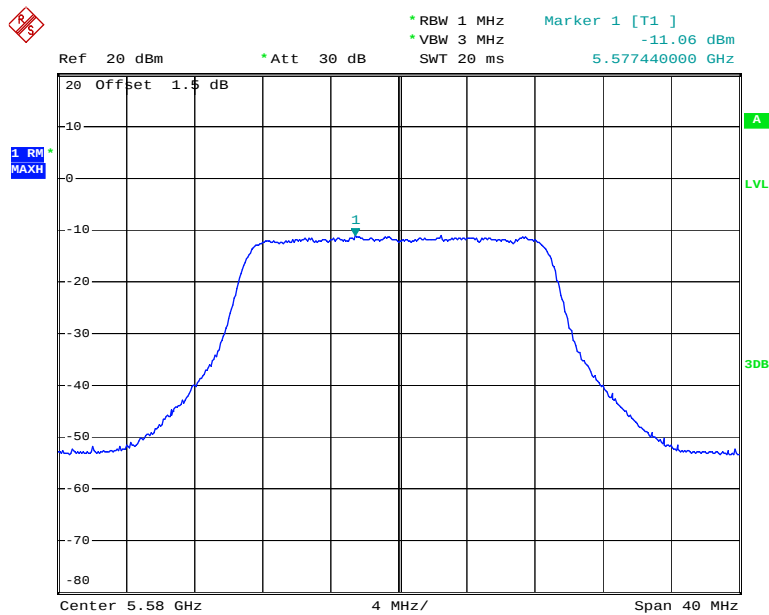
Date: 24.OCT.2020 11:56:15

802.11n ht20 Low Channel



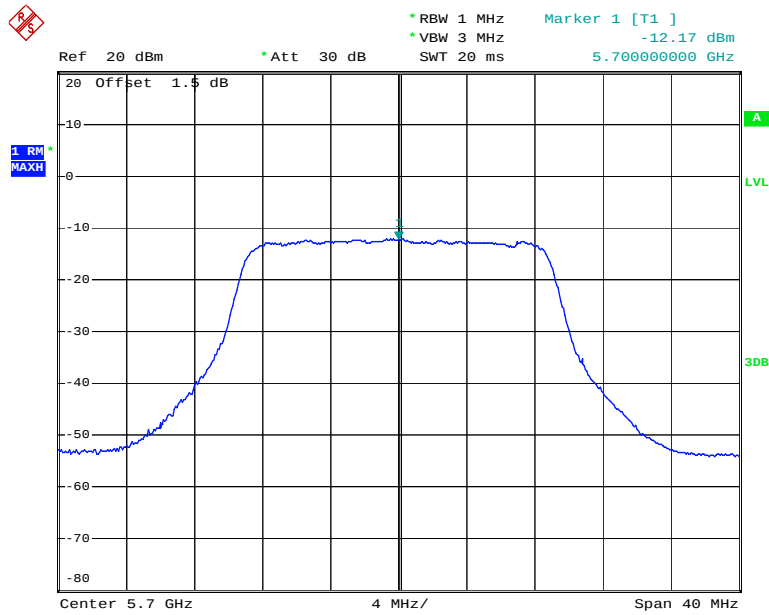
Date: 24.OCT.2020 13:13:42

802.11n ht20 Middle Channel



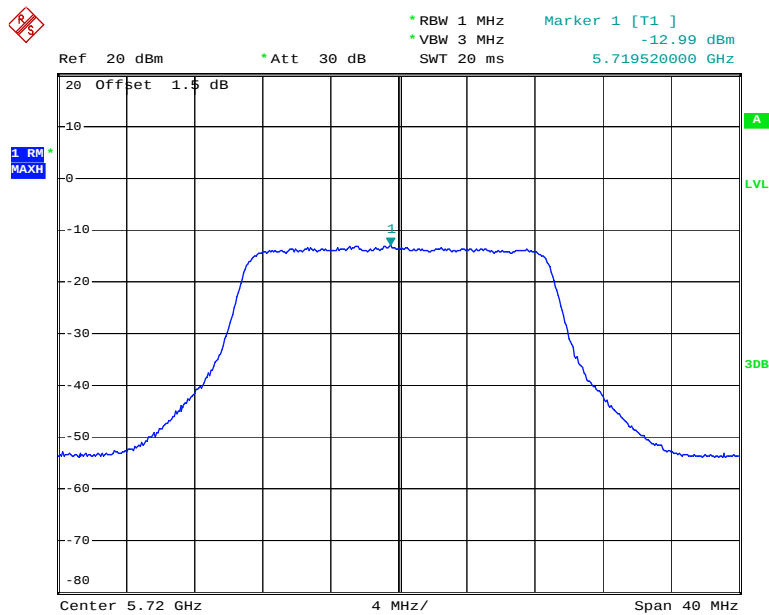
Date: 24.OCT.2020 13:13:13

802.11n ht20 High Channel



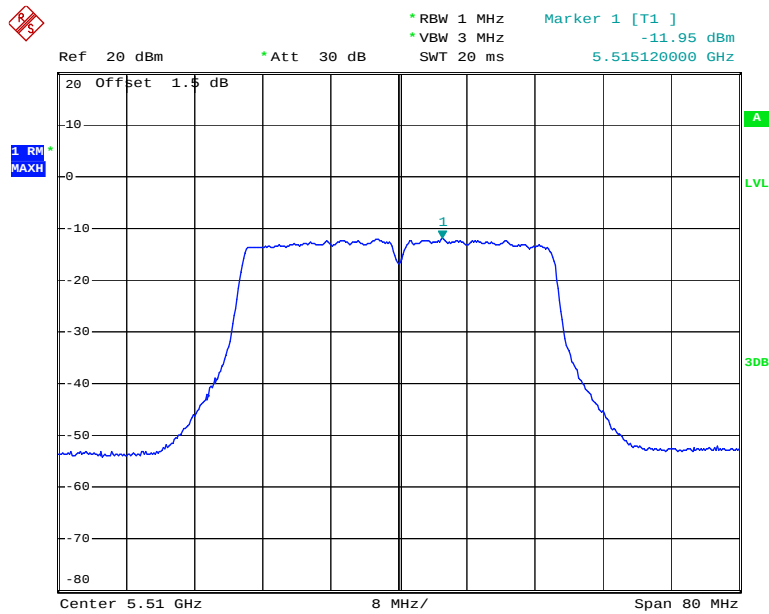
Date: 24.OCT.2020 13:12:42

802.11n ht20 High Channel 5720 MHz



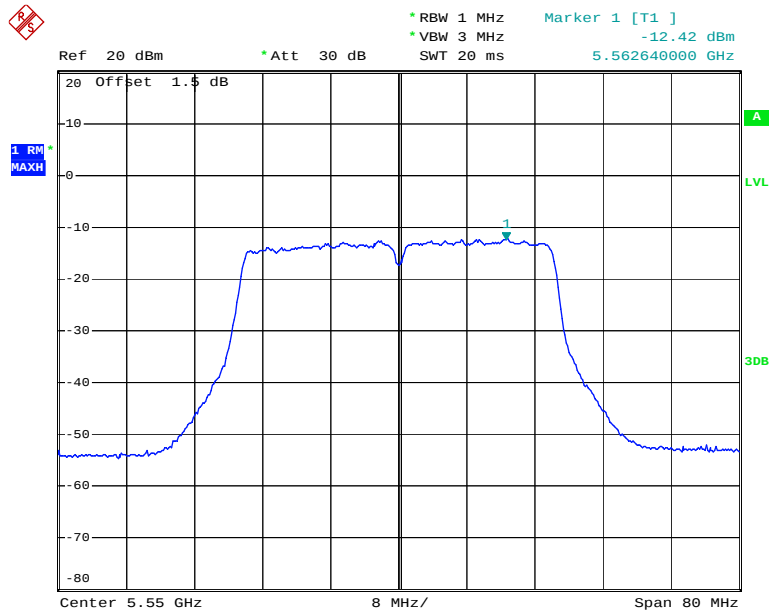
Date: 24.OCT.2020 13:12:16

802.11n ht40 Low Channel



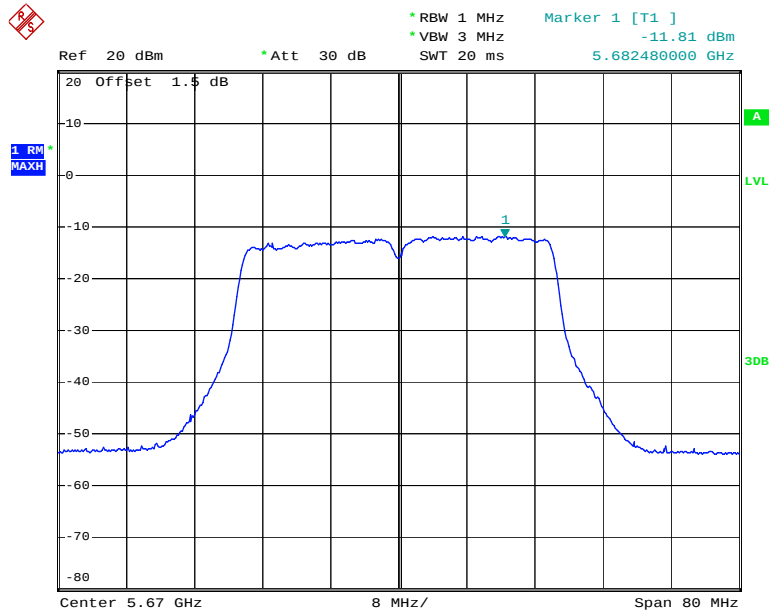
Date: 24.OCT.2020 13:14:22

802.11n ht40 Middle Channel



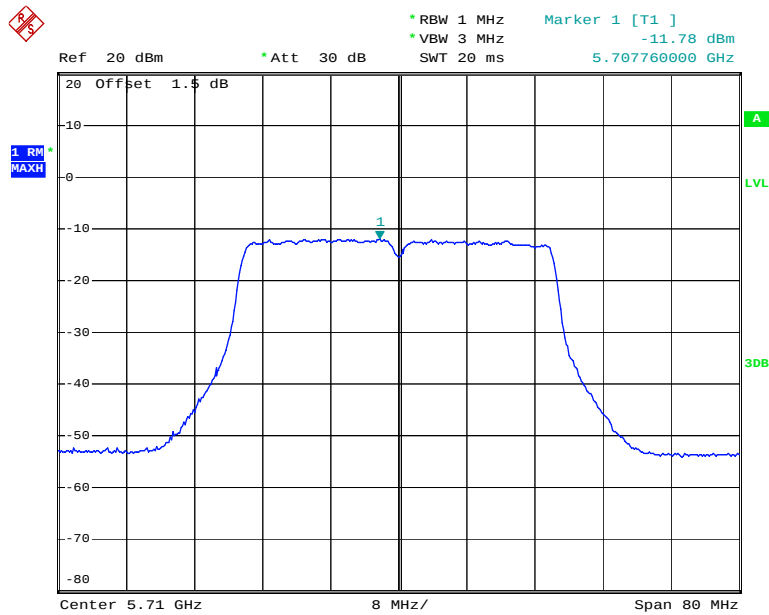
Date: 24.OCT.2020 13:14:48

802.11n ht40 High Channel



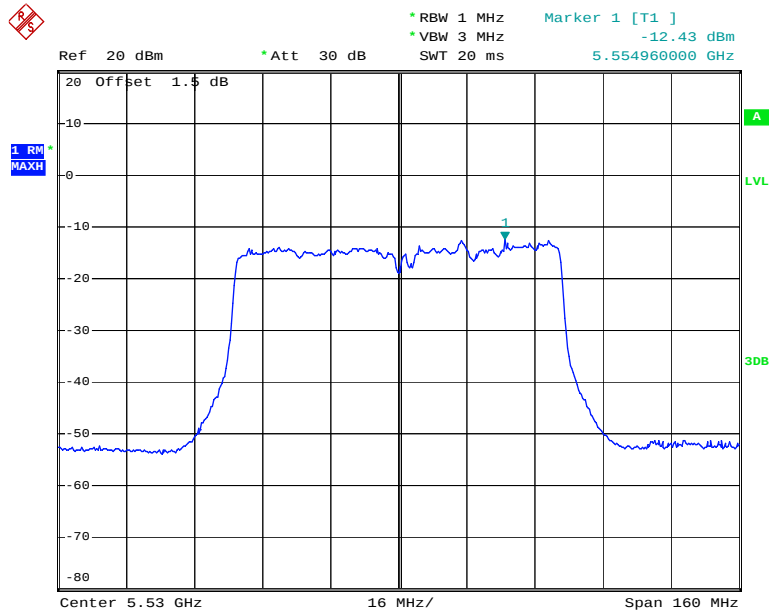
Date: 24.OCT.2020 13:15:30

802.11n ht40 High Channel 5710MHz



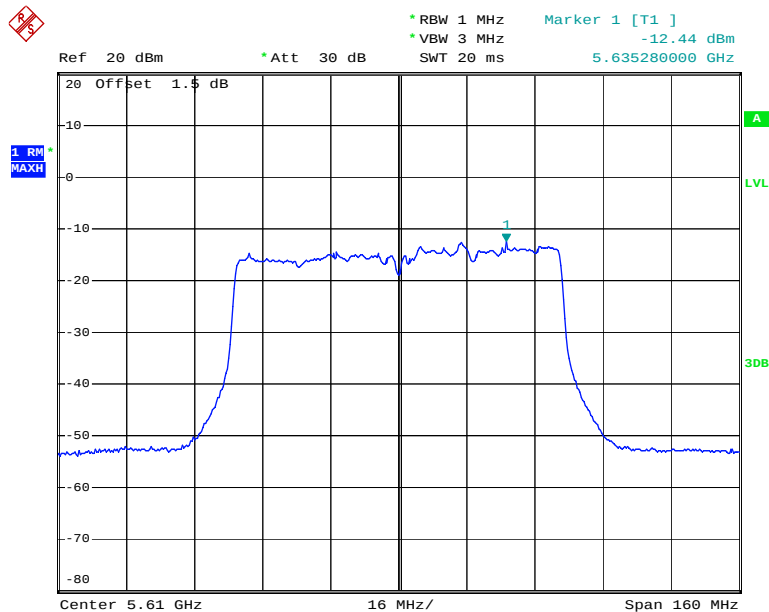
Date: 24.OCT.2020 13:16:27

802.11ac vht80 Low Channel



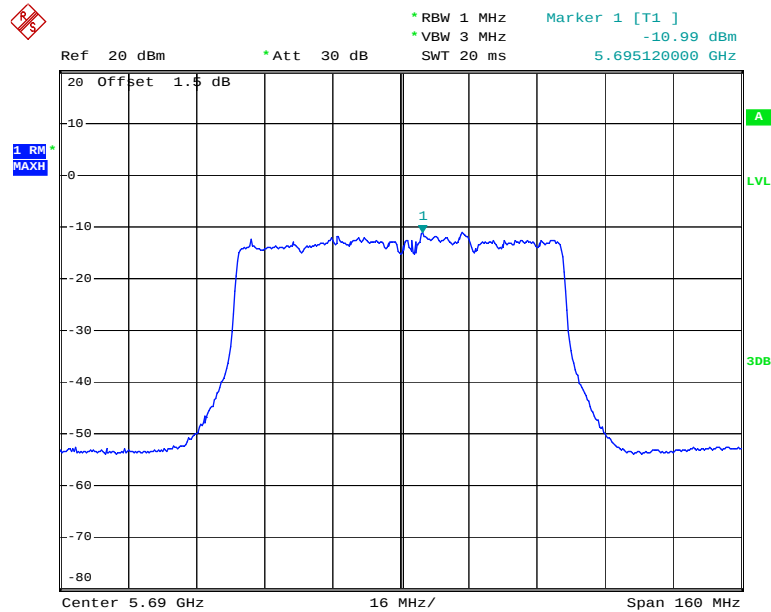
Date: 24.OCT.2020 13:17:25

802.11ac vht80 High Channel 5610MHz



Date: 24.OCT.2020 13:19:22

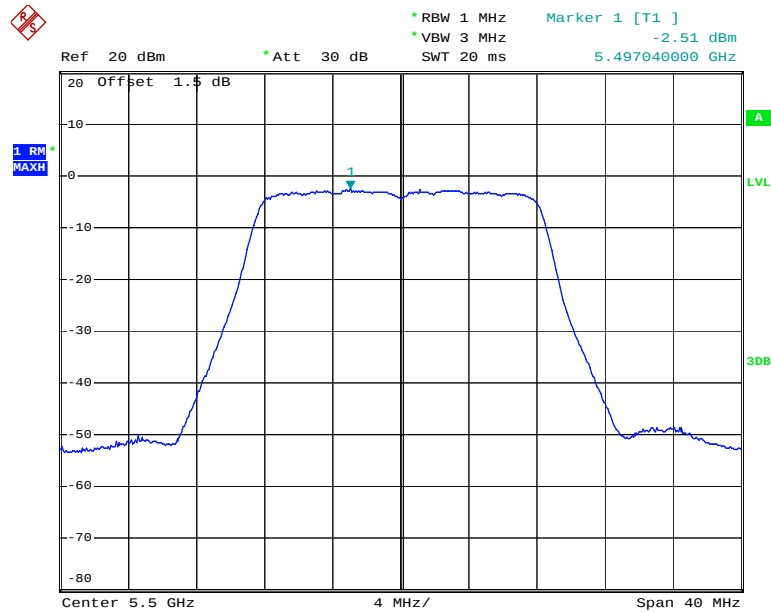
802.11ac vht80 High Channel



Date: 24.OCT.2020 13:18:39

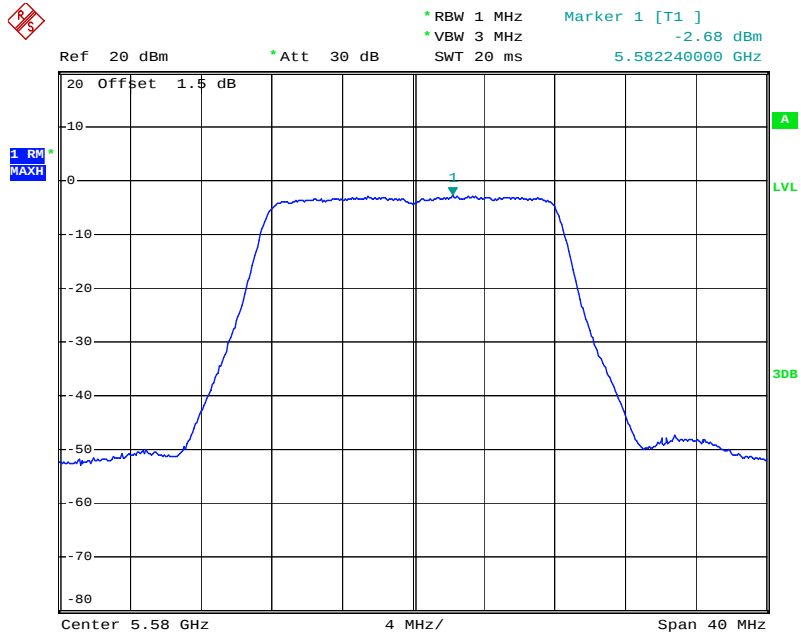
Chain 3:

802.11a Low Channel



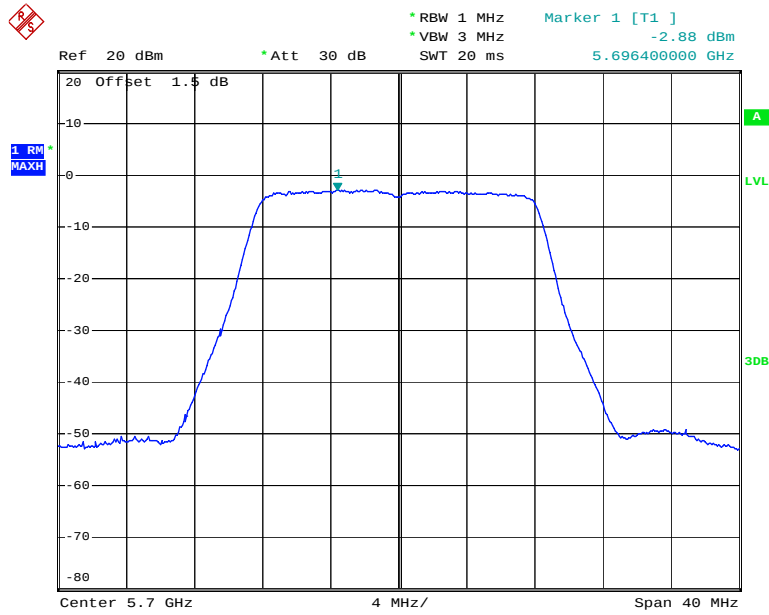
Date: 24.OCT.2020 11:28:35

802.11a Middle Channel



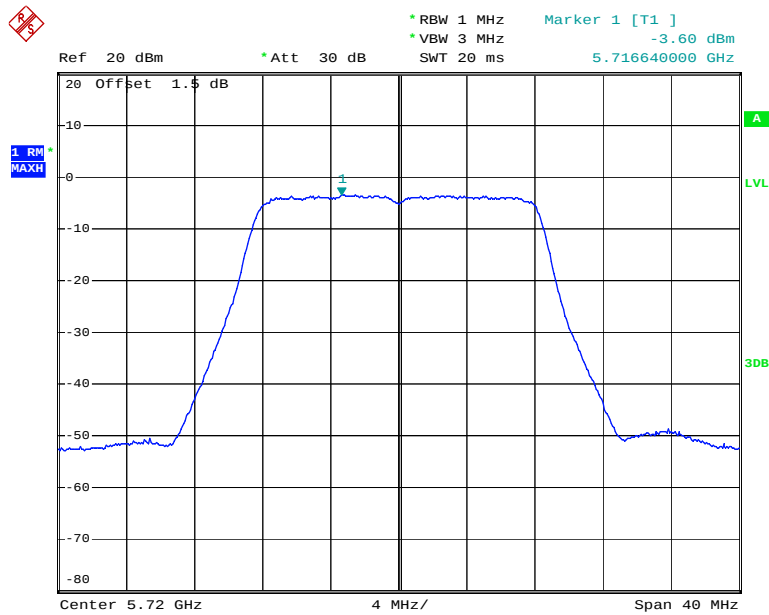
Date: 24.OCT.2020 11:29:07

802.11a High Channel



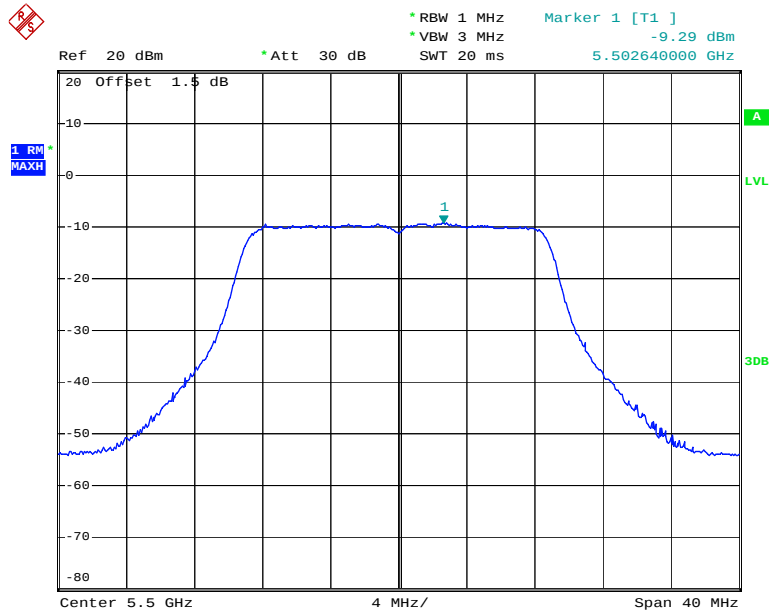
Date: 24.OCT.2020 11:29:54

802.11 a High Channel 5720MHz



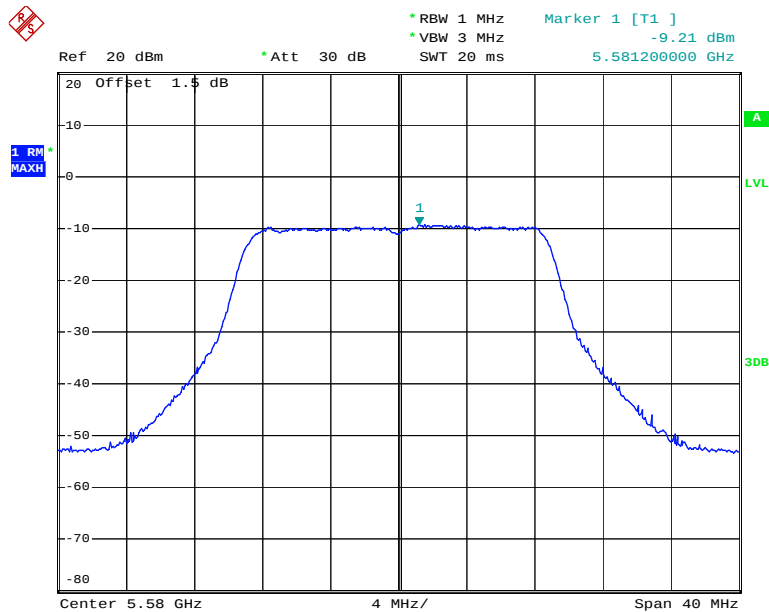
Date: 24.OCT.2020 11:30:42

802.11n ht20 Low Channel



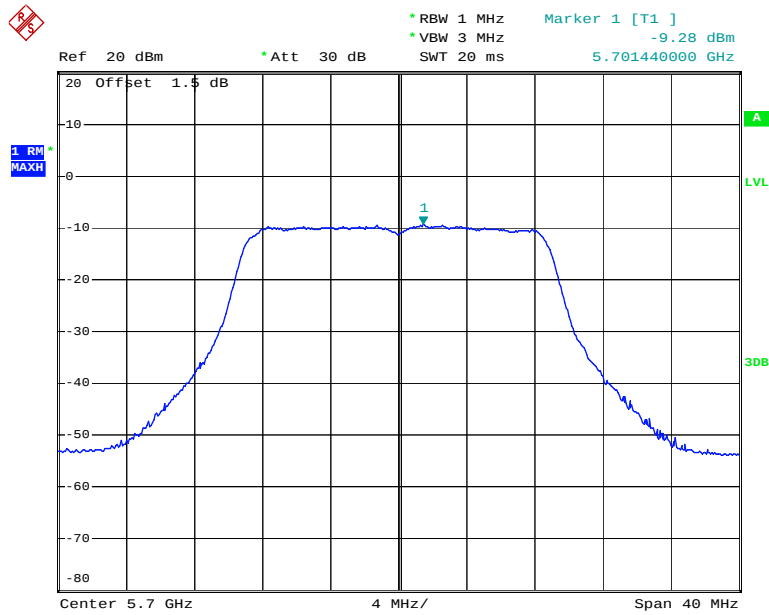
Date: 24.OCT.2020 11:33:55

802.11n ht20 Middle Channel



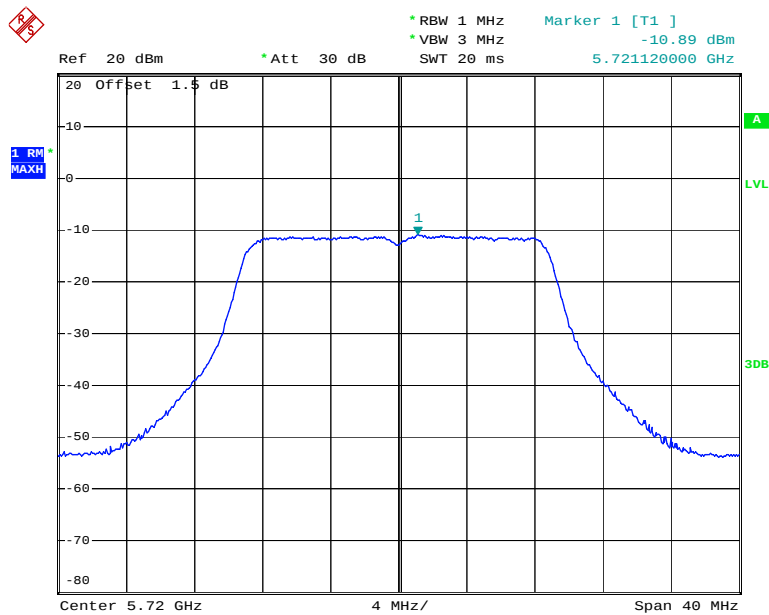
Date: 24.OCT.2020 11:33:31

802.11n ht20 High Channel



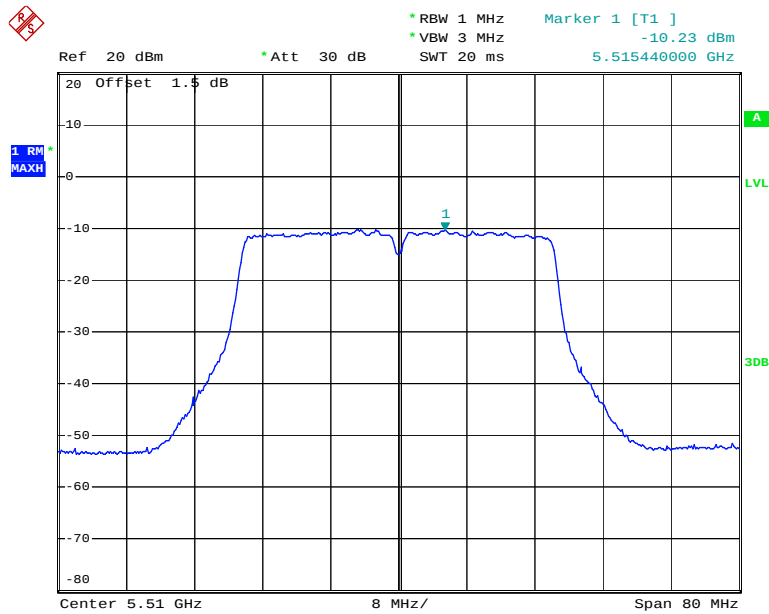
Date: 24.OCT.2020 11:32:30

802.11n ht20 High Channel 5720 MHz



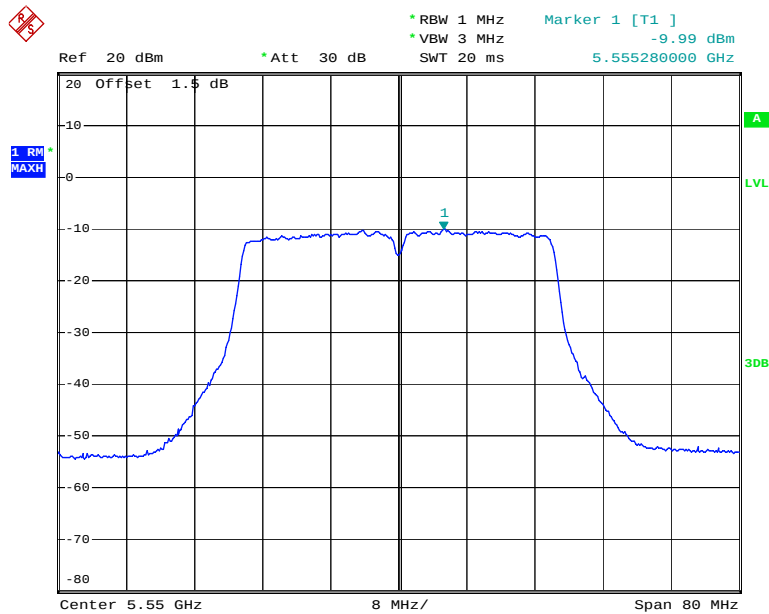
Date: 24.OCT.2020 11:31:51

802.11n ht40 Low Channel



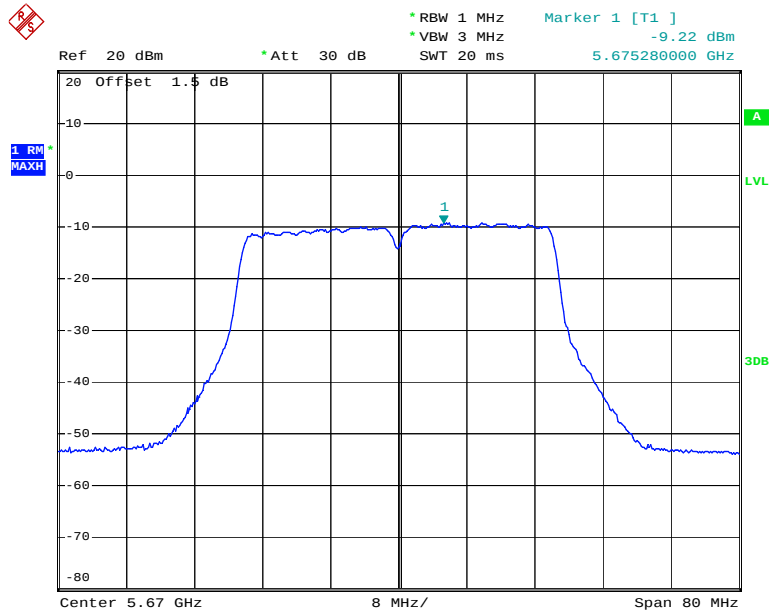
Date: 24.OCT.2020 11:34:35

802.11n ht40 Middle Channel



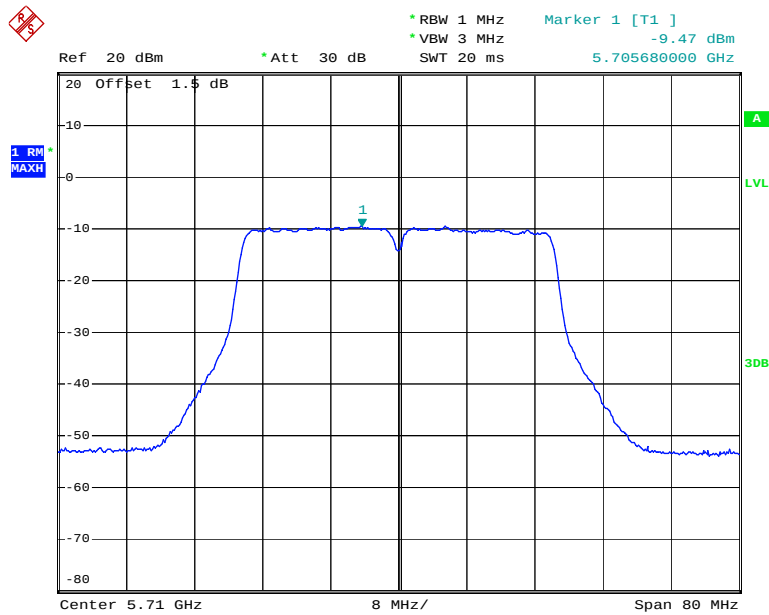
Date: 24.OCT.2020 11:35:04

802.11n ht40 High Channel



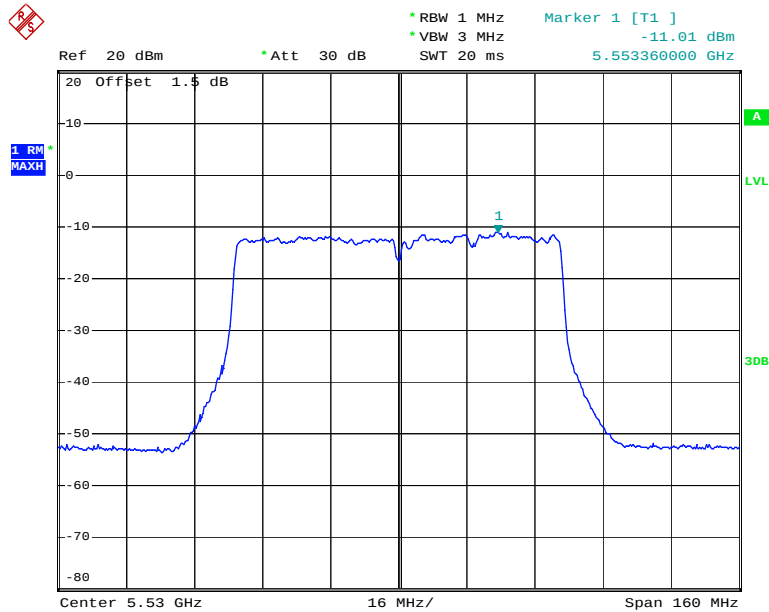
Date: 24.OCT.2020 11:35:33

802.11n ht40 High Channel 5710MHz



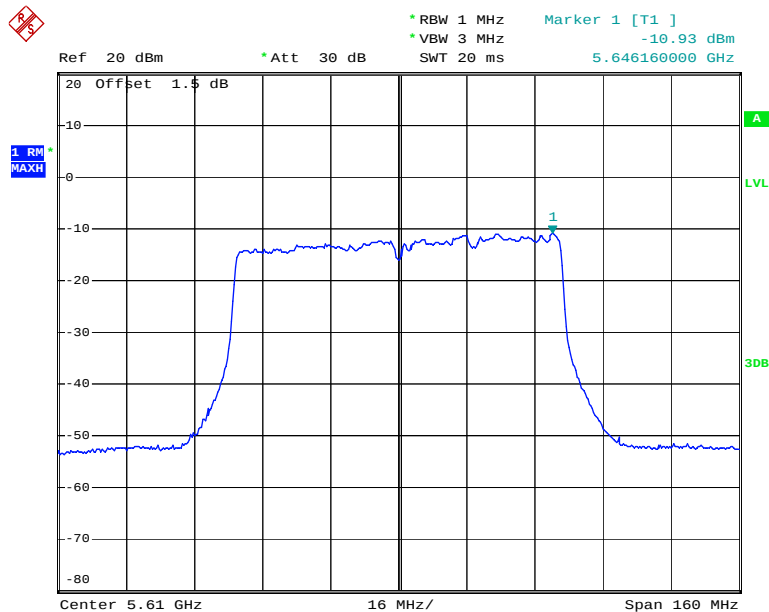
Date: 24.OCT.2020 11:36:15

802.11ac vht80 Low Channel



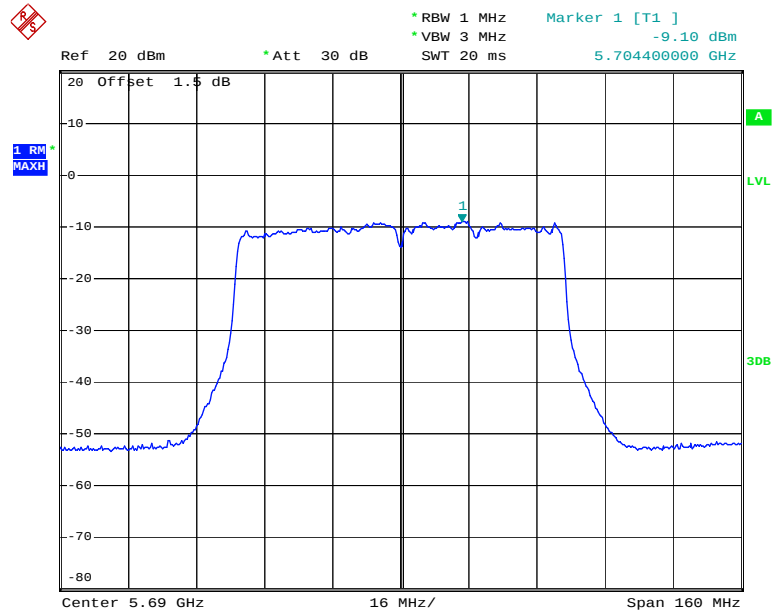
Date: 24.OCT.2020 11:37:01

802.11ac vht80 High Channel 5610MHz



Date: 24.OCT.2020 11:38:35

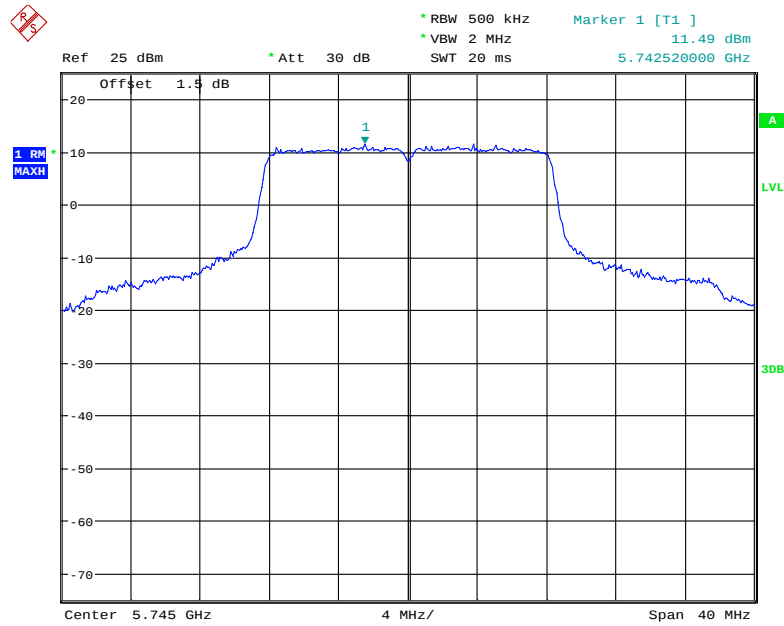
802.11ac vht80 High Channel



Date: 24.OCT.2020 11:37:39

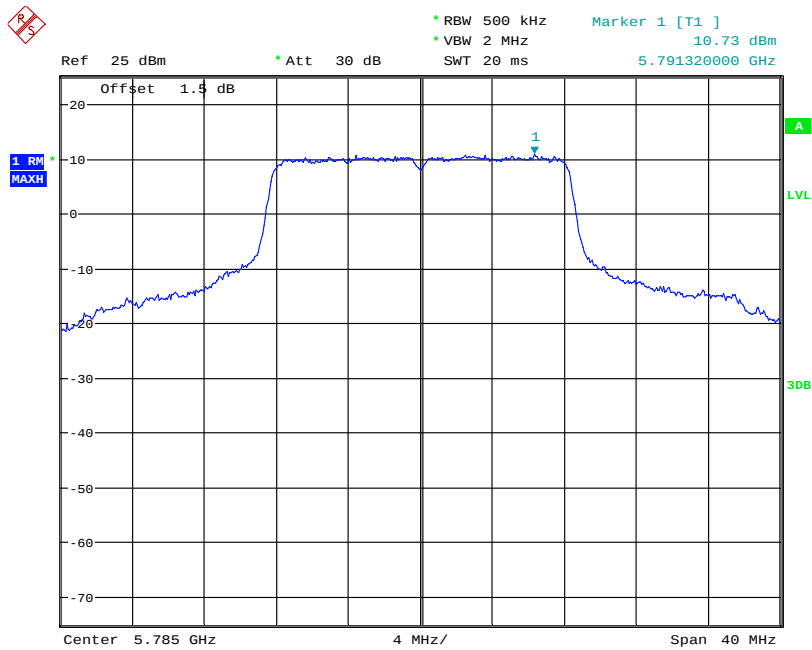
5725-5850 MHz, Chain 0:

802.11a Low Channel



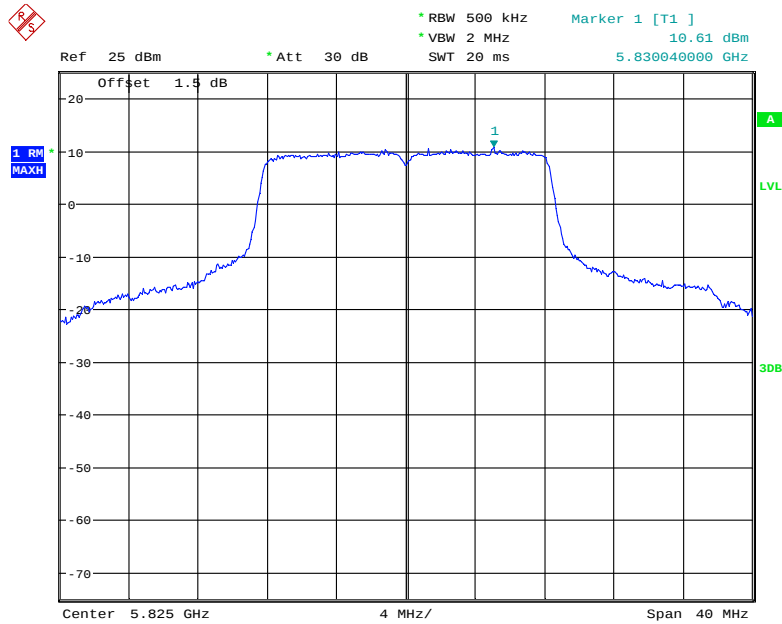
Date: 21.OCT.2020 13:31:34

802.11a Middle Channel



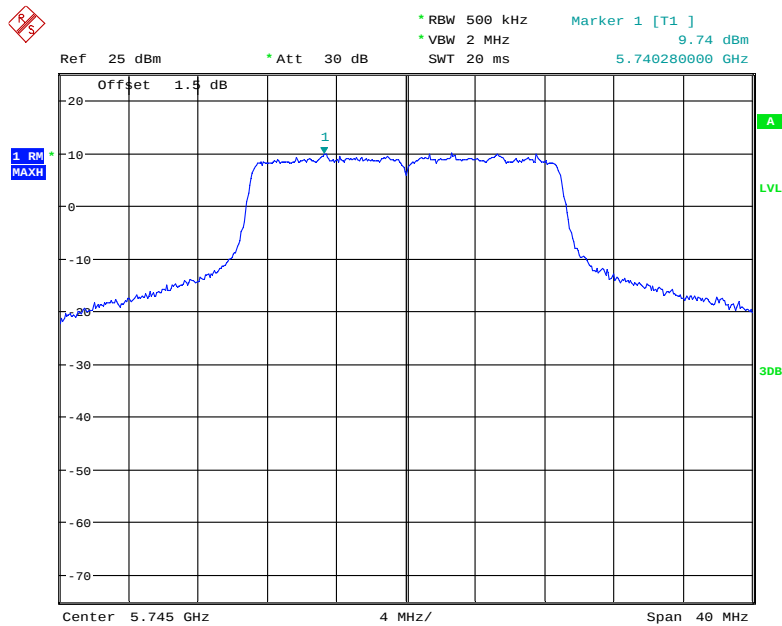
Date: 21.OCT.2020 13:30:57

802.11a High Channel



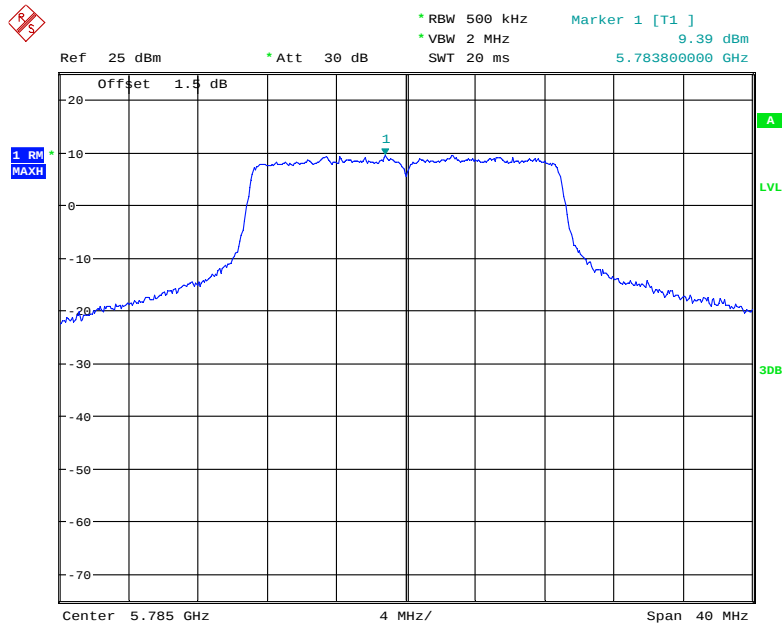
Date: 21.OCT.2020 13:30:20

802.11n ht20 Low Channel



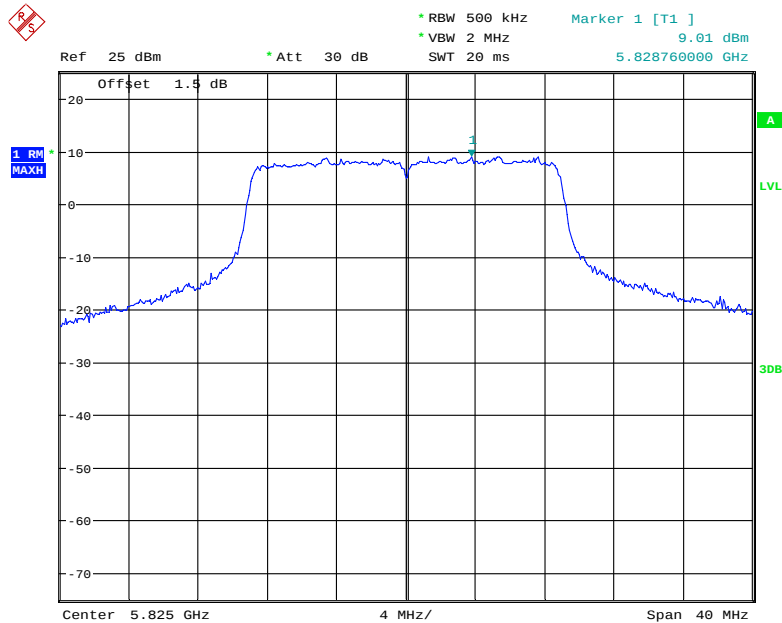
Date: 21.OCT.2020 13:35:52

802.11n ht20 Middle Channel



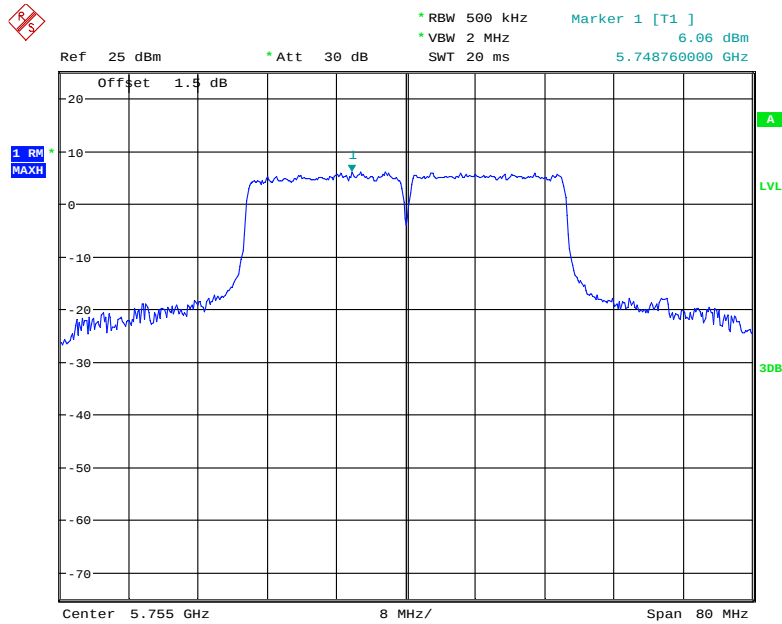
Date: 21.OCT.2020 13:37:09

802.11n ht20 High Channel



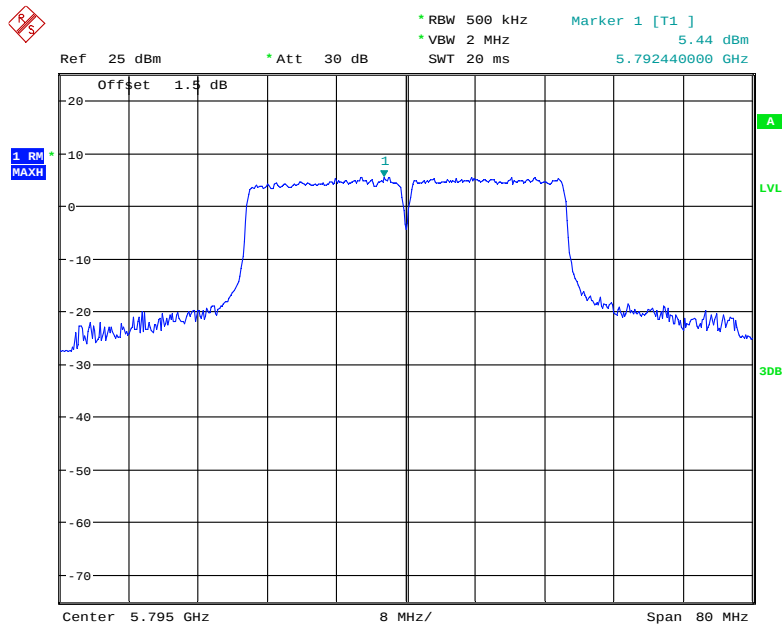
Date: 21.OCT.2020 13:38:20

802.11n ht40 Low Channel



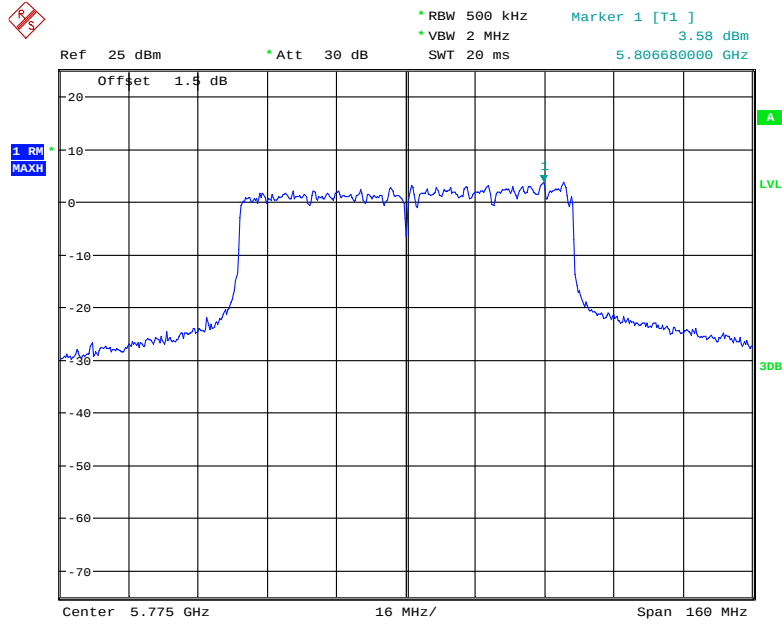
Date: 21.OCT.2020 13:47:41

802.11n ht40 High Channel



Date: 21.OCT.2020 13:49:00

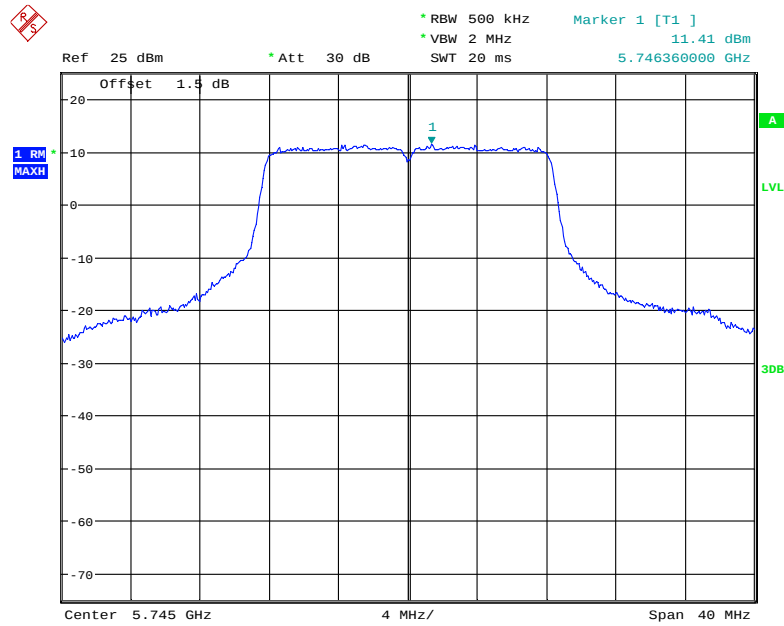
802.11ac vht80 Middle Channel



Date: 21.OCT.2020 13:52:26

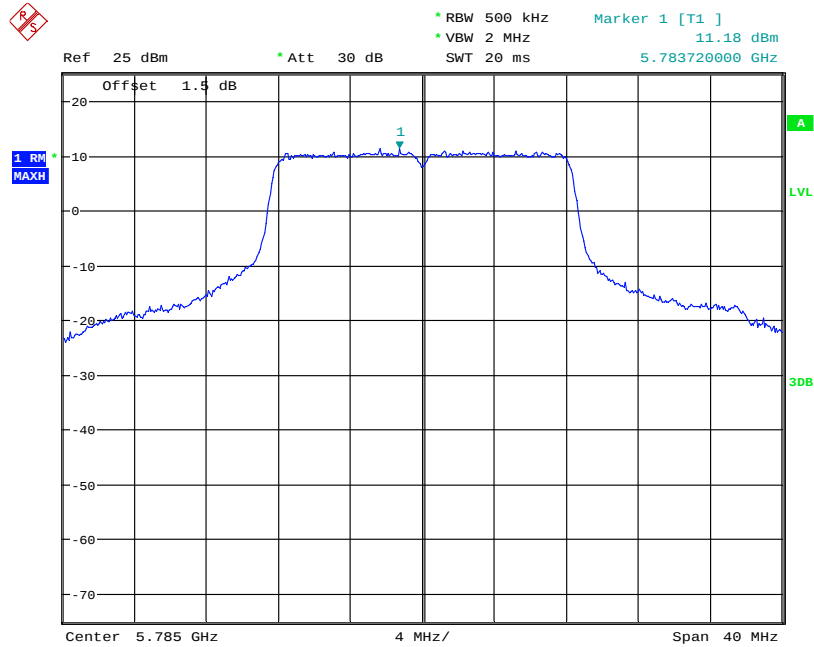
Chain 1:

802.11a Low Channel



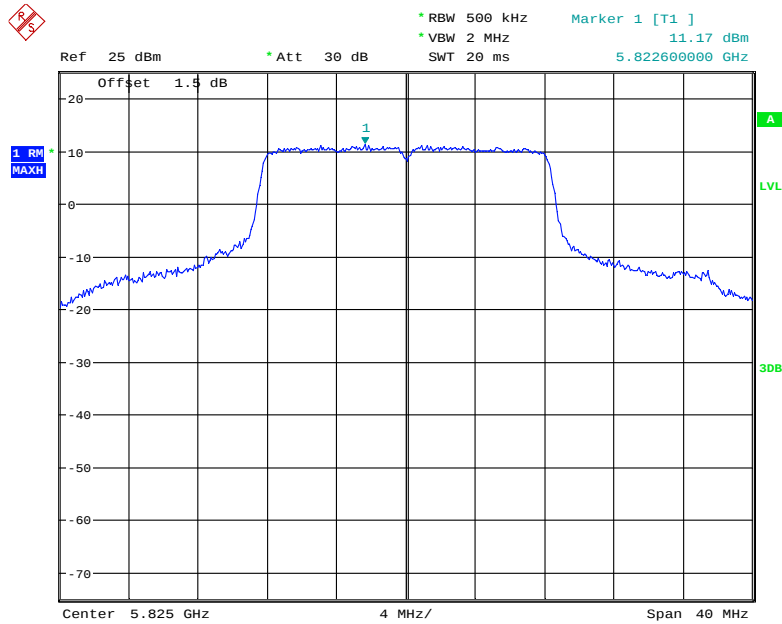
Date: 21.OCT.2020 15:48:06

802.11a Middle Channel



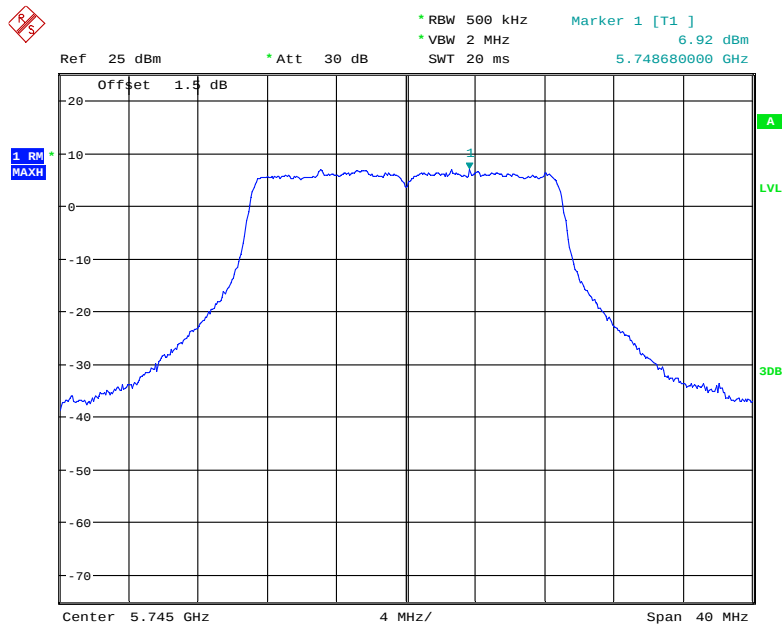
Date: 21.OCT.2020 15:47:02

802.11a High Channel



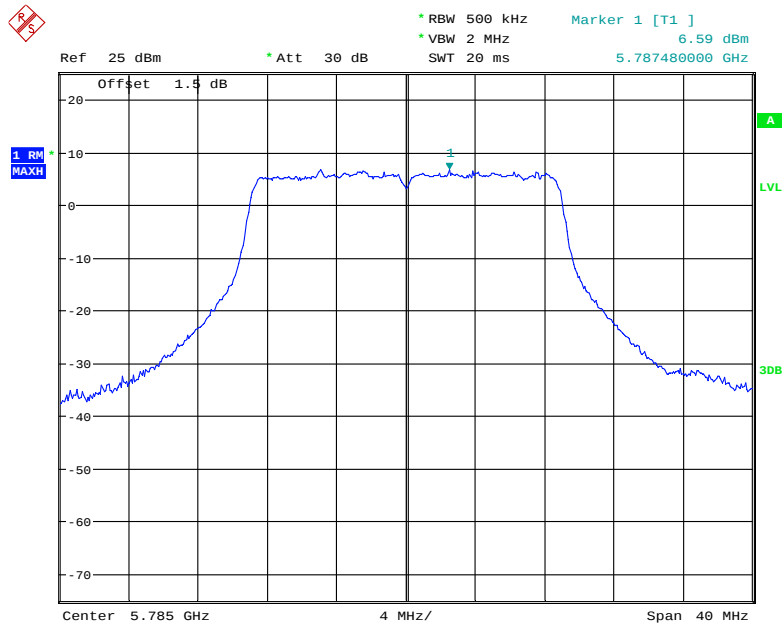
Date: 21.OCT.2020 15:45:36

802.11n ht20 Low Channel



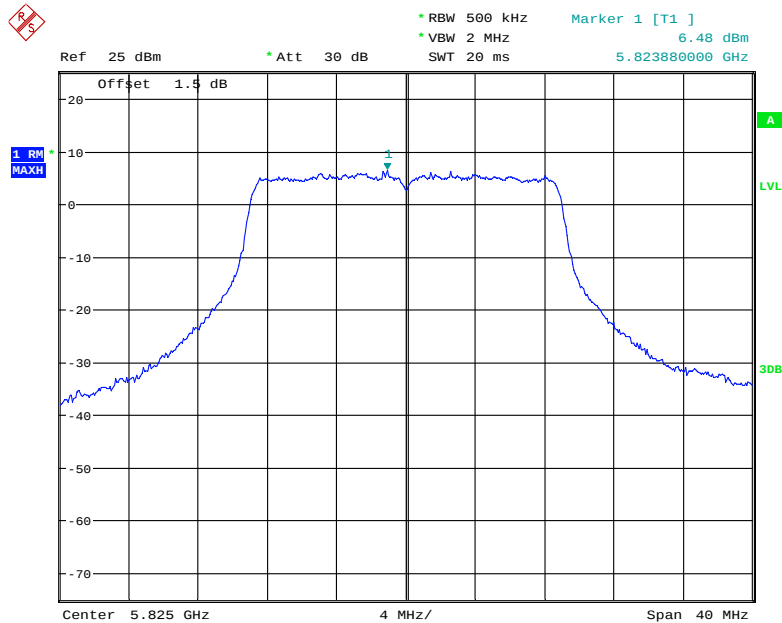
Date: 21.OCT.2020 15:41:08

802.11n ht20 Middle Channel



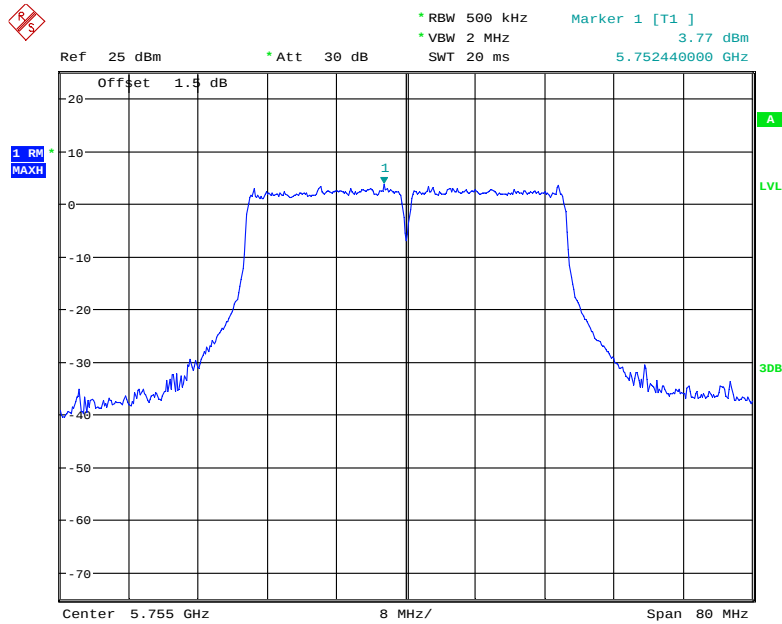
Date: 21.OCT.2020 15:41:47

802.11n ht20 High Channel



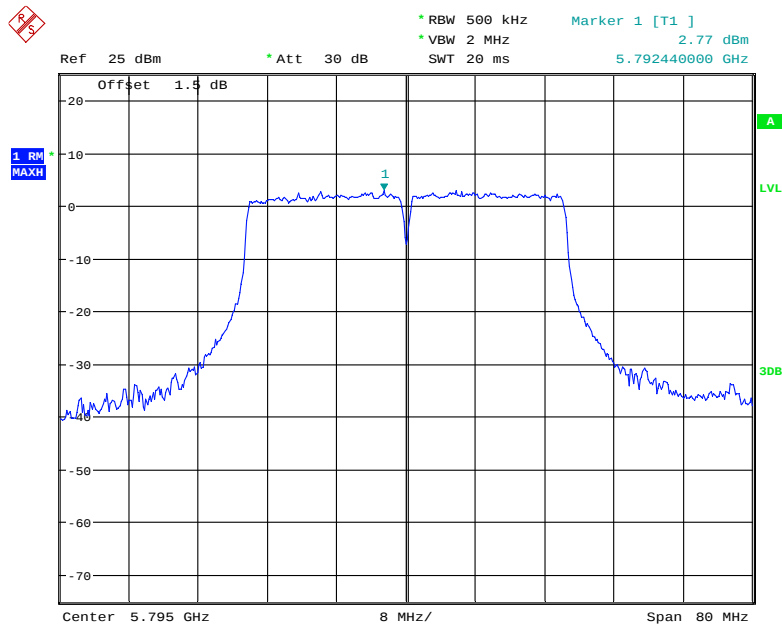
Date: 21.OCT.2020 15:42:27

802.11n ht40 Low Channel



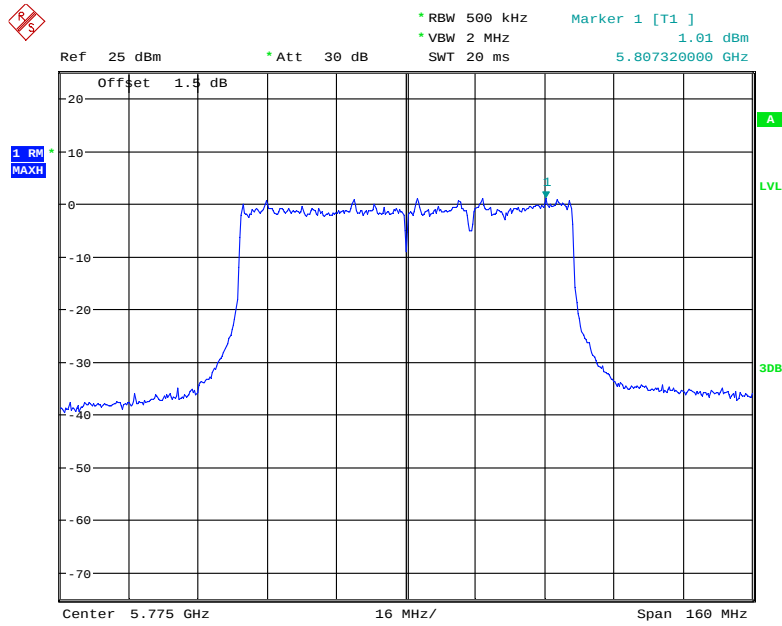
Date: 21.OCT.2020 15:39:13

802.11n ht40 High Channel



Date: 21.OCT.2020 15:39:55

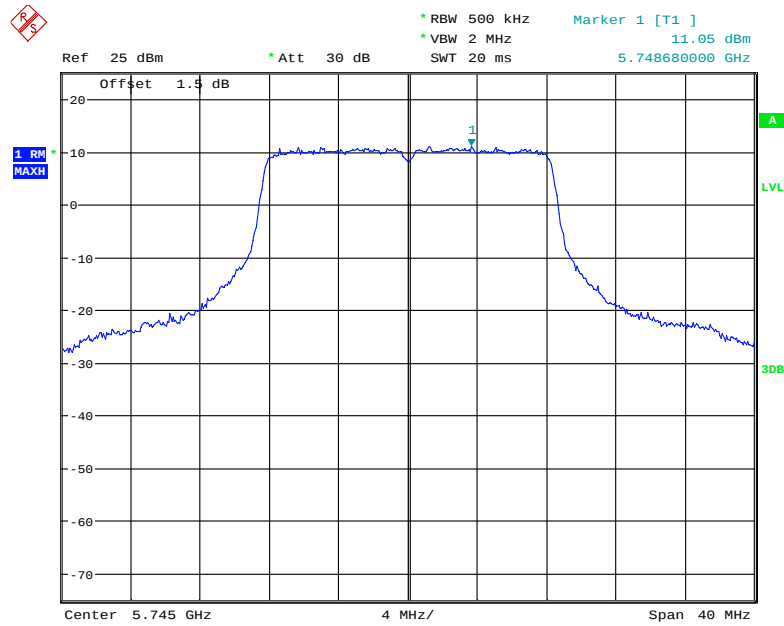
802.11ac vht80 Middle Channel



Date: 21.OCT.2020 15:38:02

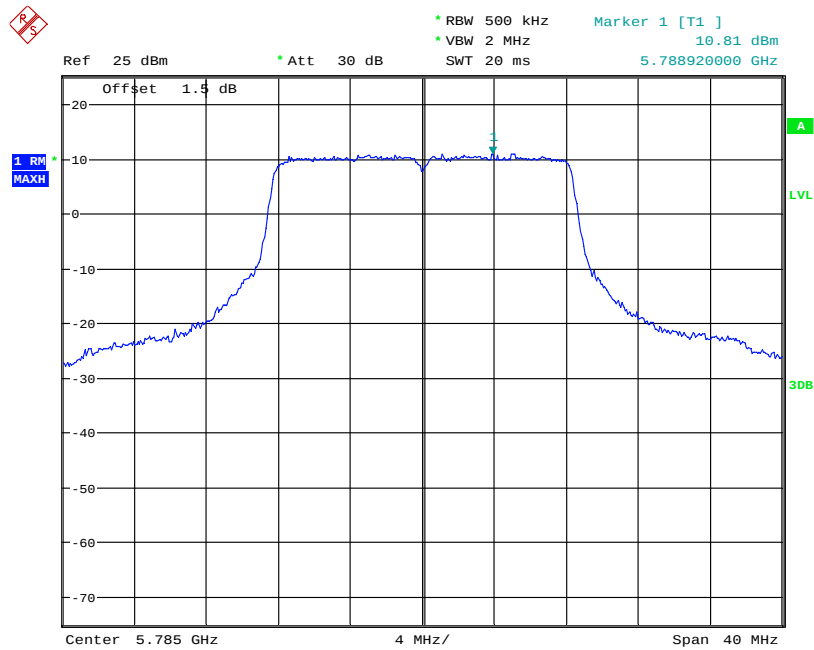
Chain 2:

802.11a Low Channel



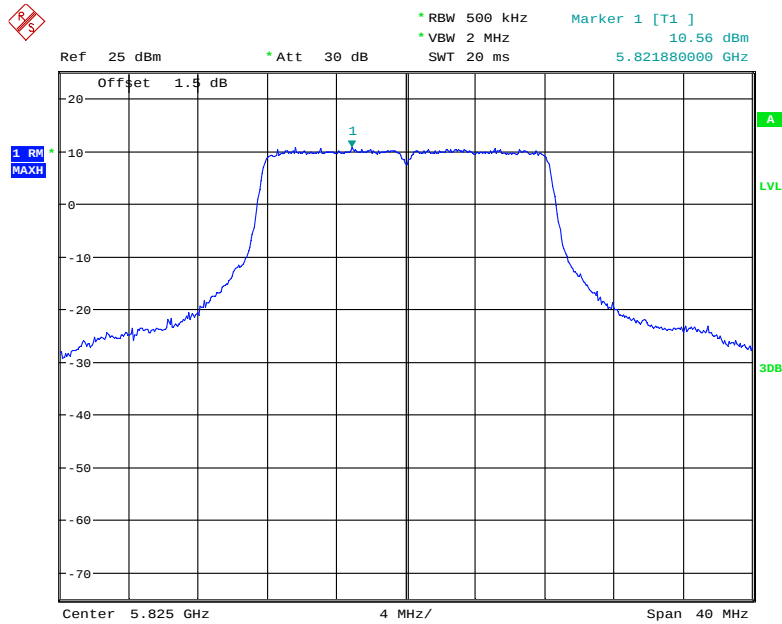
Date: 21.OCT.2020 15:32:14

802.11a Middle Channel



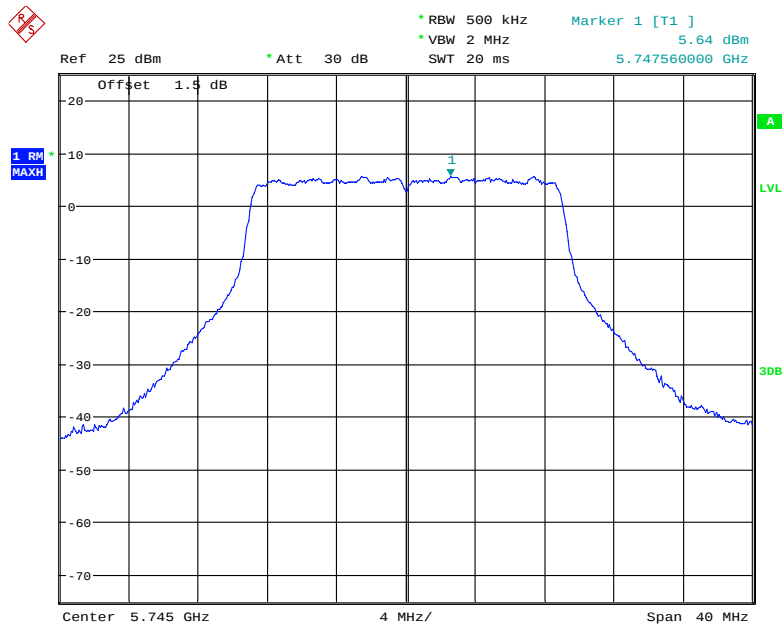
Date: 21.OCT.2020 15:31:35

802.11a High Channel



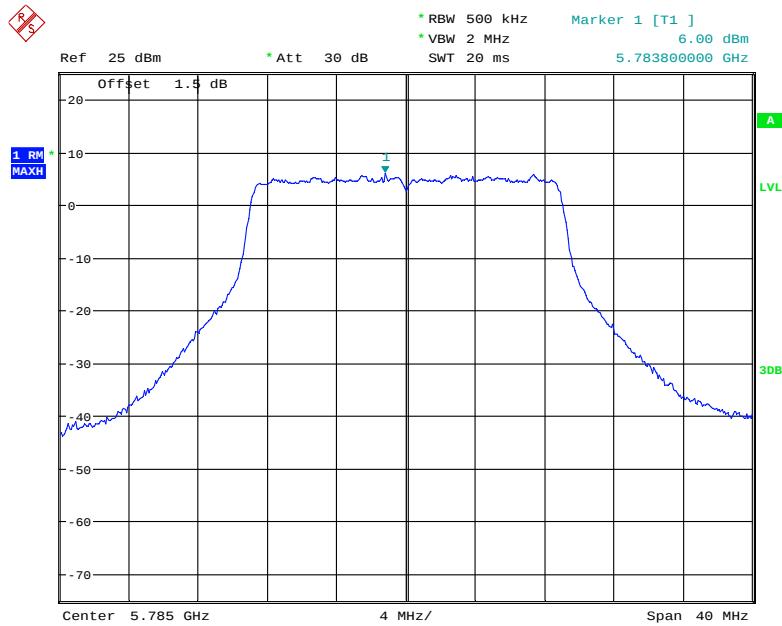
Date: 21.OCT.2020 15:30:47

802.11n ht20 Low Channel



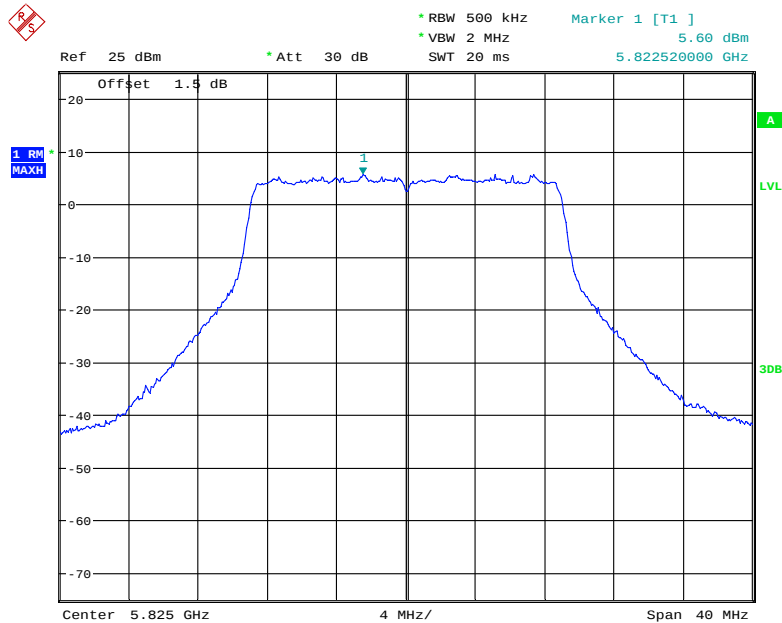
Date: 21.OCT.2020 15:27:21

802.11n ht20 Middle Channel



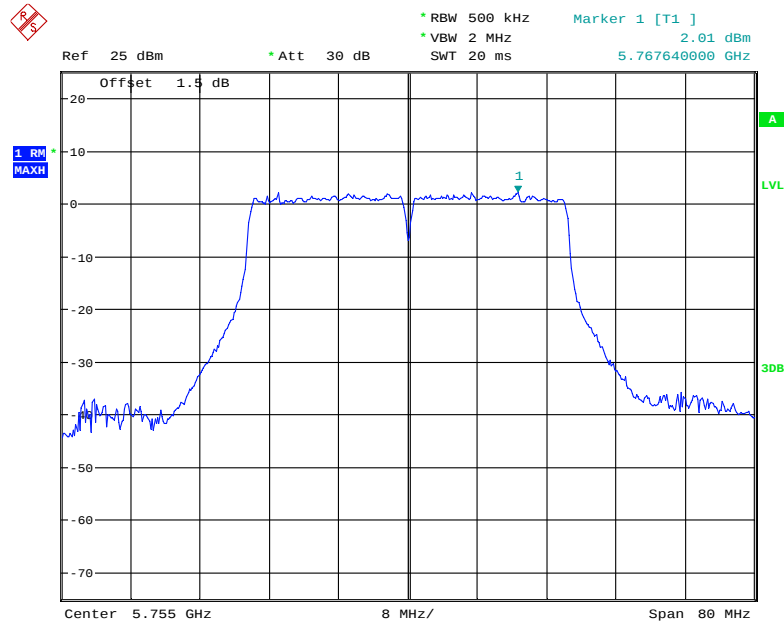
Date: 21.OCT.2020 15:28:00

802.11n ht20 High Channel



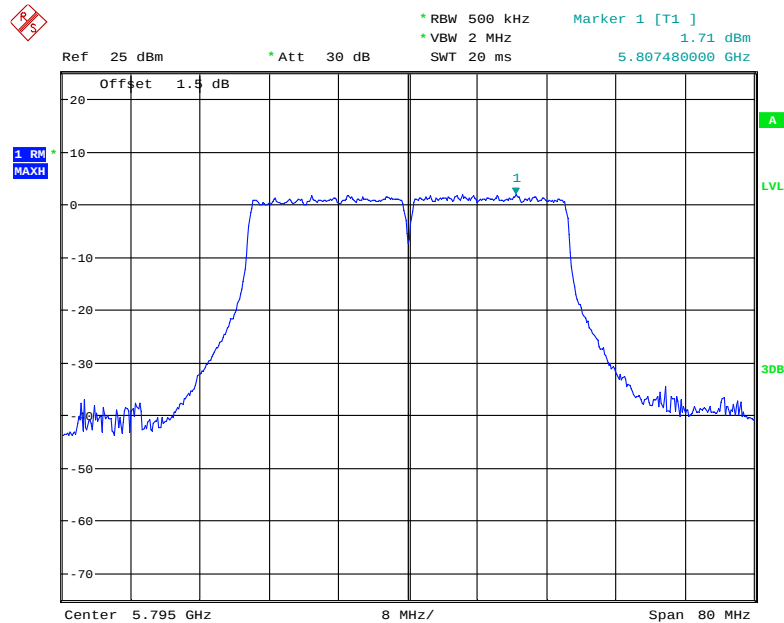
Date: 21.OCT.2020 15:28:40

802.11n ht40 Low Channel



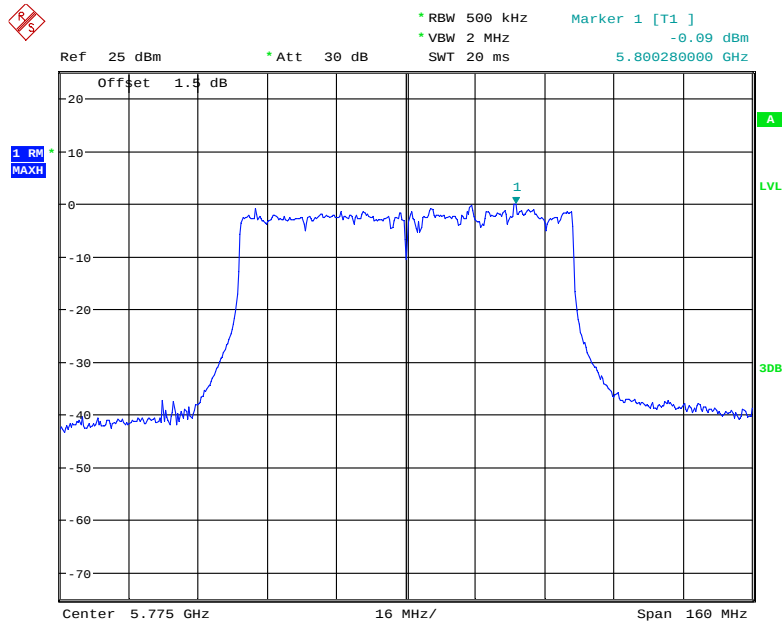
Date: 21.OCT.2020 15:34:07

802.11n ht40 High Channel



Date: 21.OCT.2020 15:35:02

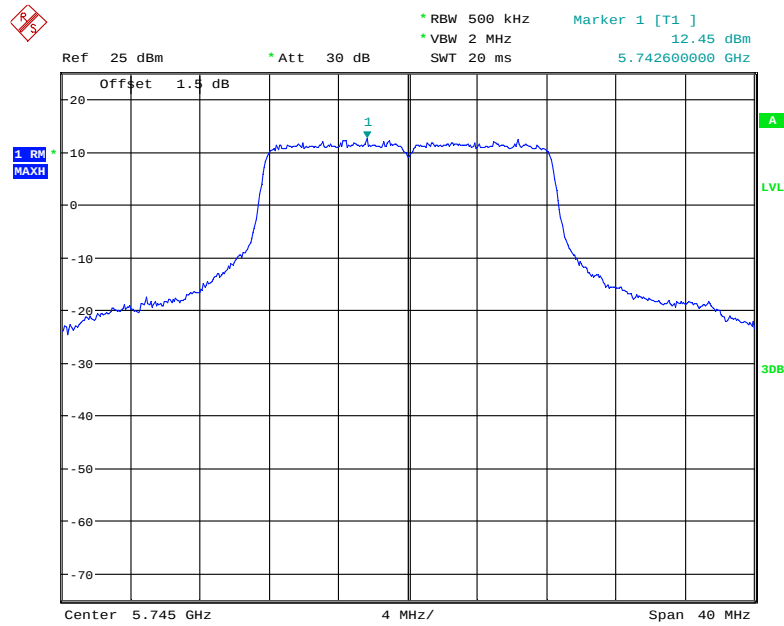
802.11ac vht80 Middle Channel



Date: 21.OCT.2020 15:36:08

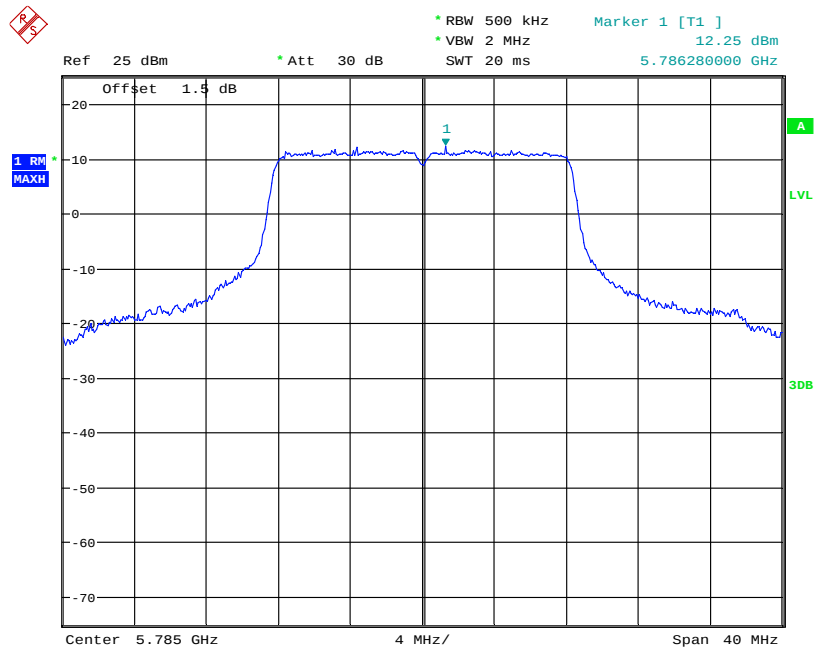
Chain 3:

802.11a Low Channel



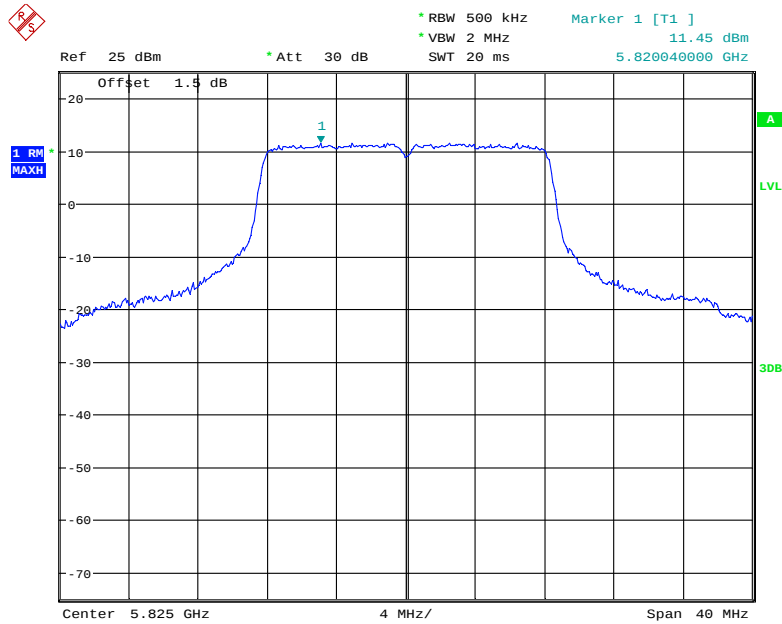
Date: 21.OCT.2020 15:49:33

802.11a Middle Channel



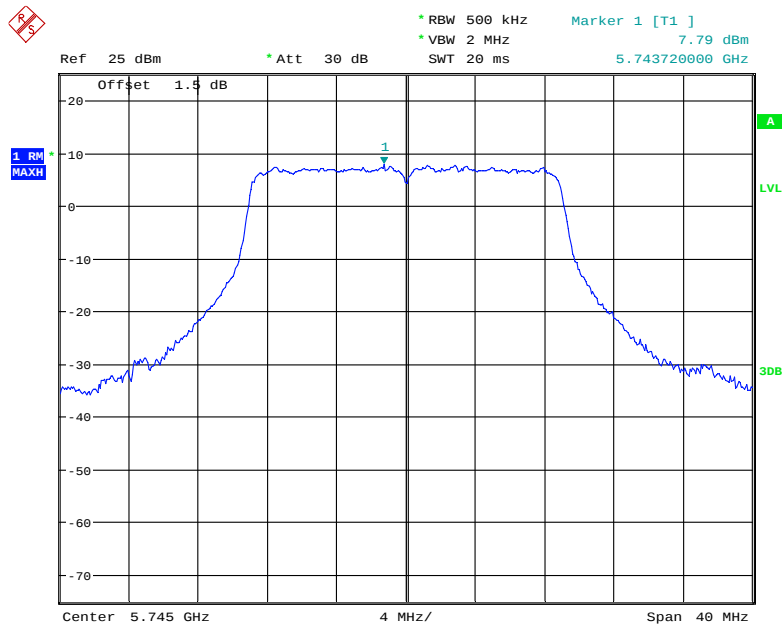
Date: 21.OCT.2020 15:50:10

802.11a High Channel



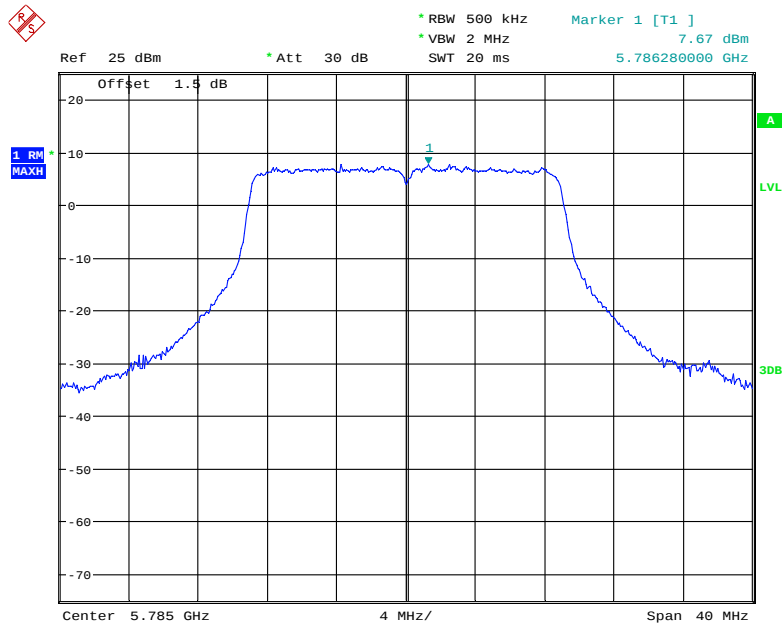
Date: 21.OCT.2020 15:50:46

802.11n ht20 Low Channel



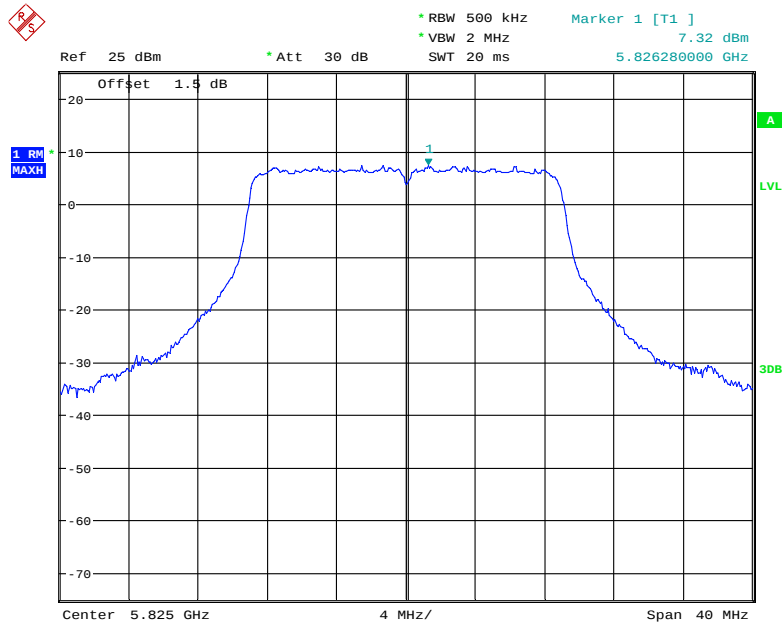
Date: 21.OCT.2020 15:53:12

802.11n ht20 Middle Channel



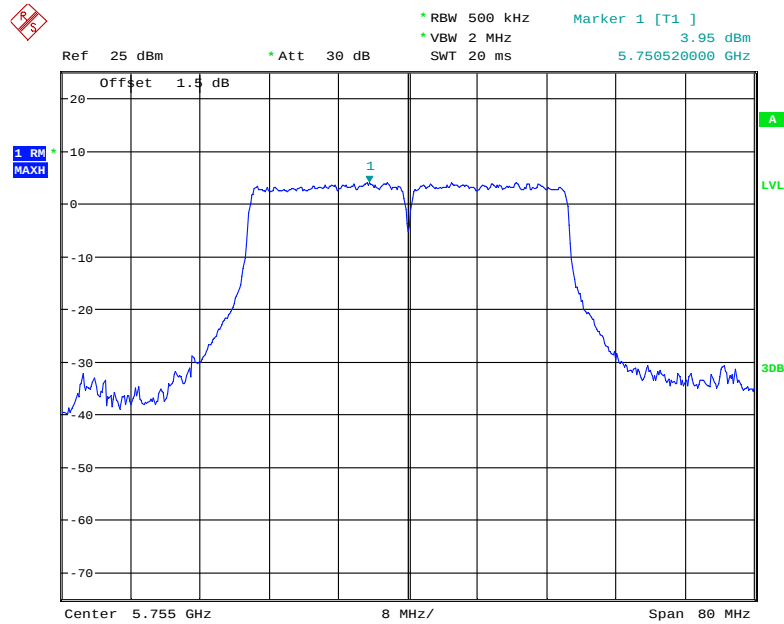
Date: 21.OCT.2020 15:52:38

802.11n ht20 High Channel



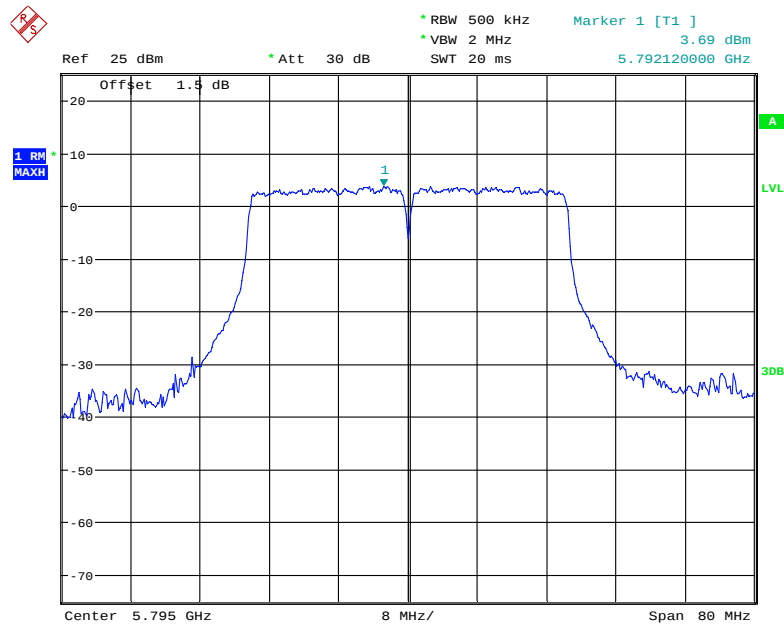
Date: 21.OCT.2020 15:51:55

802.11n ht40 Low Channel



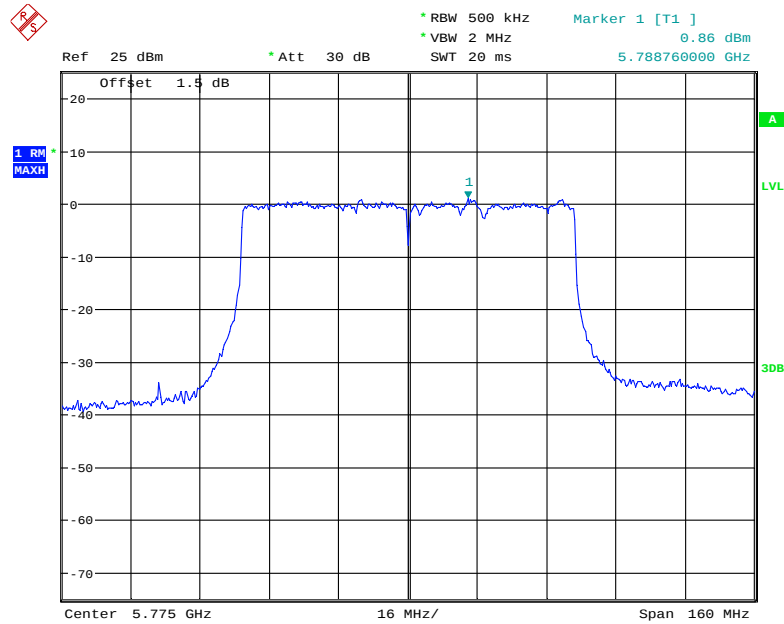
Date: 21.OCT.2020 15:54:09

802.11n ht40 High Channel



Date: 21.OCT.2020 15:54:49

802.11ac vht80 Middle Channel



Date: 21.OCT.2020 15:55:49

**21 dBi Antenna:
5150-5250 MHz:**

Mode	Frequency (MHz)	Maximum Power Spectral Density (dBm/MHz)					
		Chain 0	Chain 1	Chain 2	Chain 3	Total	FCC Limit
802.11 a	5180	10.41	10.27	8.50	8.54	/	17
	5200	12.74	12.74	11.58	11.66	/	17
	5240	12.85	12.94	11.77	12.22	/	17
802.11n ht20	5180	8.88	8.61	7.00	8.05	14.21	17
	5200	10.31	10.21	8.65	10.09	15.89	17
	5240	10.22	10.60	9.25	10.73	16.26	17
802.11n ht40	5190	1.53	0.52	-0.62	0.52	6.57	17
	5230	1.56	2.00	2.14	1.09	7.74	17
802.11ac vht80	5210	-4.95	-4.53	-5.66	-4.81	1.05	17

Note: This is a fixed point-to-point AP application, and this band is Only for FCC Use.

5250-5350MHz:

Mode	Frequency (MHz)	Maximum Power Spectral Density (dBm/MHz)					
		Chain 0	Chain 1	Chain 2	Chain 3	Total	FCC/ISED Limit
802.11 a	5260	-8.20	-7.34	-8.40	-7.83	/	-4
	5280	-8.58	-7.96	-8.35	-8.90	/	-4
	5320	-7.94	-7.99	-8.44	-8.78	/	-4
802.11n ht20	5260	-10.64	-11.02	-11.38	-10.62	-4.88	-4
	5280	-10.88	-11.79	-12.64	-11.30	-5.58	-4
	5320	-10.22	-11.41	-12.54	-11.63	-5.35	-4
802.11n ht40	5270	-11.19	-11.23	-12.60	-11.44	-5.56	-4
	5310	-10.78	-11.69	-13.28	-11.56	-5.72	-4
802.11ac vht80	5290	-11.09	-11.20	-12.92	-11.82	-5.68	-4

5470-5725MHz:

Mode	Frequency (MHz)	Maximum Power Spectral Density (dBm/MHz)					
		Chain 0	Chain 1	Chain 2	Chain 3	Total	FCC/ISED Limit
802.11 a	5500	-7.59	-7.88	-8.43	-8.10	/	-4
	5580	-7.58	-8.22	-8.21	-8.38	/	-4
	5700	-8.05	-7.85	-7.77	-7.25	/	-4
	5720	-7.60	-8.03	-8.31	-7.89	/	-4
802.11n ht20	5500	-10.84	-11.69	-13.64	-12.24	-5.97	-4
	5580	-10.76	-11.90	-14.31	-12.41	-6.14	-4
	5700	-10.01	-11.17	-13.22	-11.27	-5.25	-4
	5720	-10.05	-11.51	-13.82	-11.14	-5.41	-4
802.11n ht40	5510	-11.73	-12.49	-14.83	-13.33	-6.93	-4
	5550	-11.93	-13.24	-15.24	-13.15	-7.22	-4
	5670	-10.78	-12.30	-15.02	-12.47	-6.37	-4
	5710	-11.04	-13.09	-15.24	-12.47	-6.69	-4
802.11ac vht80	5530	-12.69	-13.27	-15.98	-14.28	-7.87	-4
	5610	-11.74	-12.72	-14.98	-12.95	-6.93	-4
	5690	-11.38	-12.65	-15.50	-13.15	-6.91	-4

5725-5850 MHz:

Mode	Frequency (MHz)	Maximum Power Spectral Density (dBm/500kHz)					
		Chain 0	Chain 1	Chain 2	Chain 3	Total	FCC/RSS Limit
802.11 a	5745	11.49	11.41	11.05	12.45	/	30
	5785	10.73	11.18	10.18	12.25	/	30
	5825	10.61	11.17	10.56	11.45	/	30
802.11n ht20	5745	9.74	6.92	5.64	7.79	13.80	30
	5785	9.39	6.59	6.00	7.67	13.63	30
	5825	9.01	6.48	5.60	7.32	13.31	30
802.11n ht40	5755	6.06	3.77	2.01	3.95	10.21	30
	5795	5.44	2.77	1.71	3.69	9.64	30
802.11ac vht80	5775	3.58	1.01	-0.09	0.86	7.59	30

Note: Note: This is a fixed point-to-point AP application. For 5.8G band, same power level setting for all antenna configurations, the test plots please refer to 13dBi antenna part.

Note:

The maximum antenna gain is 21dBi in 5GHz band. Two sets of identical Sector Antenna should be installed. Each Sector Antenna has two Cross-polarized antennas, per KDB 662911 D01 Multiple Transmitter Output v02r01, Clause F) 2):

- b) *Sectorized antenna systems.* In sectorized antenna systems in which each antenna is used to transmit different data in a different direction from the other antennas, directional gain is equal to the gain of an individual sector antenna.
- c) *Cross-polarized antennas.* For a system in which the antennas have fixed orientations relative to one another that ensure that the antennas are cross-polarized regardless of any user actions, the directional gain is computed as follows.
 - (i) *Cross-polarized antennas with $N_{ANT} = 2$.* In the case of a transmitter with only two outputs driving a pair of antennas that are cross-polarized (e.g., vertical and horizontal or left-circular and right-circular), directional gain is the gain of an individual antenna. If the two antennas have different gains, the larger gain applies.

So:

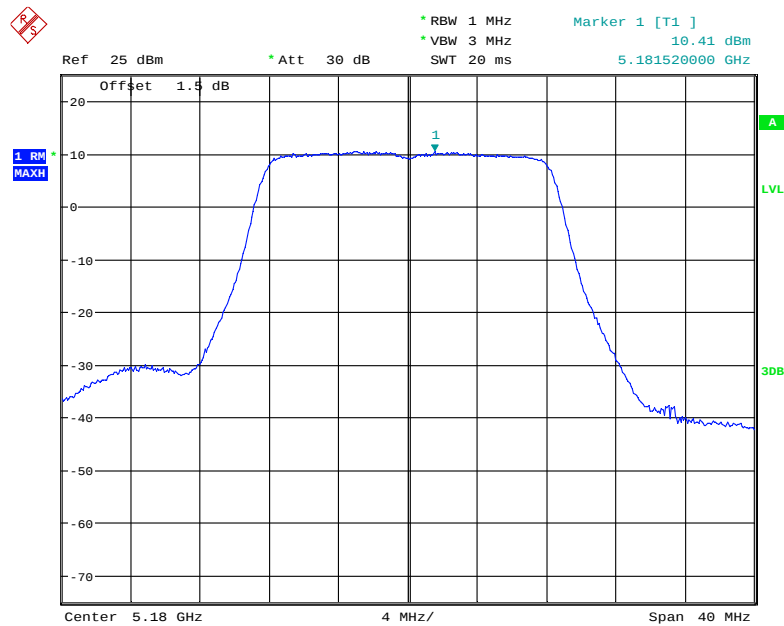
$$\text{Directional gain} = G_{ANT} = 21\text{dBi}$$

For 5.8GHz band, If measurement bandwidth of Maximum PSD is specified in 500 kHz, add $10\log(500\text{kHz}/\text{RBW})$ to the measured result, whereas RBW (< 500 kHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.

Method SA-3 in KDB 789033 D02 General UNII Test Procedures New Rules v02r01 was used for PSD test.

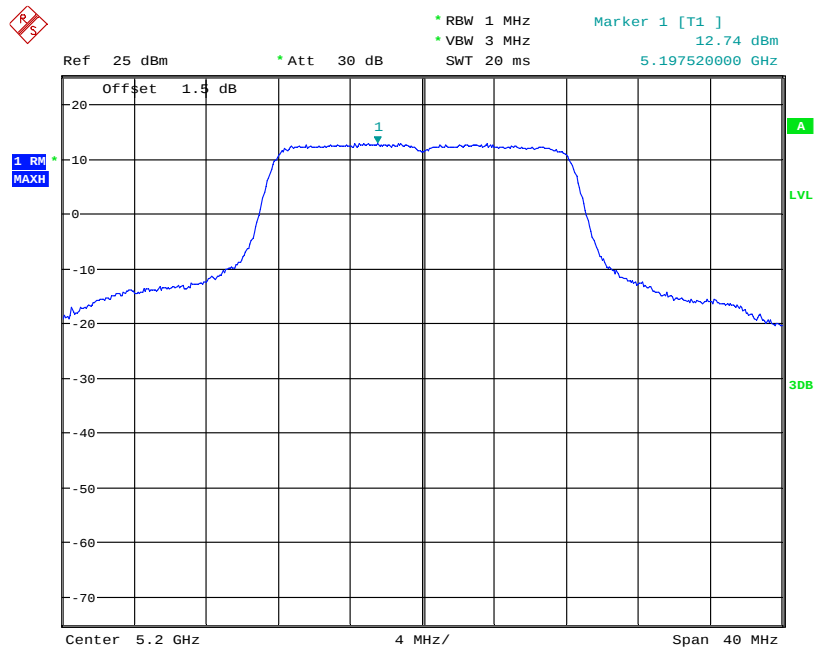
5150-5250MHz, Chain 0:

802.11a Low Channel



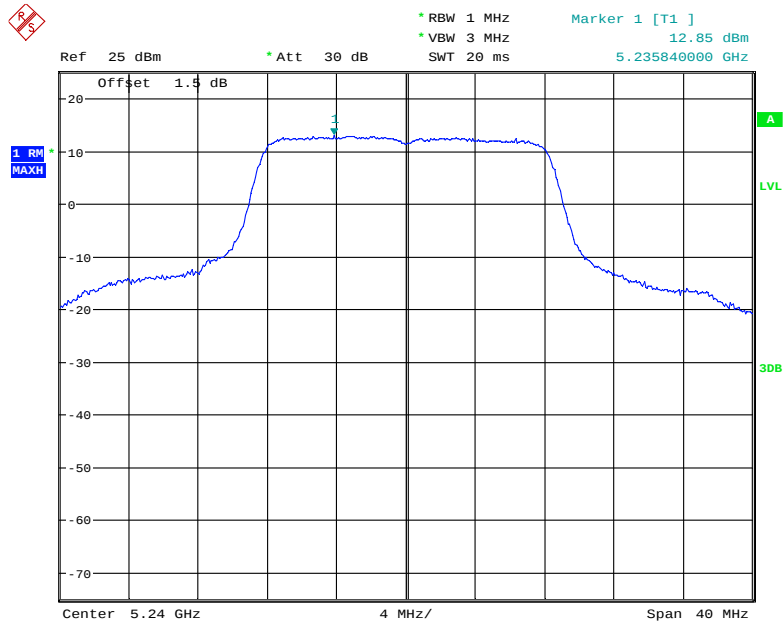
Date: 22.OCT.2020 11:14:50

802.11a Middle Channel



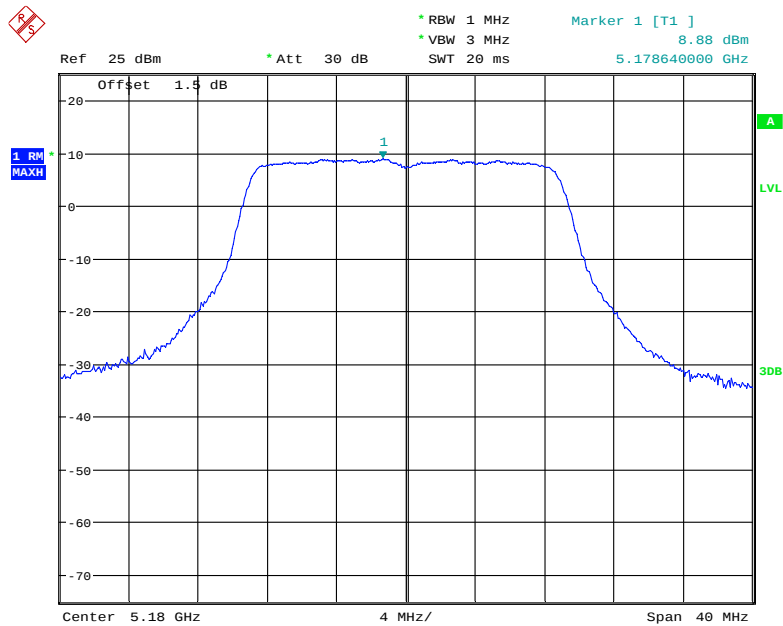
Date: 22.OCT.2020 09:10:04

802.11a High Channel



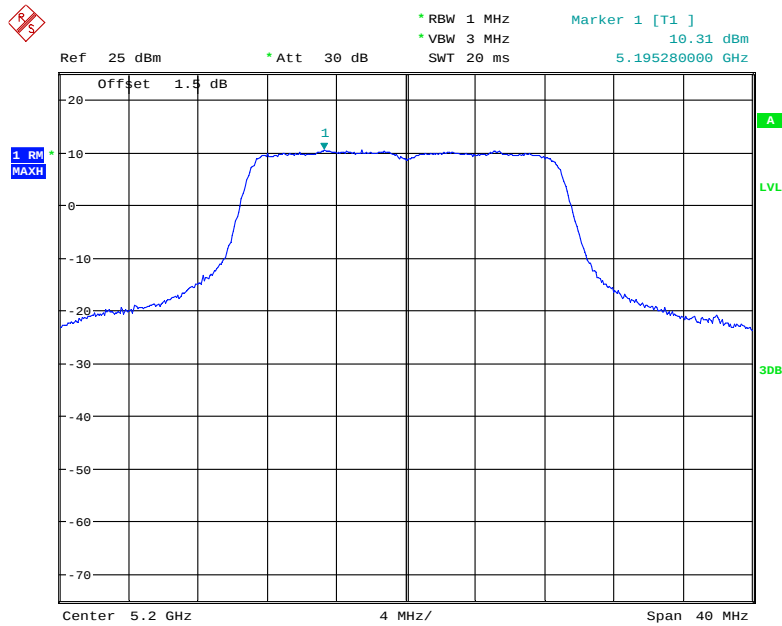
Date: 22.OCT.2020 09:12:43

802.11n ht20 Low Channel



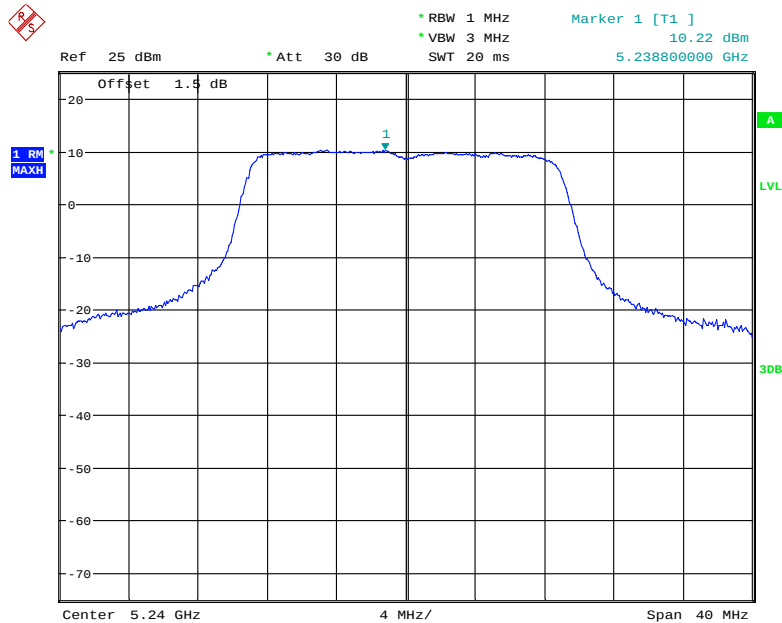
Date: 22.OCT.2020 11:07:16

802.11n ht20 Middle Channel



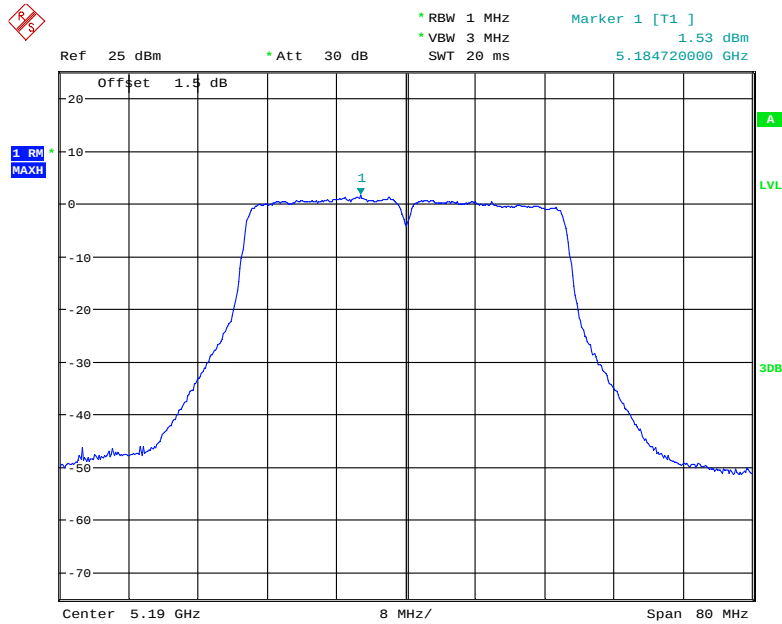
Date: 22.OCT.2020 09:22:15

802.11n ht20 High Channel



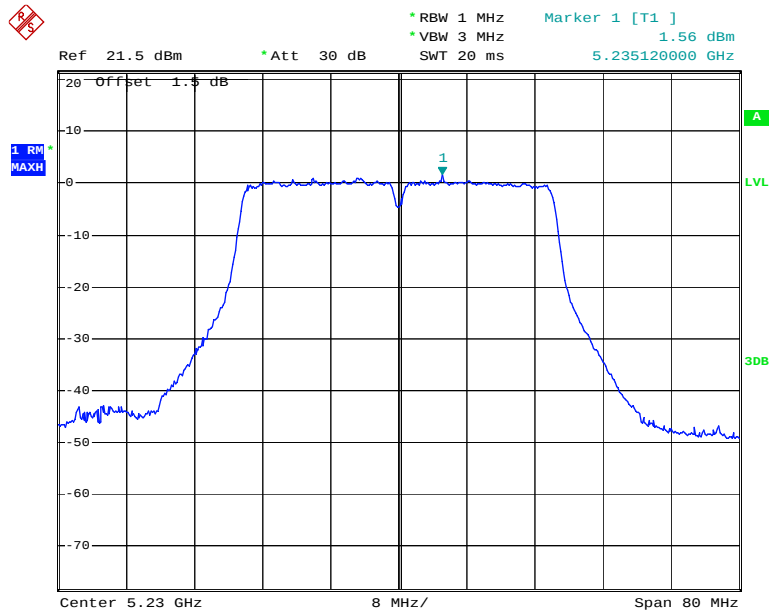
Date: 22.OCT.2020 09:18:23

802.11n ht40 Low Channel



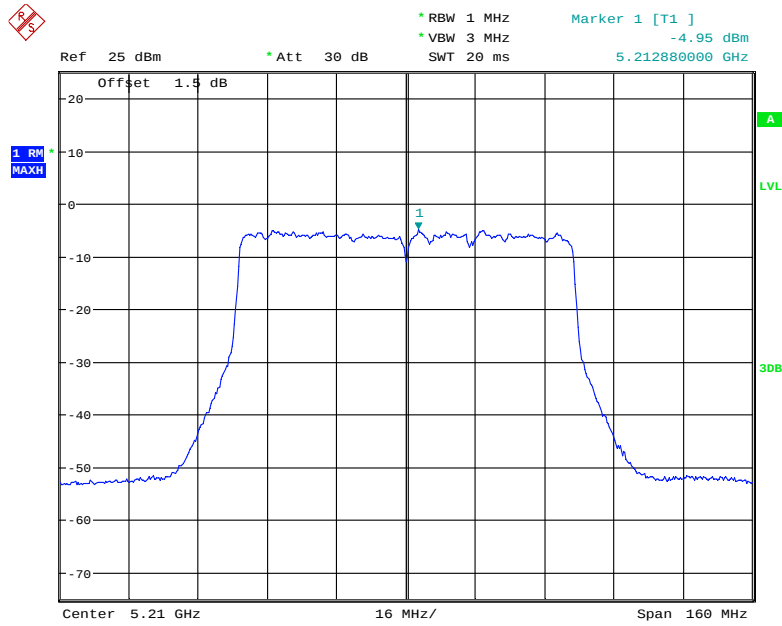
Date: 22.OCT.2020 11:05:17

802.11n ht40 High Channel



Date: 30.DEC.2020 20:31:27

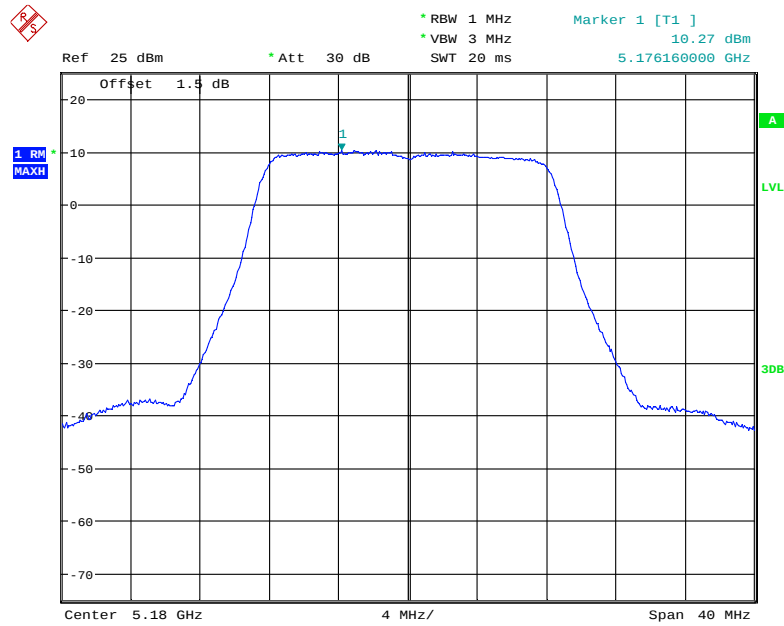
802.11ac vht80 Middle Channel



Date: 22.OCT.2020 11:00:51

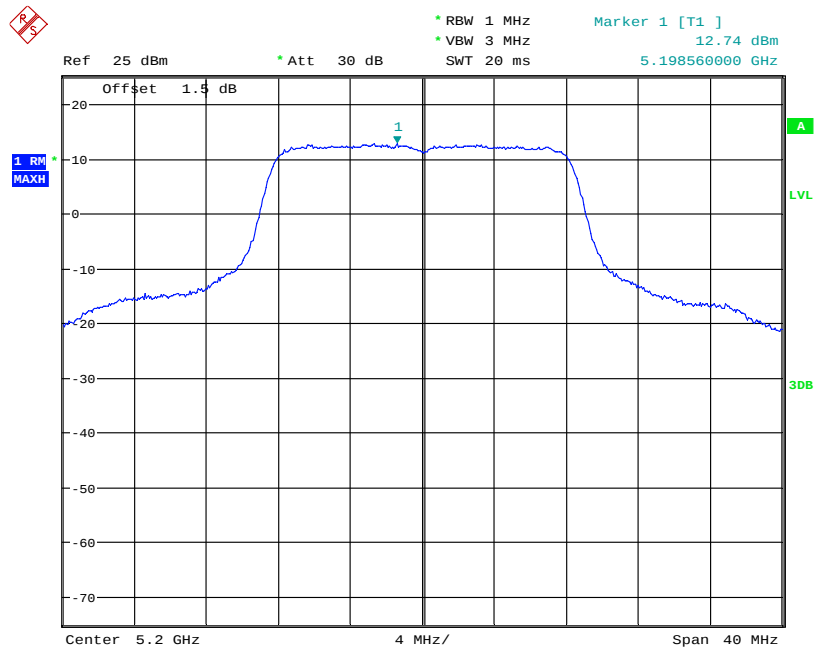
Chain 1:

802.11a Low Channel



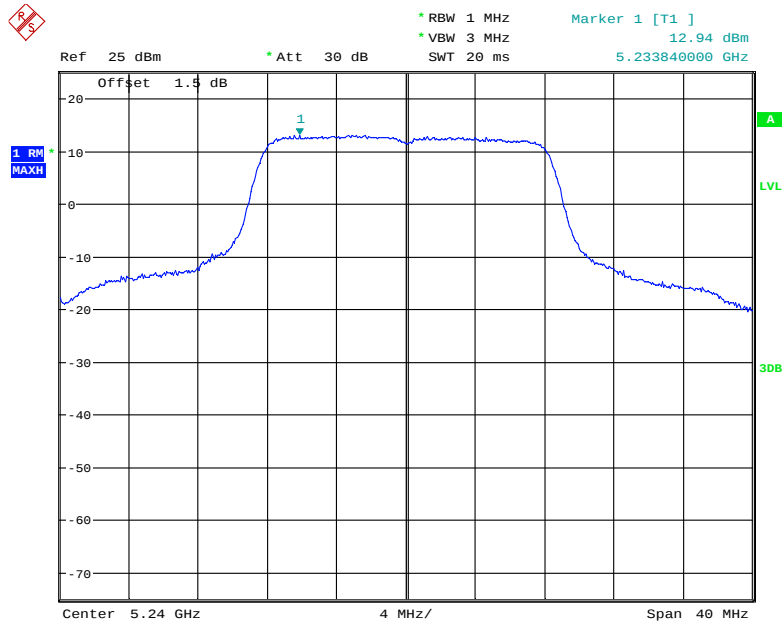
Date: 22.OCT.2020 11:21:49

802.11a Middle Channel



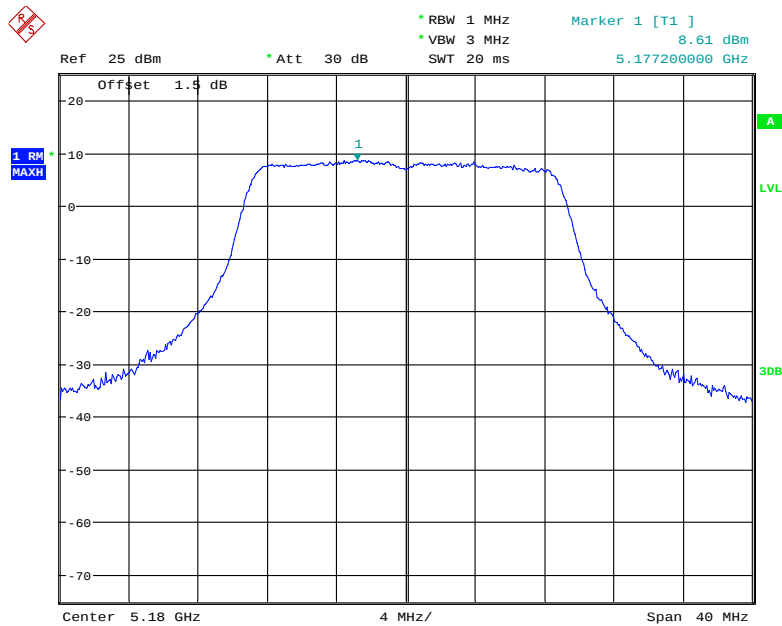
Date: 22.OCT.2020 09:55:01

802.11a High Channel



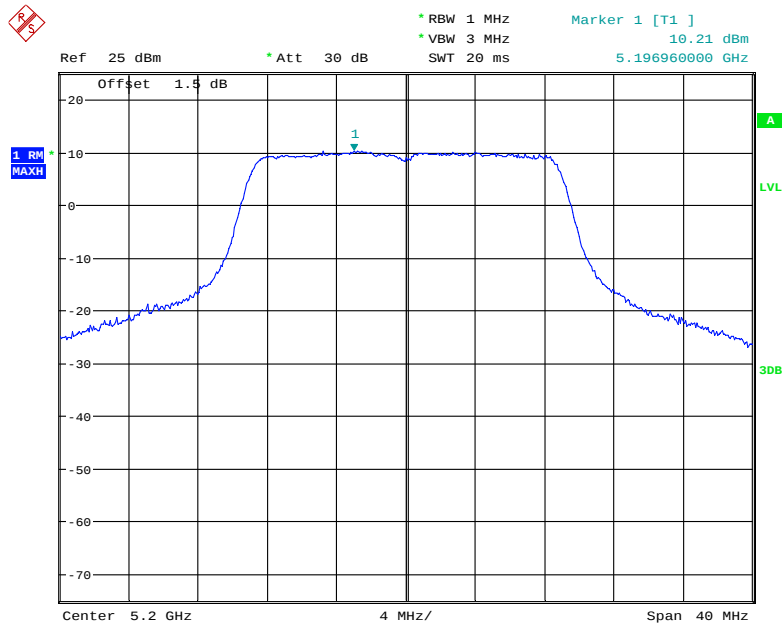
Date: 22.OCT.2020 09:55:26

802.11n ht20 Low Channel



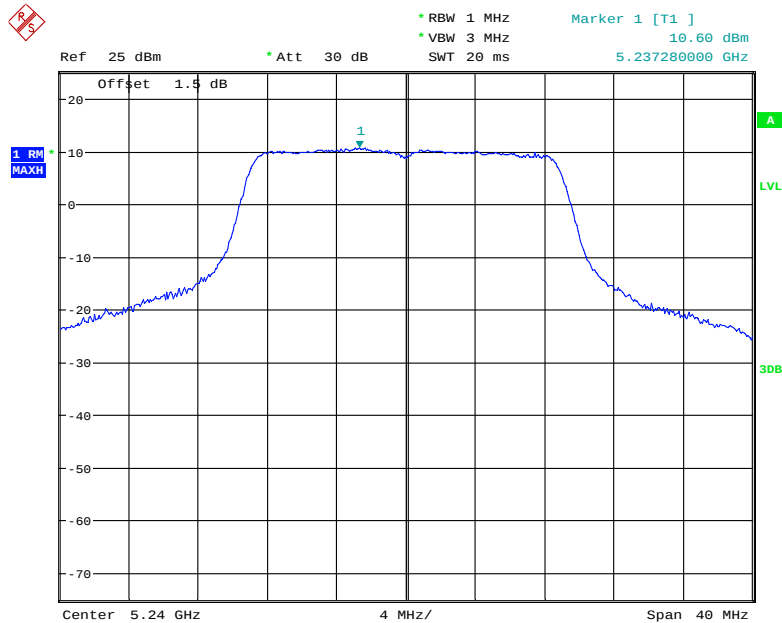
Date: 22.OCT.2020 11:21:03

802.11n ht20 Middle Channel



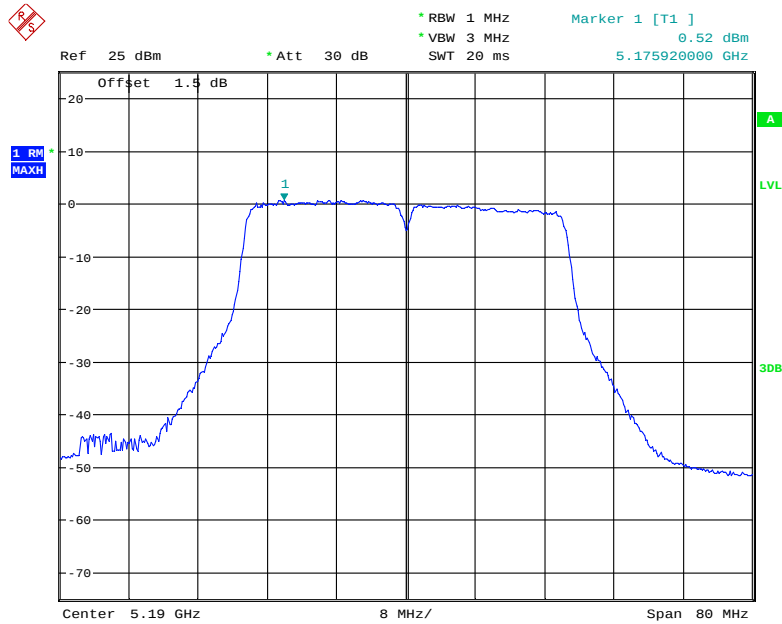
Date: 22.OCT.2020 09:56:50

802.11n ht20 High Channel



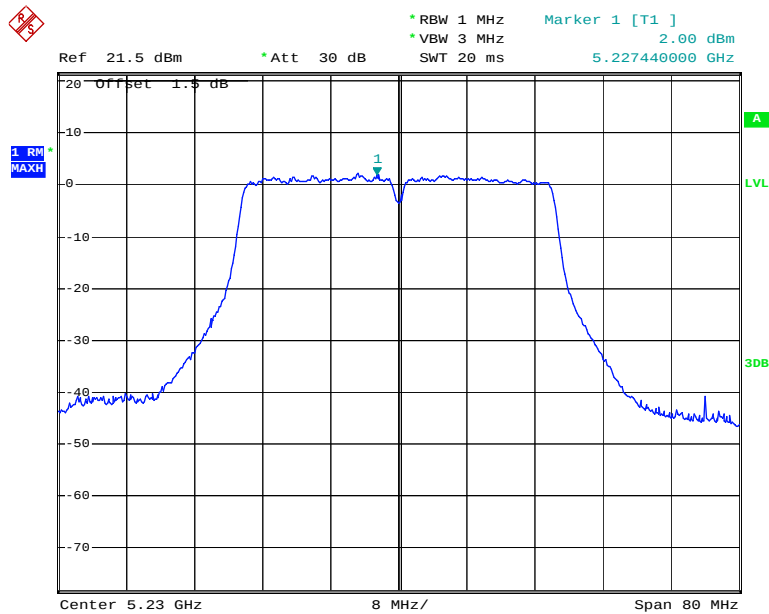
Date: 22.OCT.2020 09:56:22

802.11n ht40 Low Channel



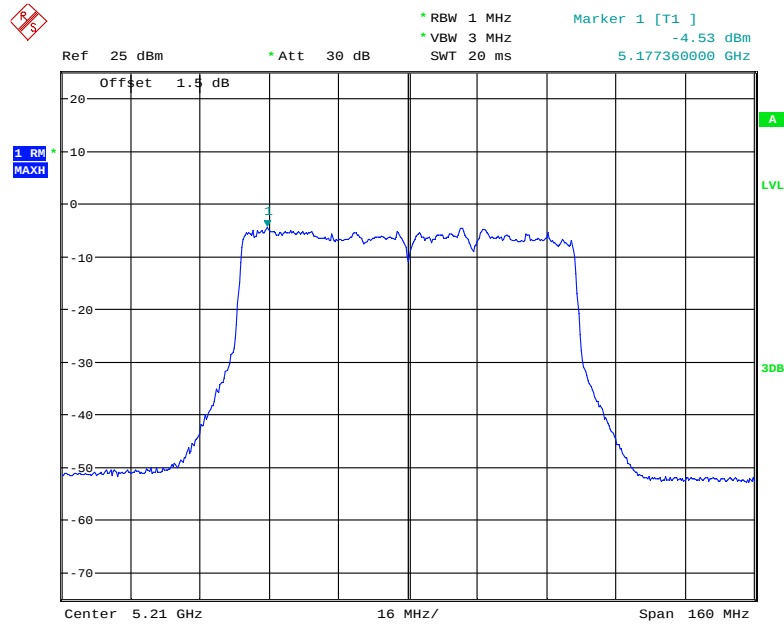
Date: 22.OCT.2020 11:20:27

802.11n ht40 High Channel



Date: 30.DEC.2020 20:30:42

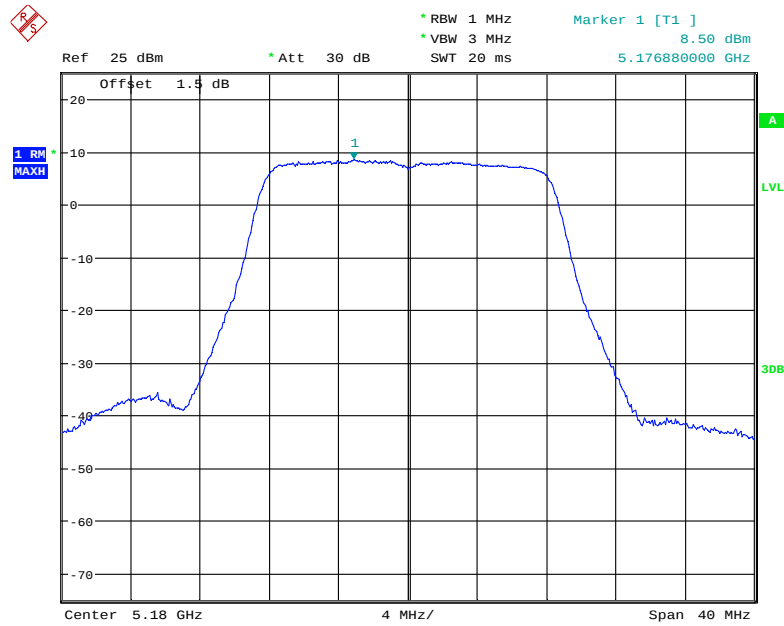
802.11ac vht80 Middle Channel



Date: 22.OCT.2020 11:19:46

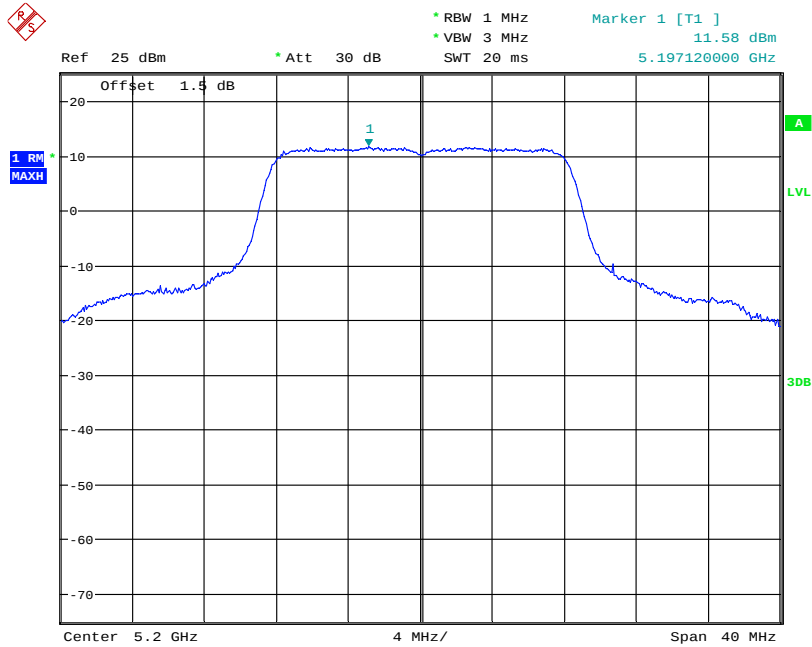
Chain 2:

802.11a Low Channel



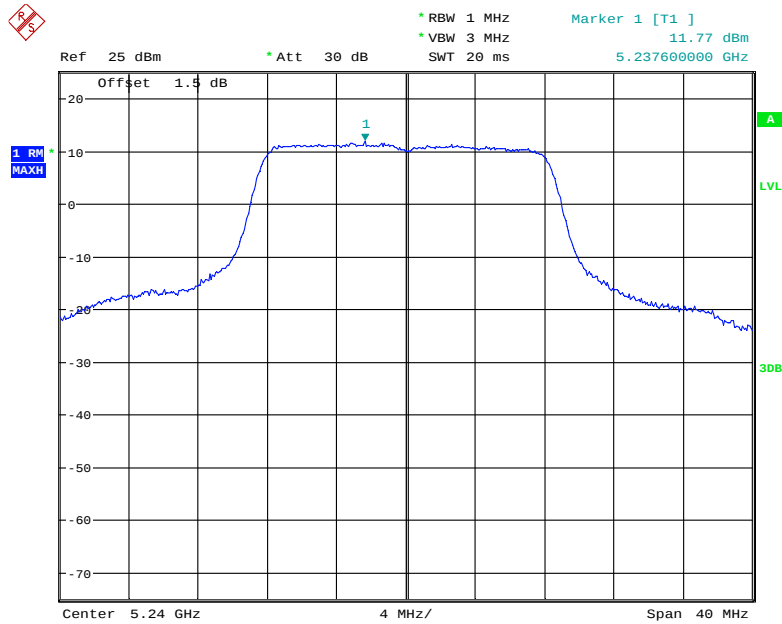
Date: 22.OCT.2020 11:13:19

802.11a Middle Channel



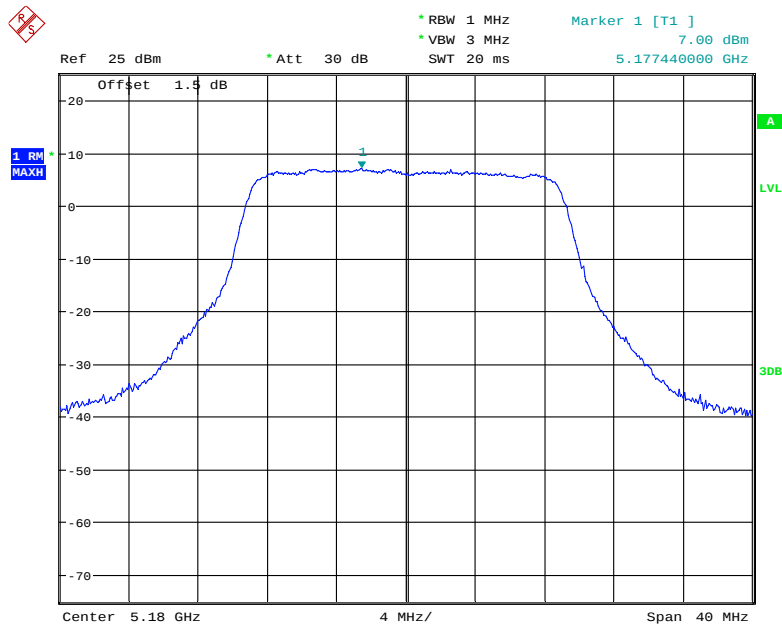
Date: 22.OCT.2020 10:10:50

802.11a High Channel



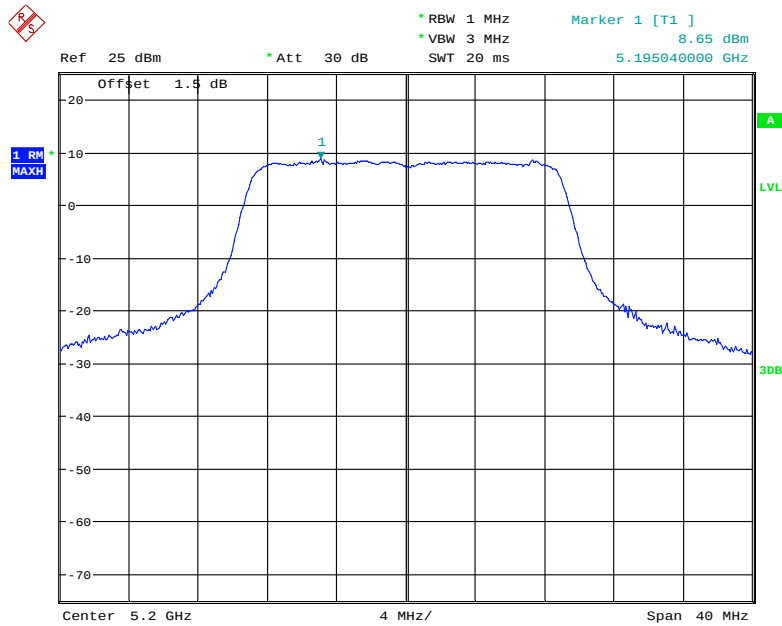
Date: 22.OCT.2020 10:11:19

802.11n ht20 Low Channel



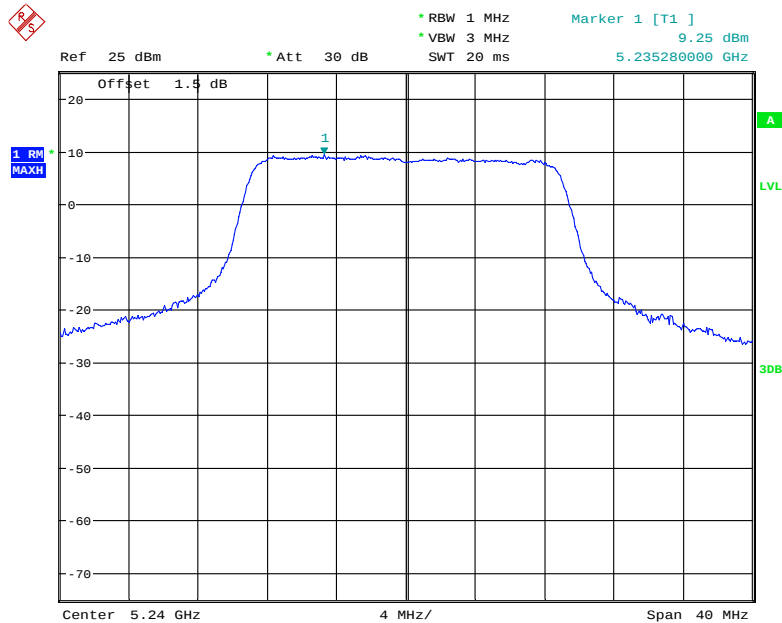
Date: 22.OCT.2020 11:12:30

802.11n ht20 Middle Channel



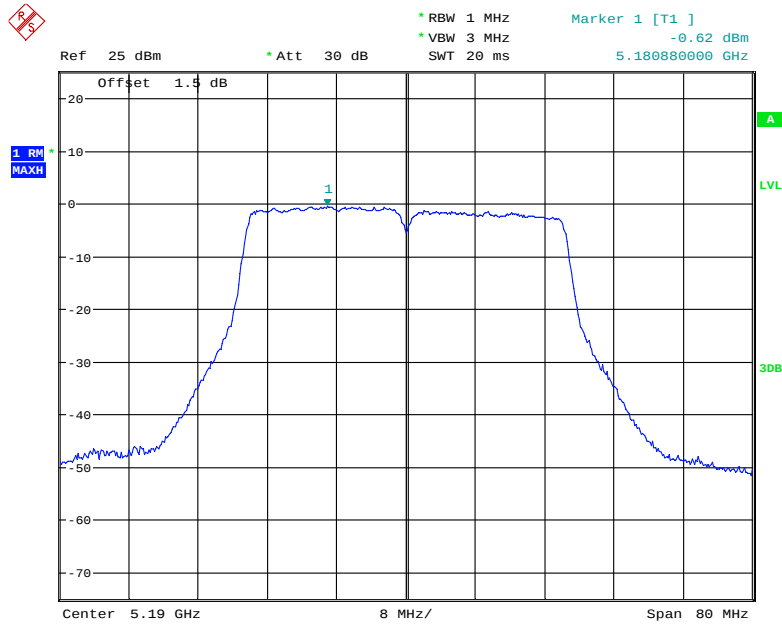
Date: 22.OCT.2020 10:13:05

802.11n ht20 High Channel



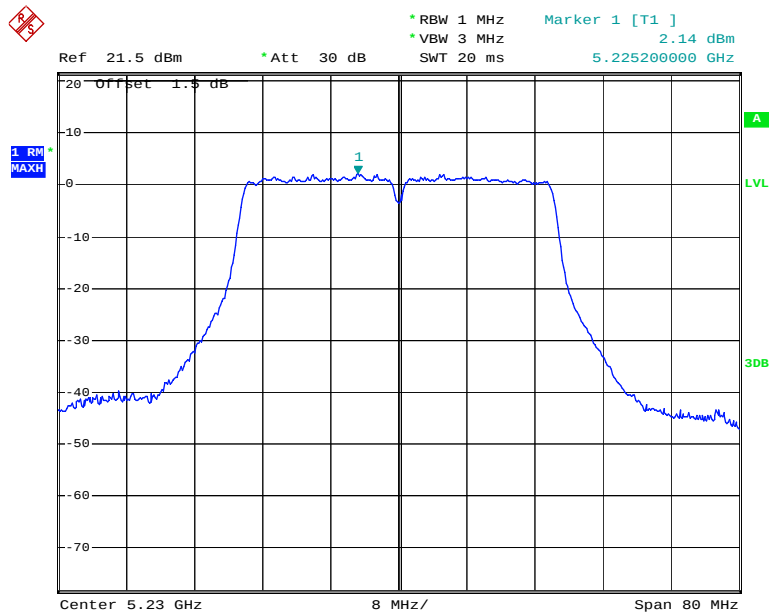
Date: 22.OCT.2020 10:12:37

802.11n ht40 Low Channel



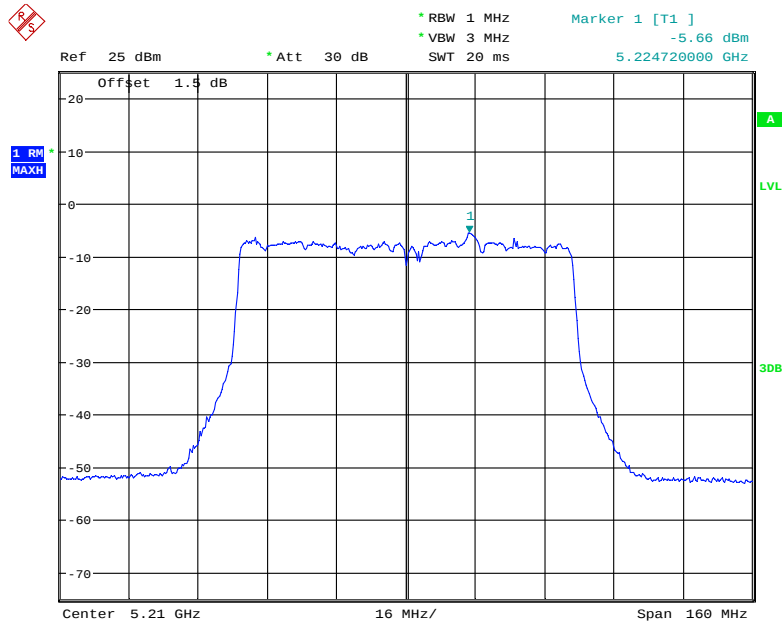
Date: 22.OCT.2020 11:11:32

802.11n ht40 High Channel



Date: 30.DEC.2020 20:31:05

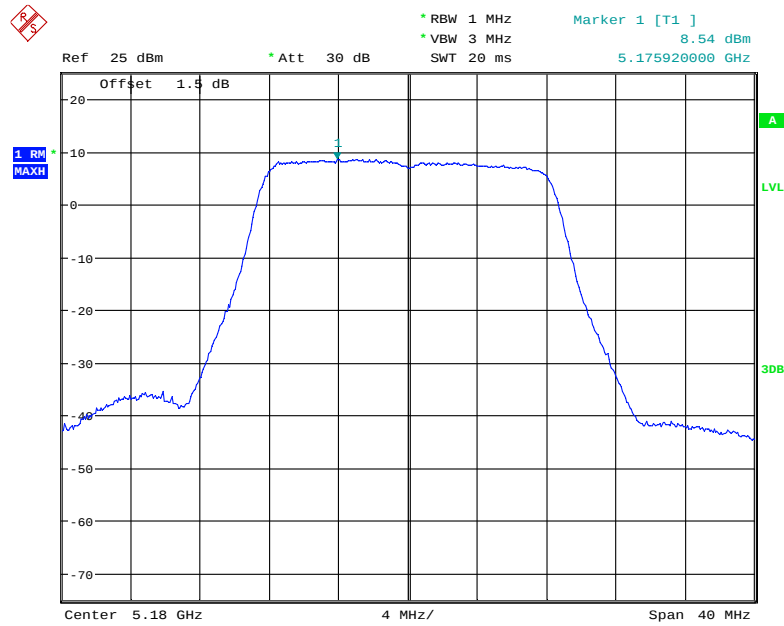
802.11ac vht80 Middle Channel



Date: 22.OCT.2020 11:10:44

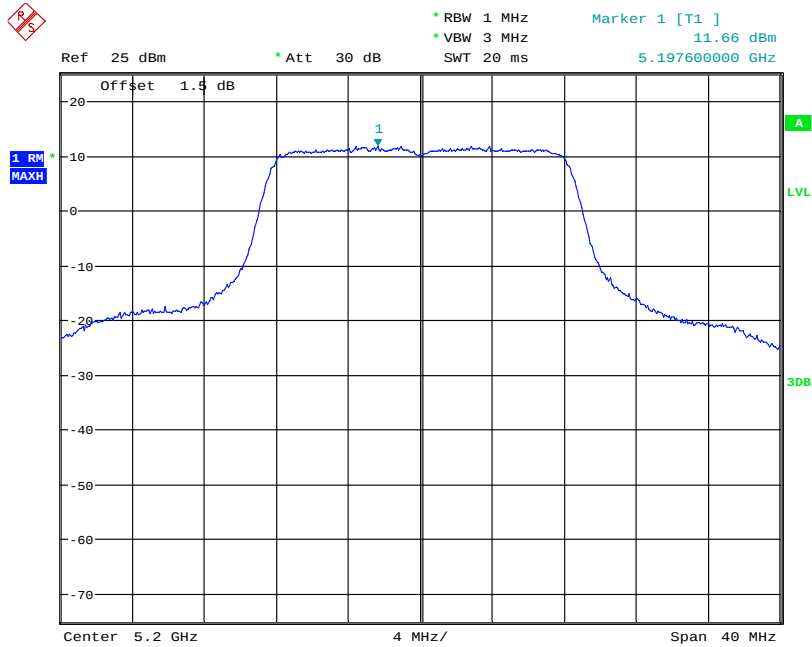
Chain 3:

802.11a Low Channel



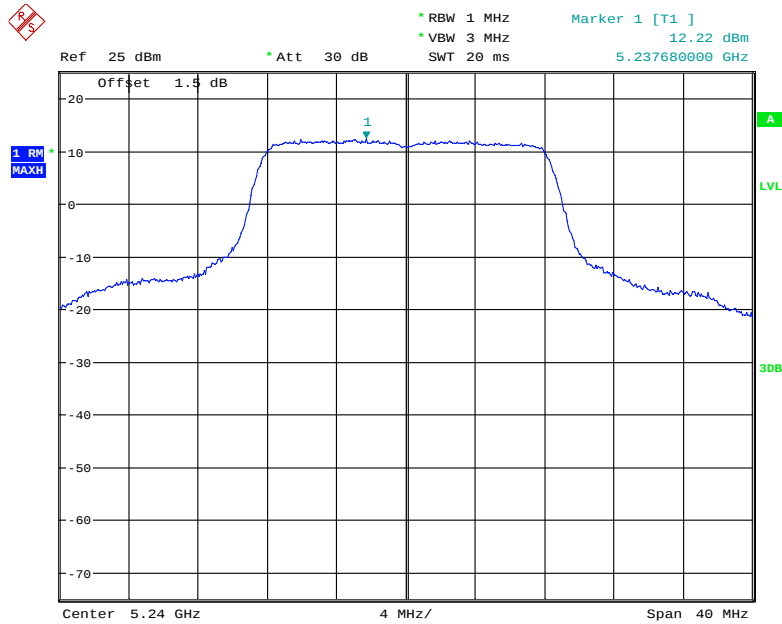
Date: 22.OCT.2020 11:16:22

802.11a Middle Channel



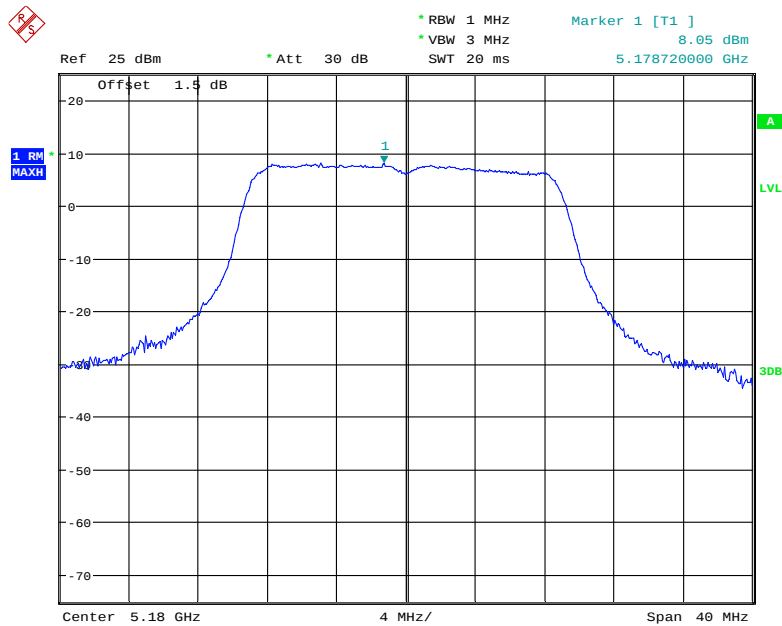
Date: 22.OCT.2020 10:08:18

802.11a High Channel



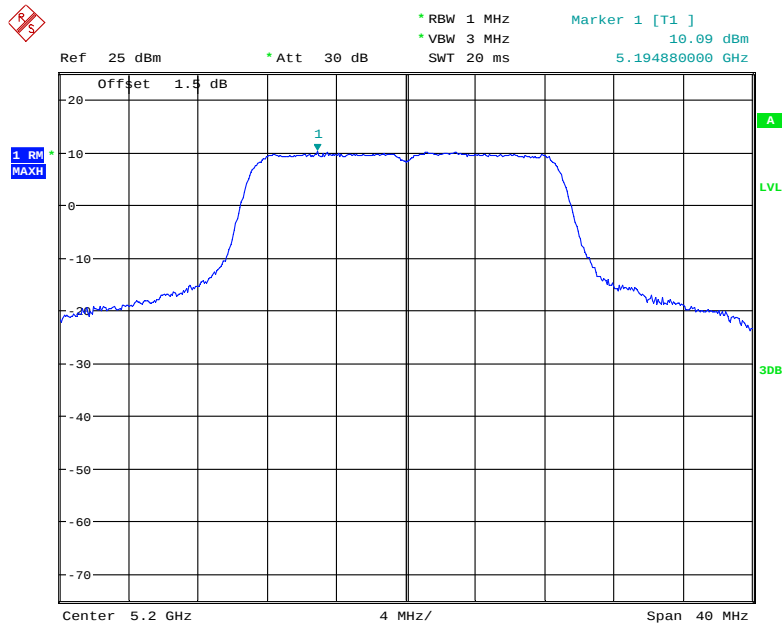
Date: 22.OCT.2020 10:07:38

802.11n ht20 Low Channel



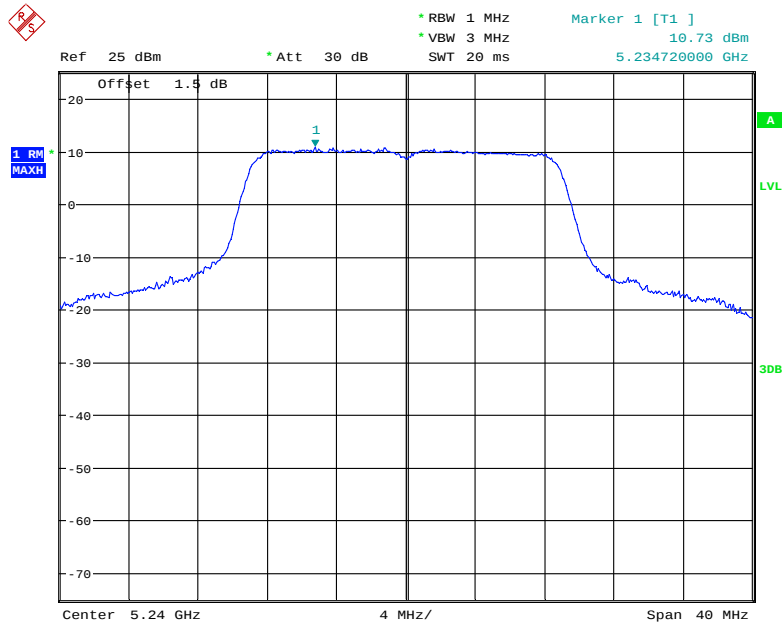
Date: 22.OCT.2020 11:17:13

802.11n ht20 Middle Channel



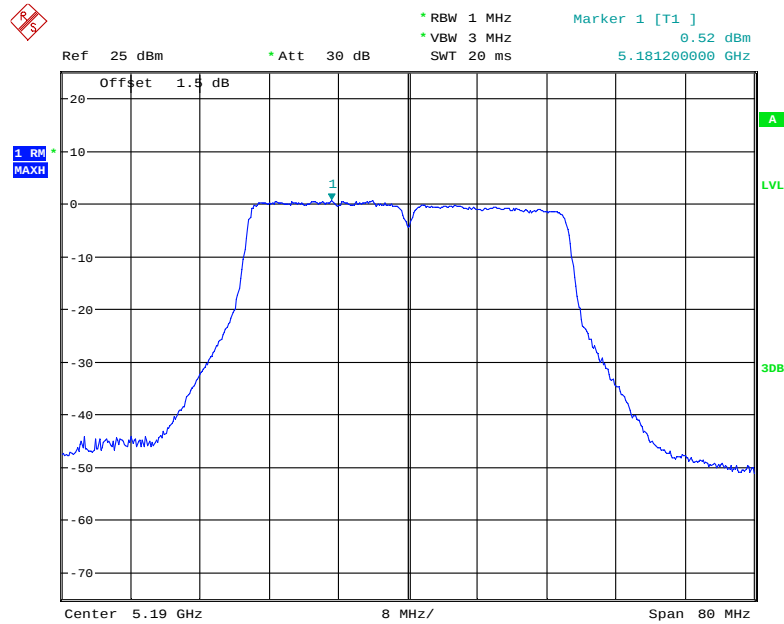
Date: 22.OCT.2020 10:05:37

802.11n ht20 High Channel



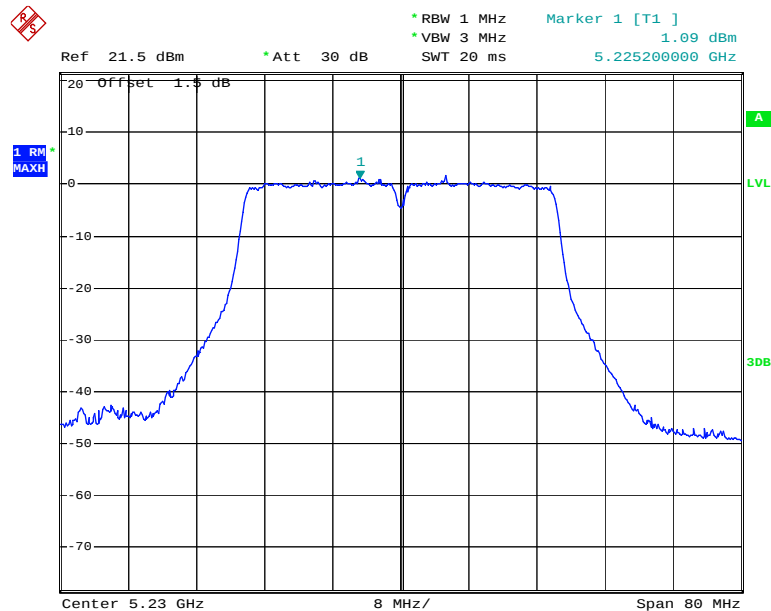
Date: 22.OCT.2020 10:06:11

802.11n ht40 Low Channel



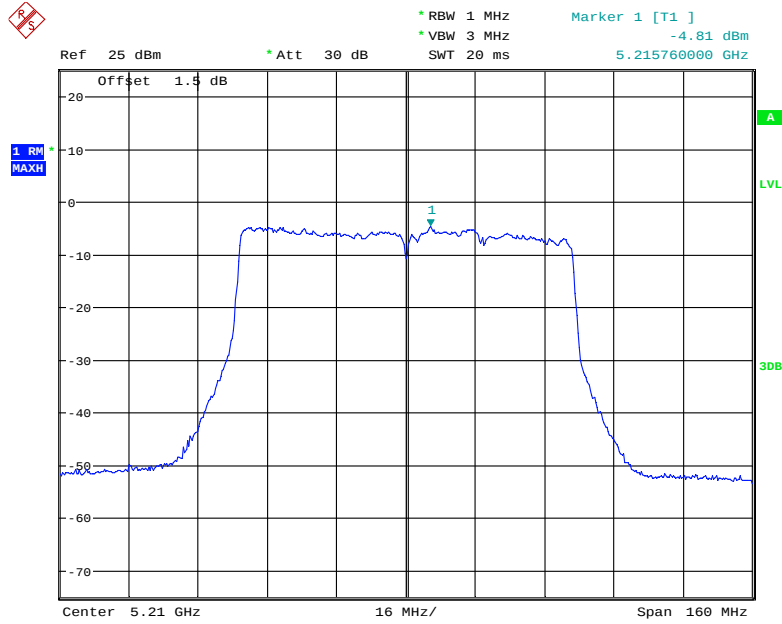
Date: 22.OCT.2020 11:17:59

802.11n ht40 High Channel



Date: 30.DEC.2020 20:31:41

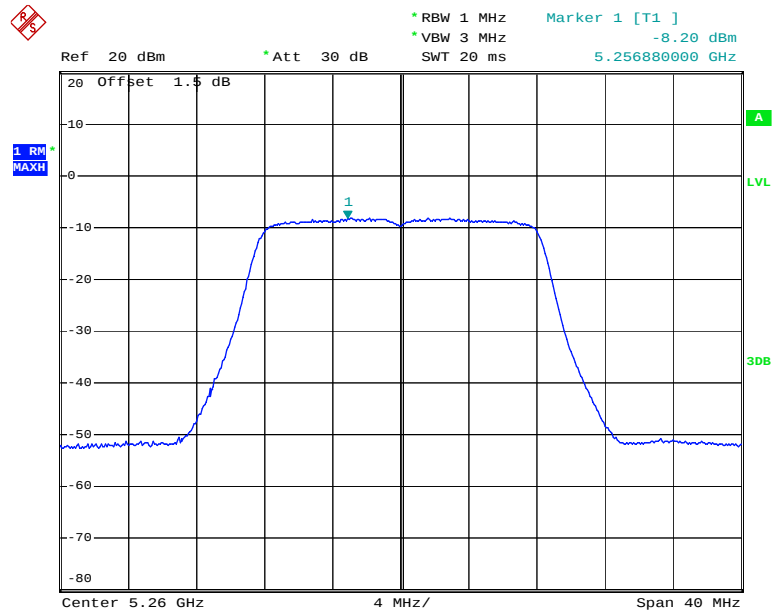
802.11ac vht80 Middle Channel



Date: 22.OCT.2020 11:18:50

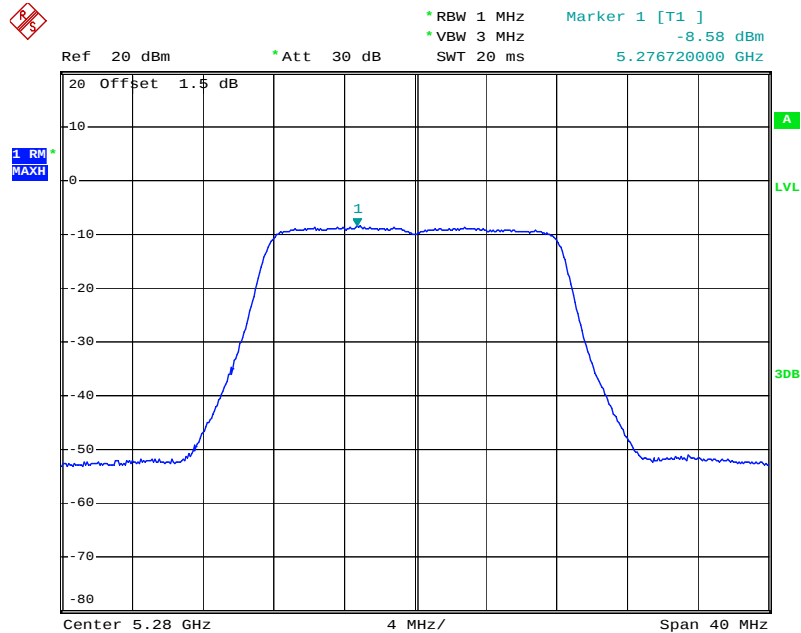
5250-5350MHz, Chain 0:

802.11a Low Channel



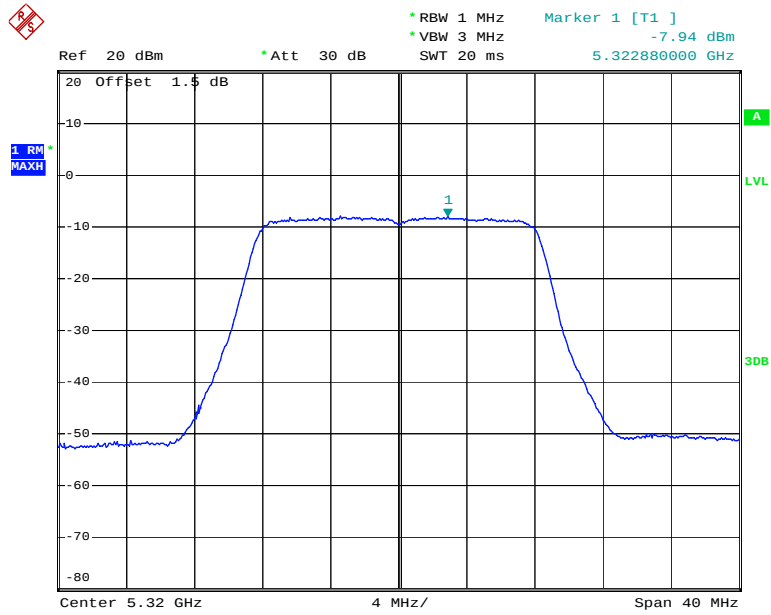
Date: 23.OCT.2020 14:41:34

802.11a Middle Channel



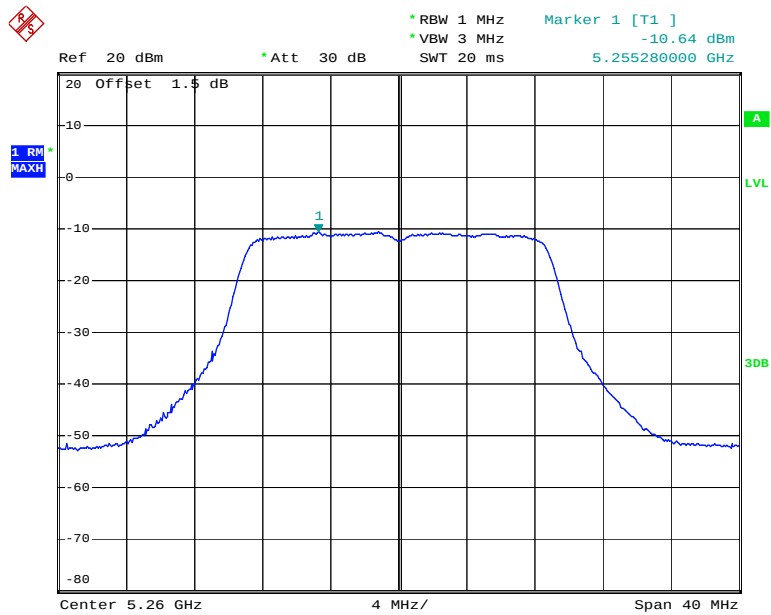
Date: 23.OCT.2020 14:42:30

802.11a High Channel



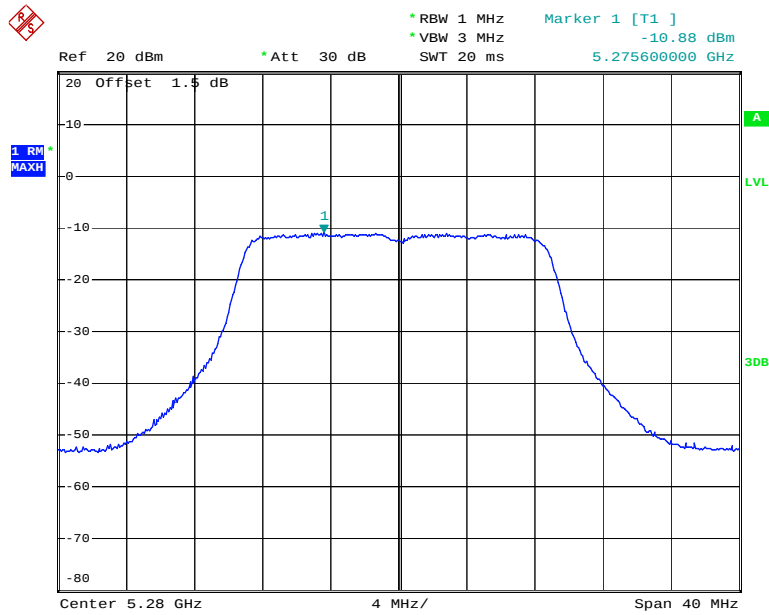
Date: 23.OCT.2020 14:43:02

802.11n ht20 Low Channel



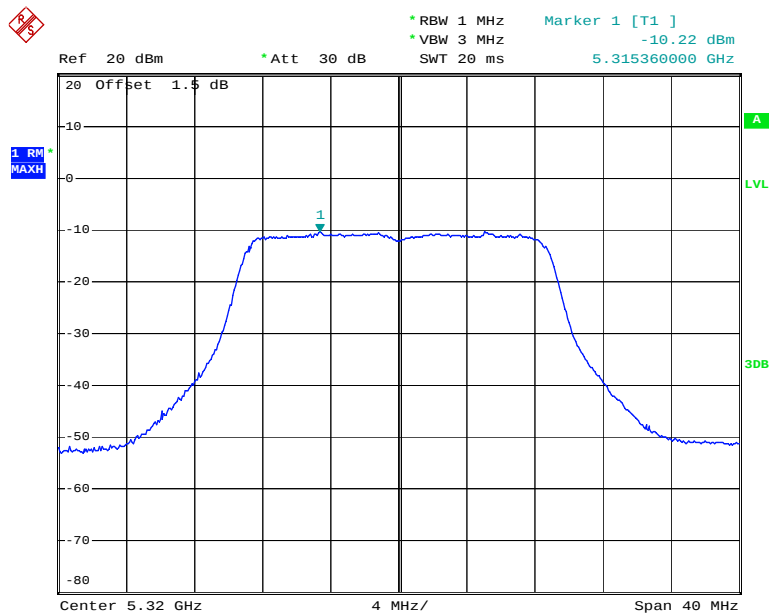
Date: 23.OCT.2020 14:44:54

802.11n ht20 Middle Channel



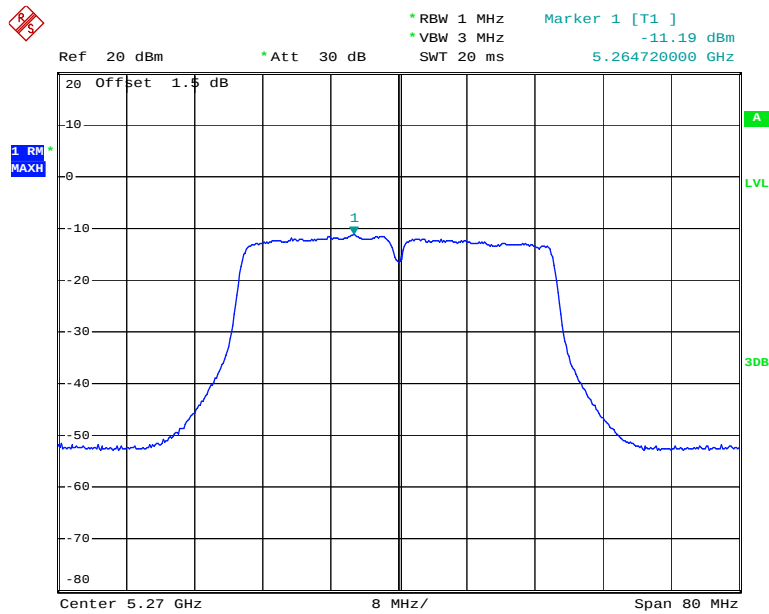
Date: 23.OCT.2020 14:44:27

802.11n ht20 High Channel



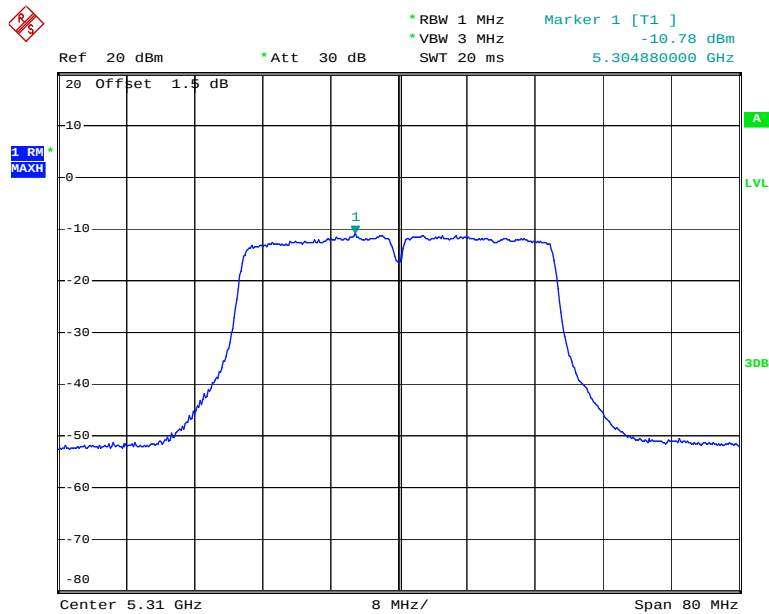
Date: 23.OCT.2020 14:43:43

802.11n ht40 Low Channel



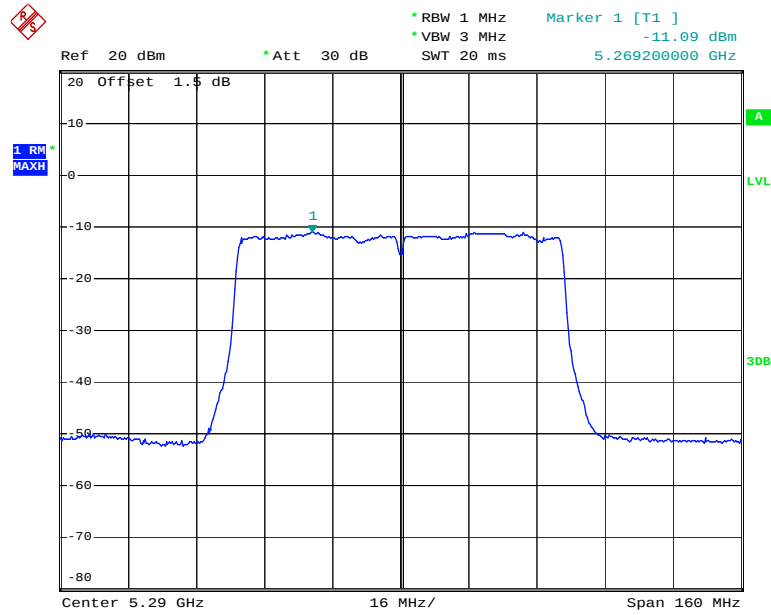
Date: 23.OCT.2020 14:48:30

802.11n ht40 High Channel



Date: 23.OCT.2020 14:49:00

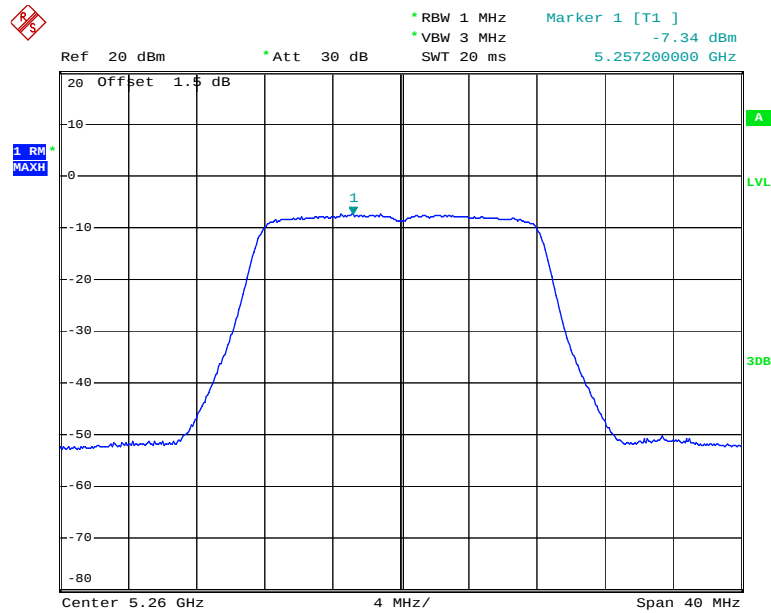
802.11ac vht80 Middle Channel



Date: 23.OCT.2020 15:05:16

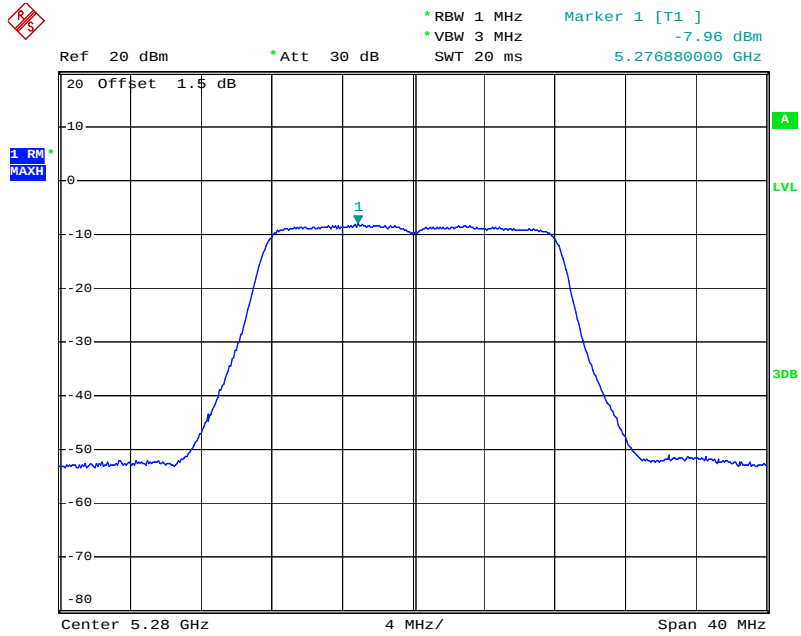
Chain 1:

802.11a Low Channel



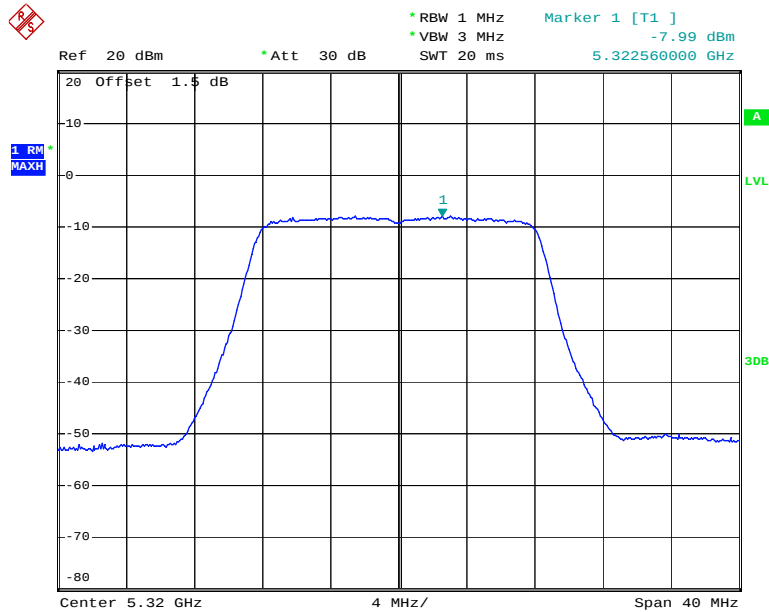
Date: 23.OCT.2020 15:18:39

802.11a Middle Channel



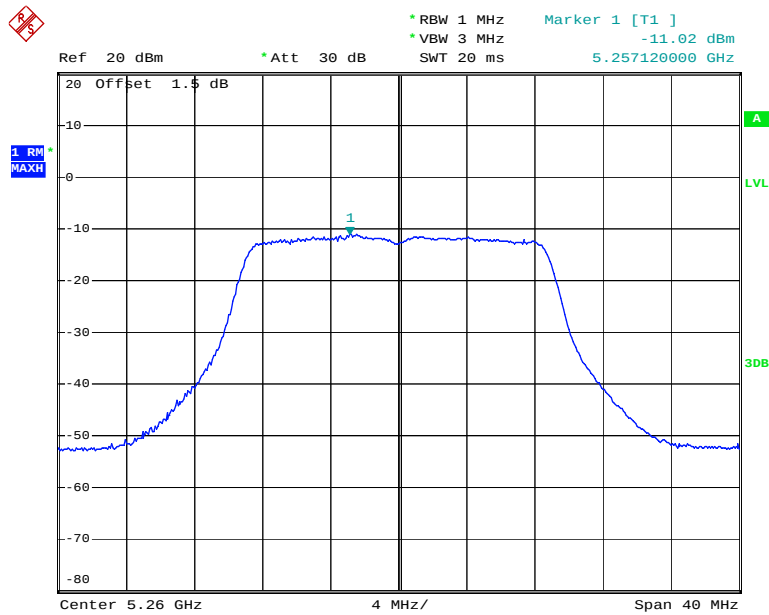
Date: 23.OCT.2020 15:18:18

802.11a High Channel



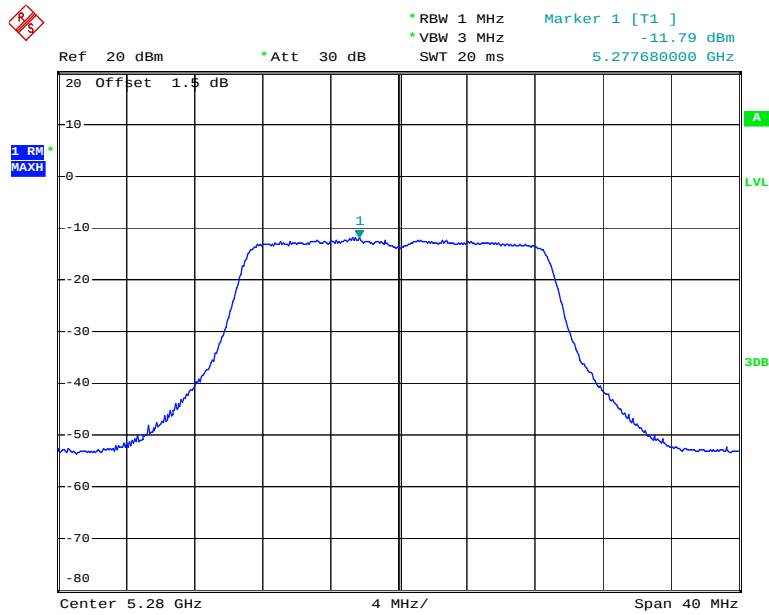
Date: 23.OCT.2020 15:17:56

802.11n ht20 Low Channel



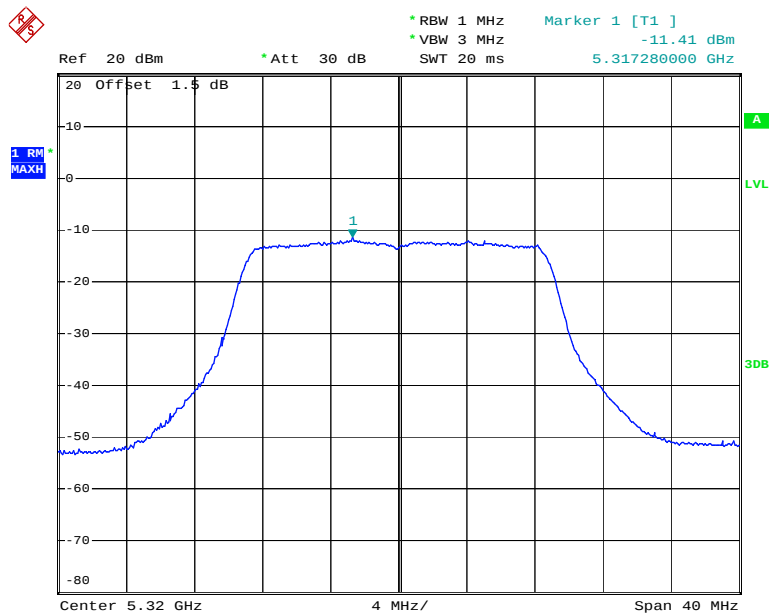
Date: 23.OCT.2020 15:21:10

802.11n ht20 Middle Channel



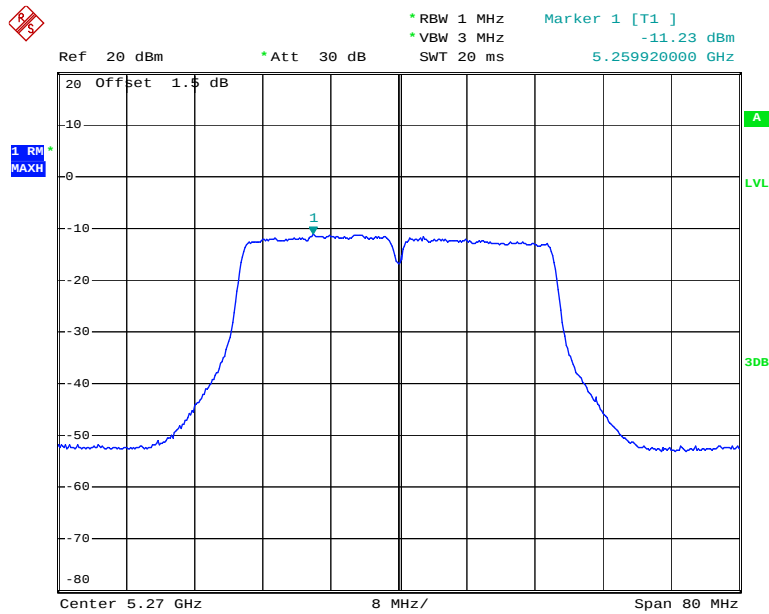
Date: 23.OCT.2020 15:21:31

802.11n ht20 High Channel



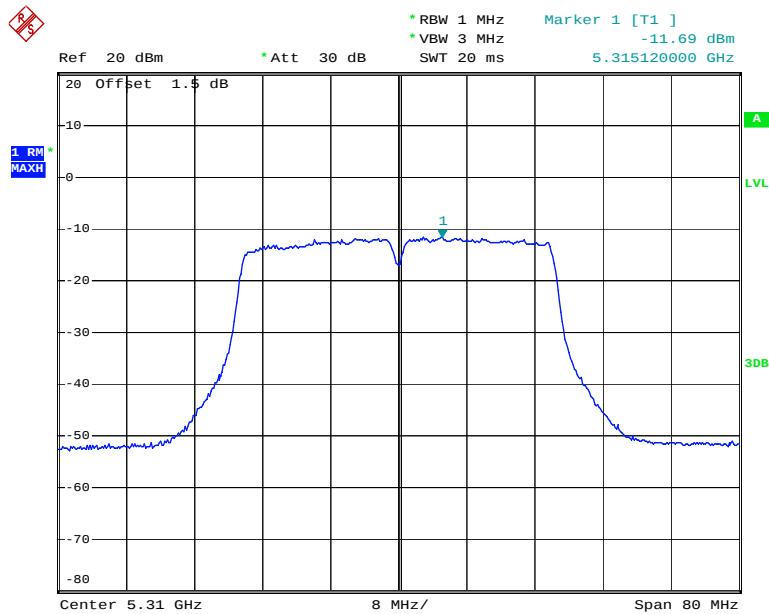
Date: 23.OCT.2020 15:21:53

802.11n ht40 Low Channel



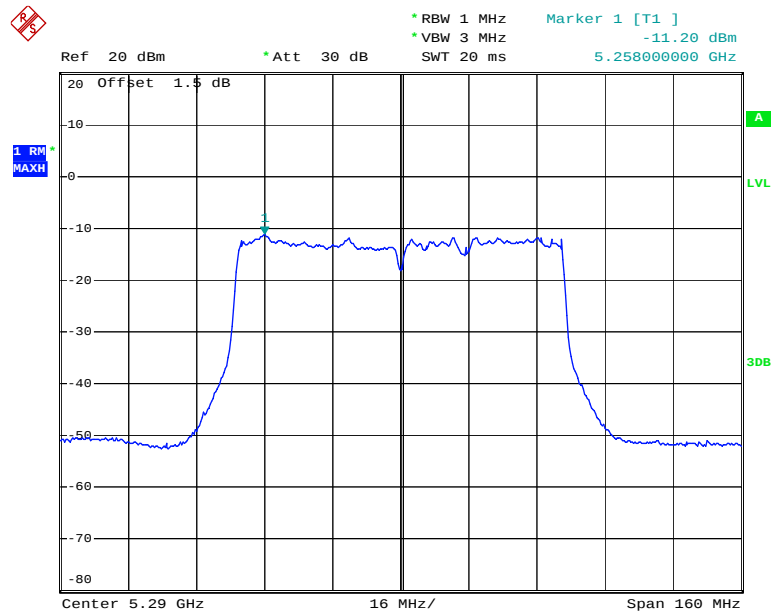
Date: 23.OCT.2020 15:23:06

802.11n ht40 High Channel



Date: 23.OCT.2020 15:22:35

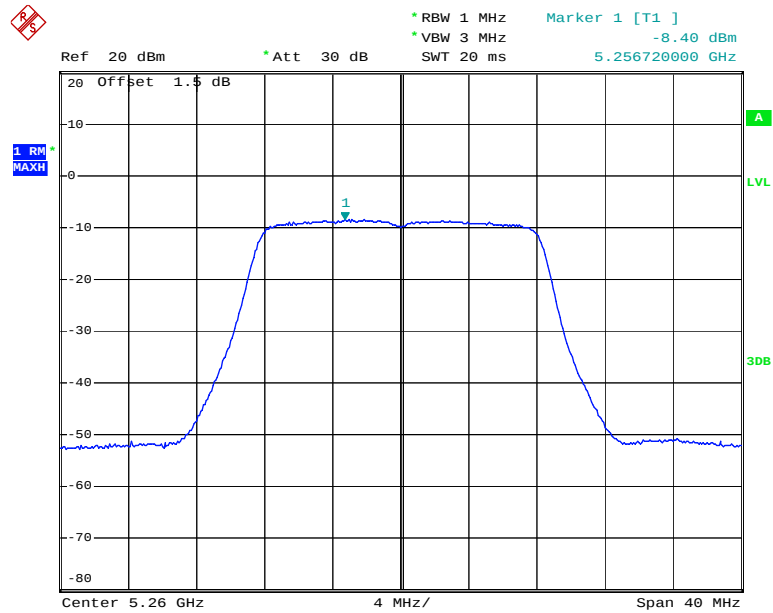
802.11ac vht80 Middle Channel



Date: 23.OCT.2020 15:24:17

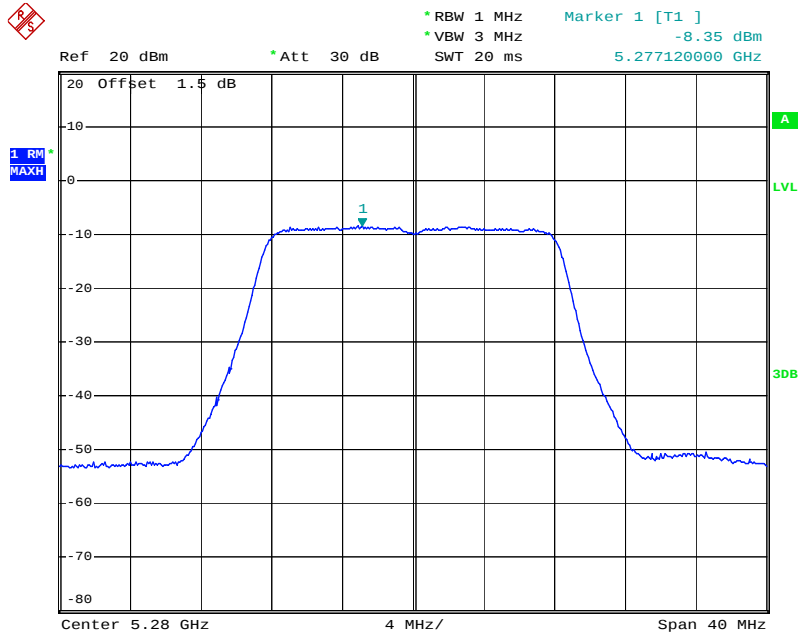
Chain 2:

802.11a Low Channel



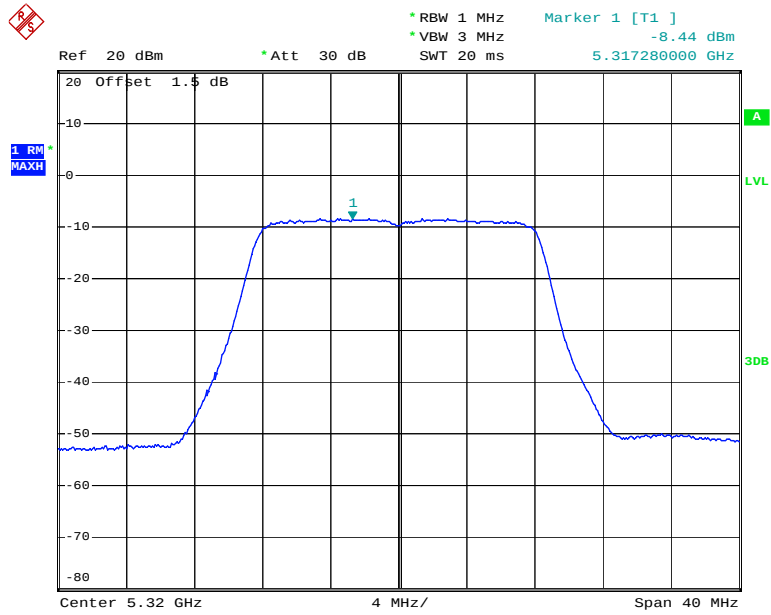
Date: 23.OCT.2020 15:12:04

802.11a Middle Channel



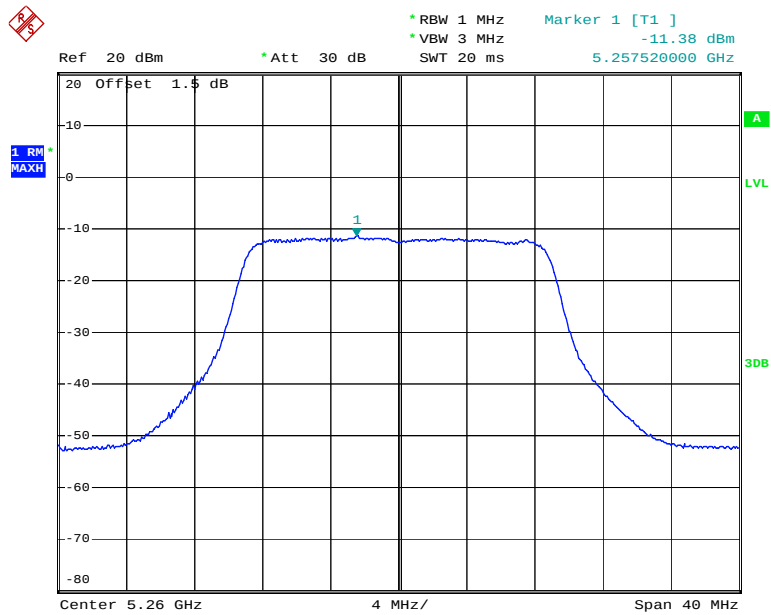
Date: 23.OCT.2020 15:12:44

802.11a High Channel



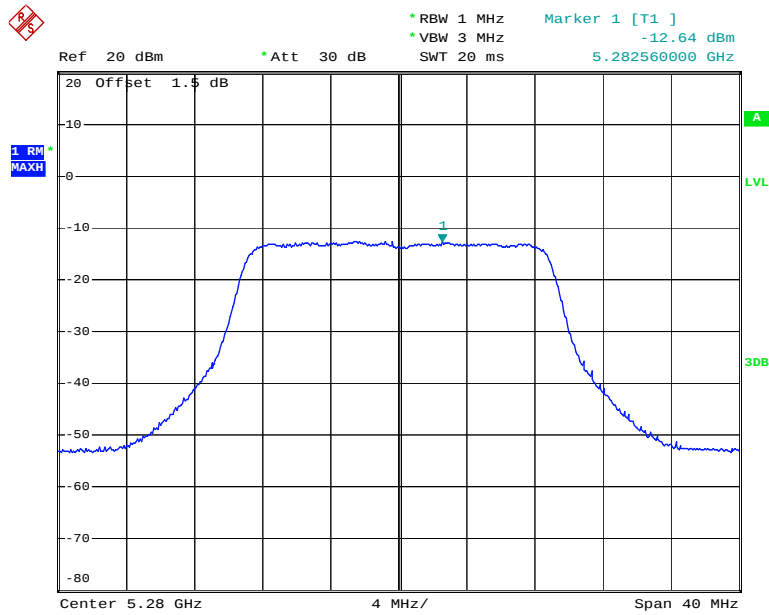
Date: 23.OCT.2020 15:13:05

802.11n ht20 Low Channel



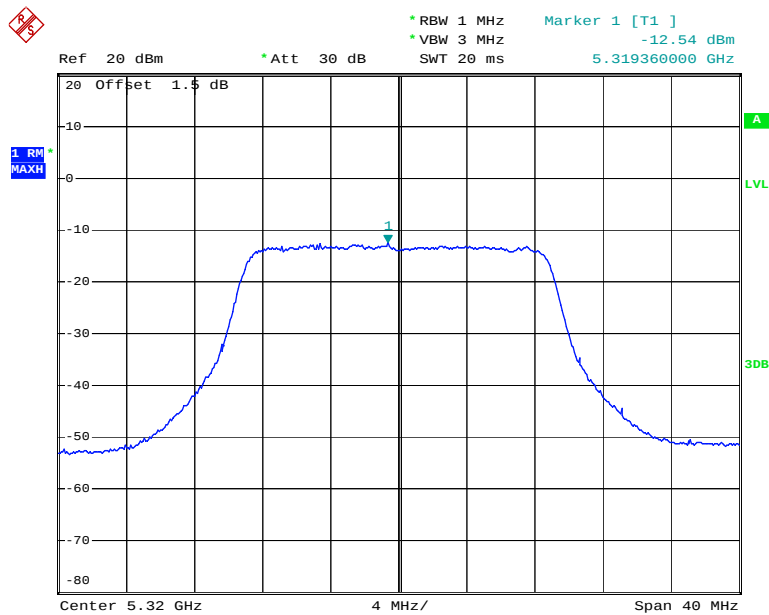
Date: 23.OCT.2020 15:10:07

802.11n ht20 Middle Channel



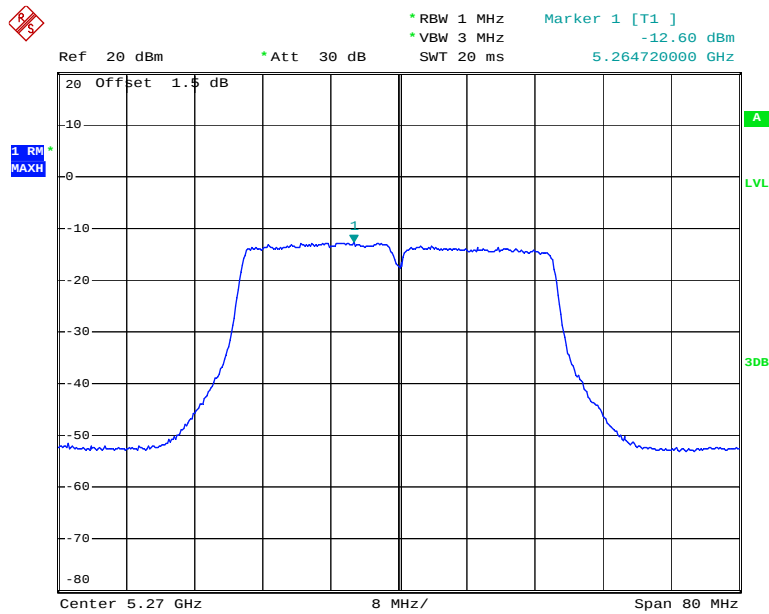
Date: 23.OCT.2020 15:09:38

802.11n ht20 High Channel



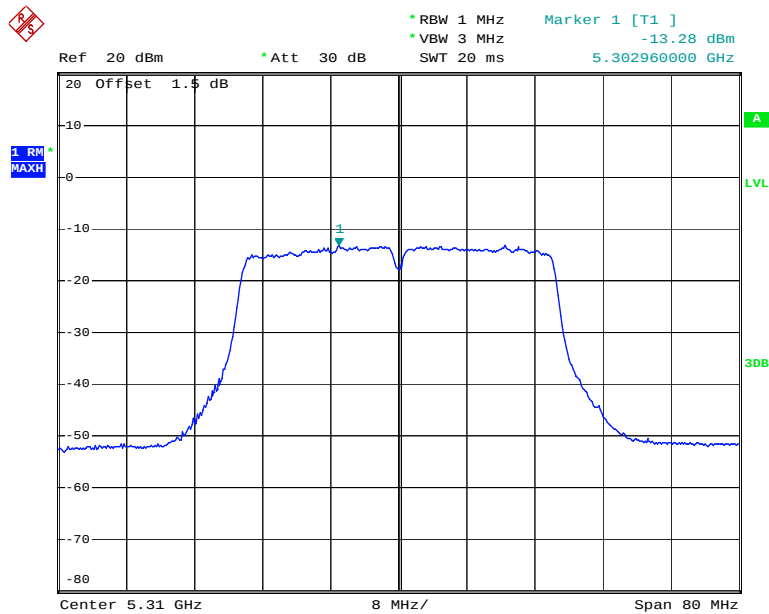
Date: 23.OCT.2020 15:09:06

802.11n ht40 Low Channel



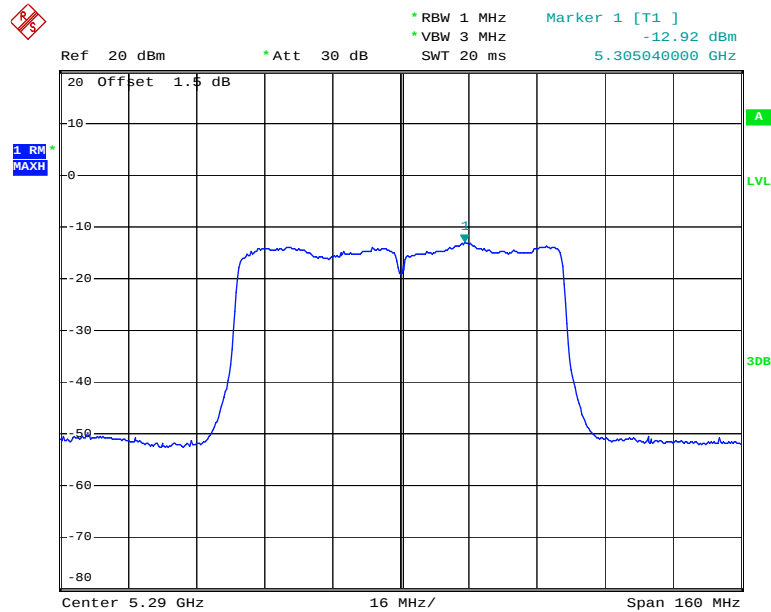
Date: 23.OCT.2020 15:07:37

802.11n ht40 High Channel



Date: 23.OCT.2020 15:08:02

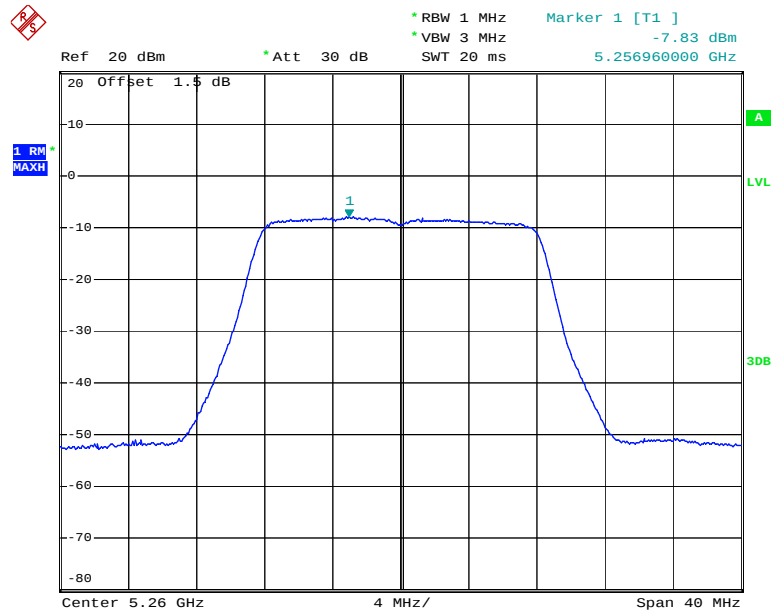
802.11ac vht80 Middle Channel



Date: 23.OCT.2020 15:06:18

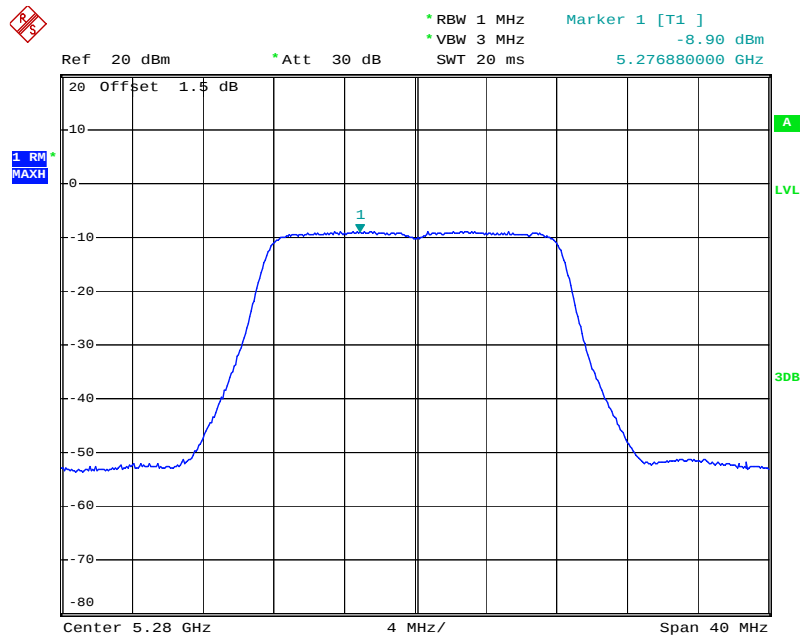
Chain 3:

802.11a Low Channel



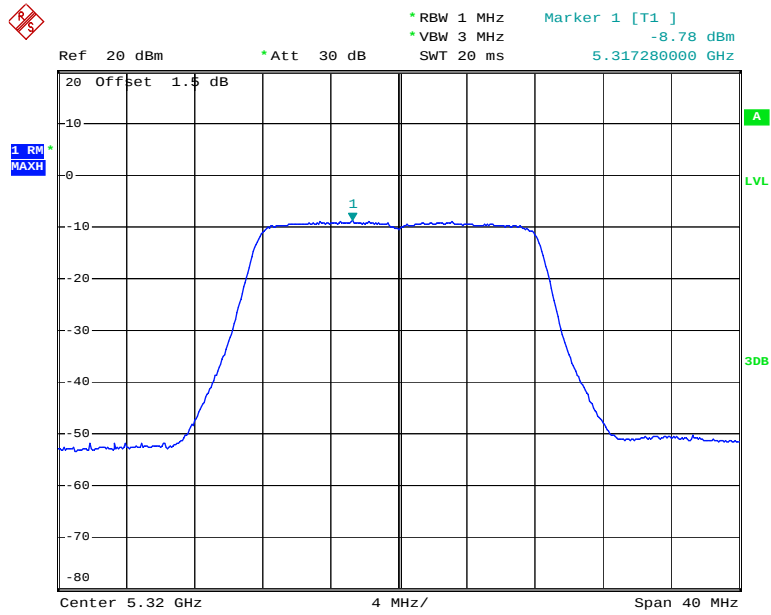
Date: 23.OCT.2020 15:33:35

802.11a Middle Channel



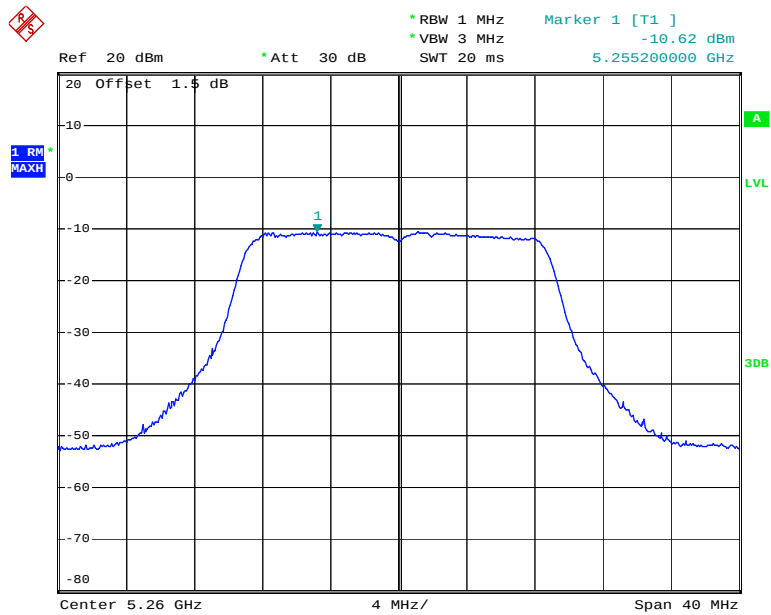
Date: 23.OCT.2020 15:34:14

802.11a High Channel



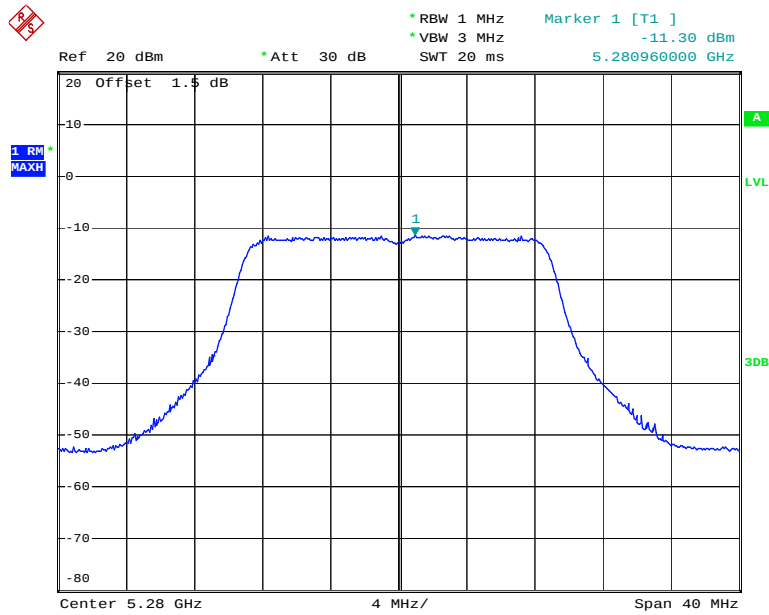
Date: 23.OCT.2020 15:34:36

802.11n ht20 Low Channel



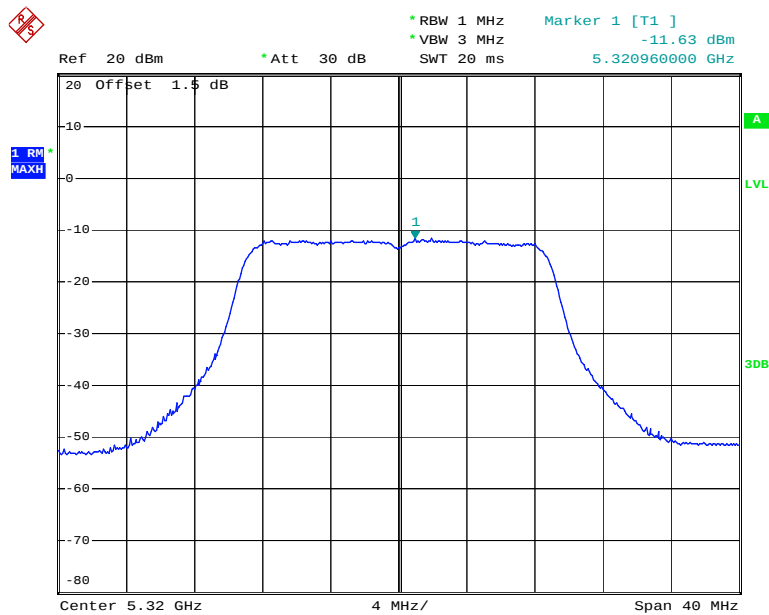
Date: 23.OCT.2020 15:33:00

802.11n ht20 Middle Channel



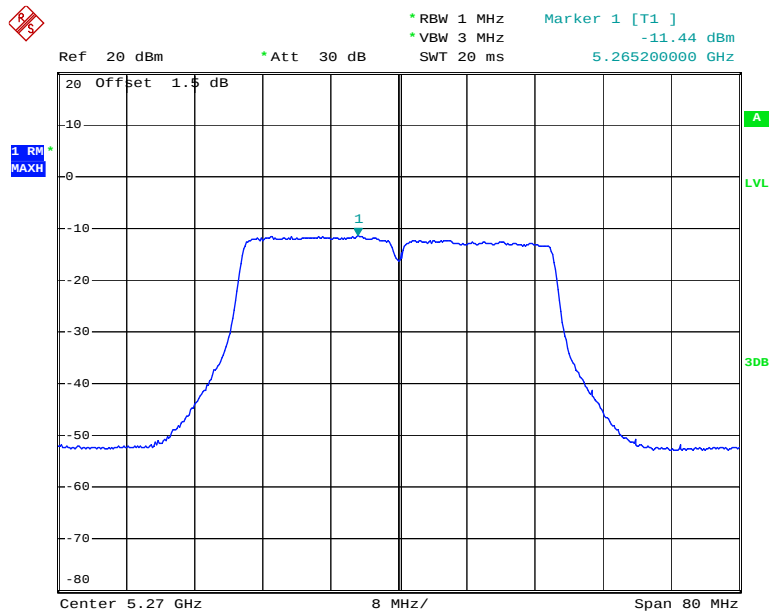
Date: 23.OCT.2020 15:32:21

802.11n ht20 High Channel



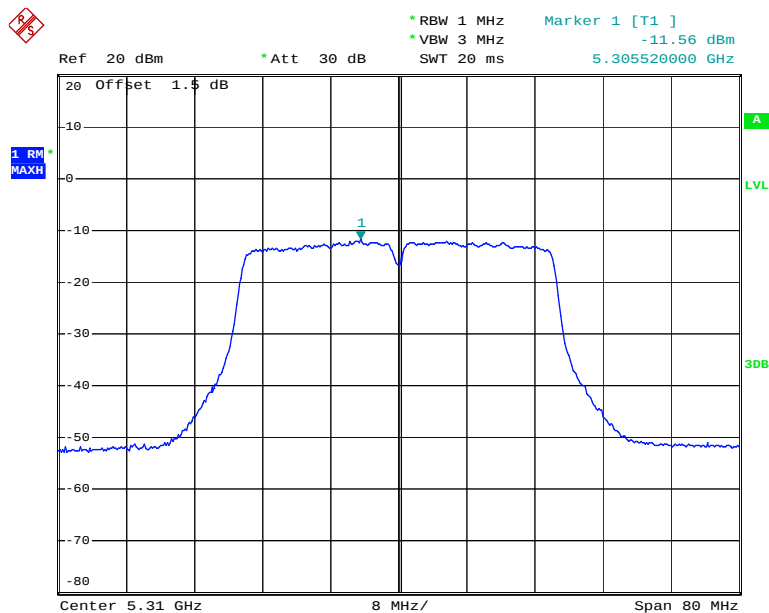
Date: 23.OCT.2020 15:27:35

802.11n ht40 Low Channel



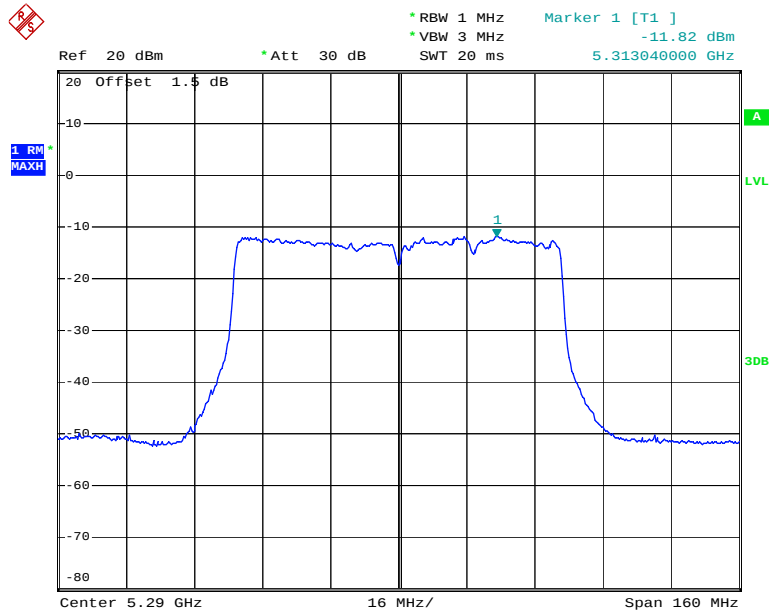
Date: 23.OCT.2020 15:26:06

802.11n ht40 High Channel



Date: 23.OCT.2020 15:26:55

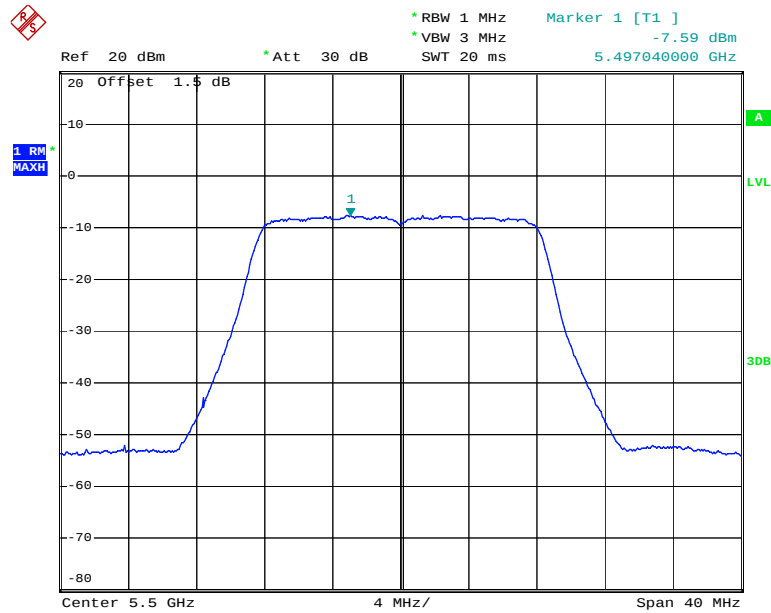
802.11ac vht80 Middle Channel



Date: 23.OCT.2020 15:25:25

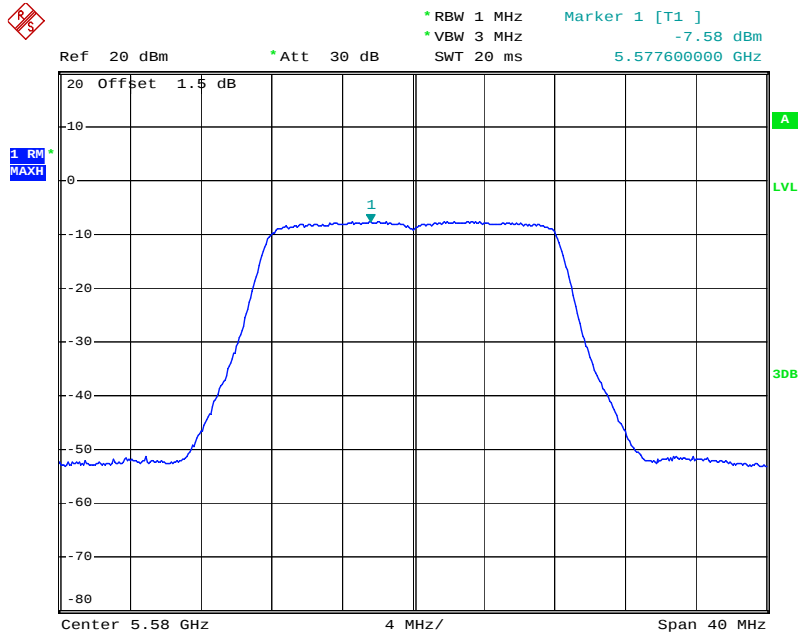
5470-5725MHz, Chain 0:

802.11a Low Channel



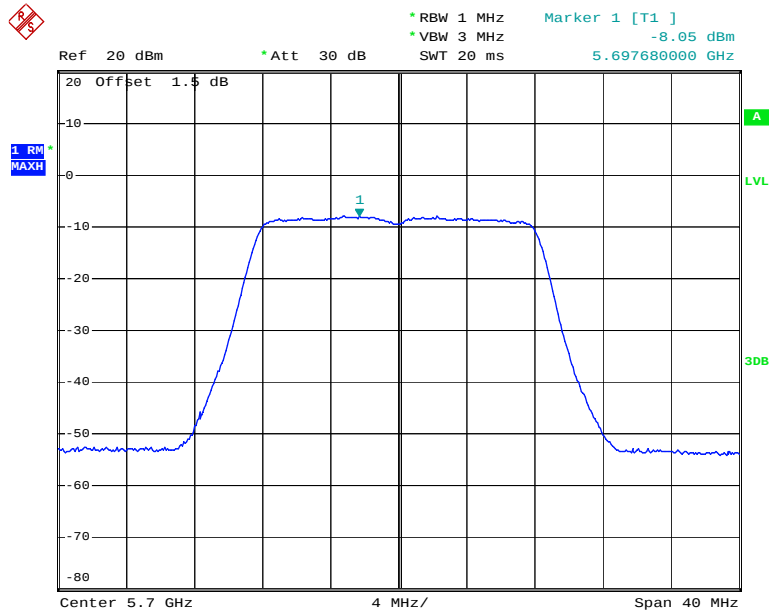
Date: 24.OCT.2020 10:06:18

802.11a Middle Channel



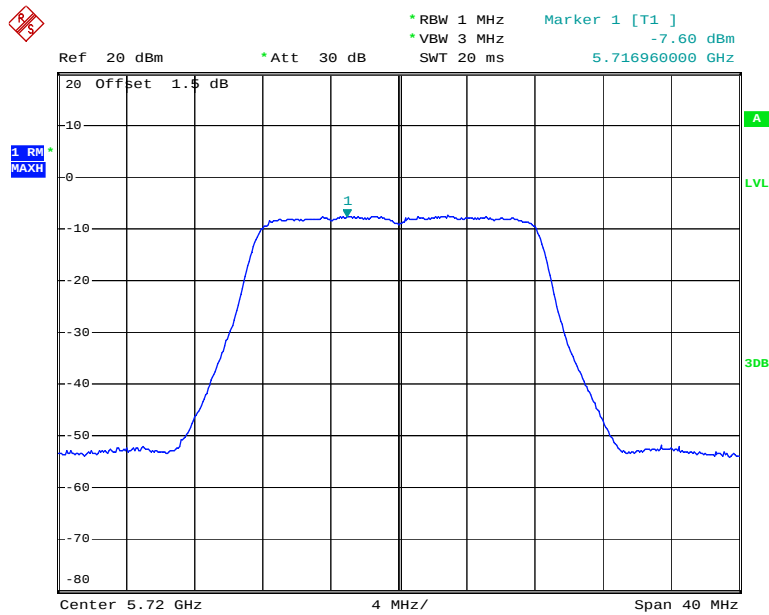
Date: 24.OCT.2020 10:07:15

802.11a High Channel



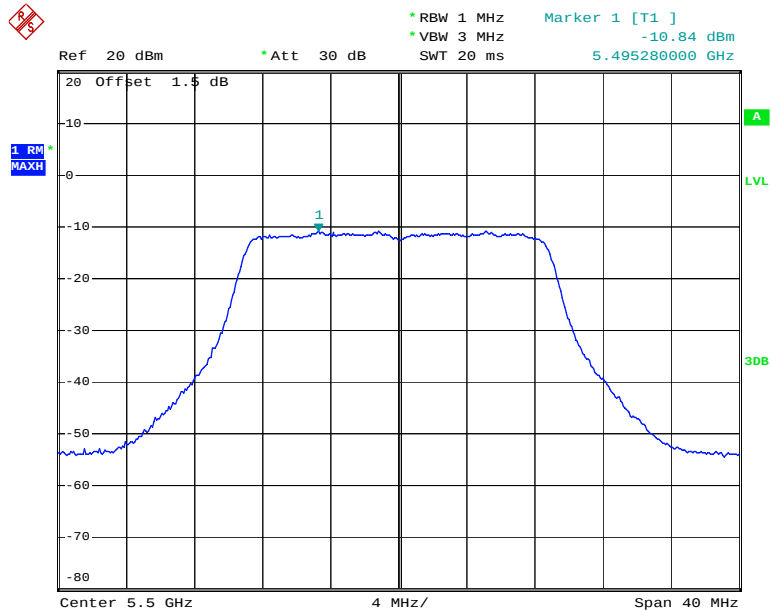
Date: 24.OCT.2020 10:08:42

802.11 a 5720MHz



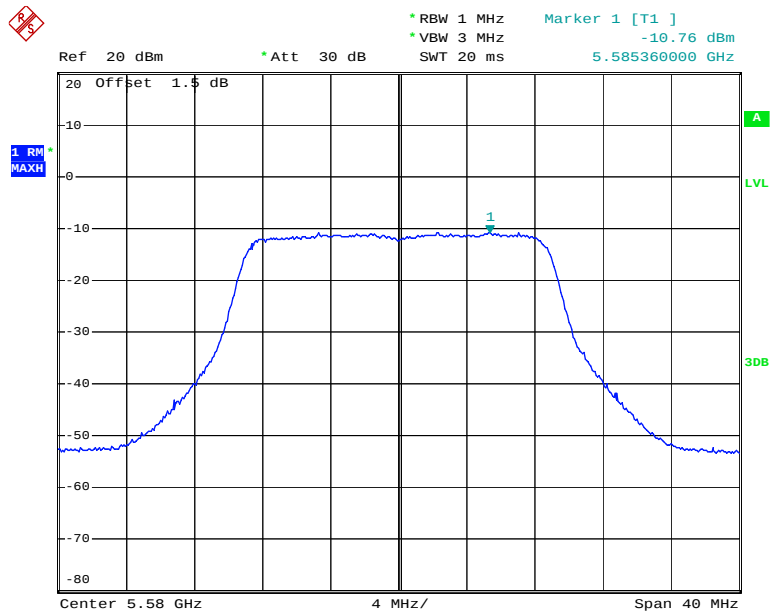
Date: 24.OCT.2020 10:12:49

802.11n ht20 Low Channel



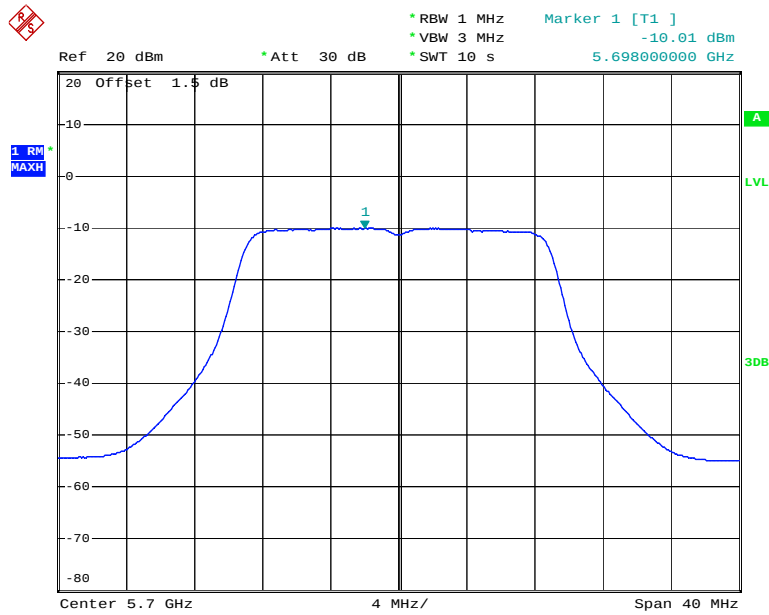
Date: 24.OCT.2020 10:22:55

802.11n ht20 Middle Channel



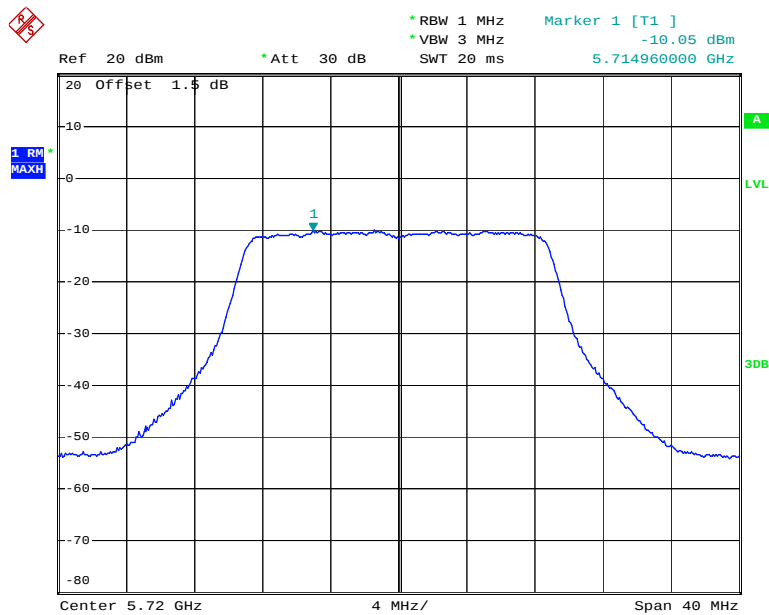
Date: 24.OCT.2020 10:23:16

802.11n ht20 High Channel



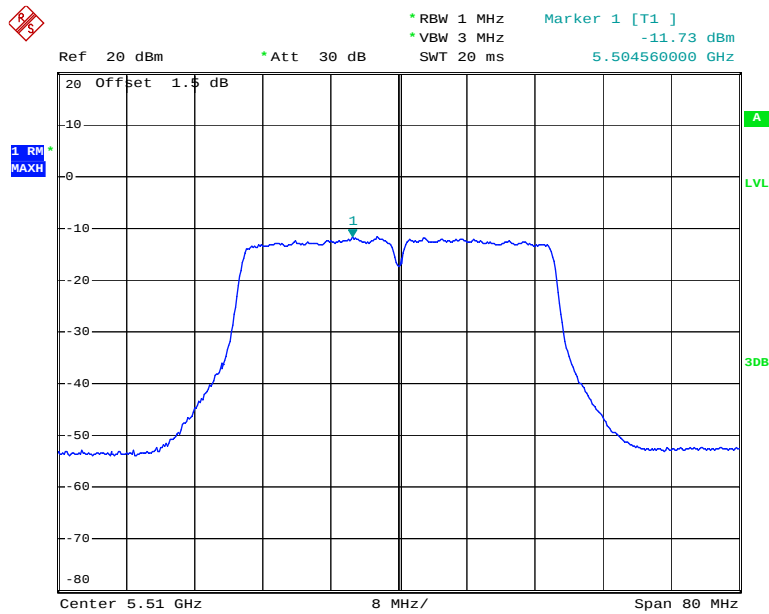
Date: 24.OCT.2020 10:26:55

802.11n ht20 5720 MHz



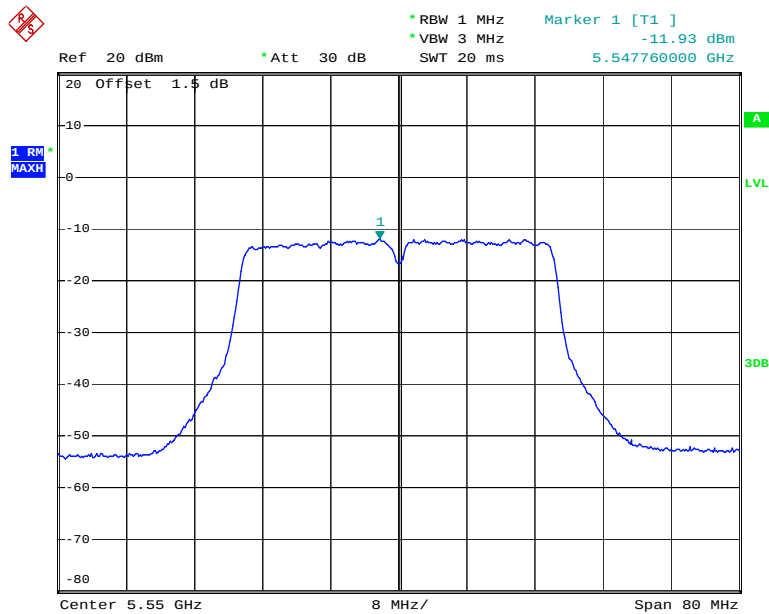
Date: 24.OCT.2020 10:21:56

802.11n ht40 Low Channel



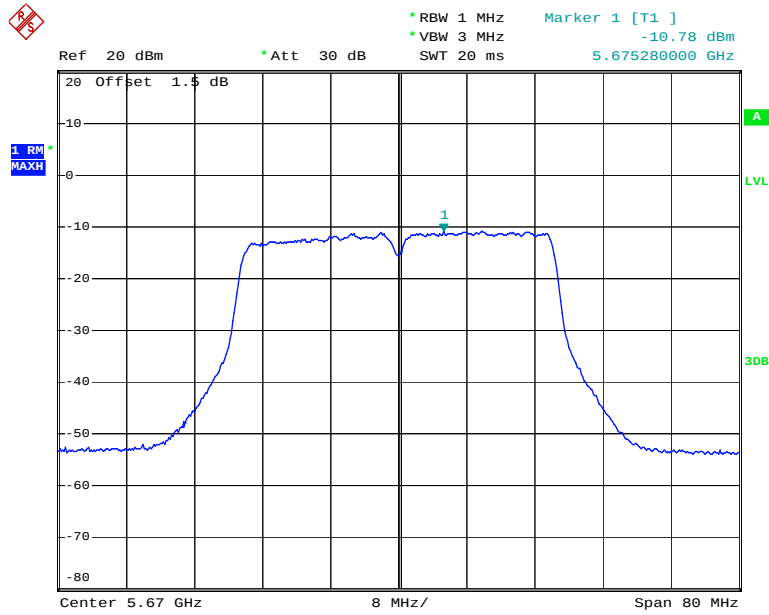
Date: 24.OCT.2020 10:29:35

802.11n ht40 Middle Channel



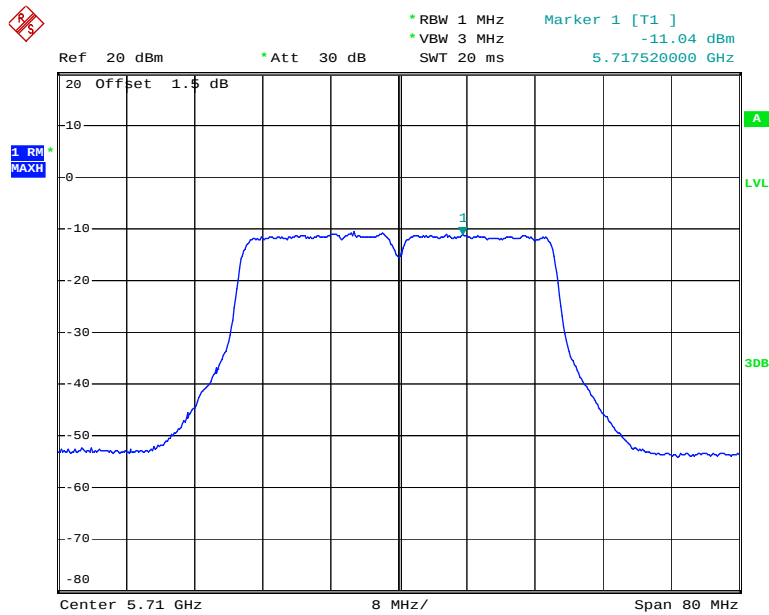
Date: 24.OCT.2020 10:30:26

802.11n ht40 High Channel



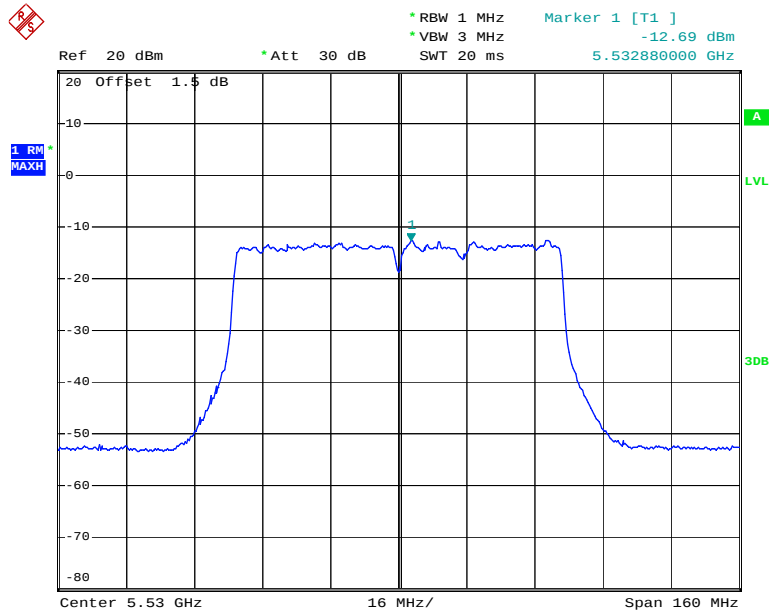
Date: 24.OCT.2020 10:30:58

802.11n ht40 5710MHz



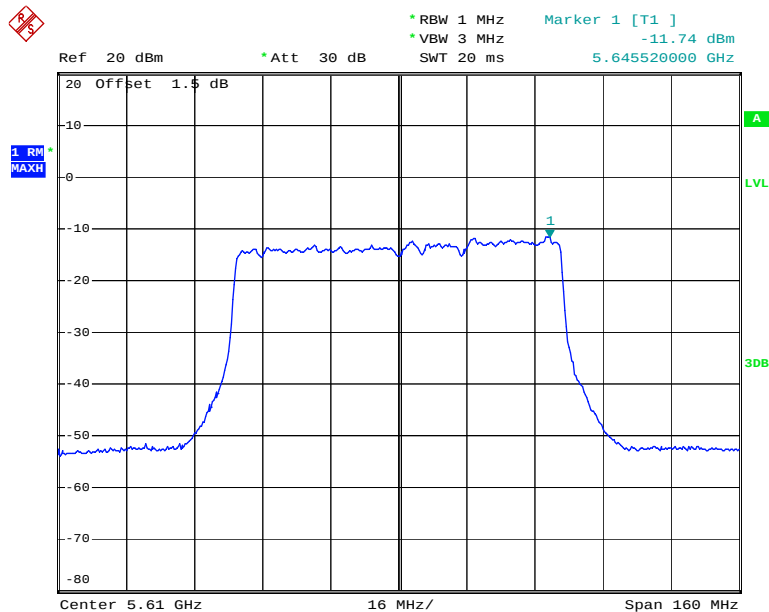
Date: 24.OCT.2020 10:31:52

802.11ac vht80 Low Channel



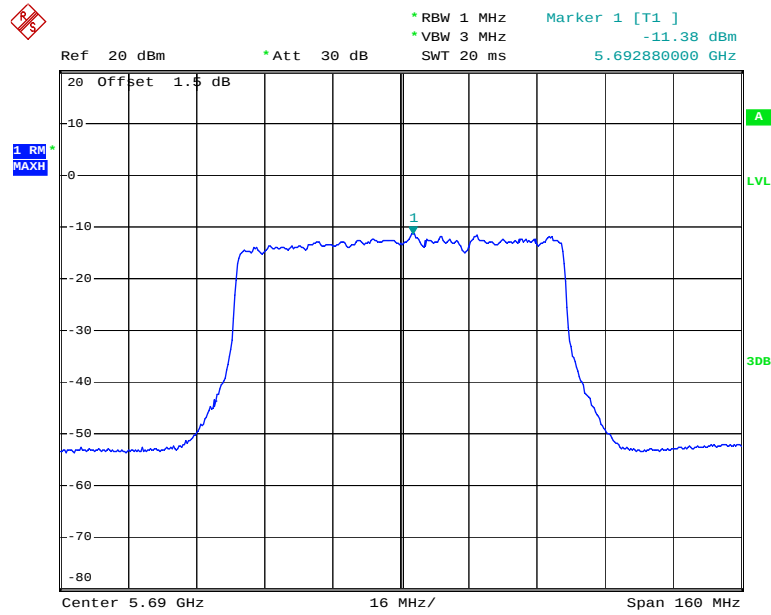
Date: 24.OCT.2020 10:33:23

802.11ac vht80 5610MHz



Date: 24.OCT.2020 10:35:14

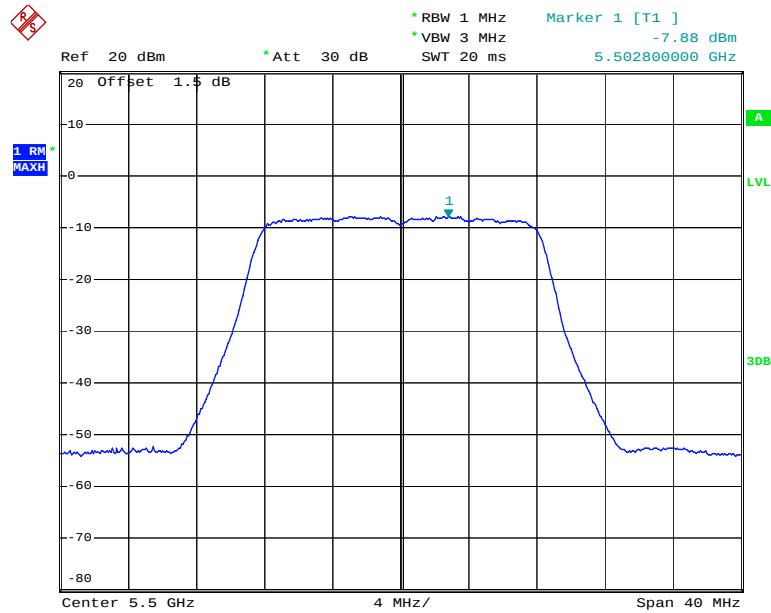
802.11ac vht80 5690MHz



Date: 24.OCT.2020 10:34:14

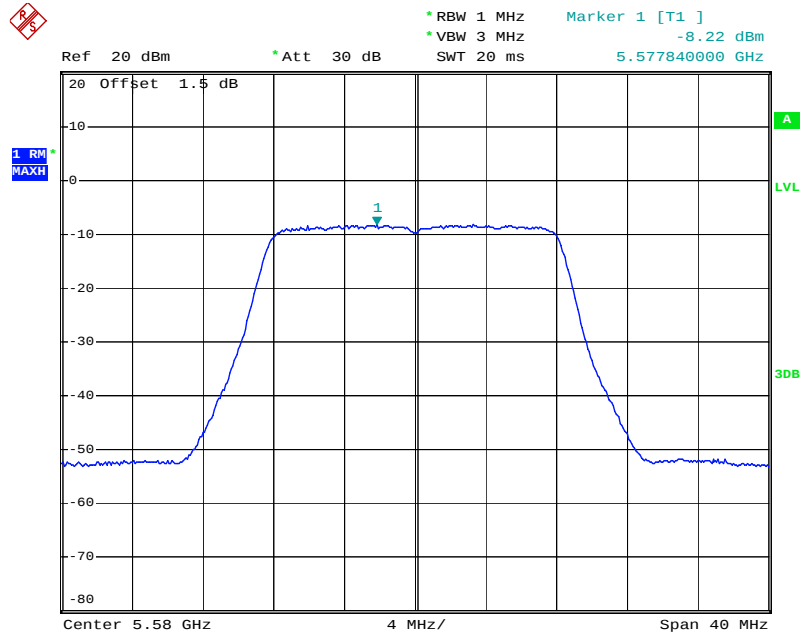
Chain 1:

802.11a Low Channel



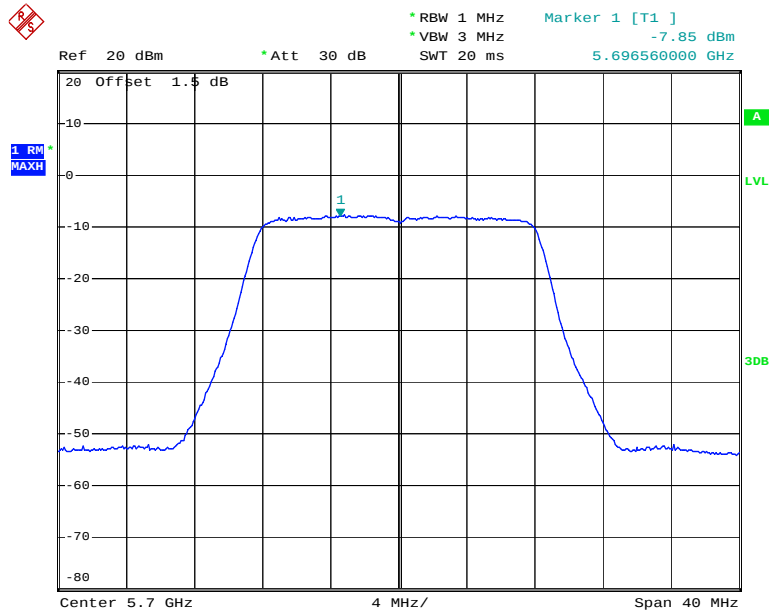
Date: 24.OCT.2020 10:52:24

802.11a Middle Channel



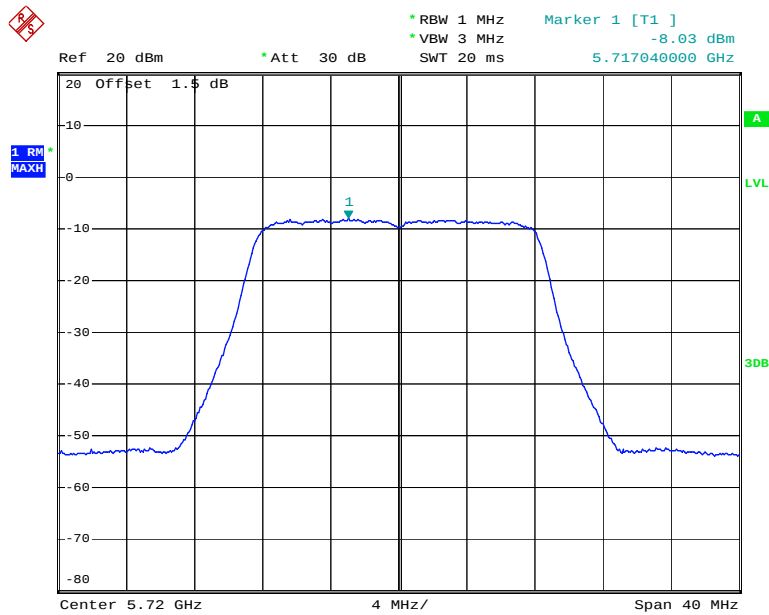
Date: 24.OCT.2020 10:52:45

802.11a High Channel



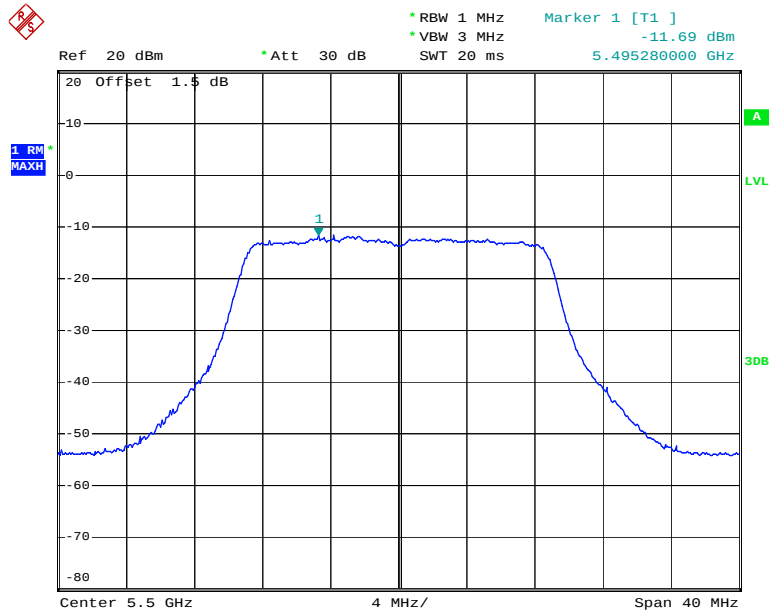
Date: 24.OCT.2020 10:53:16

802.11 a 5720MHz



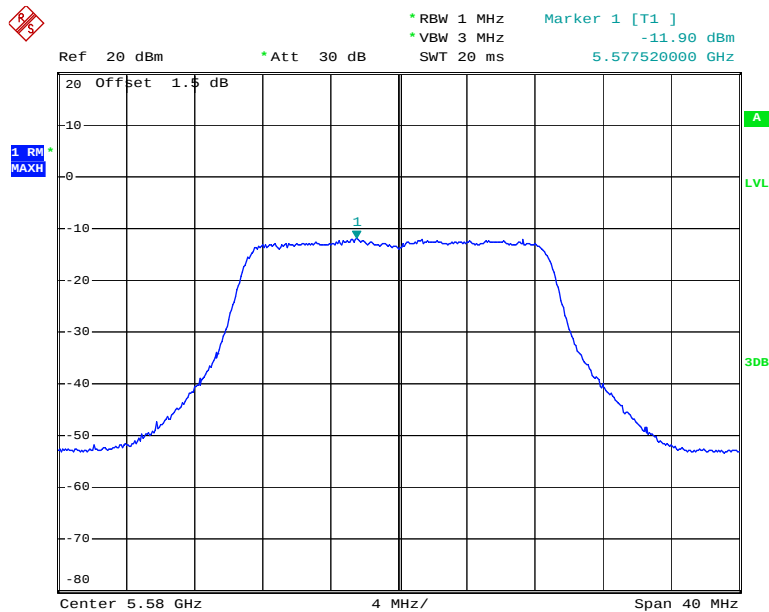
Date: 24.OCT.2020 10:54:00

802.11n ht20 Low Channel



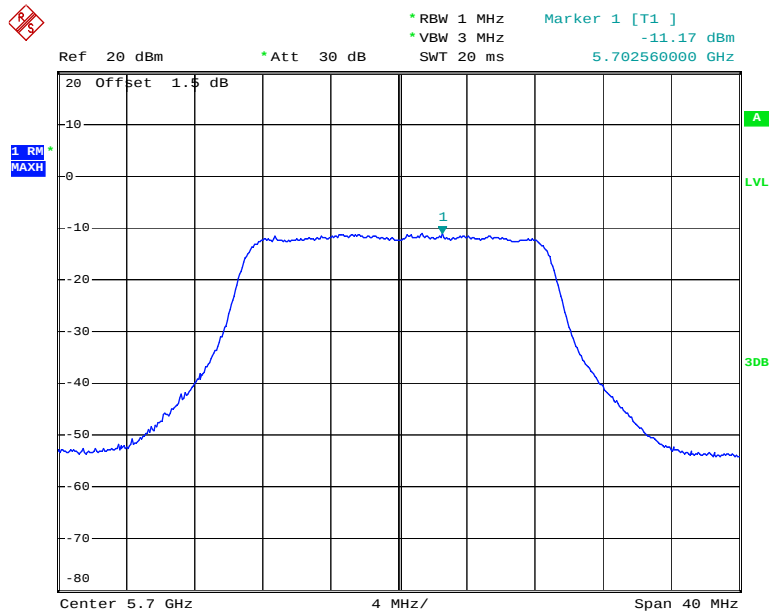
Date: 24.OCT.2020 10:55:31

802.11n ht20 Middle Channel



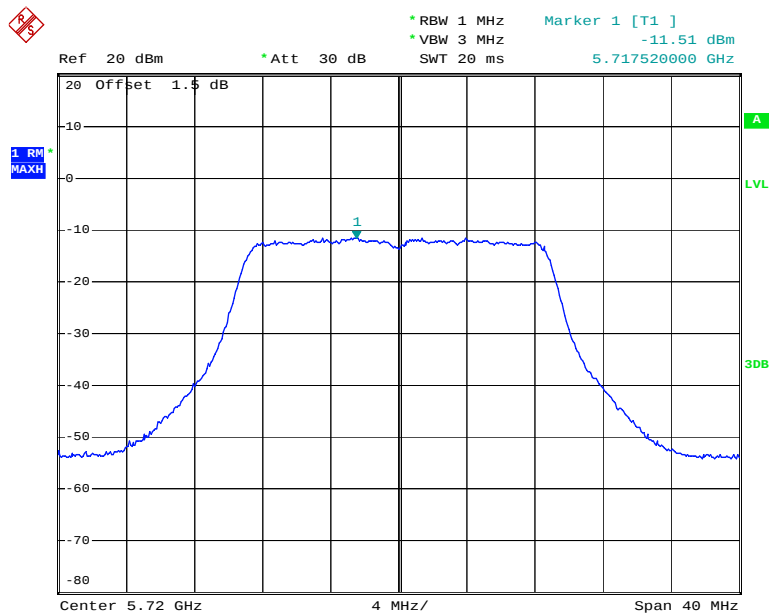
Date: 24.OCT.2020 10:55:54

802.11n ht20 High Channel



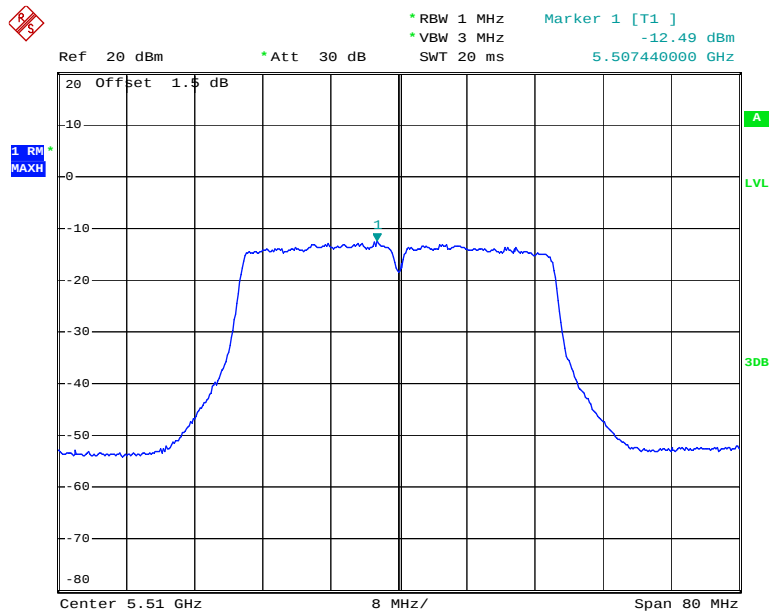
Date: 24.OCT.2020 10:56:18

802.11n ht20 High Channel 5720 MHz



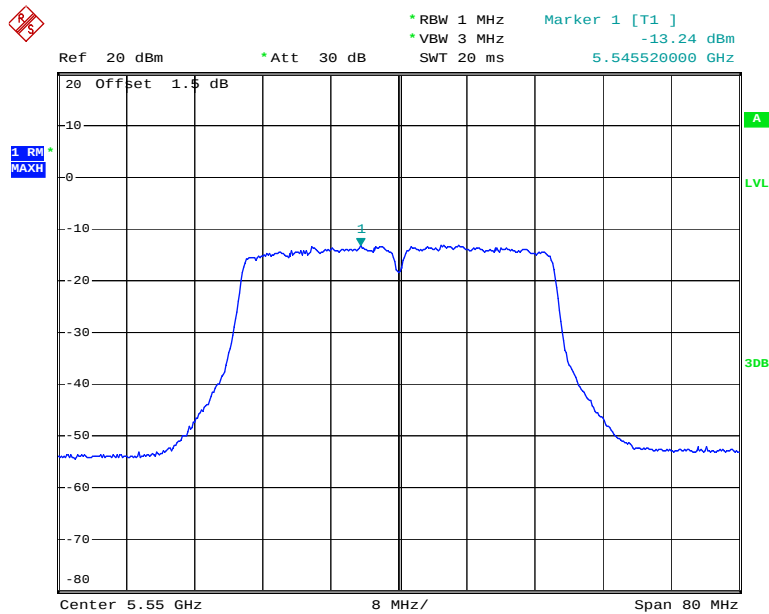
Date: 24.OCT.2020 10:56:58

802.11n ht40 Low Channel



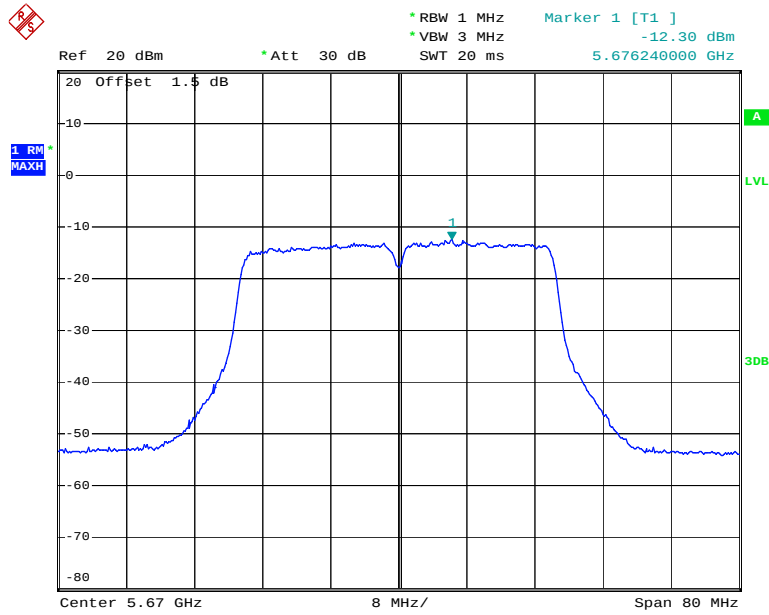
Date: 24.OCT.2020 10:58:18

802.11n ht40 Middle Channel



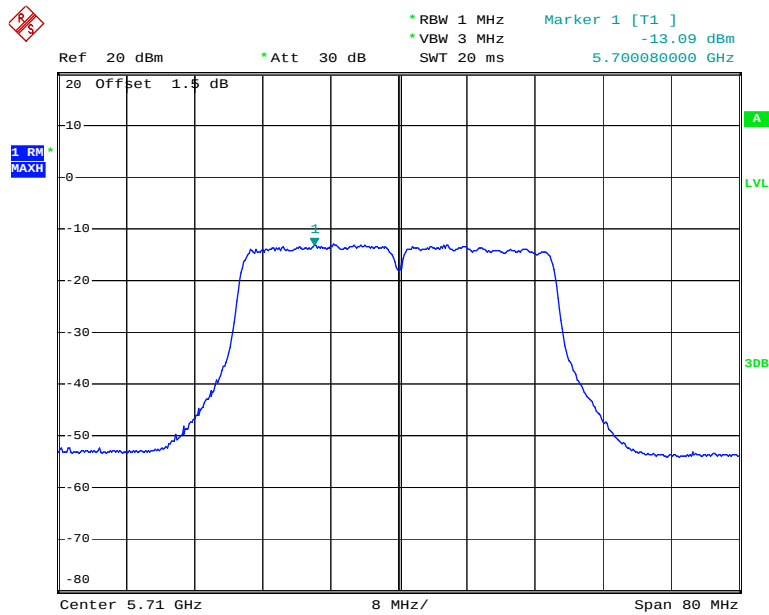
Date: 24.OCT.2020 10:58:43

802.11n ht40 High Channel



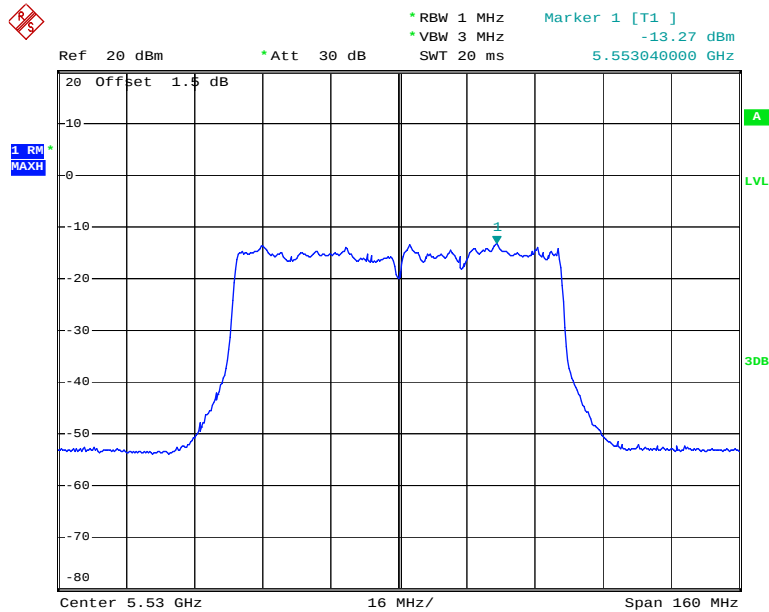
Date: 24.OCT.2020 10:59:16

802.11n ht40 5710MHz



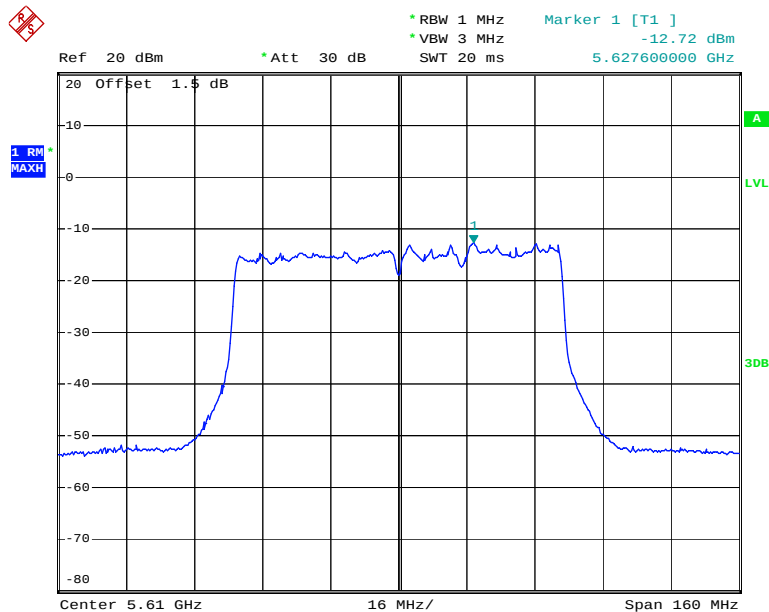
Date: 24.OCT.2020 10:59:56

802.11ac vht80 Low Channel



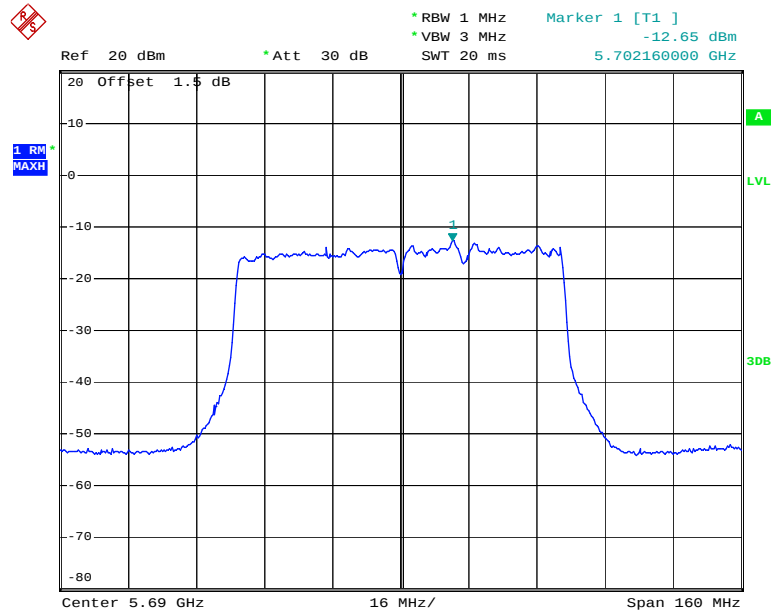
Date: 24.OCT.2020 11:00:38

802.11ac vht80 5610MHz



Date: 24.OCT.2020 11:01:52

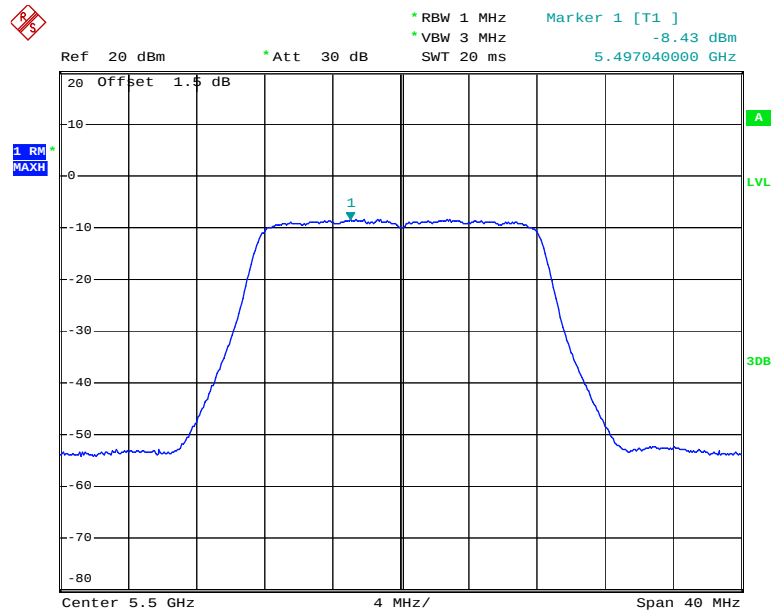
802.11ac vht80 5690MHz



Date: 24.OCT.2020 11:01:08

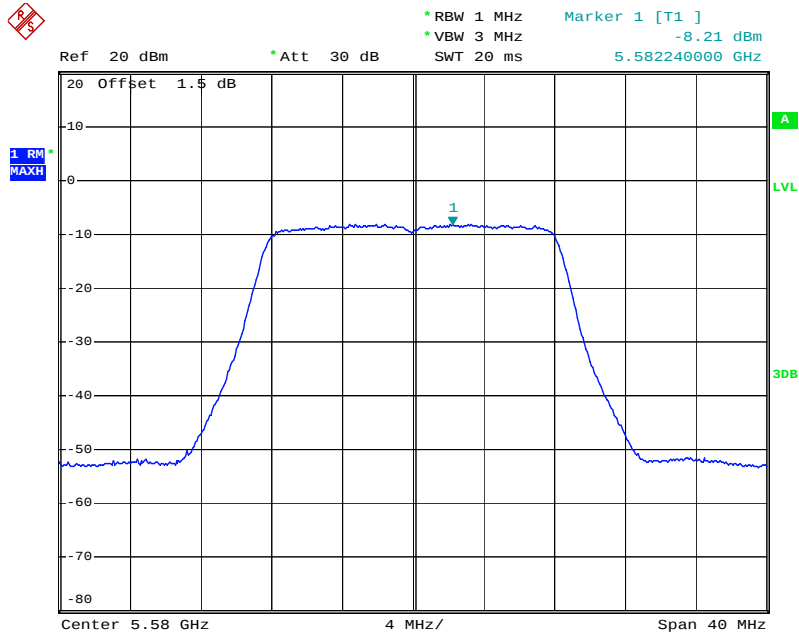
Chain 2:

802.11a Low Channel



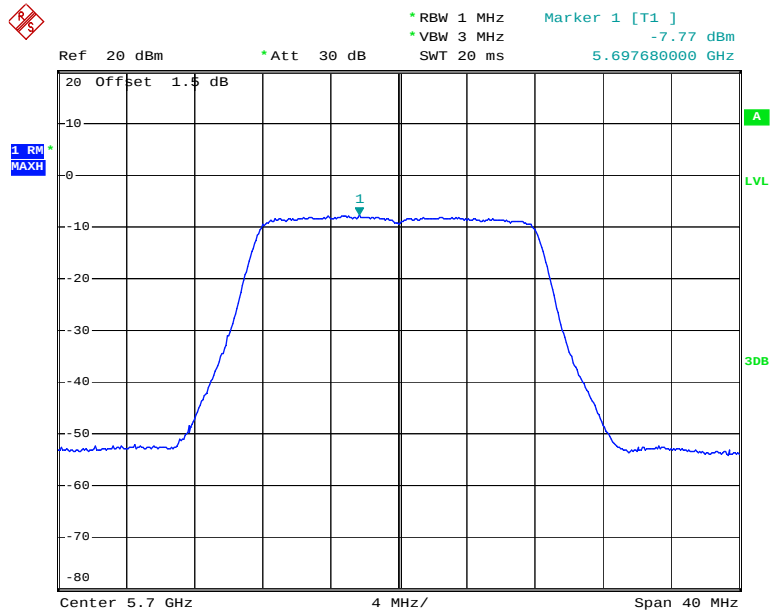
Date: 24.OCT.2020 10:47:15

802.11a Middle Channel



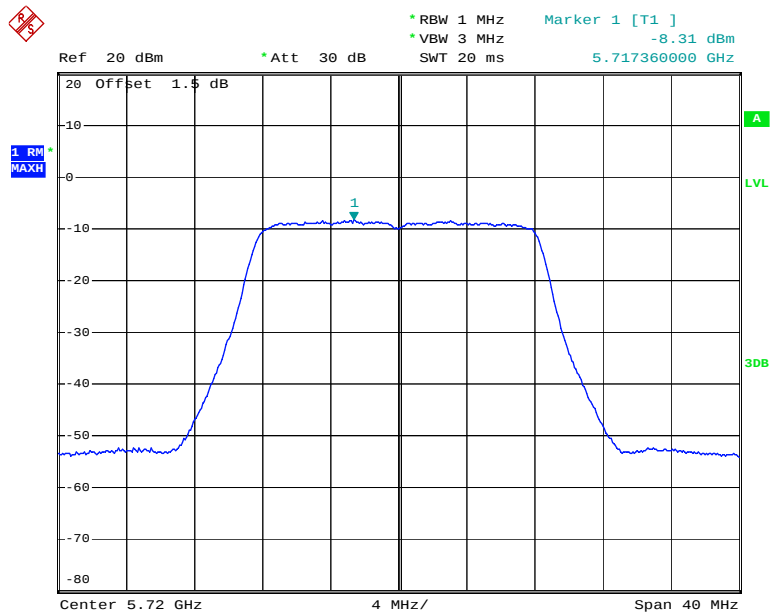
Date: 24.OCT.2020 10:48:17

802.11a High Channel



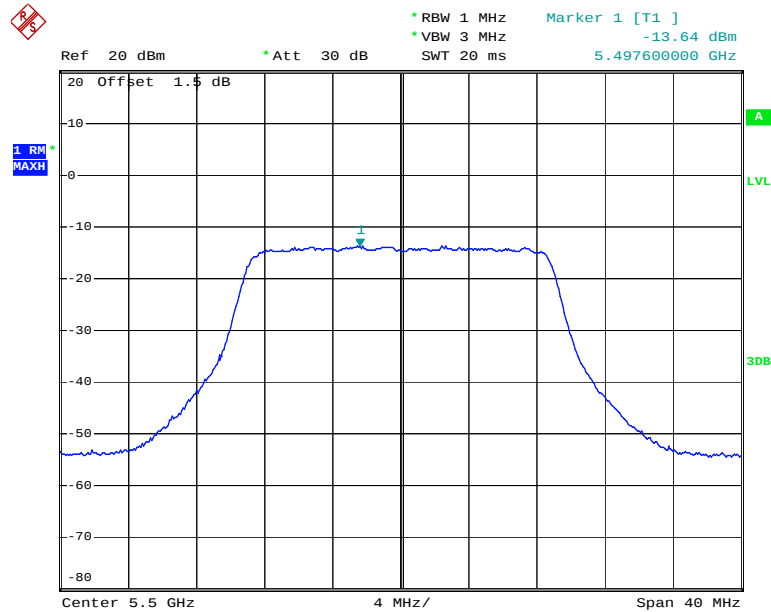
Date: 24.OCT.2020 10:48:56

802.11 a 5720MHz



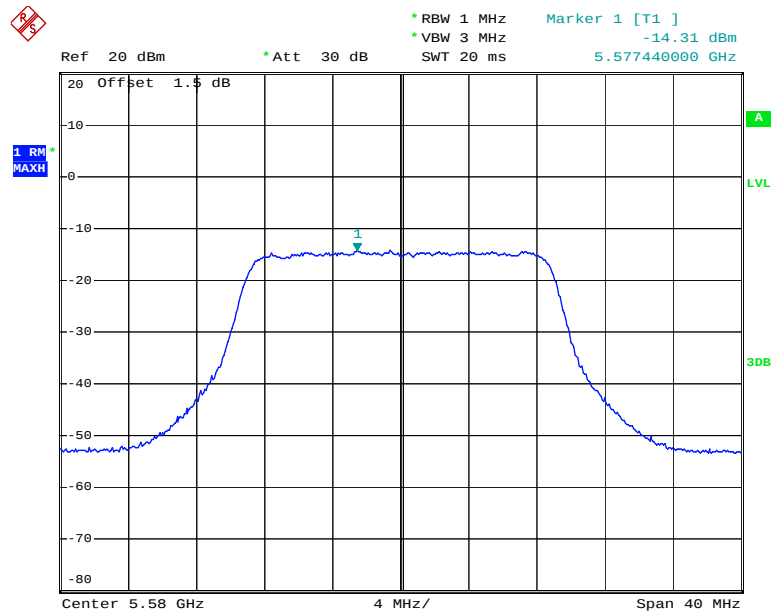
Date: 24.OCT.2020 10:49:35

802.11n ht20 Low Channel



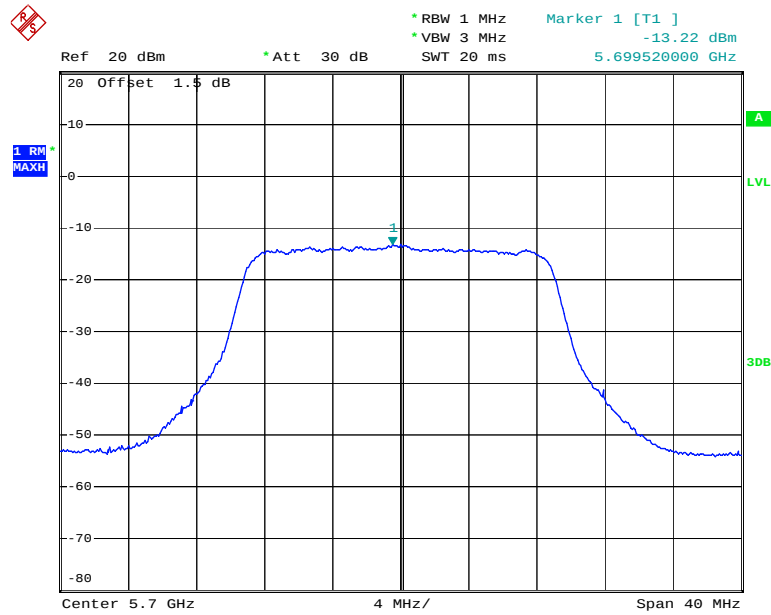
Date: 24.OCT.2020 10:44:34

802.11n ht20 Middle Channel



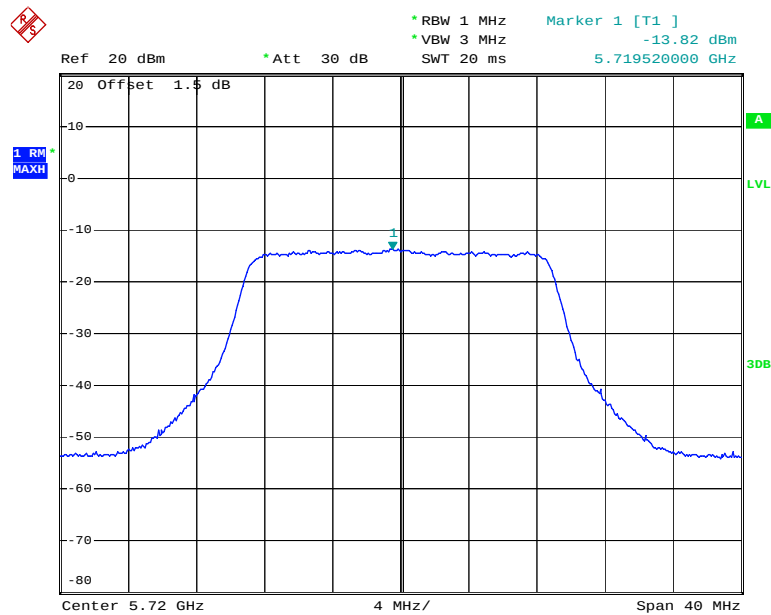
Date: 24.OCT.2020 10:44:56

802.11n ht20 High Channel



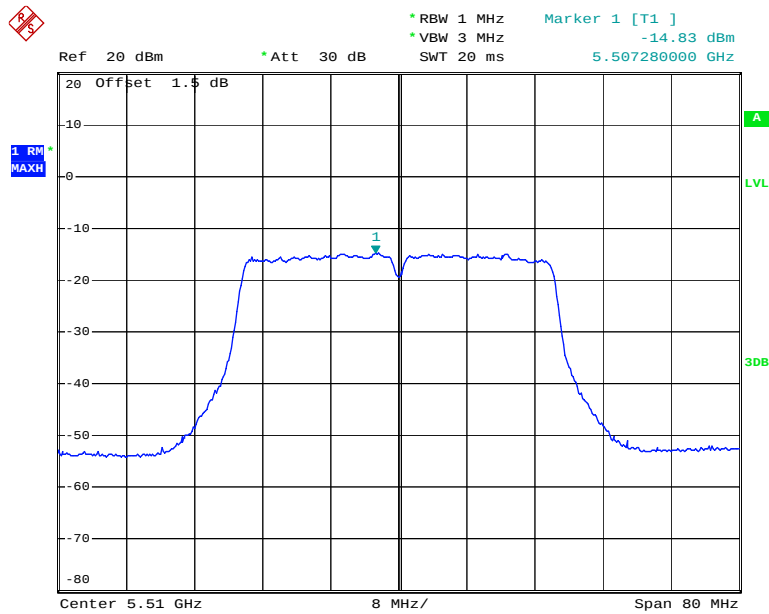
Date: 24.OCT.2020 10:45:18

802.11n ht20 5720 MHz



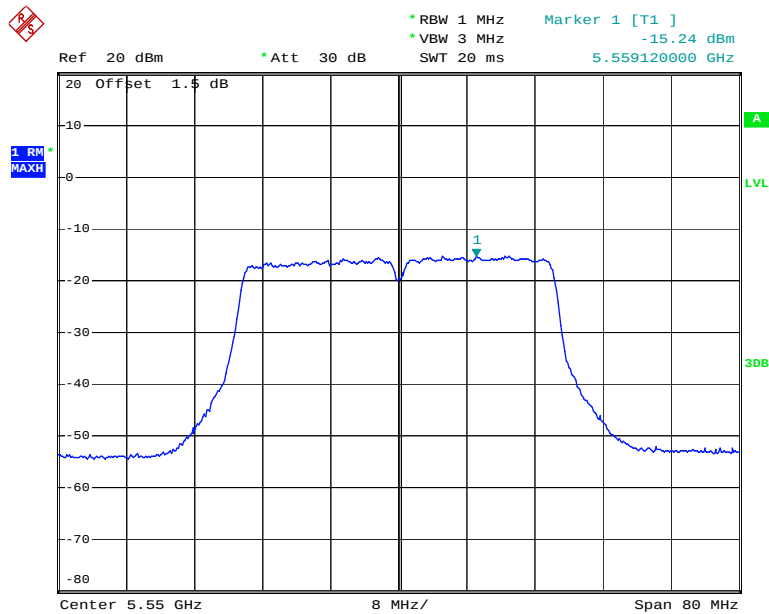
Date: 24.OCT.2020 10:46:00

802.11n ht40 Low Channel



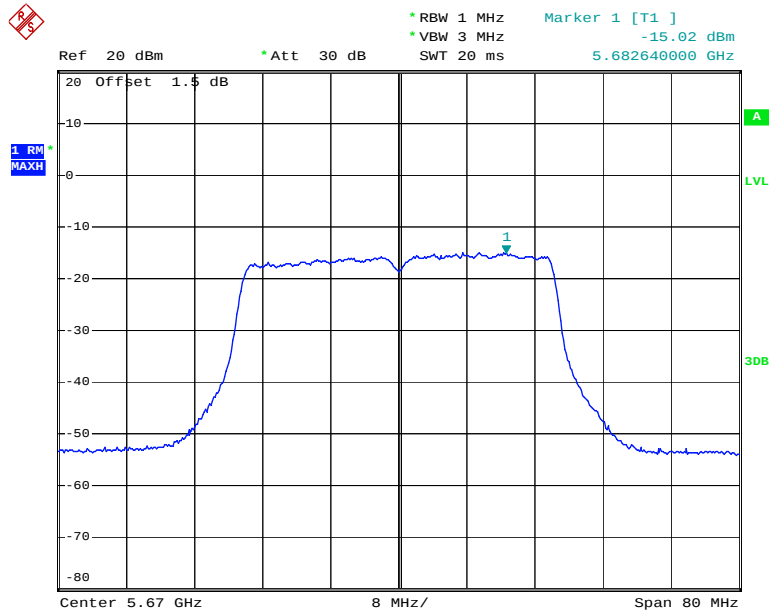
Date: 24.OCT.2020 10:40:02

802.11n ht40 Middle Channel



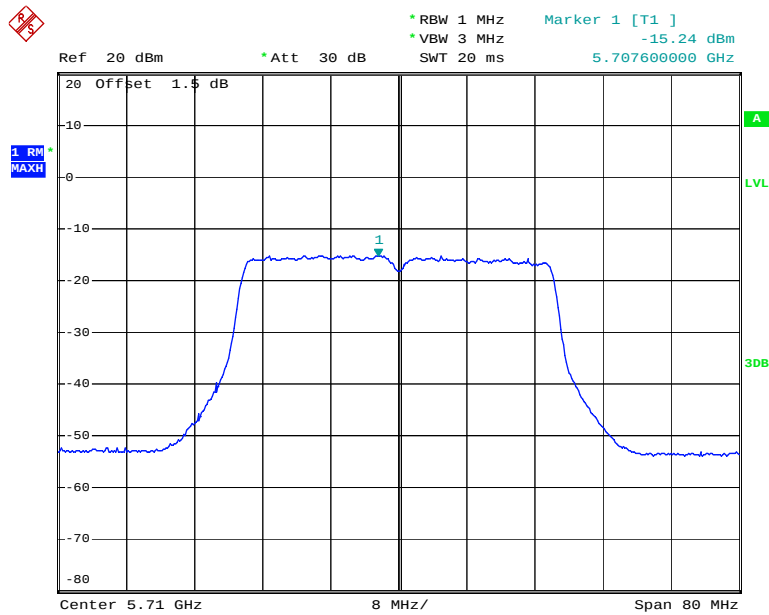
Date: 24.OCT.2020 10:40:23

802.11n ht40 High Channel



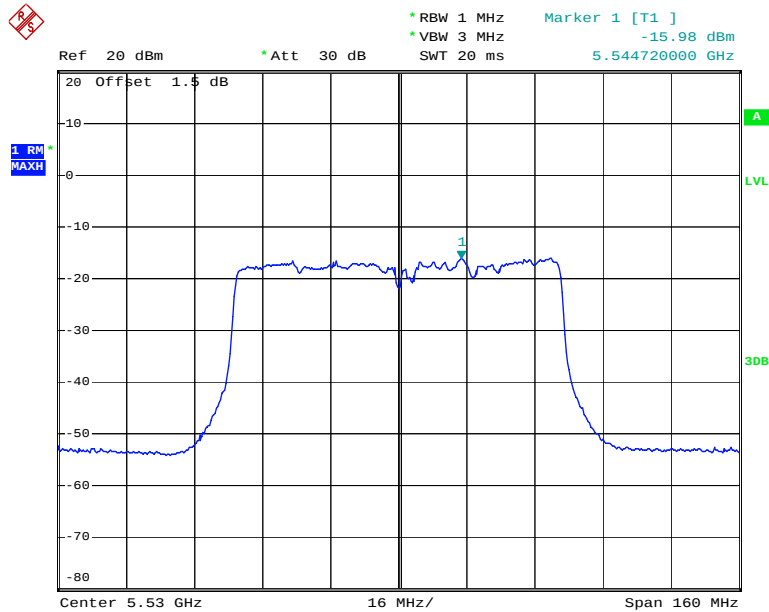
Date: 24.OCT.2020 10:40:57

802.11n ht40 5710MHz



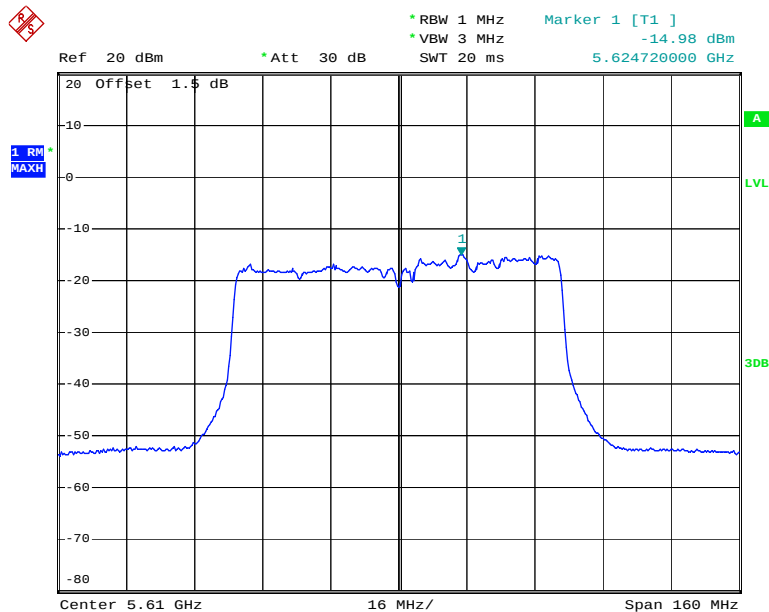
Date: 24.OCT.2020 10:42:10

802.11ac vht80 Low Channel



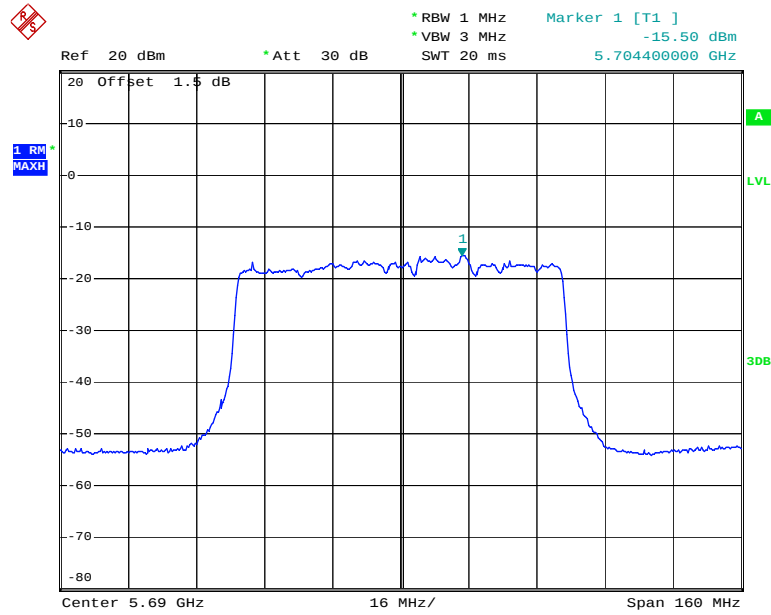
Date: 24.OCT.2020 10:39:14

802.11ac vht80 5610MHz



Date: 24.OCT.2020 10:37:07

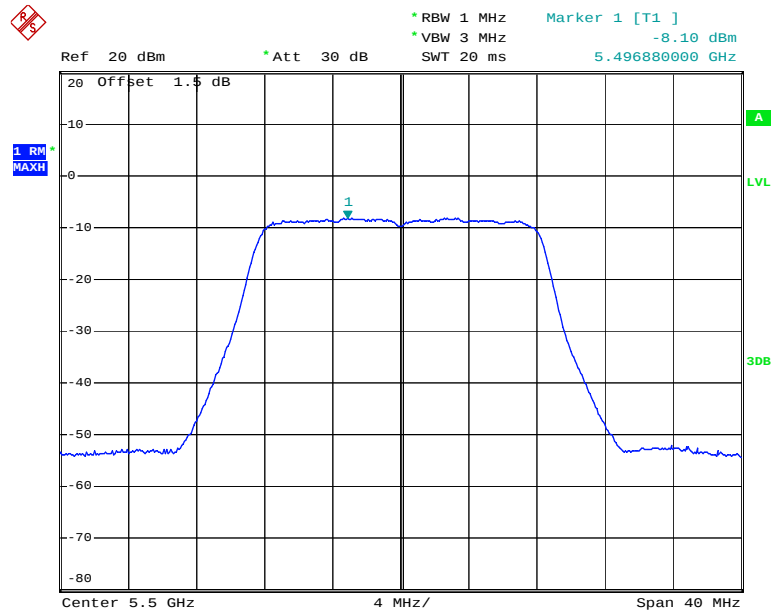
802.11ac vht80 5690MHz



Date: 24.OCT.2020 10:37:52

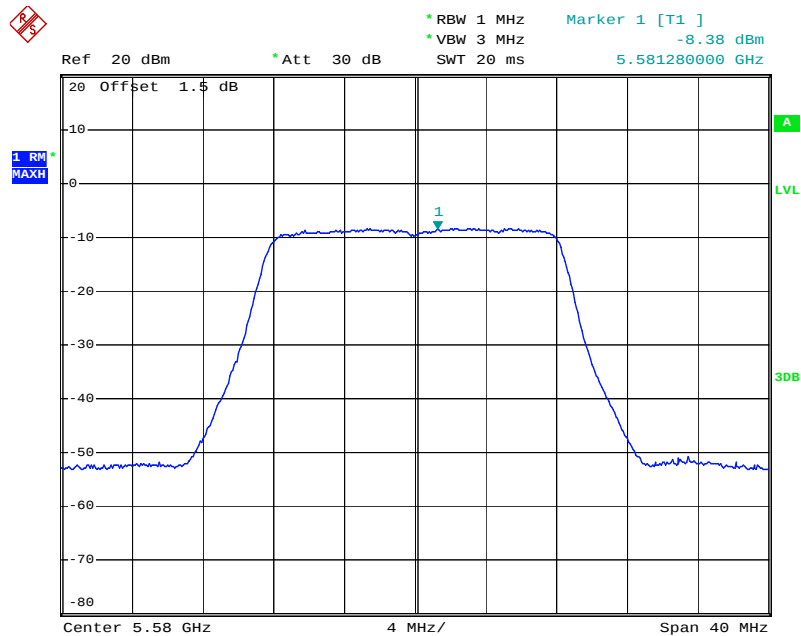
Chain 3:

802.11a Low Channel



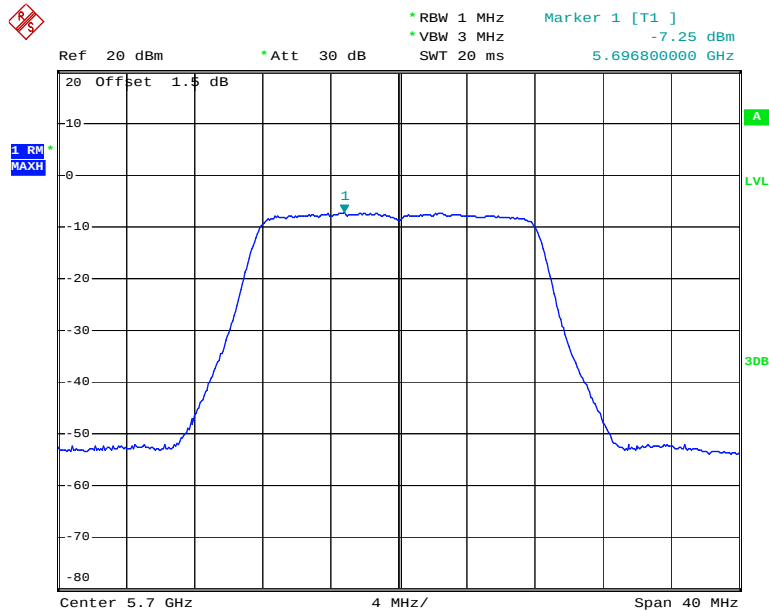
Date: 24.OCT.2020 11:09:05

802.11a Middle Channel



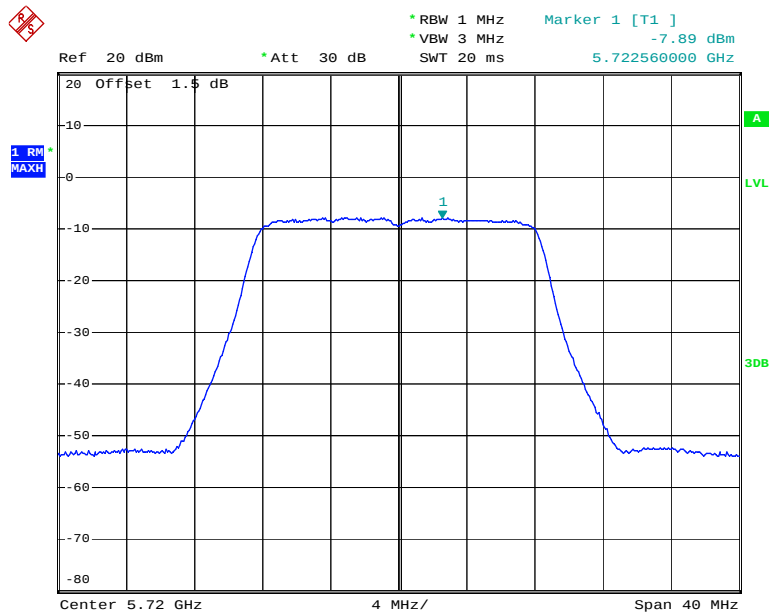
Date: 24.OCT.2020 11:09:29

802.11a High Channel



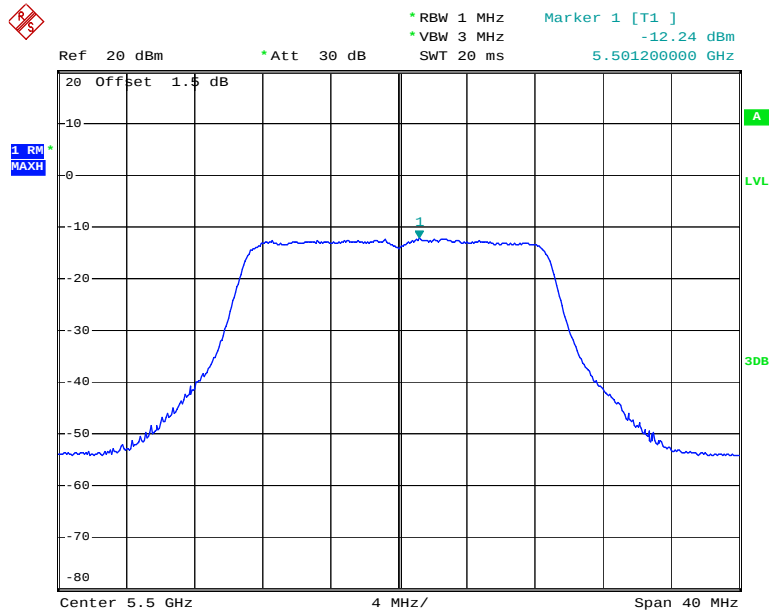
Date: 24.OCT.2020 11:09:53

802.11 a High Channel 5720MHz



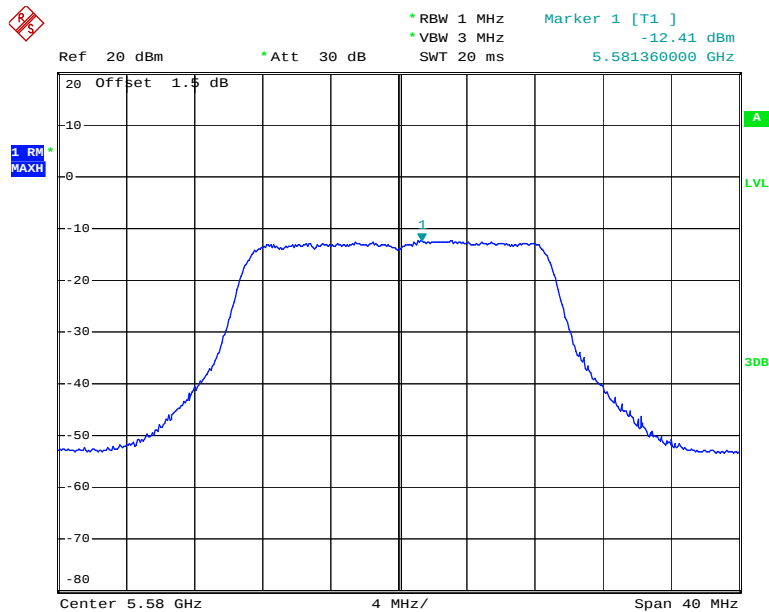
Date: 24.OCT.2020 11:10:23

802.11n ht20 Low Channel



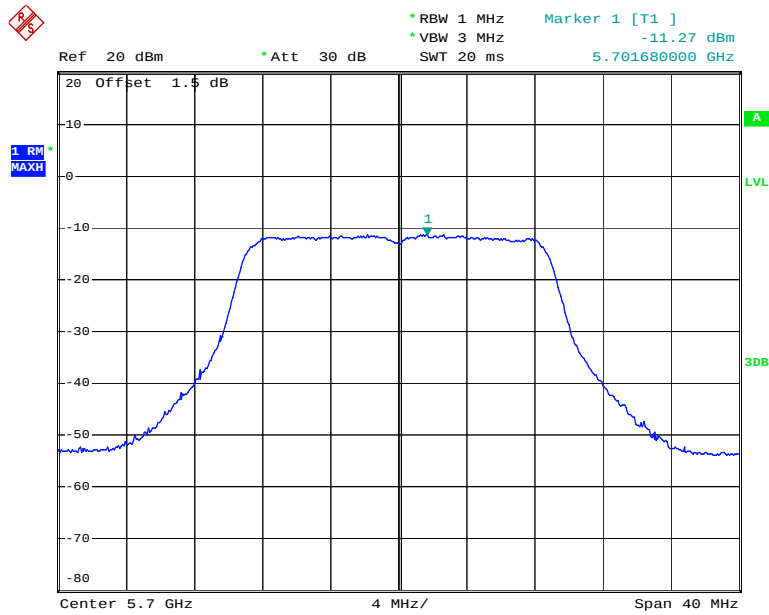
Date: 24.OCT.2020 11:06:52

802.11n ht20 Middle Channel



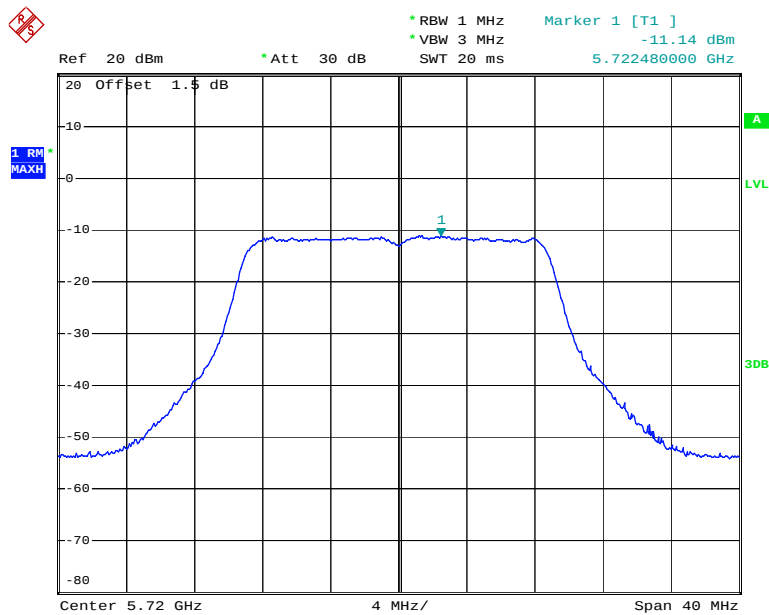
Date: 24.OCT.2020 11:07:17

802.11n ht20 High Channel



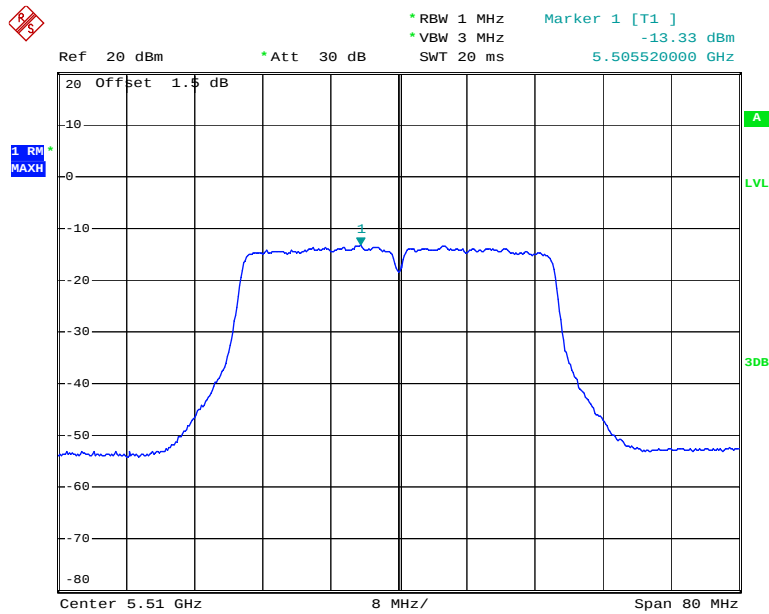
Date: 24.OCT.2020 11:13:15

802.11n ht20 High Channel 5720 MHz



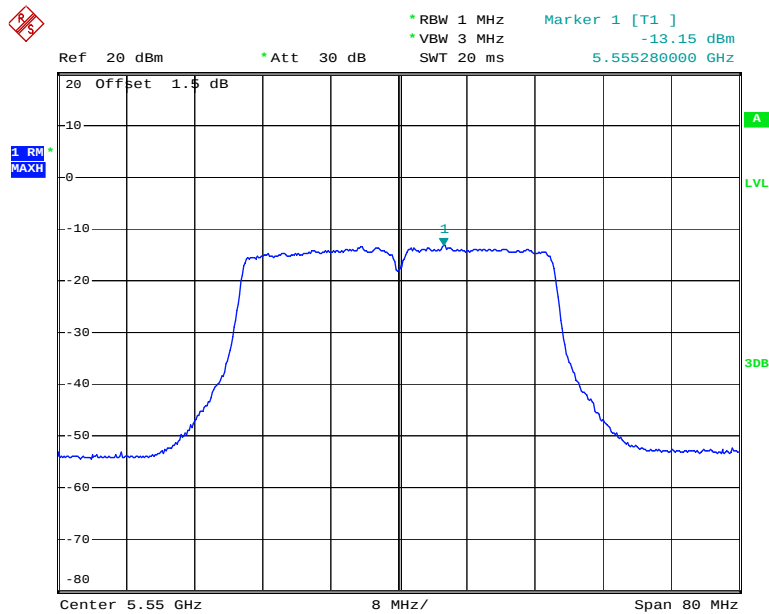
Date: 24.OCT.2020 11:08:15

802.11n ht40 Low Channel



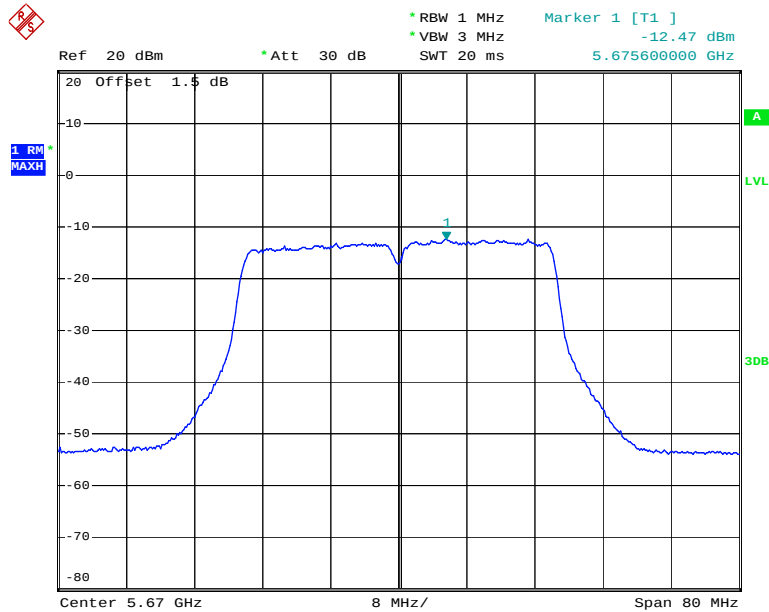
Date: 24.OCT.2020 11:04:32

802.11n ht40 Middle Channel



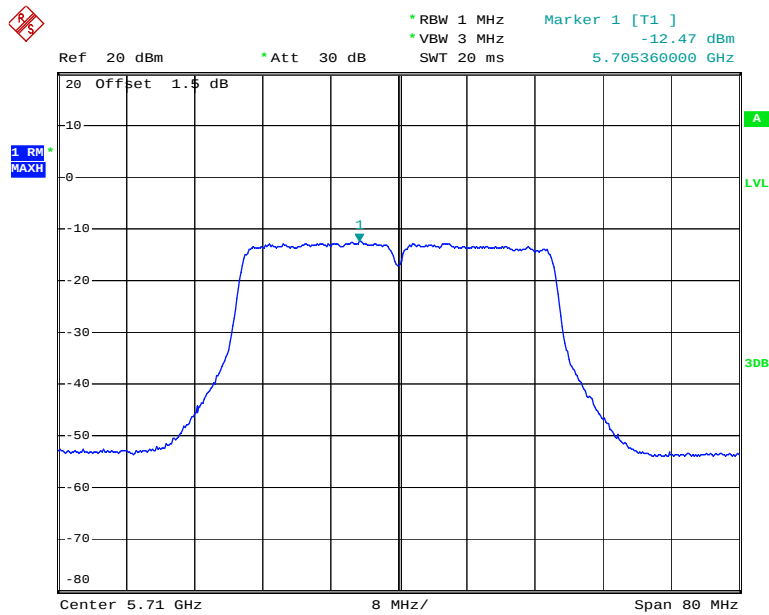
Date: 24.OCT.2020 11:04:55

802.11n ht40 High Channel



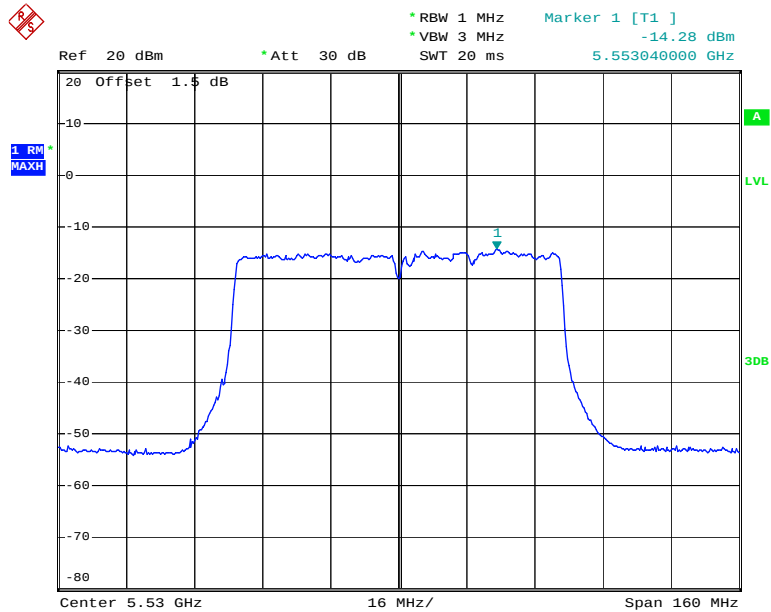
Date: 24.OCT.2020 11:05:19

802.11n ht40 5710MHz



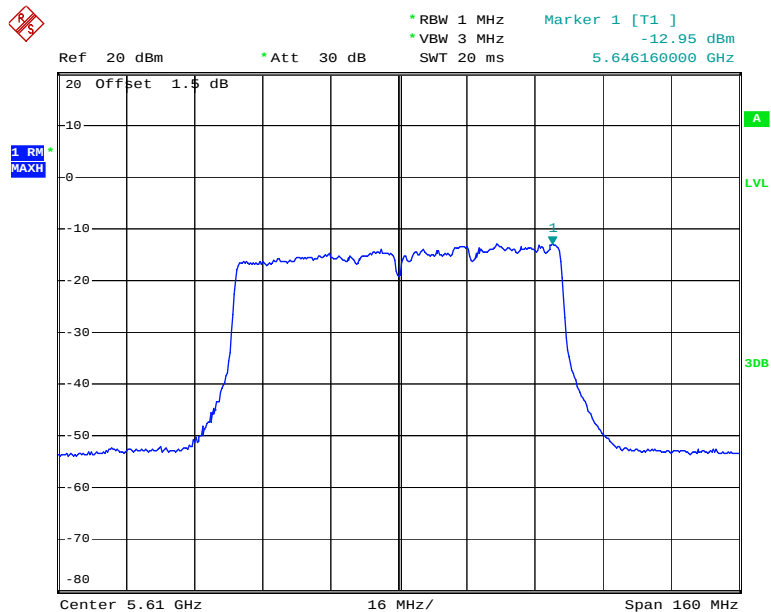
Date: 24.OCT.2020 11:06:09

802.11ac vht80 Low Channel



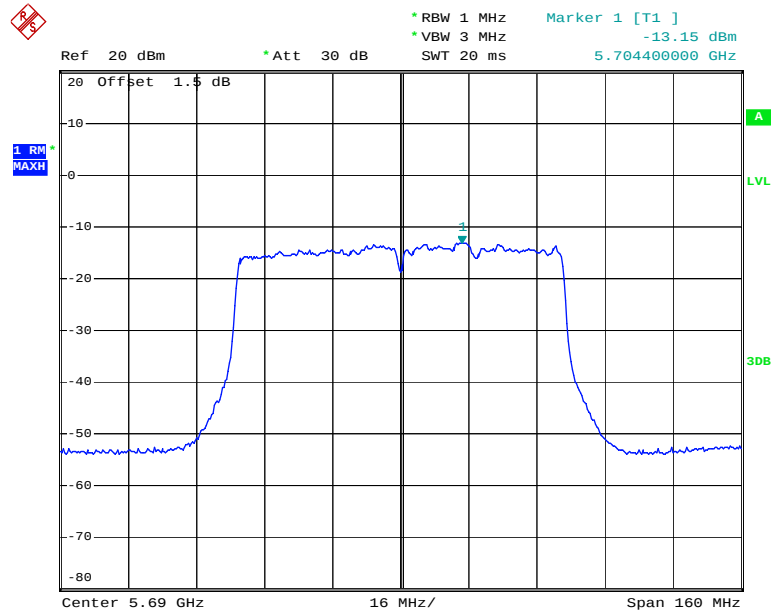
Date: 24.OCT.2020 11:03:41

802.11ac vht80 5610MHz



Date: 24.OCT.2020 11:02:43

802.11ac vht80 5690MHz



Date: 24.OCT.2020 11:03:14

**29.5 dBi Antenna:
5150-5250 MHz:**

Mode	Frequency (MHz)	Maximum Power Spectral Density (dBm/MHz)					
		Chain 0	Chain 1	Chain 2	Chain 3	Total	FCC Limit
802.11 a	5180	3.55	3.76	3.43	3.36	/	10.5
	5200	2.80	3.86	3.09	3.76	/	10.5
	5240	3.03	3.21	3.59	2.97	/	10.5
802.11n ht20	5180	-2.44	-2.53	-3.85	-3.08	3.08	10.5
	5200	-2.74	-2.72	-3.91	-2.51	3.08	10.5
	5240	-2.69	-2.36	-3.41	-2.24	3.37	10.5
802.11n ht40	5190	-2.97	-3.38	-3.97	-3.44	2.60	10.5
	5230	-2.73	-2.42	-2.83	-2.35	3.44	10.5
802.11ac vht80	5210	-3.26	-3.84	-4.86	-3.73	2.14	10.5

Note: This is a fixed point-to-point AP application, and this band is Only for FCC Use.

5250-5350MHz(10dB attenuator was used in test):

Mode	Frequency (MHz)	Reading (dBm/MHz)				Maximum Power Spectral Density (dBm/MHz)					
		Chain 0	Chain 1	Chain 2	Chain 3	Chain 0	Chain 1	Chain 2	Chain 3	Total	FCC/ISED Limit
802.11 a	5260	-16.24	-15.94	-16.85	-16.61	-6.24	-5.94	-6.85	-6.61	/	-2.5
	5280	-16.53	-16.69	-17.34	-16.48	-6.53	-6.69	-7.34	-6.48	/	-2.5
	5320	-17.03	-16.32	-17.43	-16.58	-7.03	-6.32	-7.43	-6.58	/	-2.5
802.11n ht20	5260	-19.62	-19.75	-20.99	-19.93	-9.62	-9.75	-10.99	-9.93	-4.02	-2.5
	5280	-19.91	-20.21	-21.54	-20.34	-9.91	-10.21	-11.54	-10.34	-4.44	-2.5
	5320	-20.07	-20.95	-22.46	-21.72	-10.07	-10.95	-12.46	-11.72	-5.19	-2.5
802.11n ht40	5270	-21.44	-21.77	-22.96	-22.02	-11.44	-11.77	-12.96	-12.02	-5.99	-2.5
	5310	-21.63	-22.73	-23.97	-23.29	-11.63	-12.73	-13.97	-13.29	-6.80	-2.5
802.11ac vht80	5290	-21.82	-22.04	-23.40	-22.78	-11.82	-12.04	-13.4	-12.78	-6.45	-2.5

5470-5725MHz(10dB attenuator was used in test):

Mode	Frequency (MHz)	Reading (dBm/MHz)				Maximum Power Spectral Density (dBm/MHz)					
		Chain 0	Chain 1	Chain 2	Chain 3	Chain 0	Chain 1	Chain 2	Chain 3	Total	FCC/ISED Limit
802.11 a	5500	-16.24	-15.90	-16.97	-15.99	-6.24	-5.9	-6.97	-5.99	/	-2.5
	5580	-16.29	-16.21	-16.90	-16.08	-6.29	-6.21	-6.9	-6.08	/	-2.5
	5700	-16.18	-15.97	-16.52	-16.81	-6.18	-5.97	-6.52	-6.81	/	-2.5
	5720	-16.20	-16.70	-16.70	-16.31	-6.2	-6.7	-6.7	-6.31	/	-2.5
802.11n ht20	5500	-19.14	-21.08	-21.51	-21.23	-9.14	-11.08	-11.51	-11.23	-4.61	-2.5
	5580	-19.81	-20.80	-22.18	-21.54	-9.81	-10.8	-12.18	-11.54	-4.97	-2.5
	5700	-19.87	-22.50	-22.81	-22.20	-9.87	-12.5	-12.81	-12.2	-5.66	-2.5
	5720	-19.79	-22.74	-22.95	-22.40	-9.79	-12.74	-12.95	-12.4	-5.74	-2.5
802.11n ht40	5510	-19.22	-20.33	-22.71	-21.38	-9.22	-10.33	-12.71	-11.38	-4.70	-2.5
	5550	-19.31	-20.87	-22.97	-21.22	-9.31	-10.87	-12.97	-11.22	-4.88	-2.5
	5670	-19.90	-21.59	-23.76	-21.85	-9.9	-11.59	-13.76	-11.85	-5.54	-2.5
	5710	-19.34	-21.63	-23.74	-22.39	-9.34	-11.63	-13.74	-12.39	-5.45	-2.5
802.11ac vht80	5530	-20.31	-20.80	-23.25	-22.18	-10.31	-10.8	-13.25	-12.18	-5.46	-2.5
	5610	-19.31	-20.35	-23.22	-21.31	-9.31	-10.35	-13.22	-11.31	-4.80	-2.5
	5690	-20.32	-21.52	-24.45	-22.97	-10.32	-11.52	-14.45	-12.97	-6.03	-2.5

5725-5850 MHz:

Mode	Frequency (MHz)	Maximum Power Spectral Density (dBm/500kHz)					
		Chain 0	Chain 1	Chain 2	Chain 3	Total	FCC/RSS Limit
802.11 a	5745	11.49	11.41	11.05	12.45	/	30
	5785	10.73	11.18	10.18	12.25	/	30
	5825	10.61	11.17	10.56	11.45	/	30
802.11n ht20	5745	9.74	6.92	5.64	7.79	13.80	30
	5785	9.39	6.59	6.00	7.67	13.63	30
	5825	9.01	6.48	5.60	7.32	13.31	30
802.11n ht40	5755	6.06	3.77	2.01	3.95	10.21	30
	5795	5.44	2.77	1.71	3.69	9.64	30
802.11ac vht80	5775	3.58	1.01	-0.09	0.86	7.59	30

Note: Note: This is a fixed point-to-point AP application. For 5.8G band, same power level setting for all antenna configurations, the test plots please refer to 13dBi antenna part.

Note:

The antenna gain is 29.5 dBi, 10 dB Attenuators should installed with this antenna for bands 5250-5350MHz and 5470-5725MHz, so the Actual antenna gain is 19.5 dBi for the two bands. Two sets of identical Antenna should be installed to transmit different data in a different direction from the other antennas. Each Antenna set has two Cross-polarized antennas, per KDB 662911 D01 Multiple Transmitter Output v02r01, Clause F) 2):

- b) *Sectorized antenna systems.* In sectorized antenna systems in which each antenna is used to transmit different data in a different direction from the other antennas, directional gain is equal to the gain of an individual sector antenna.
- c) *Cross-polarized antennas.* For a system in which the antennas have fixed orientations relative to one another that ensure that the antennas are cross-polarized regardless of any user actions, the directional gain is computed as follows.
 - (i) *Cross-polarized antennas with $N_{ANT} = 2$.* In the case of a transmitter with only two outputs driving a pair of antennas that are cross-polarized (e.g., vertical and horizontal or left-circular and right-circular), directional gain is the gain of an individual antenna. If the two antennas have different gains, the larger gain applies.

So:

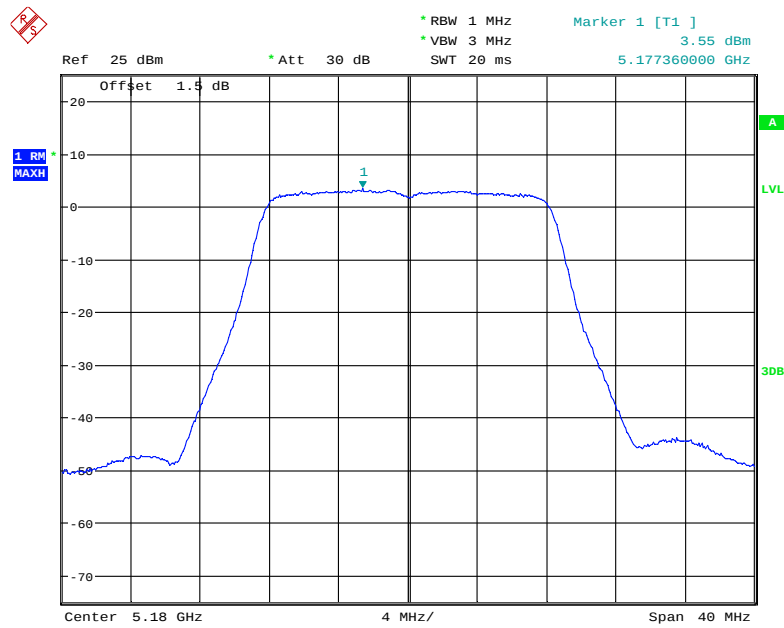
Directional gain = G_{ANT} = 19.5dBi for 5250-5350 MHz&5470-5725MHz
 Directional gain = G_{ANT} = 29.5dBi for 5150-5250 MHz&5725-5850MHz

For 5.8GHz band, If measurement bandwidth of Maximum PSD is specified in 500 kHz, add $10\log(500\text{kHz}/\text{RBW})$ to the measured result, whereas RBW (< 500 kHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.

Method SA-3 in KDB 789033 D02 General UNII Test Procedures New Rules v02r01 was used for PSD test.

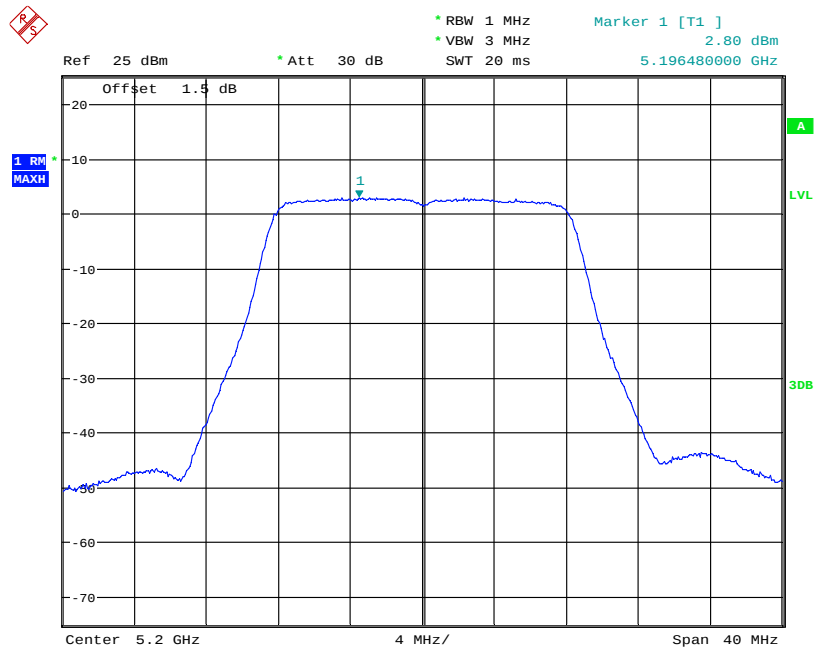
5150-5250 MHz, Chain 0:

802.11a Low Channel



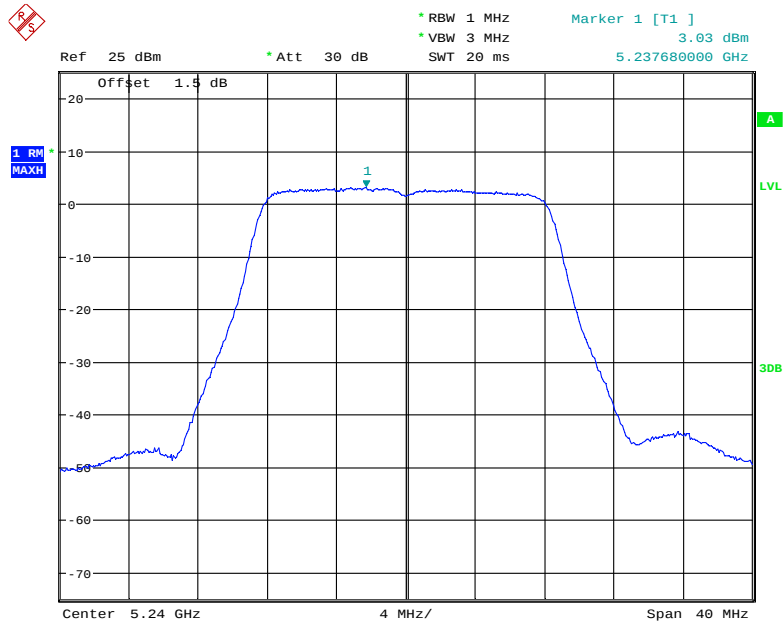
Date: 21.OCT.2020 10:50:10

802.11a Middle Channel



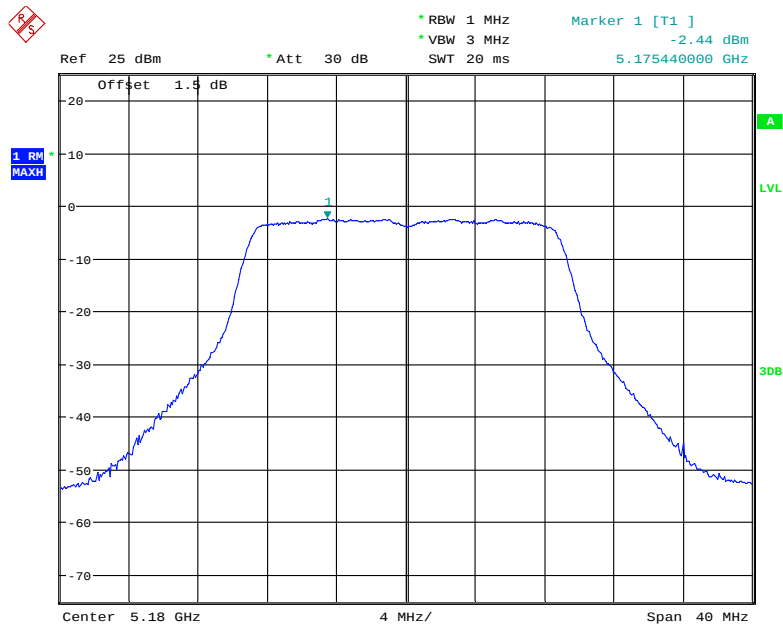
Date: 21.OCT.2020 10:51:03

802.11a High Channel



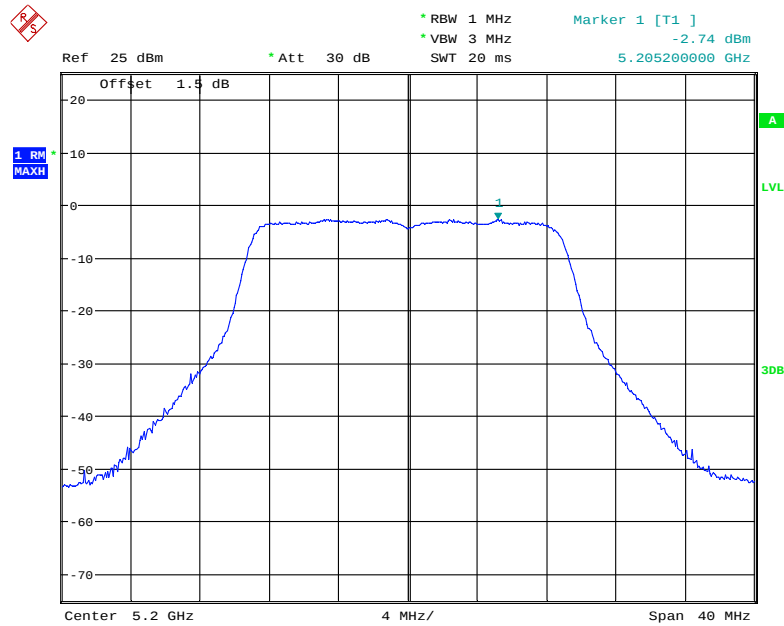
Date: 21.OCT.2020 10:51:57

802.11n ht20 Low Channel



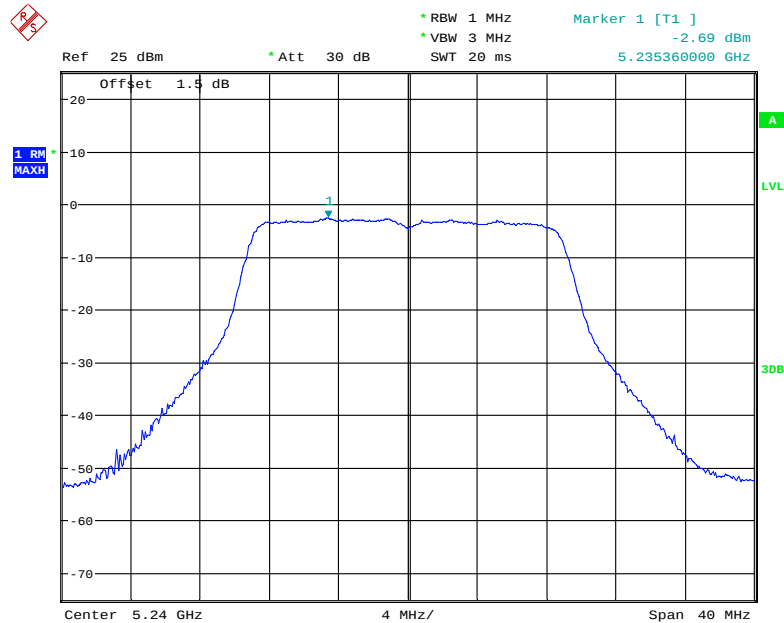
Date: 21.OCT.2020 10:58:17

802.11n ht20 Middle Channel



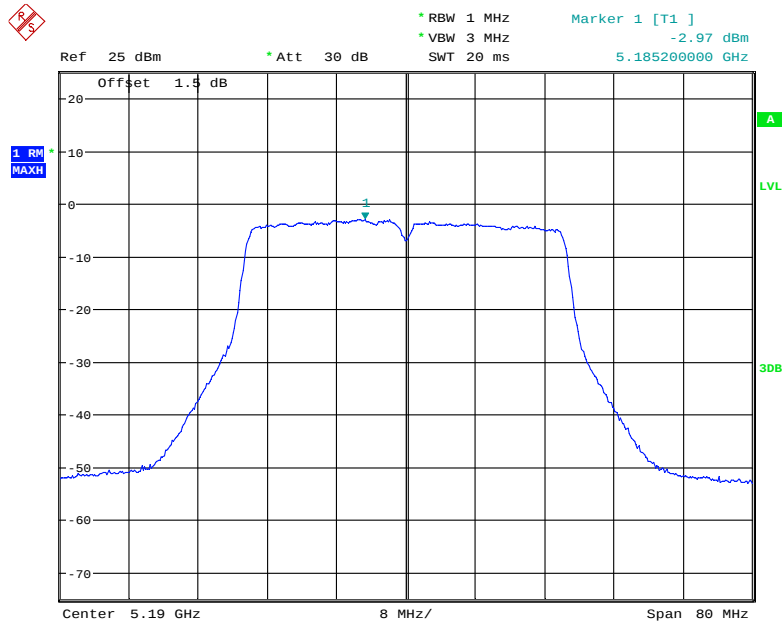
Date: 21.OCT.2020 10:57:17

802.11n ht20 High Channel



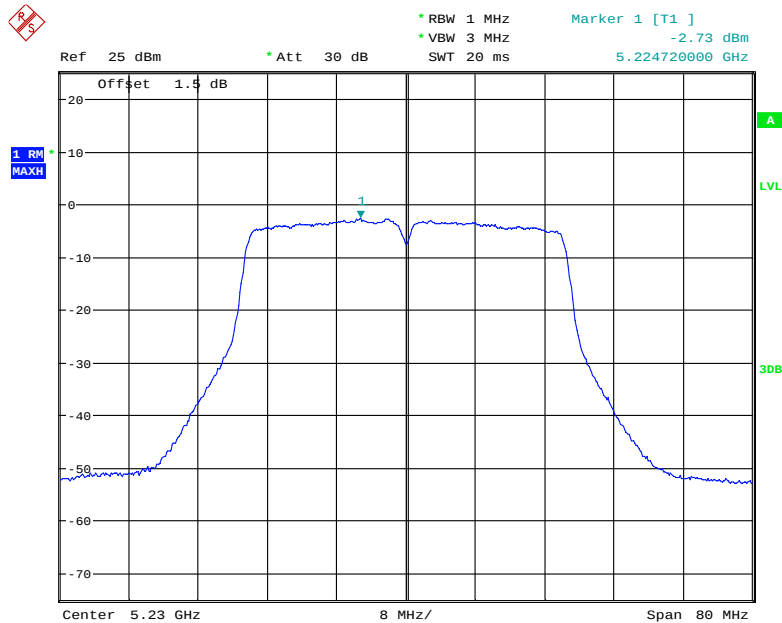
Date: 21.OCT.2020 10:56:22

802.11n ht40 Low Channel



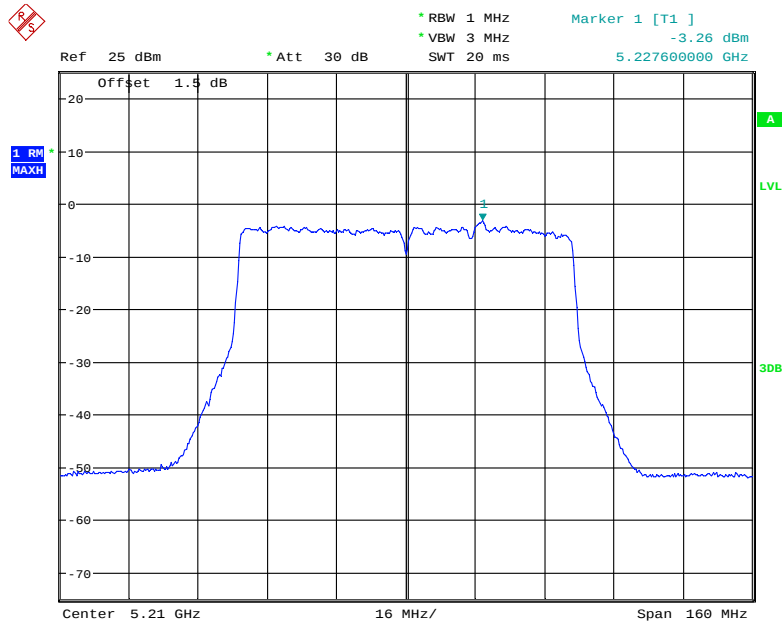
Date: 21.OCT.2020 11:01:18

802.11n ht40 High Channel



Date: 21.OCT.2020 11:02:23

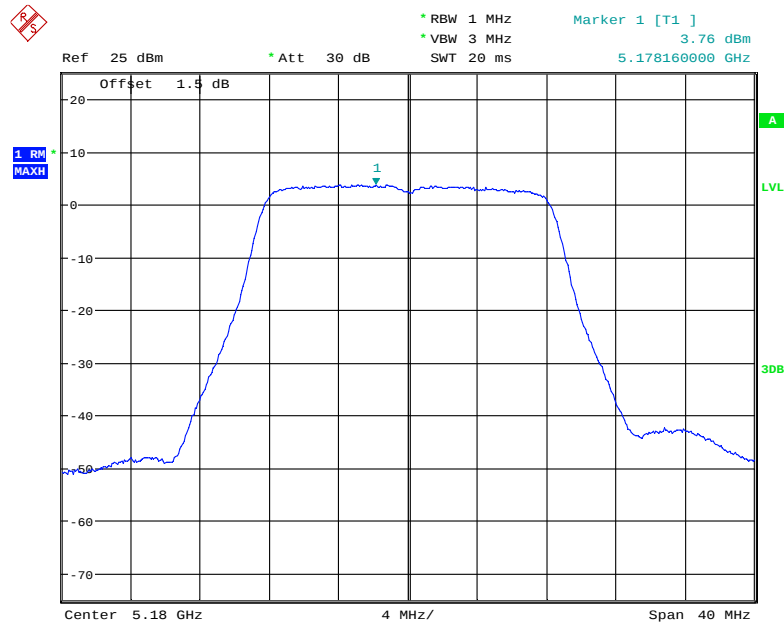
802.11ac vht80 Middle Channel



Date: 21.OCT.2020 11:03:52

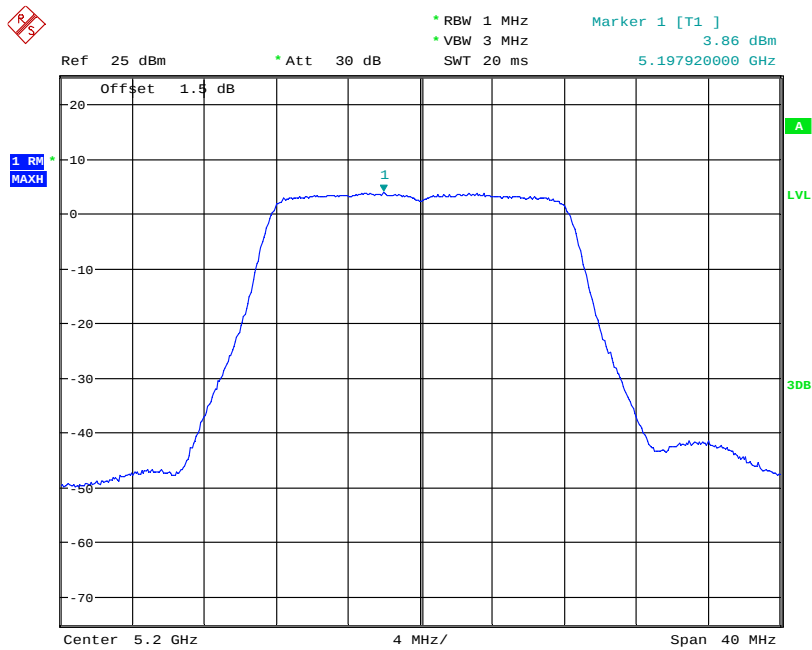
Chain 1:

802.11a Low Channel



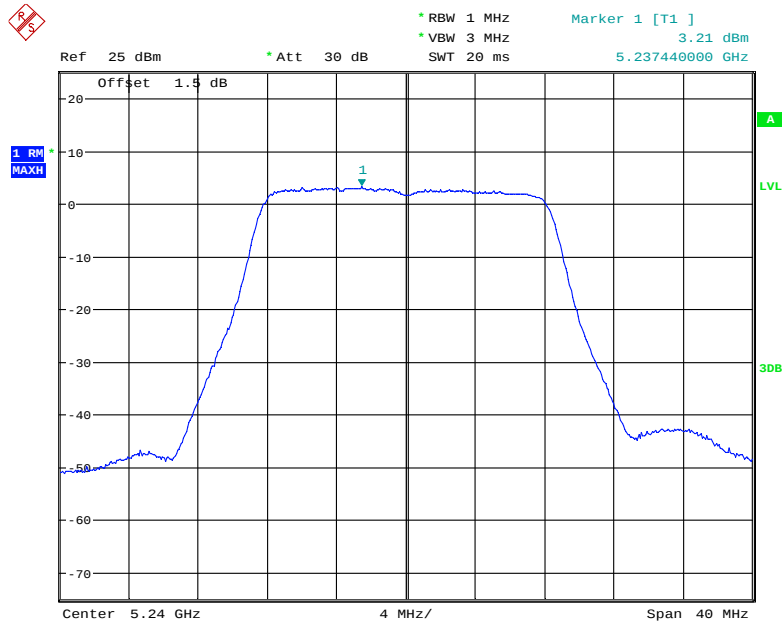
Date: 21.OCT.2020 11:27:45

802.11a Middle Channel



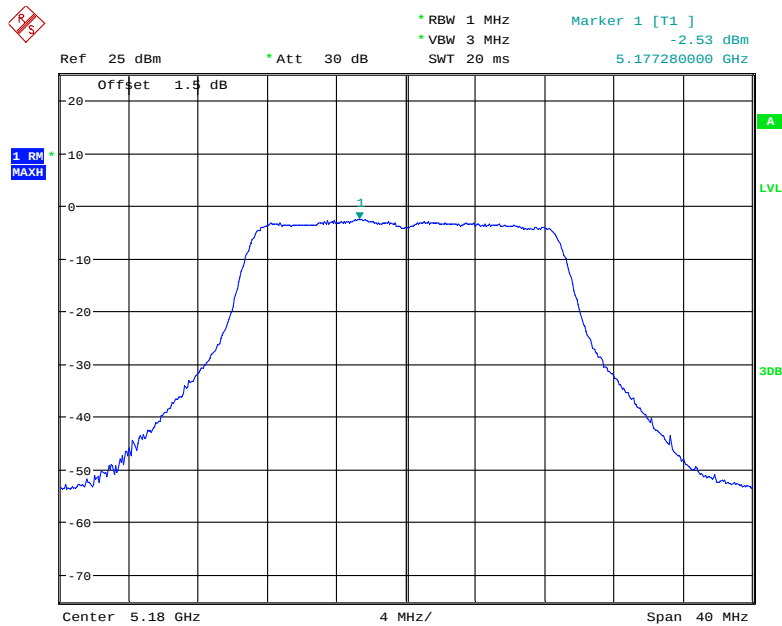
Date: 21.OCT.2020 11:27:24

802.11a High Channel



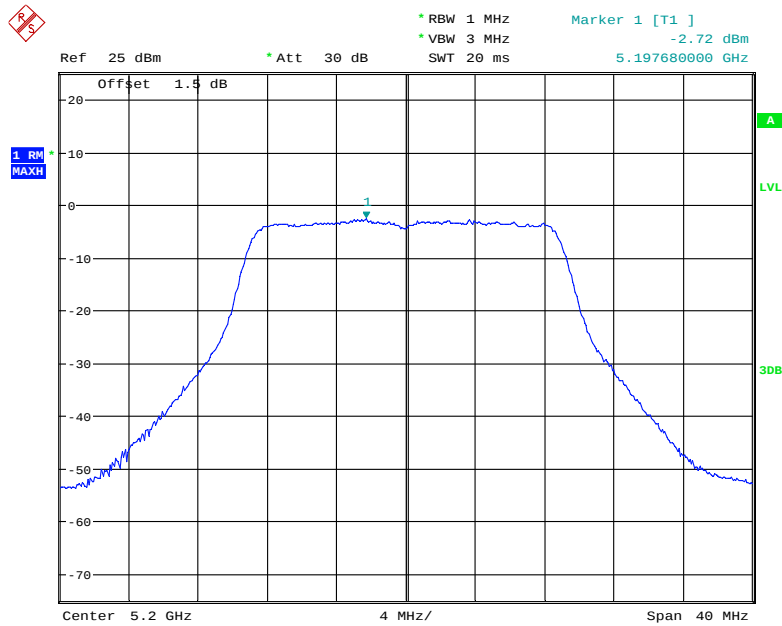
Date: 21.OCT.2020 11:26:38

802.11n ht20 Low Channel



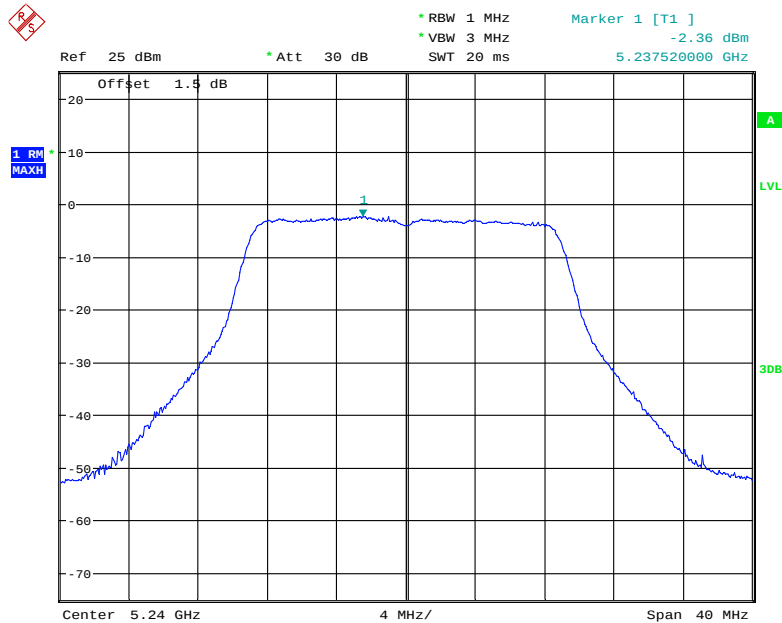
Date: 21.OCT.2020 11:24:53

802.11n ht20 Middle Channel



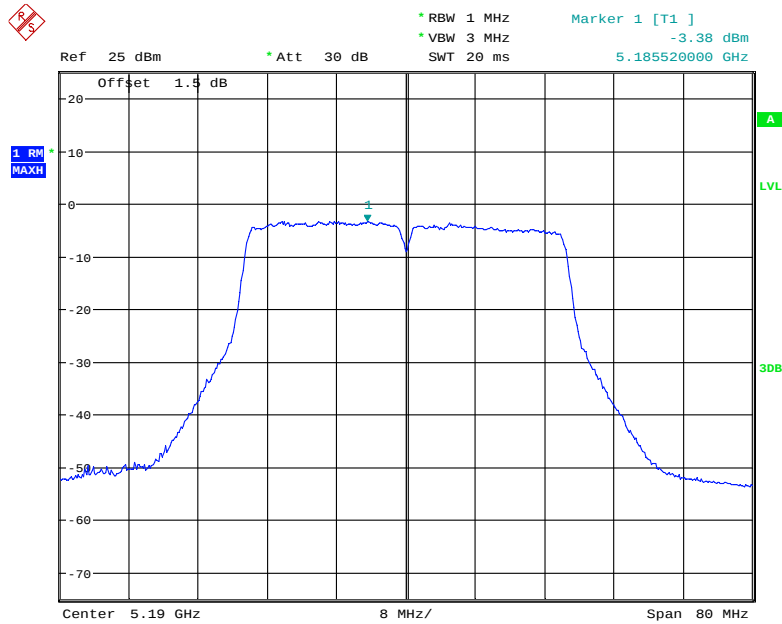
Date: 21.OCT.2020 11:25:15

802.11n ht20 High Channel



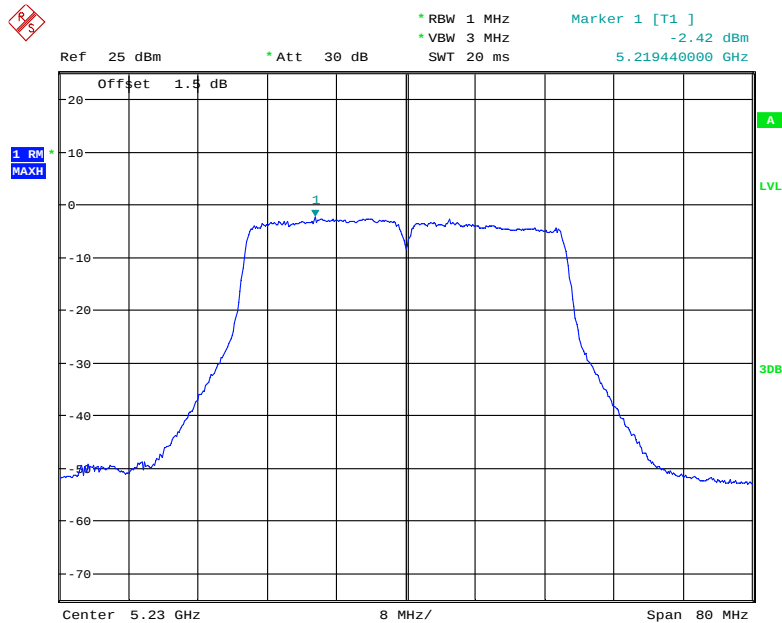
Date: 21.OCT.2020 11:25:36

802.11n ht40 Low Channel



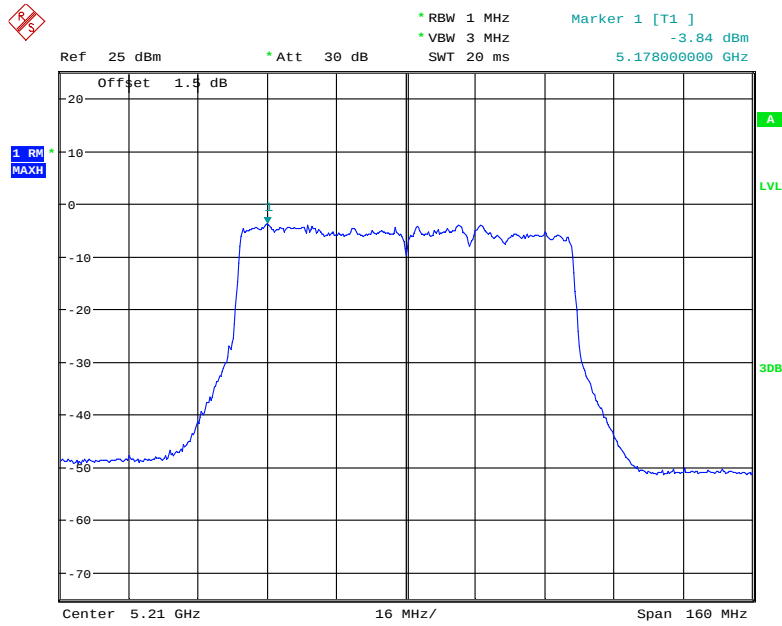
Date: 21.OCT.2020 11:23:31

802.11n ht40 High Channel



Date: 21.OCT.2020 11:23:50

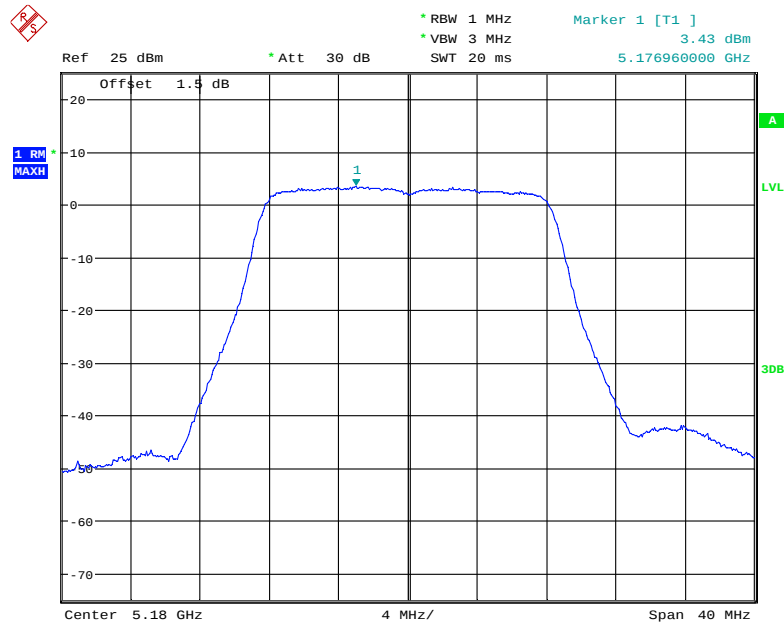
802.11ac vht80 Middle Channel



Date: 21.OCT.2020 11:21:35

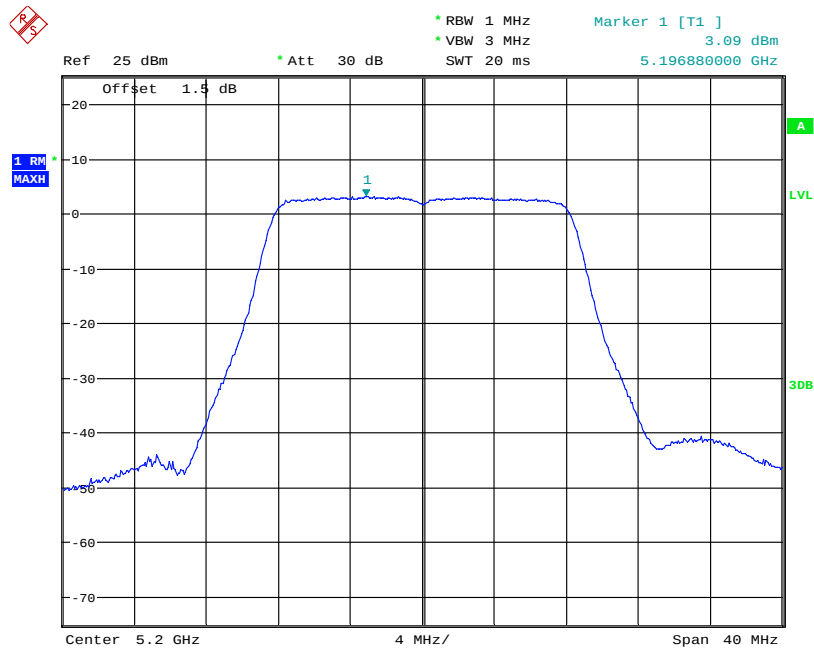
Chain 2:

802.11a Low Channel



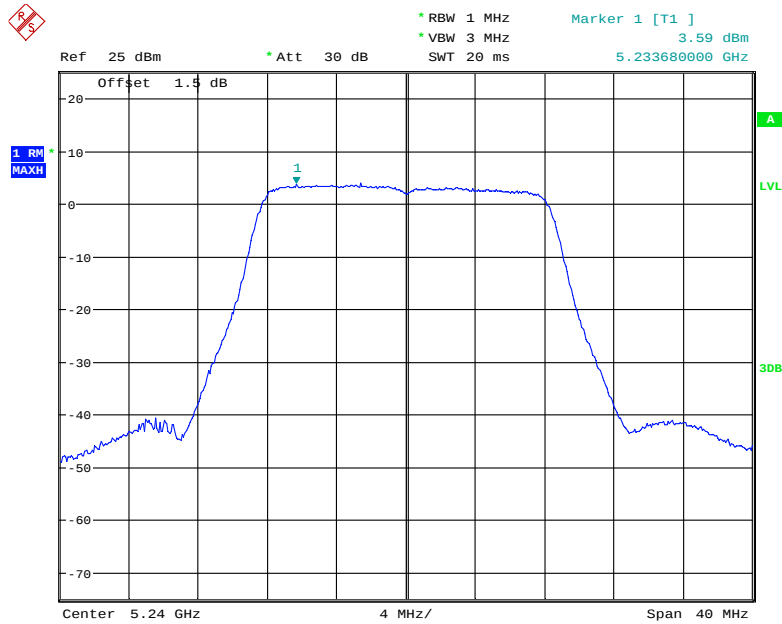
Date: 21.OCT.2020 11:13:10

802.11a Middle Channel



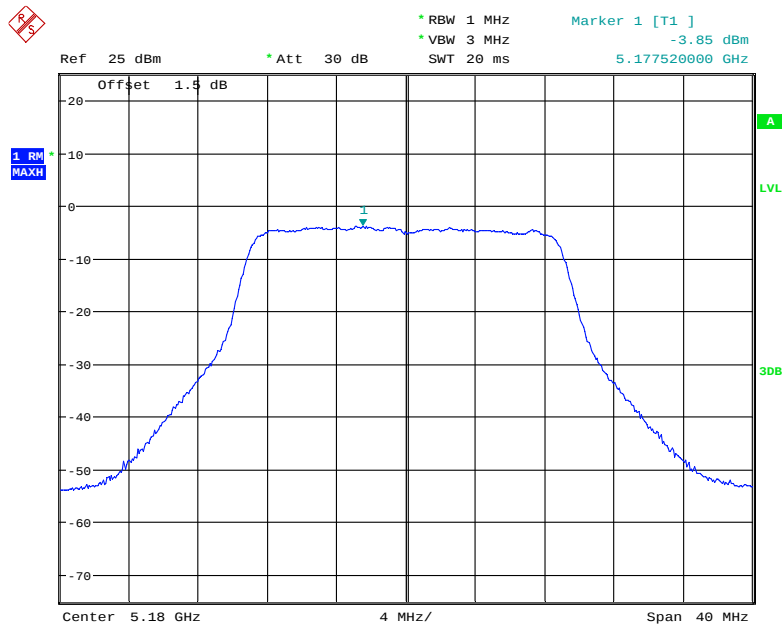
Date: 21.OCT.2020 11:12:49

802.11a High Channel



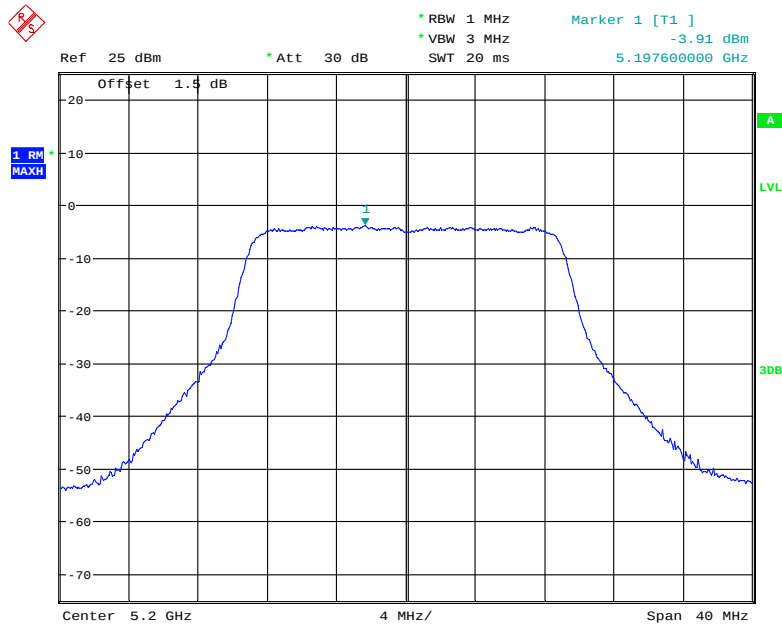
Date: 21.OCT.2020 11:12:23

802.11n ht20 Low Channel



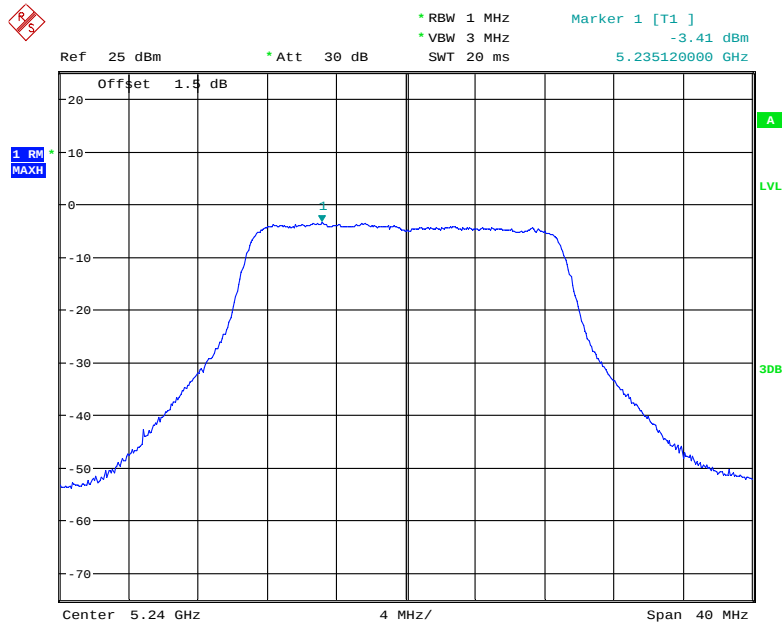
Date: 21.OCT.2020 11:09:53

802.11n ht20 Middle Channel



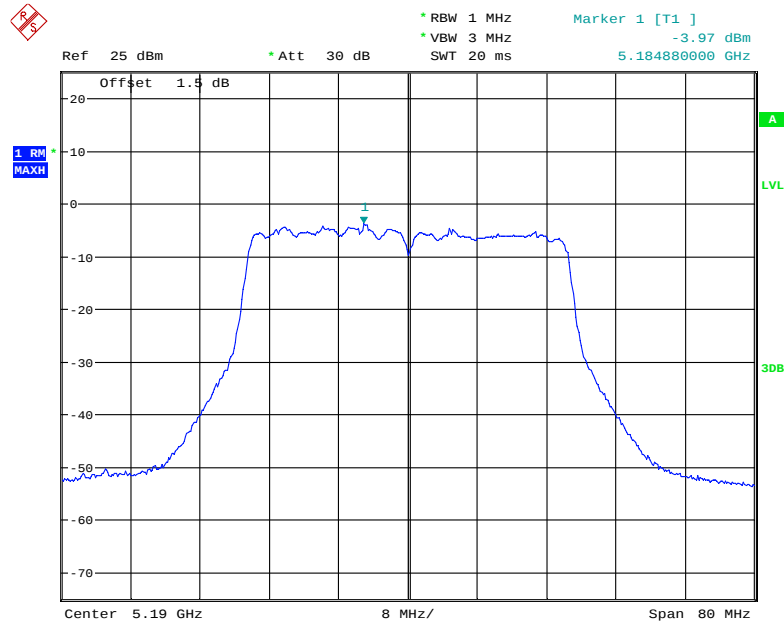
Date: 21.OCT.2020 11:09:18

802.11n ht20 High Channel



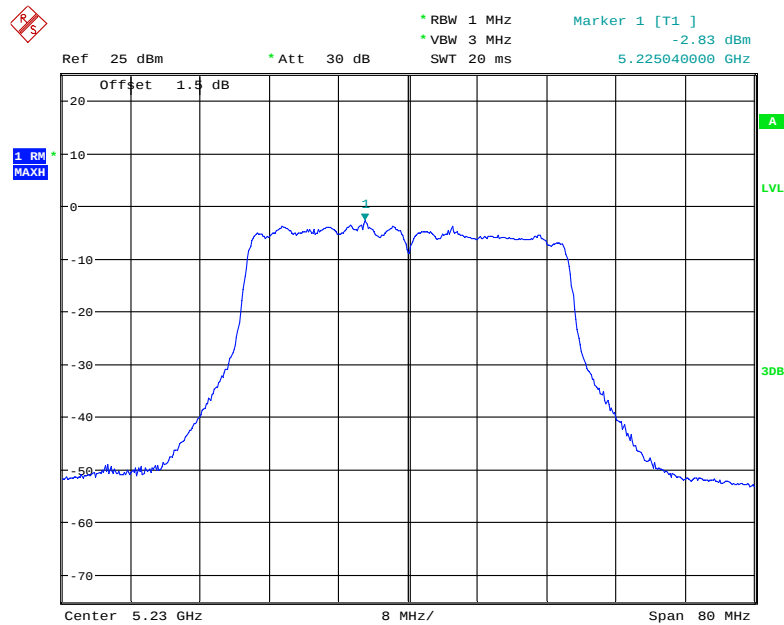
Date: 21.OCT.2020 11:08:51

802.11n ht40 Low Channel



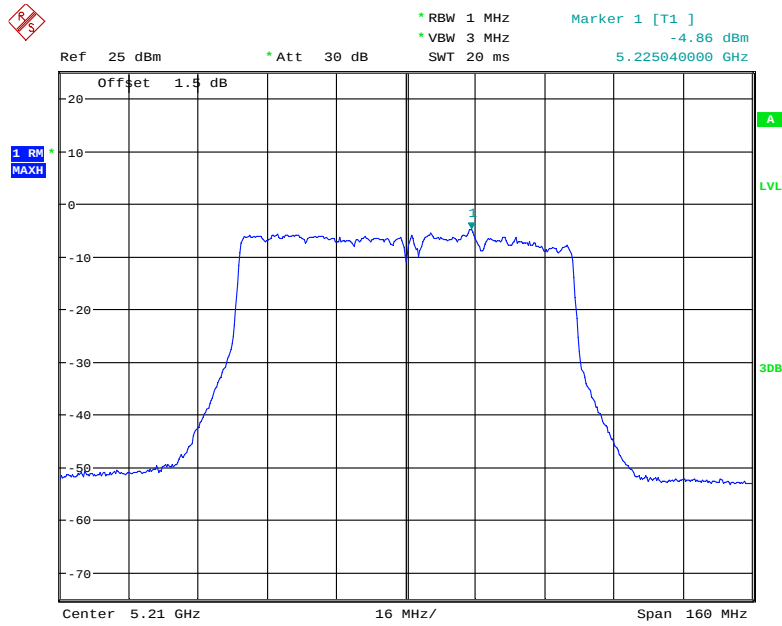
Date: 21.OCT.2020 11:07:01

802.11n ht40 High Channel



Date: 21.OCT.2020 11:07:32

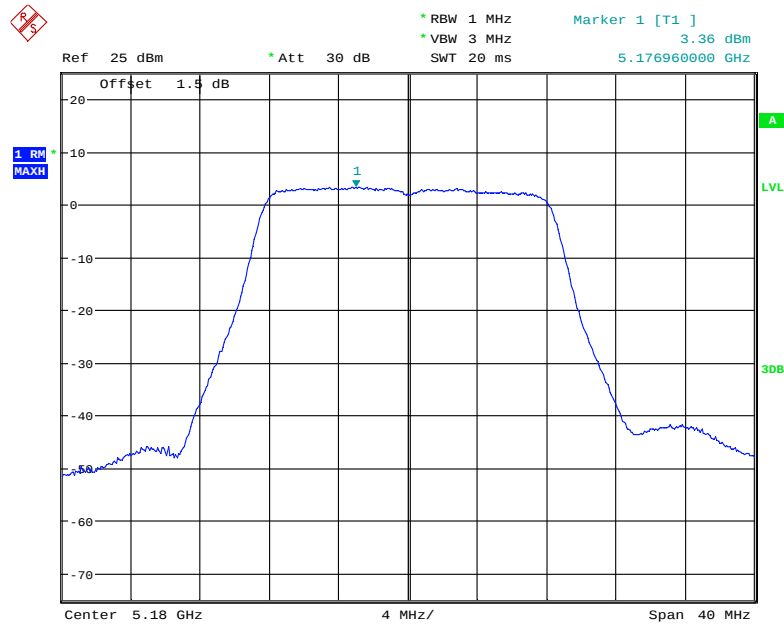
802.11ac vht80 Middle Channel



Date: 21.OCT.2020 11:06:10

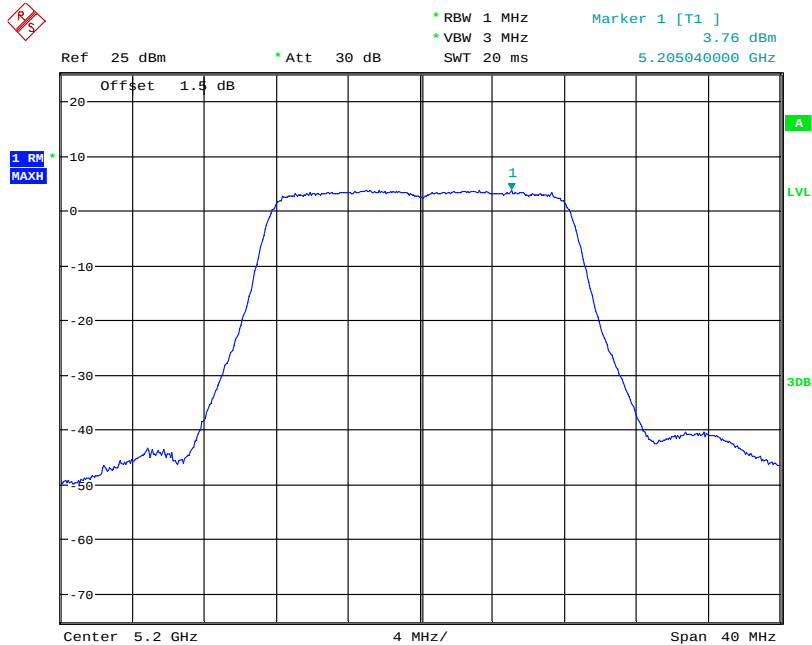
Chain 3:

802.11a Low Channel



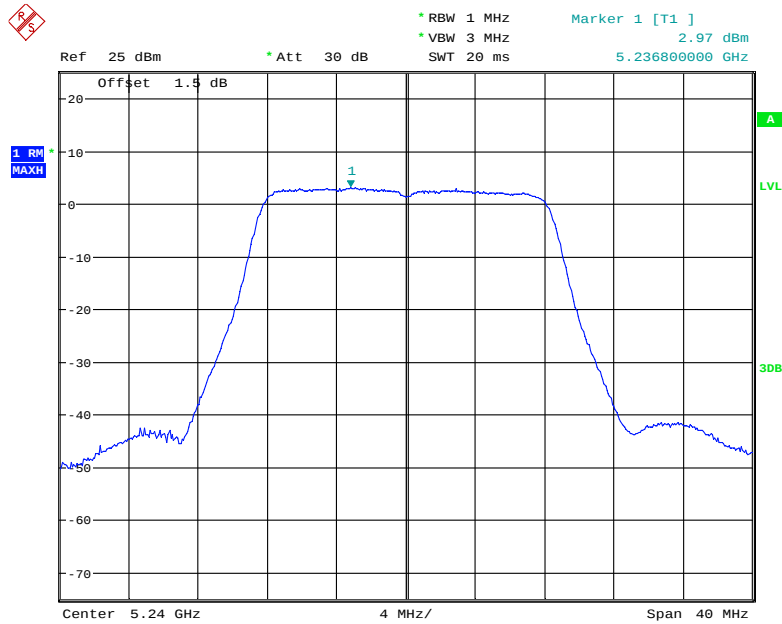
Date: 21.OCT.2020 11:15:16

802.11a Middle Channel



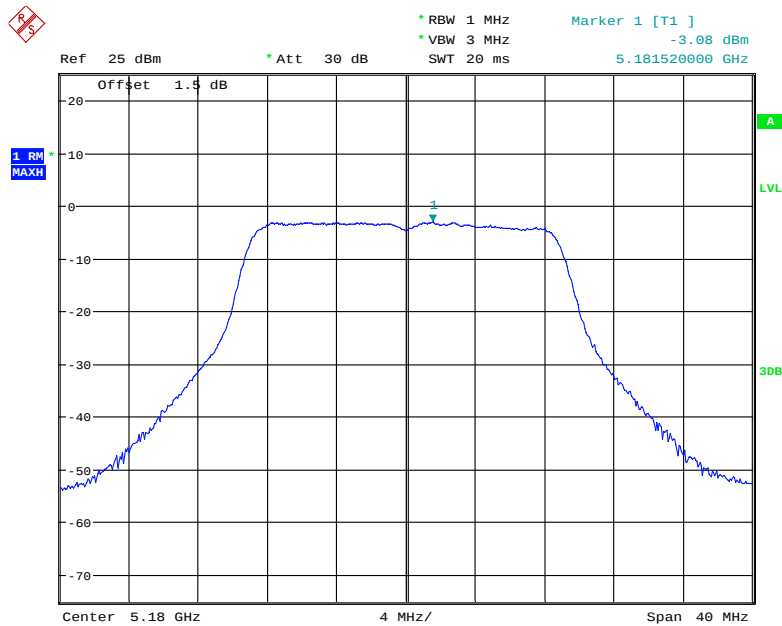
Date: 21.OCT.2020 11:15:54

802.11a High Channel



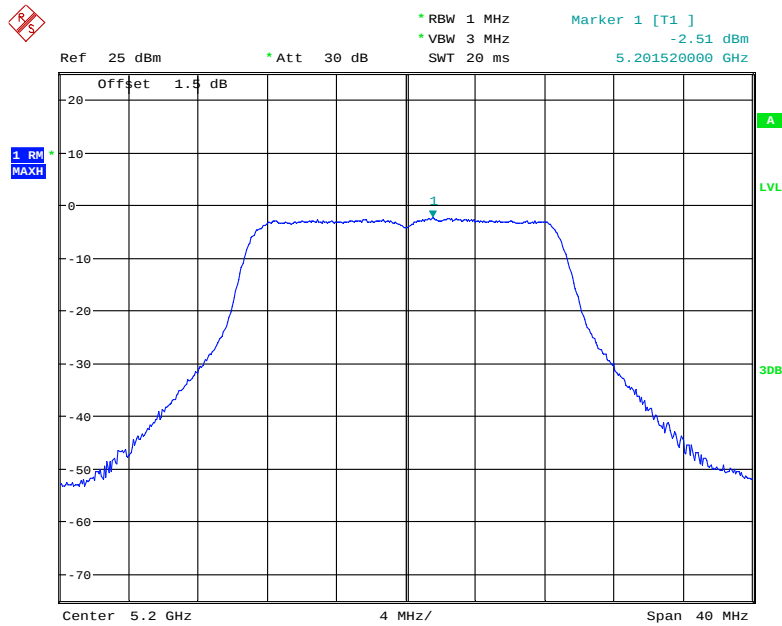
Date: 21.OCT.2020 11:16:58

802.11n ht20 Low Channel



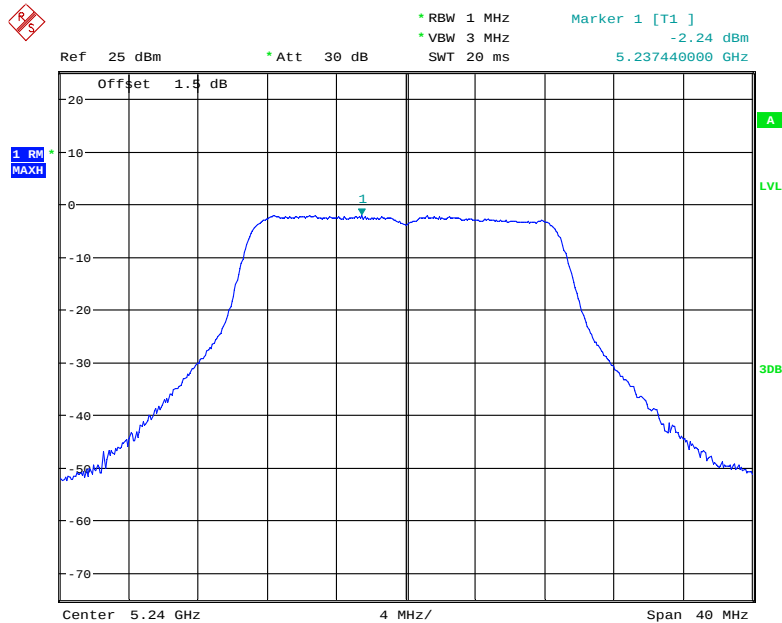
Date: 21.OCT.2020 11:18:58

802.11n ht20 Middle Channel



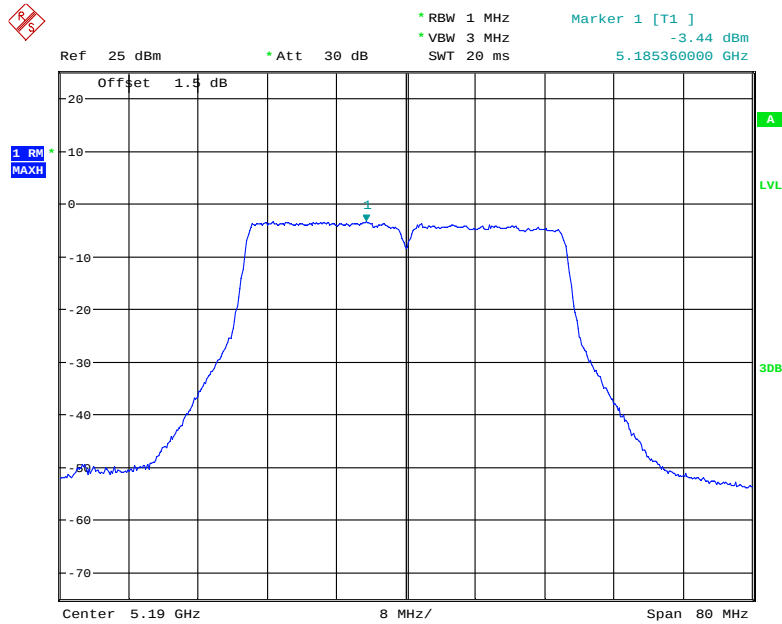
Date: 21.OCT.2020 11:18:31

802.11n ht20 High Channel



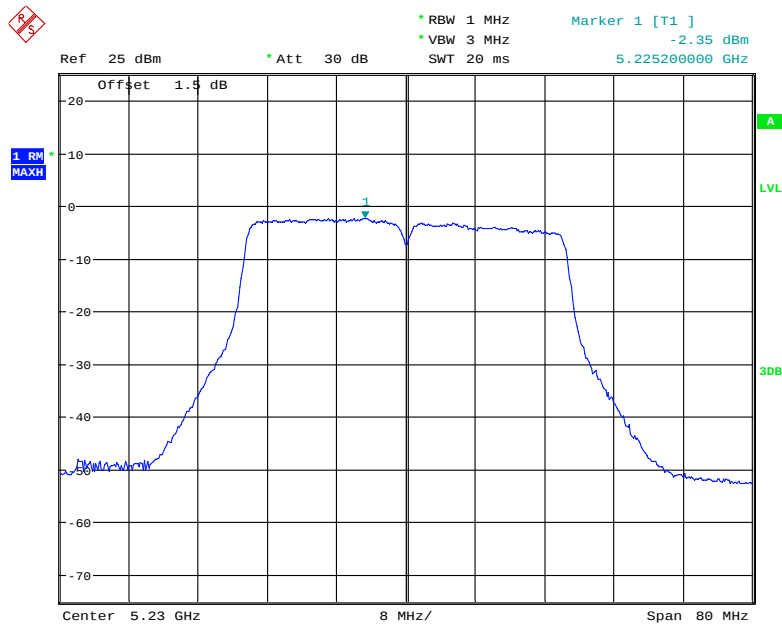
Date: 21.OCT.2020 11:18:03

802.11n ht40 Low Channel



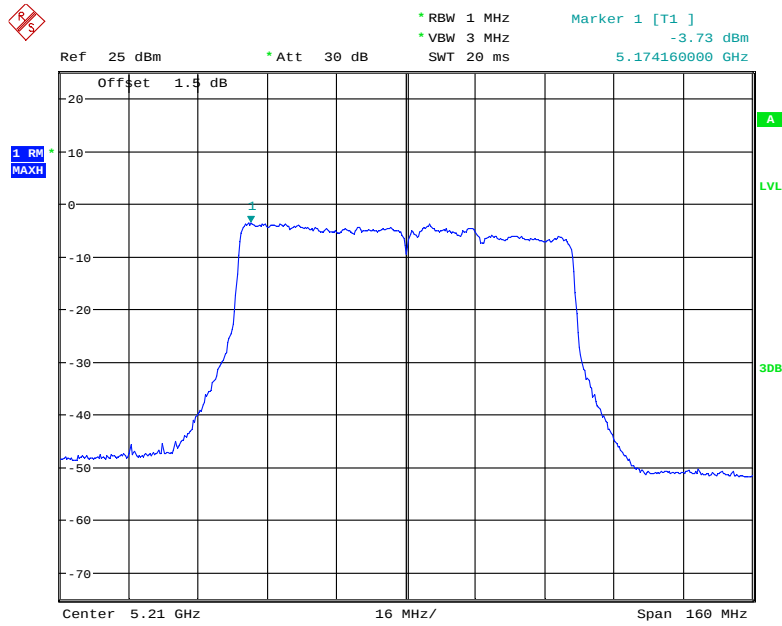
Date: 21.OCT.2020 11:19:40

802.11n ht40 High Channel



Date: 21.OCT.2020 11:20:09

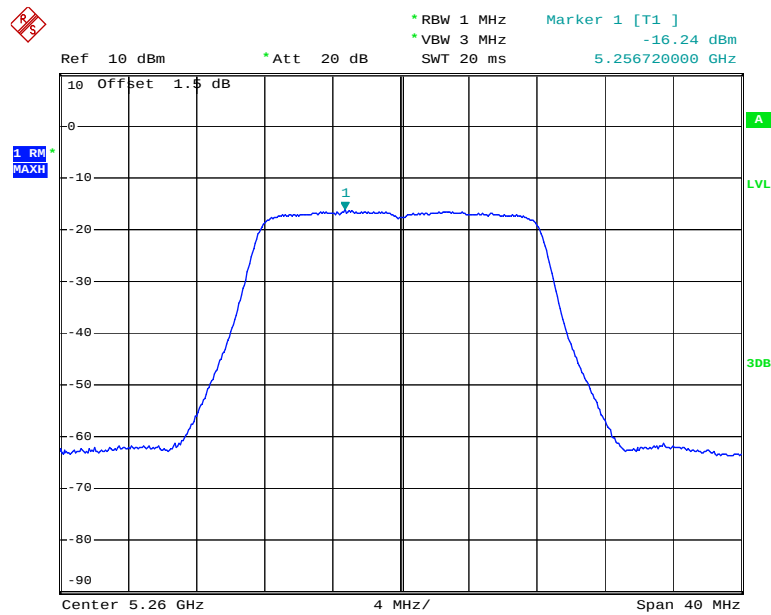
802.11ac vht80 Middle Channel



Date: 21.OCT.2020 11:20:54

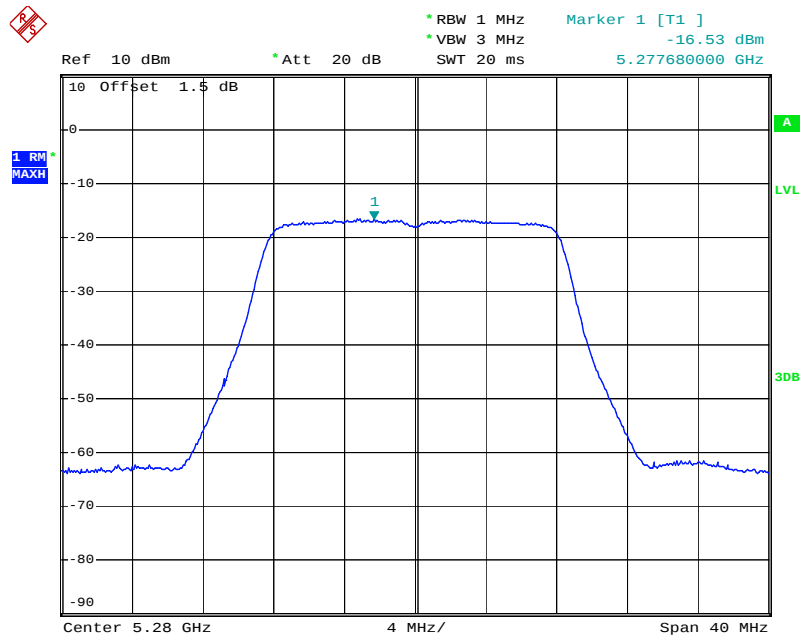
5250-5350MHz, Chain 0:

802.11a Low Channel



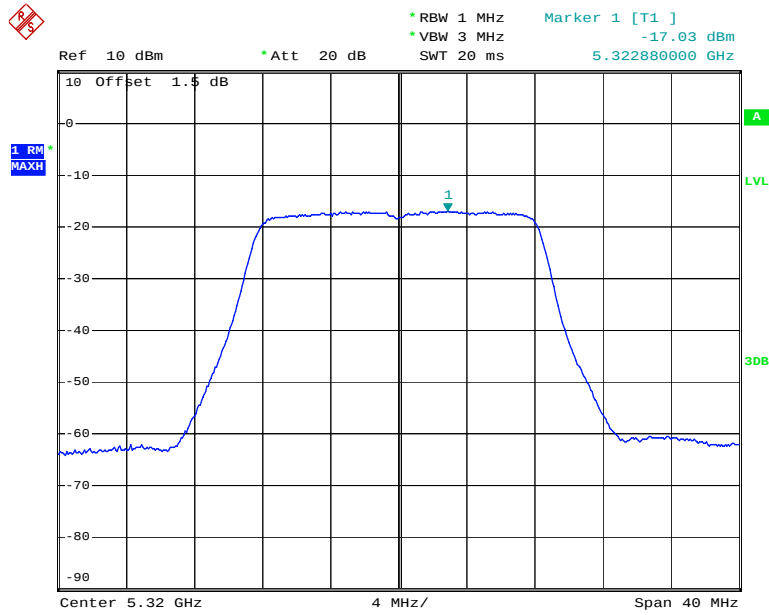
Date: 24.OCT.2020 16:07:07

802.11a Middle Channel



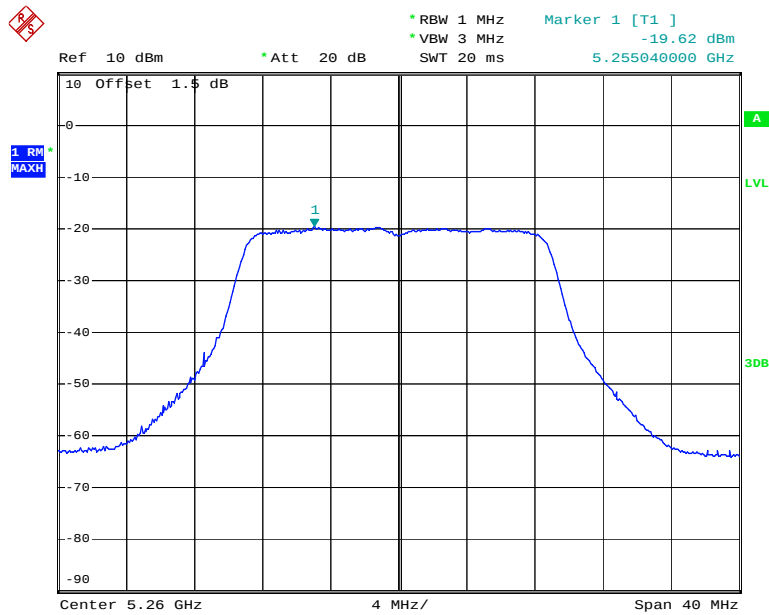
Date: 24.OCT.2020 16:07:34

802.11a High Channel



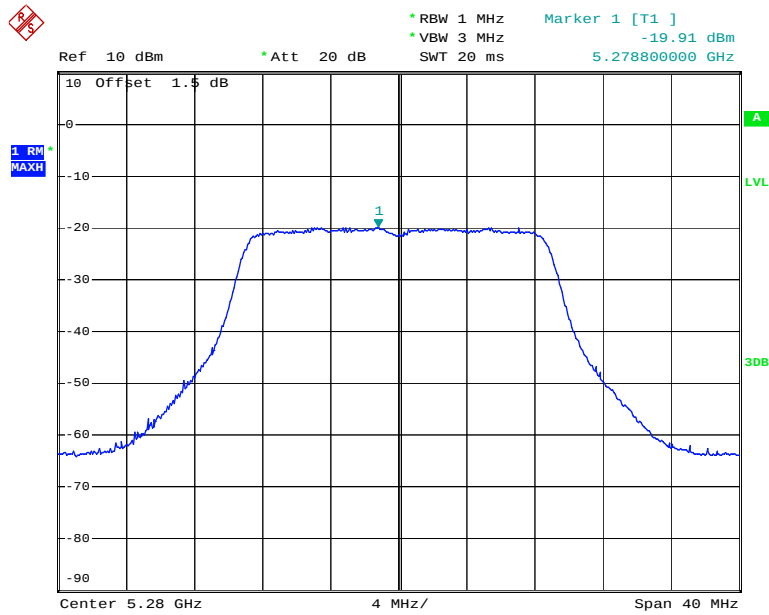
Date: 24.OCT.2020 16:07:56

802.11n ht20 Low Channel



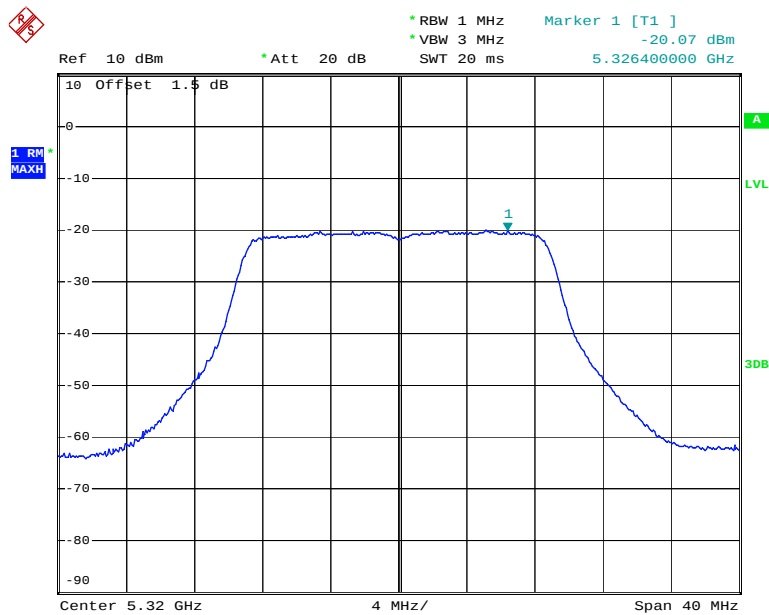
Date: 24.OCT.2020 16:10:03

802.11n ht20 Middle Channel



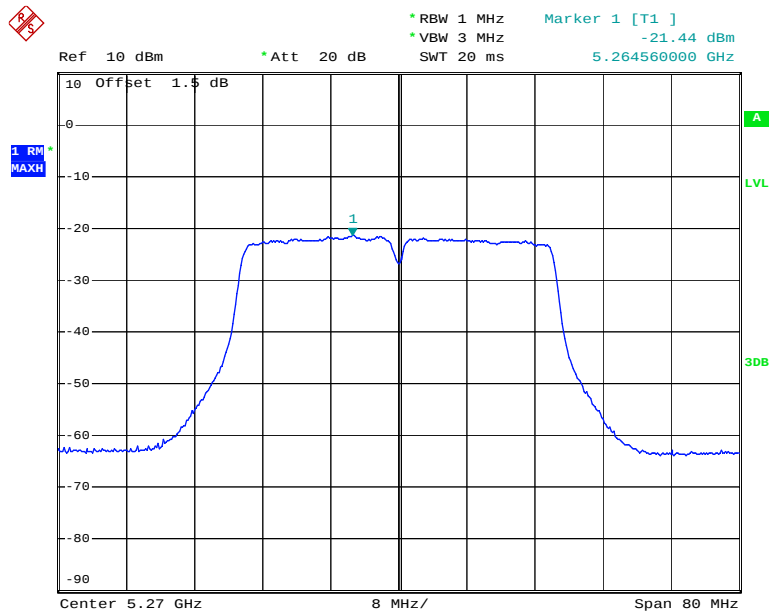
Date: 24.OCT.2020 16:09:41

802.11n ht20 High Channel



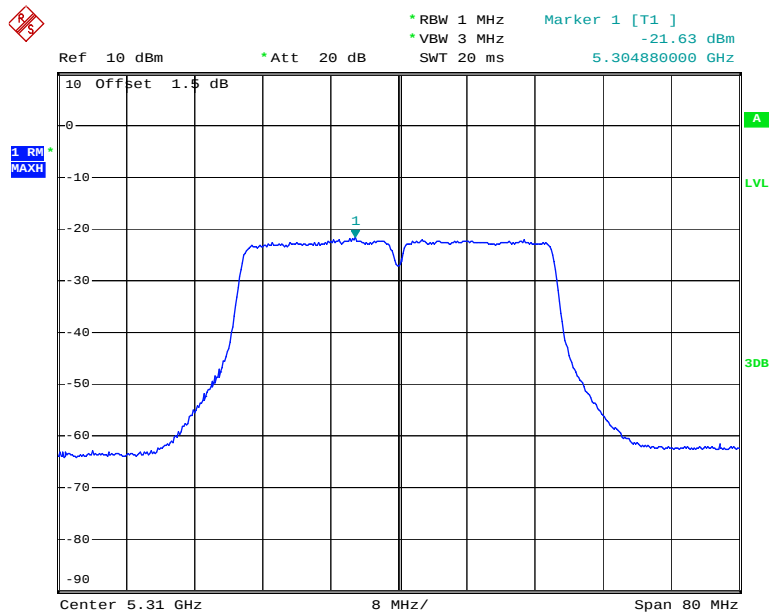
Date: 24.OCT.2020 16:08:53

802.11n ht40 Low Channel



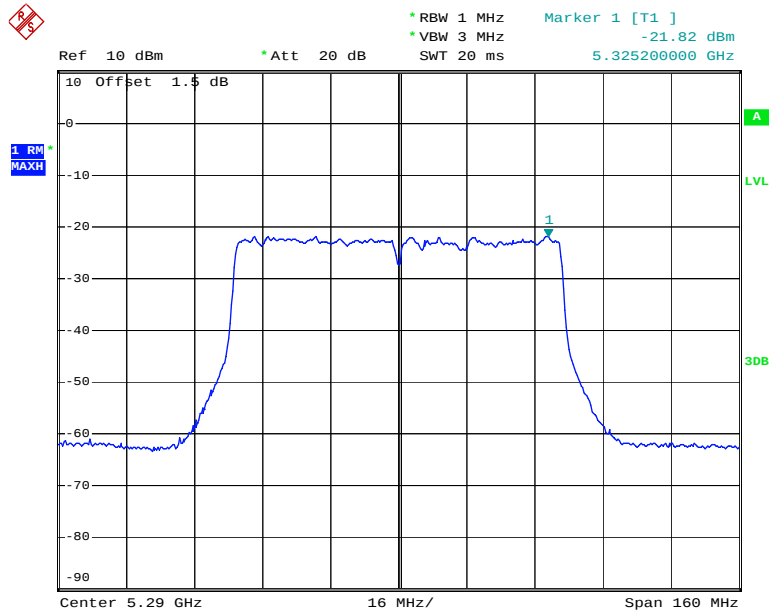
Date: 24.OCT.2020 16:10:56

802.11n ht40 High Channel



Date: 24.OCT.2020 16:11:33

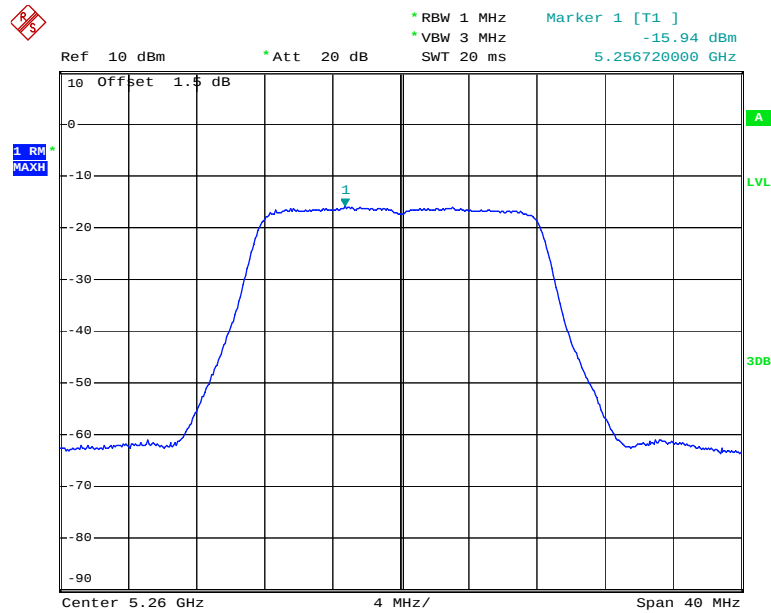
802.11ac vht80 Middle Channel



Date: 24.OCT.2020 16:13:02

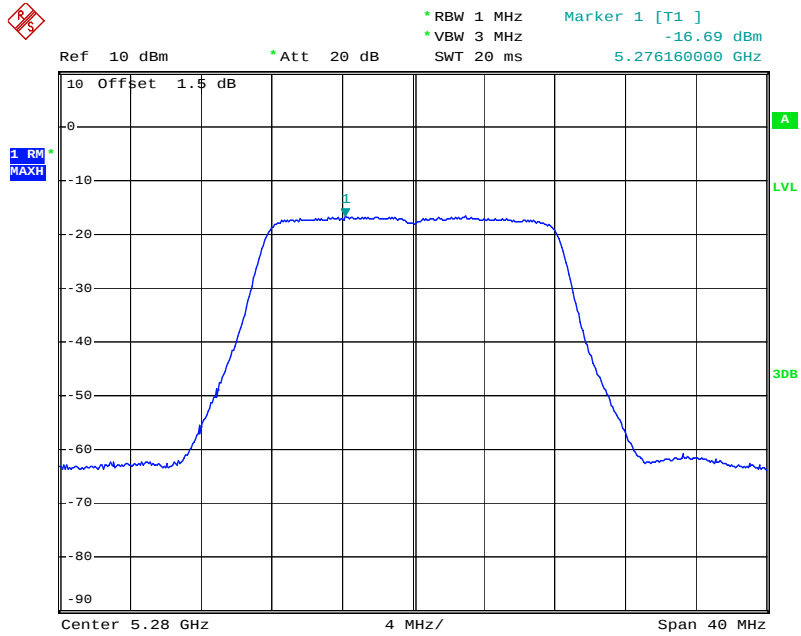
Chain 1:

802.11a Low Channel



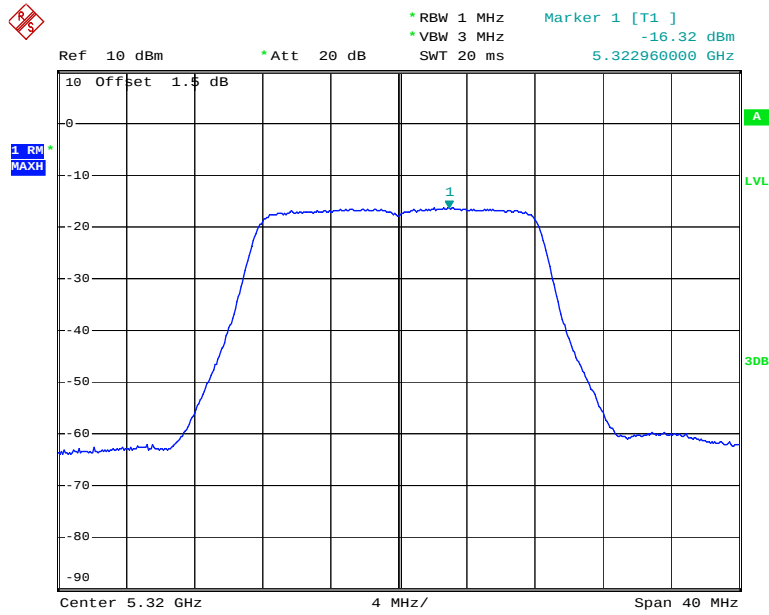
Date: 24.OCT.2020 16:21:54

802.11a Middle Channel



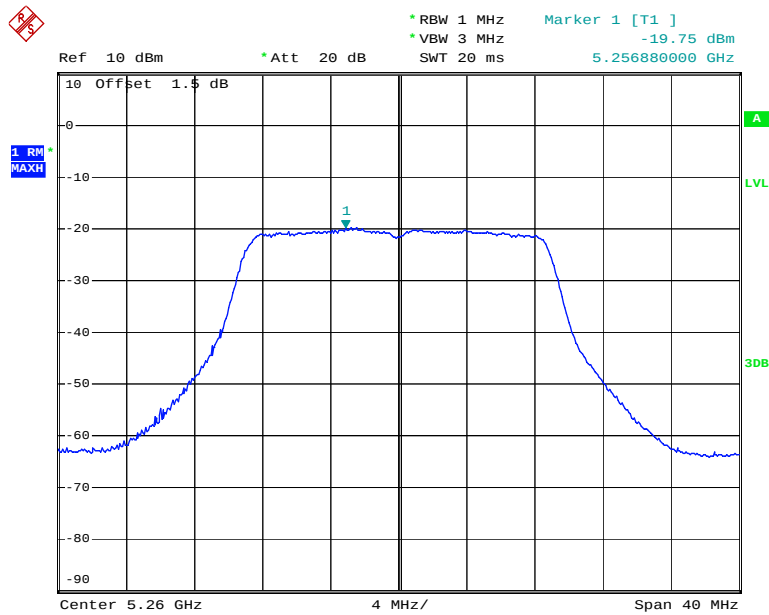
Date: 24.OCT.2020 16:21:17

802.11a High Channel



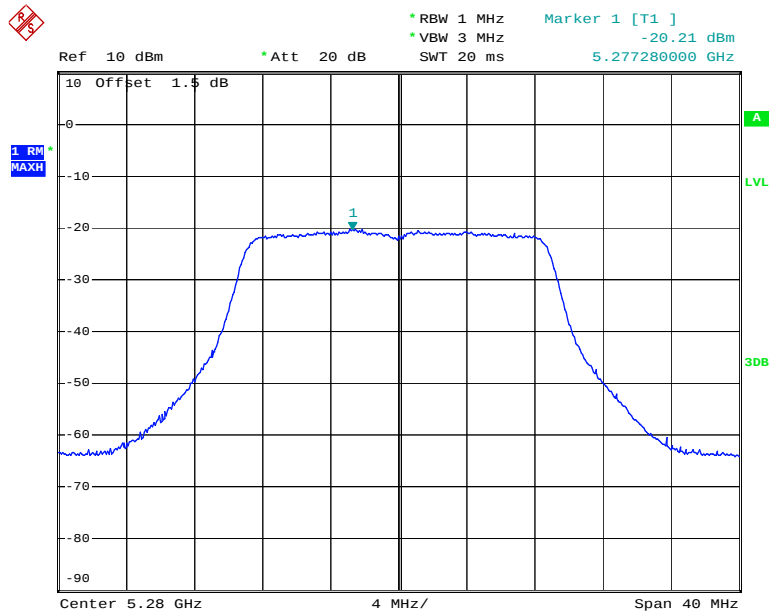
Date: 24.OCT.2020 16:20:43

802.11n ht20 Low Channel



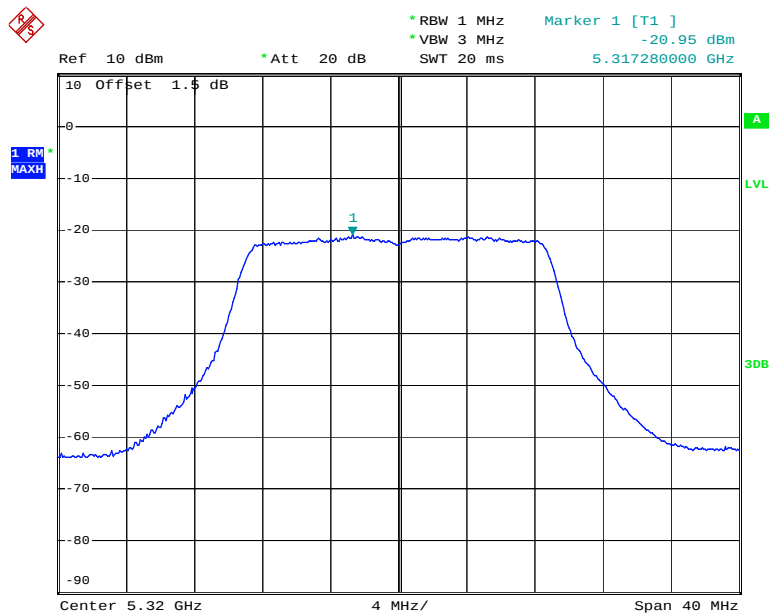
Date: 24.OCT.2020 16:23:06

802.11n ht20 Middle Channel



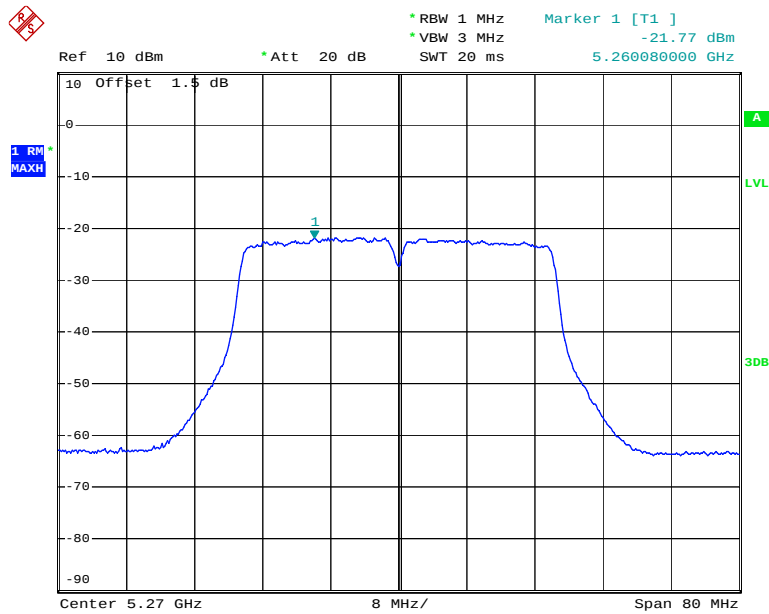
Date: 24.OCT.2020 16:25:43

802.11n ht20 High Channel



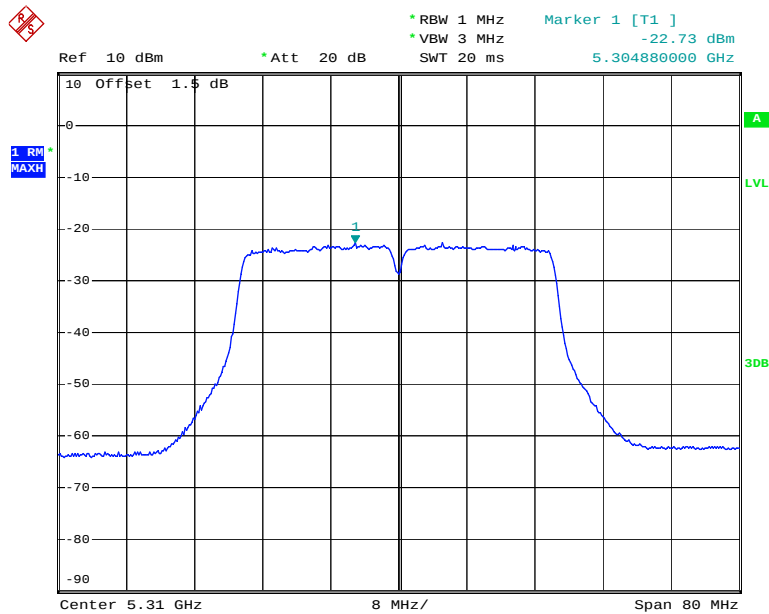
Date: 24.OCT.2020 16:26:06

802.11n ht40 Low Channel



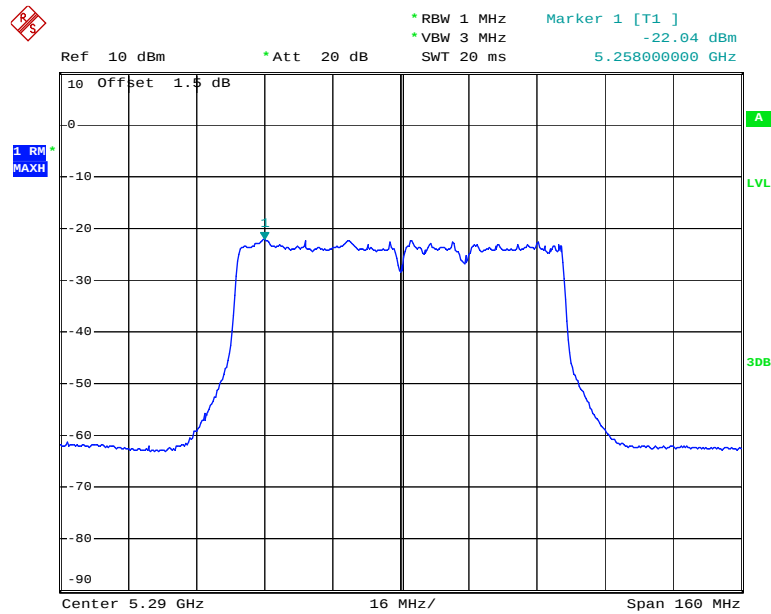
Date: 24.OCT.2020 16:26:44

802.11n ht40 High Channel



Date: 24.OCT.2020 16:27:05

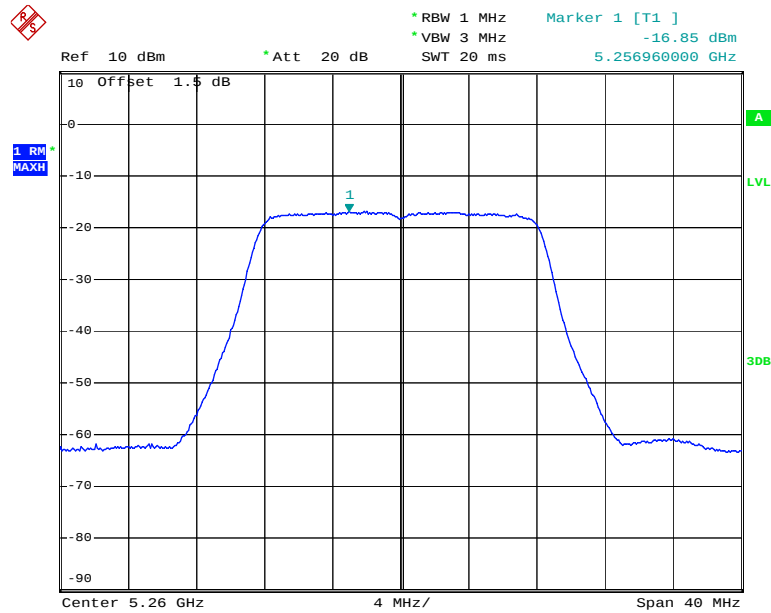
802.11ac vht80 Middle Channel



Date: 24.OCT.2020 16:28:27

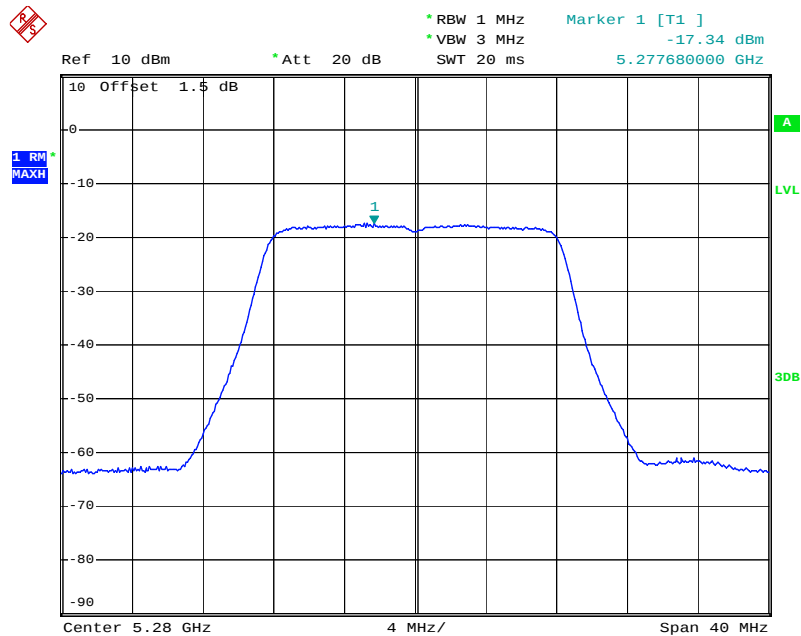
Chain 2:

802.11a Low Channel



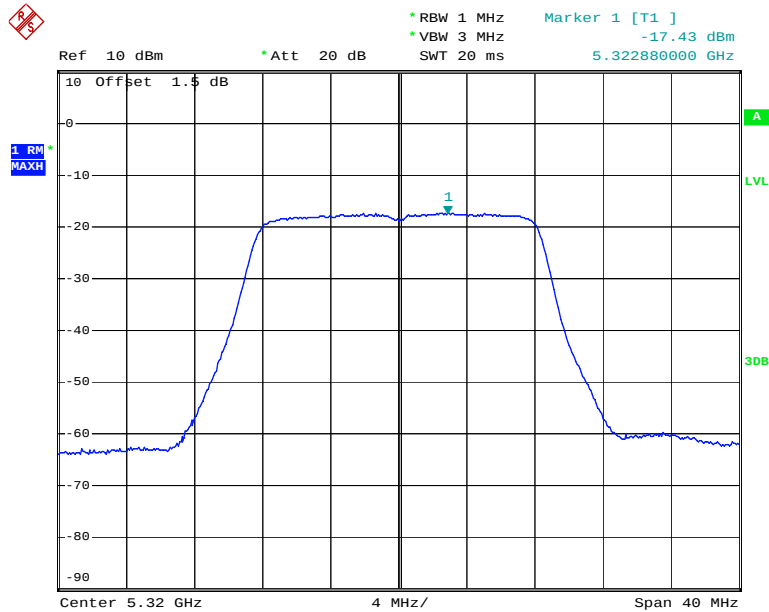
Date: 24.OCT.2020 16:17:15

802.11a Middle Channel



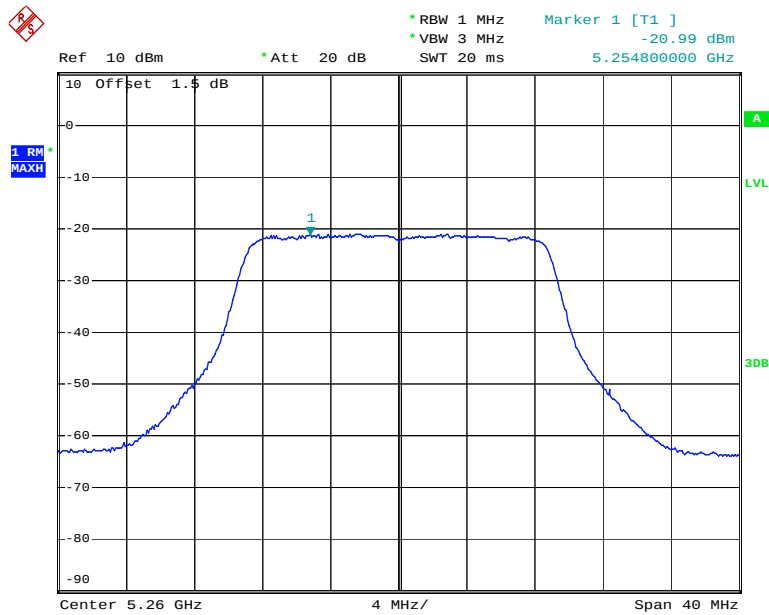
Date: 24.OCT.2020 16:17:33

802.11a High Channel



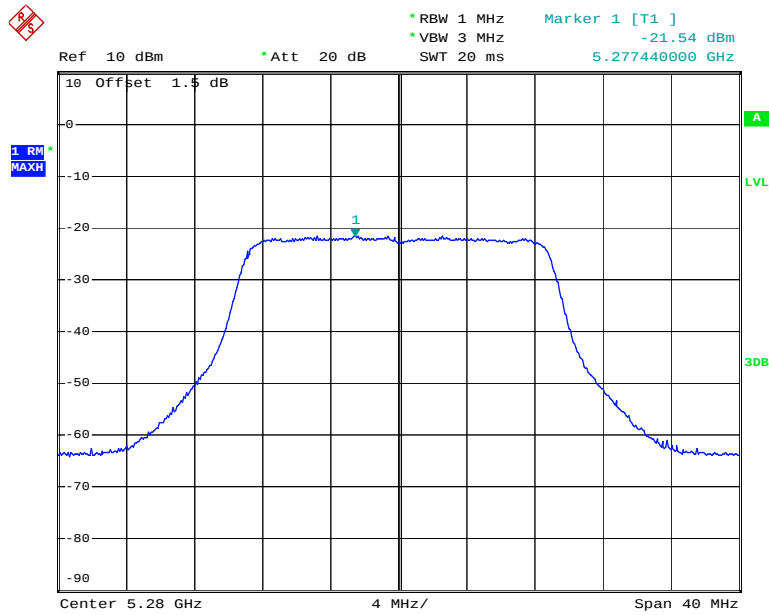
Date: 24.OCT.2020 16:18:06

802.11n ht20 Low Channel



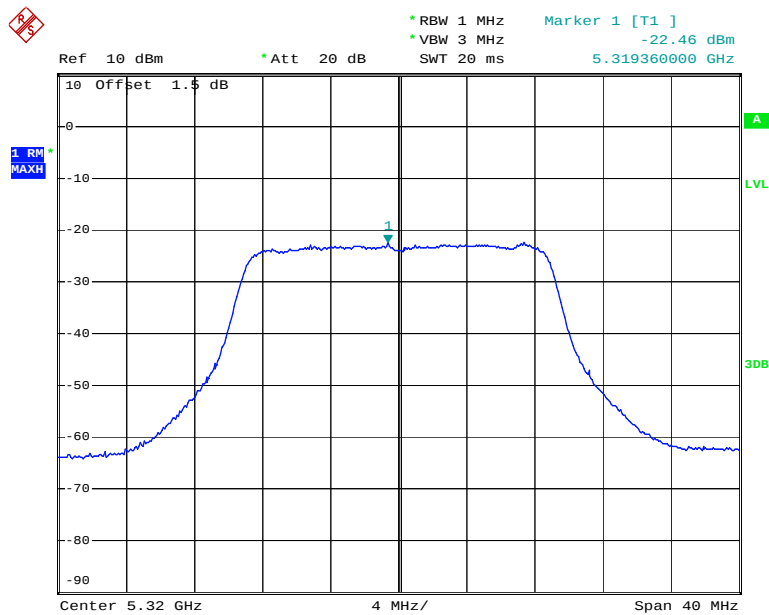
Date: 24.OCT.2020 16:16:40

802.11n ht20 Middle Channel



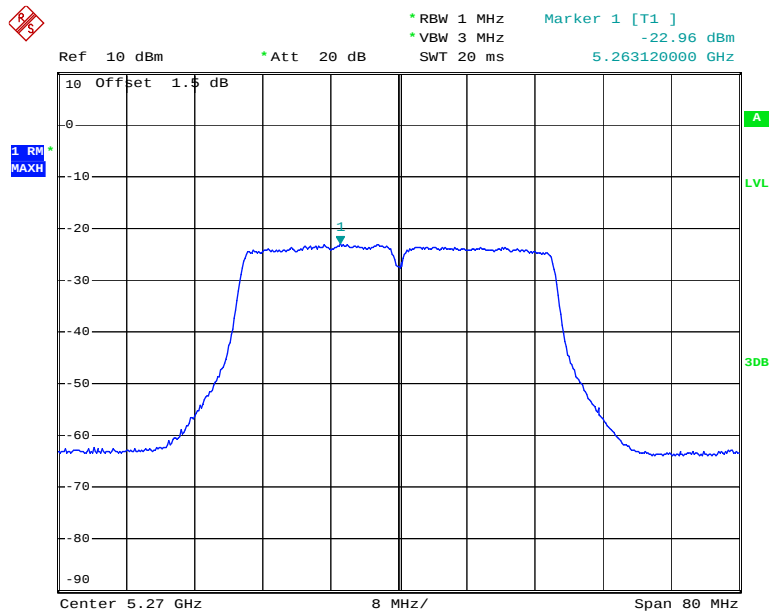
Date: 24.OCT.2020 16:16:16

802.11n ht20 High Channel



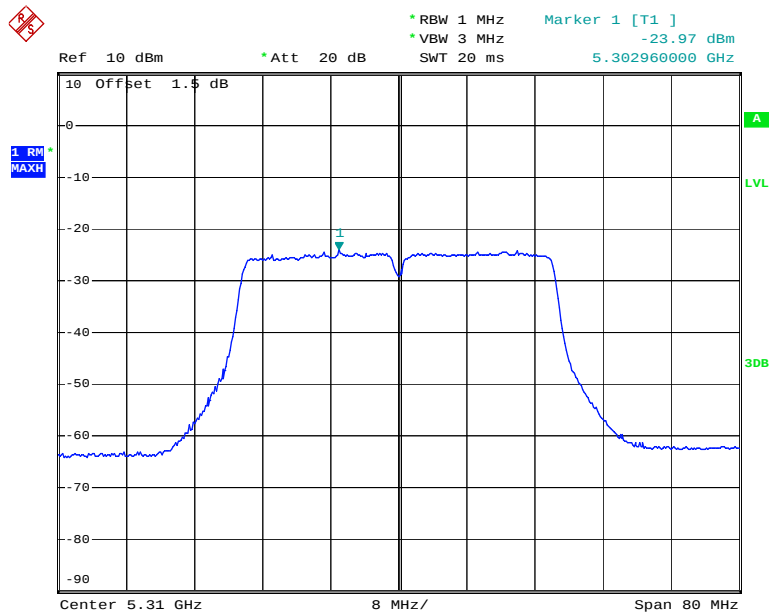
Date: 24.OCT.2020 16:15:53

802.11n ht40 Low Channel



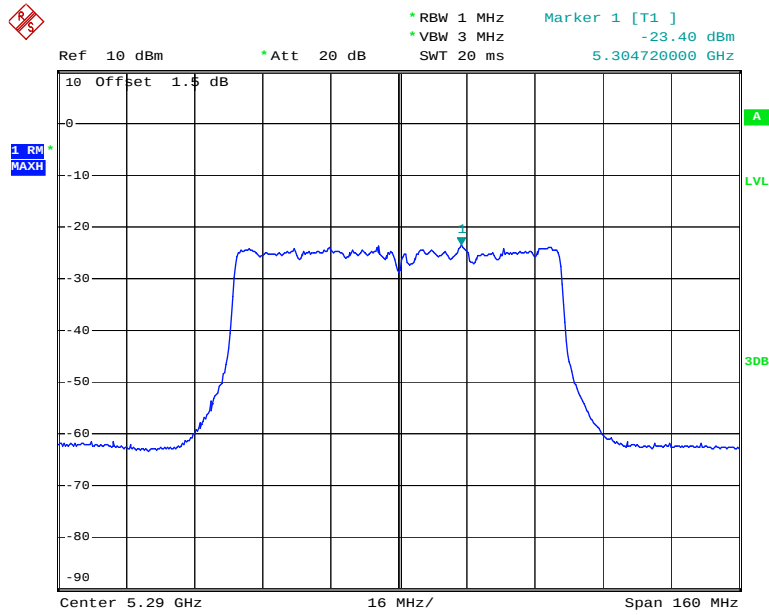
Date: 24.OCT.2020 16:14:23

802.11n ht40 High Channel



Date: 24.OCT.2020 16:14:44

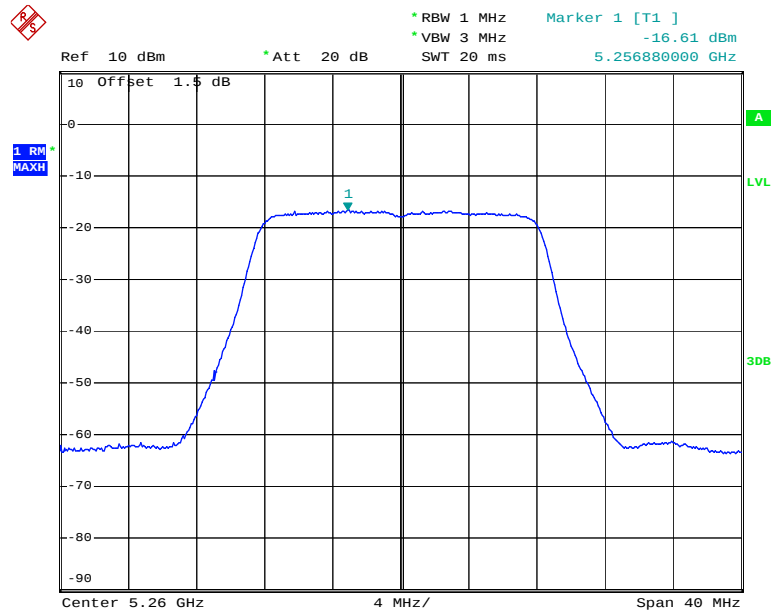
802.11ac vht80 Middle Channel



Date: 24.OCT.2020 16:13:45

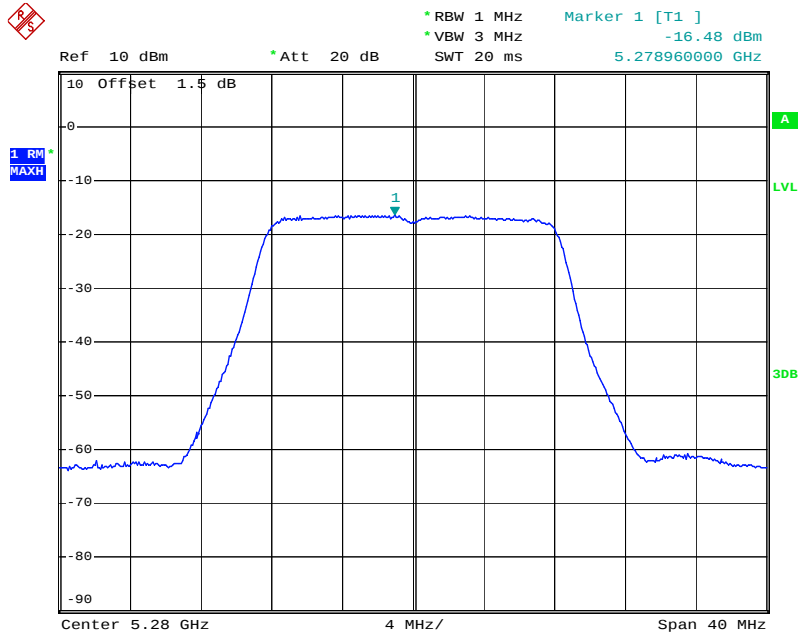
Chain 3:

802.11a Low Channel



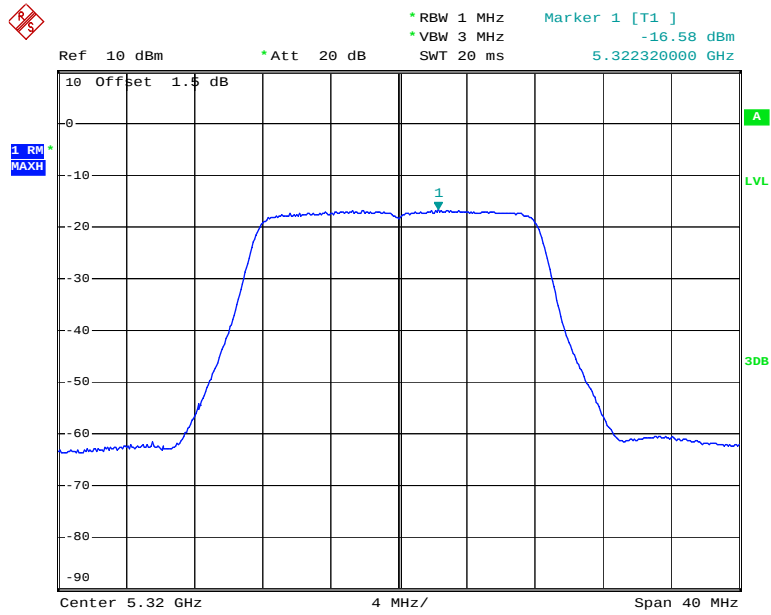
Date: 24.OCT.2020 16:34:00

802.11a Middle Channel



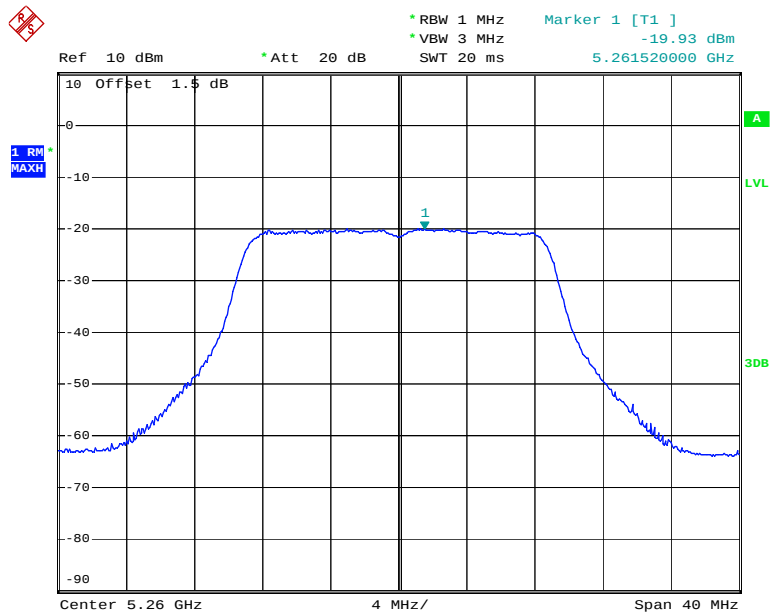
Date: 24.OCT.2020 16:33:19

802.11a High Channel



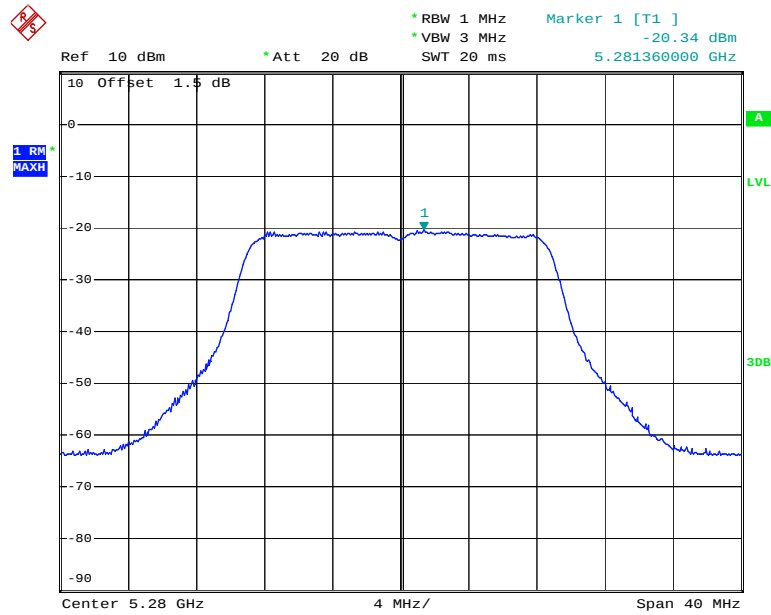
Date: 24.OCT.2020 16:32:37

802.11n ht20 Low Channel



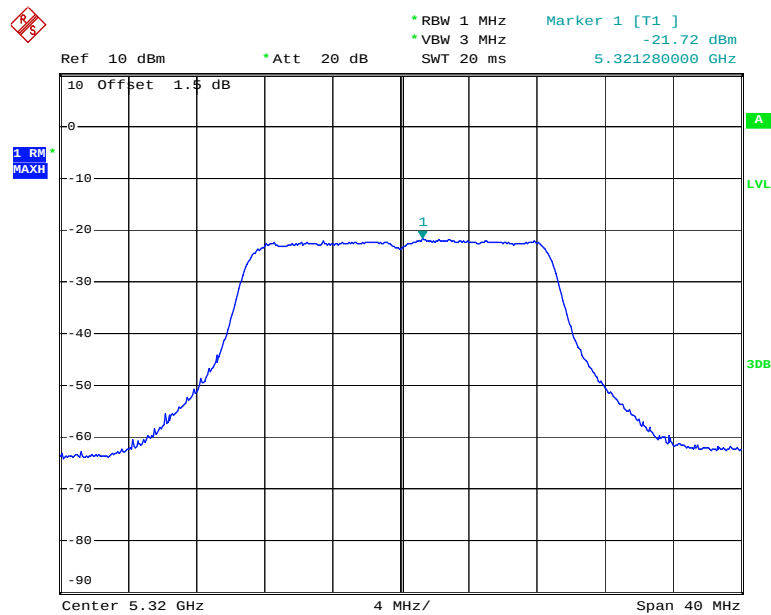
Date: 24.OCT.2020 16:30:57

802.11n ht20 Middle Channel



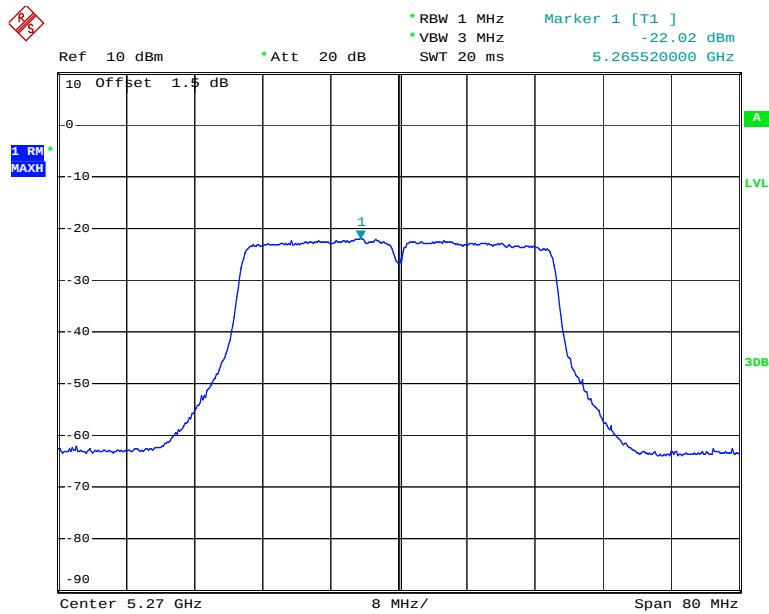
Date: 24.OCT.2020 16:31:19

802.11n ht20 High Channel



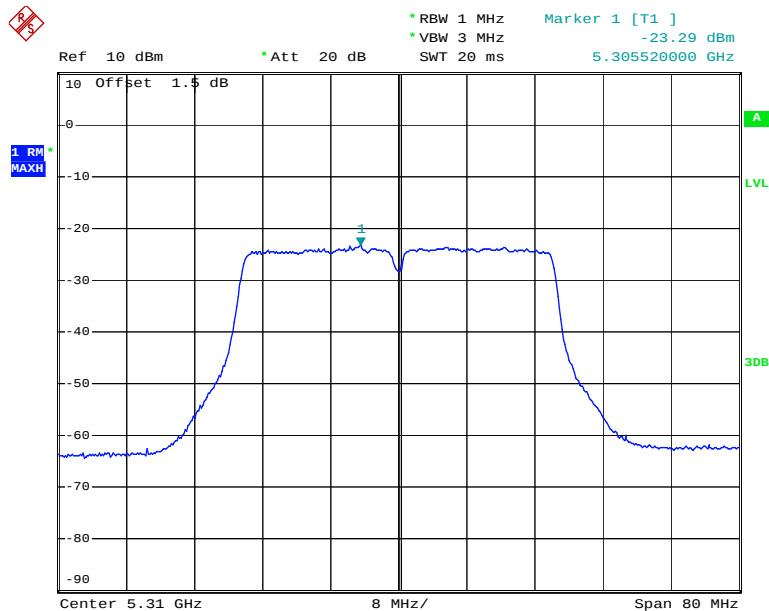
Date: 24.OCT.2020 16:31:52

802.11n ht40 Low Channel



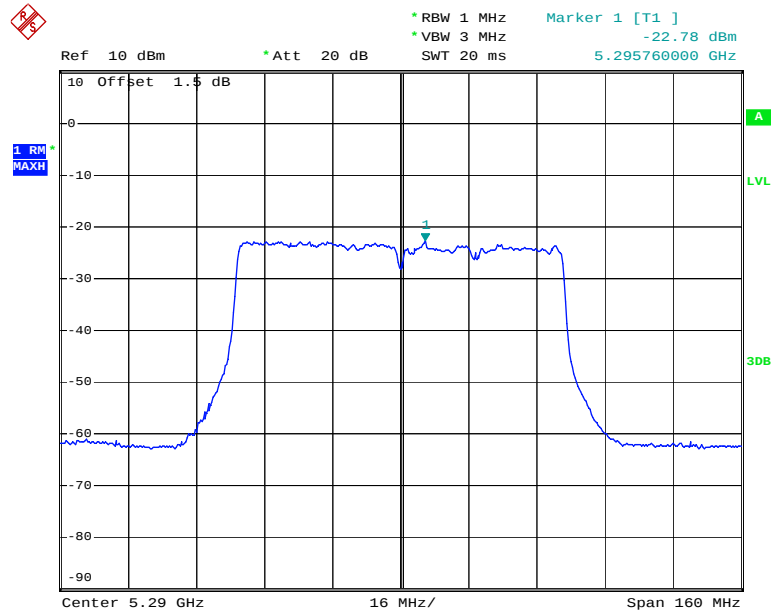
Date: 24.OCT.2020 16:29:54

802.11n ht40 High Channel



Date: 24.OCT.2020 16:30:15

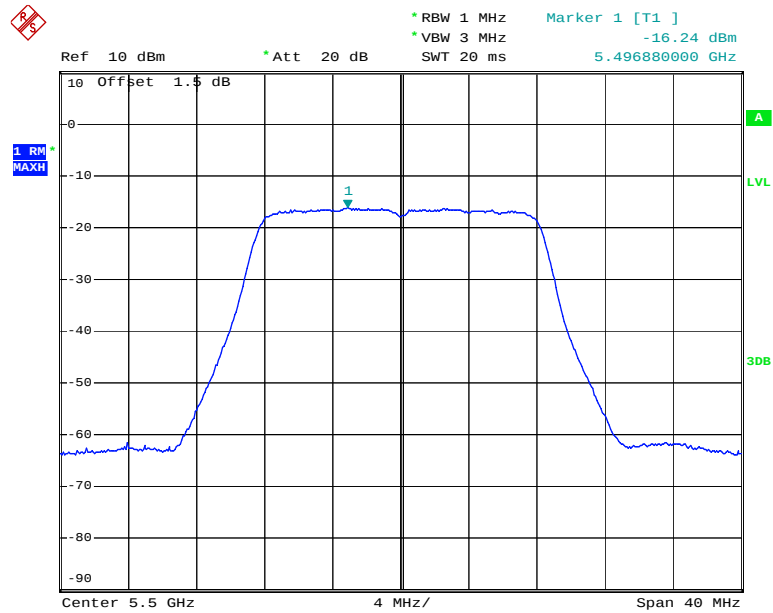
802.11ac vht80 Middle Channel



Date: 24.OCT.2020 16:29:14

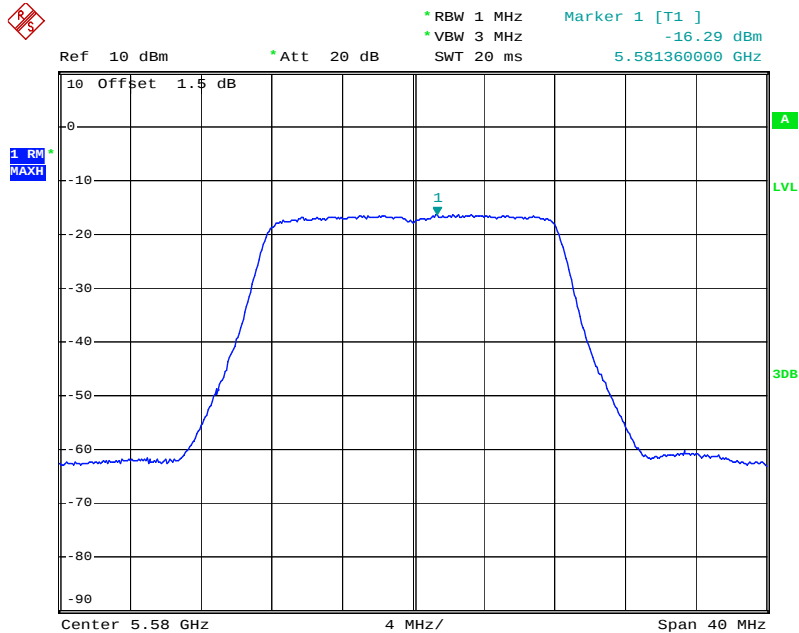
5470-5725MHz, Chain 0:

802.11a Low Channel



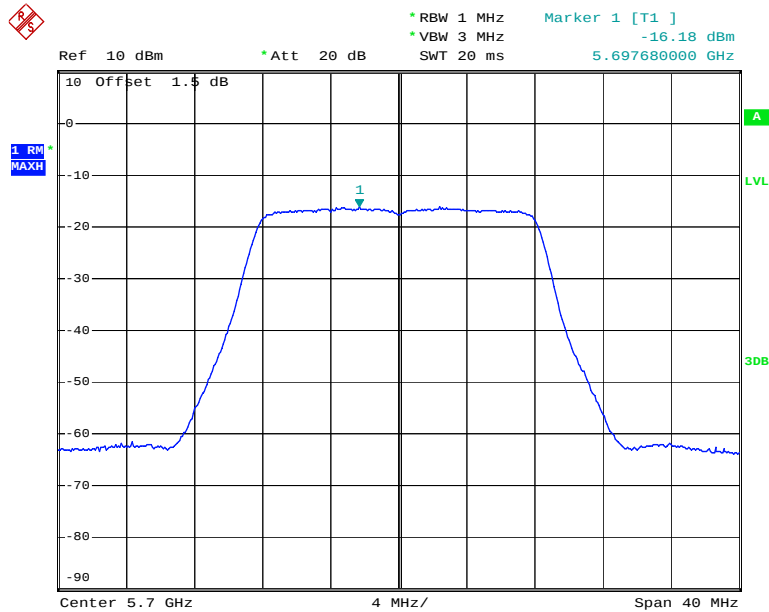
Date: 24.OCT.2020 15:24:27

802.11a Middle Channel



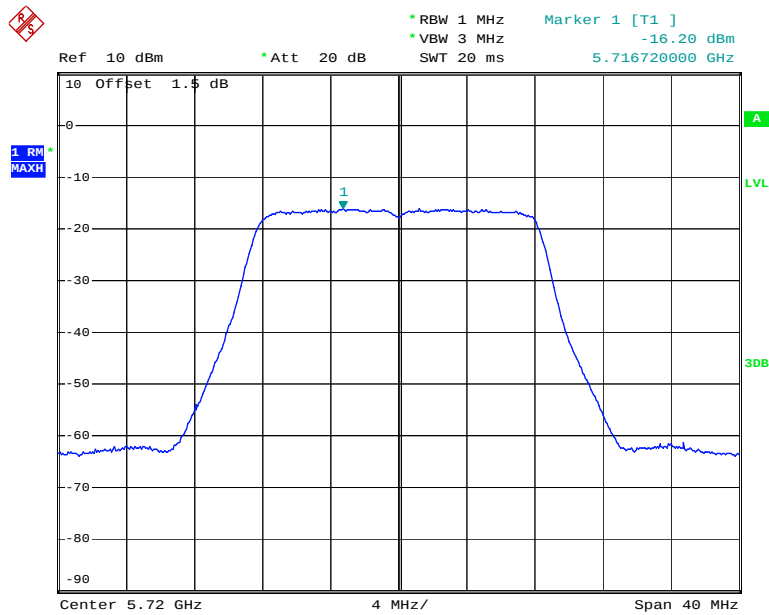
Date: 24.OCT.2020 15:24:07

802.11a High Channel



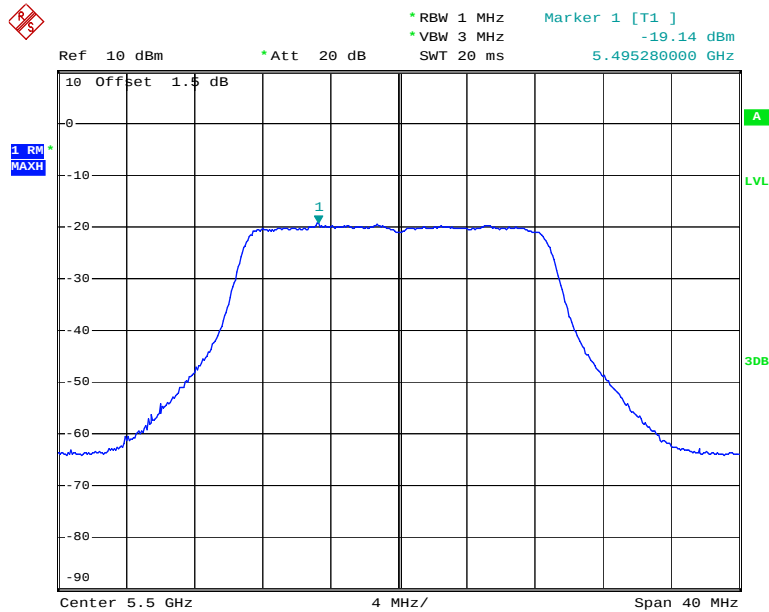
Date: 24.OCT.2020 15:23:42

802.11 a 5720MHz



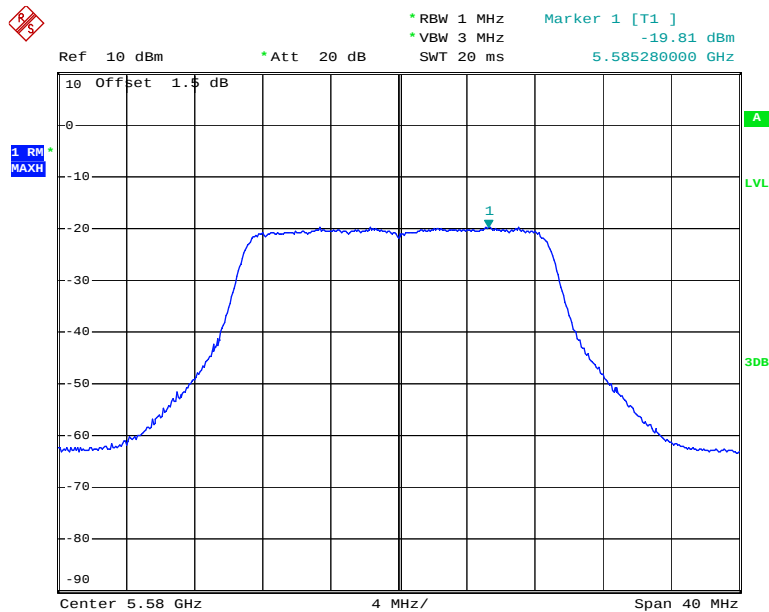
Date: 24.OCT.2020 15:14:50

802.11n ht20 Low Channel



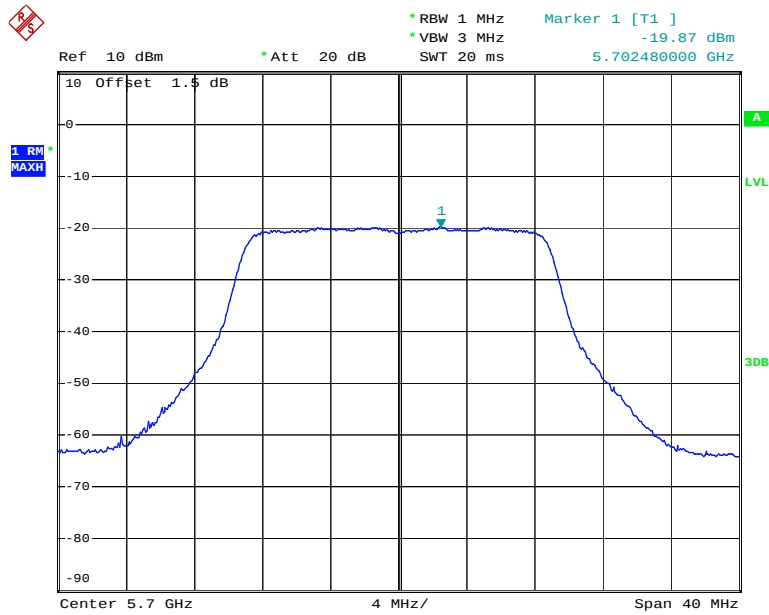
Date: 24.OCT.2020 15:12:29

802.11n ht20 Middle Channel



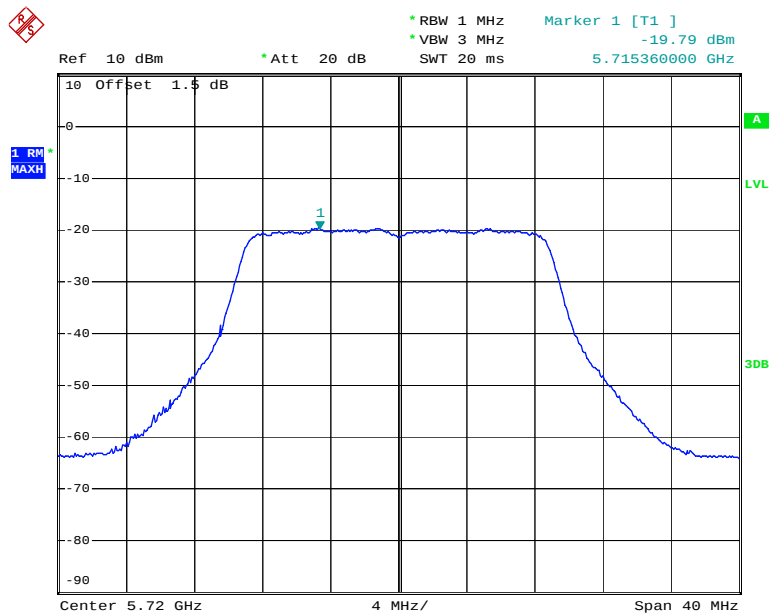
Date: 24.OCT.2020 15:12:51

802.11n ht20 High Channel



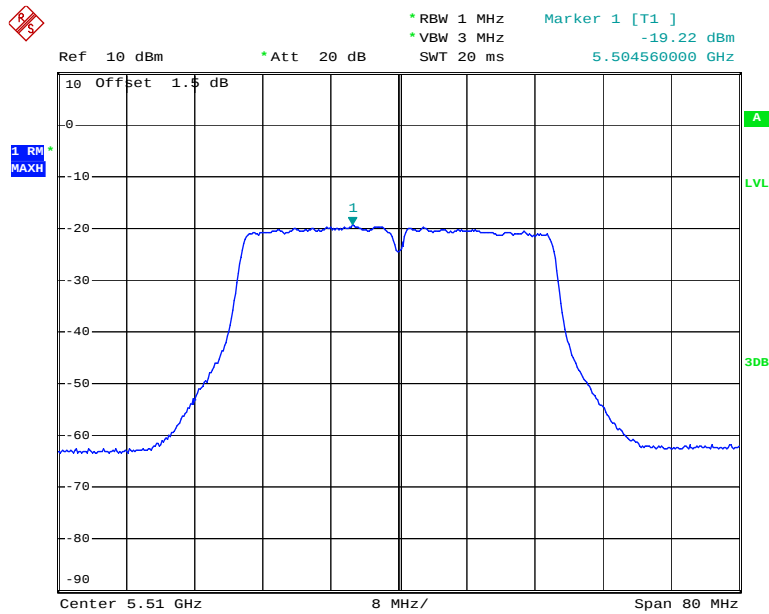
Date: 24.OCT.2020 15:13:32

802.11n ht20 5720 MHz



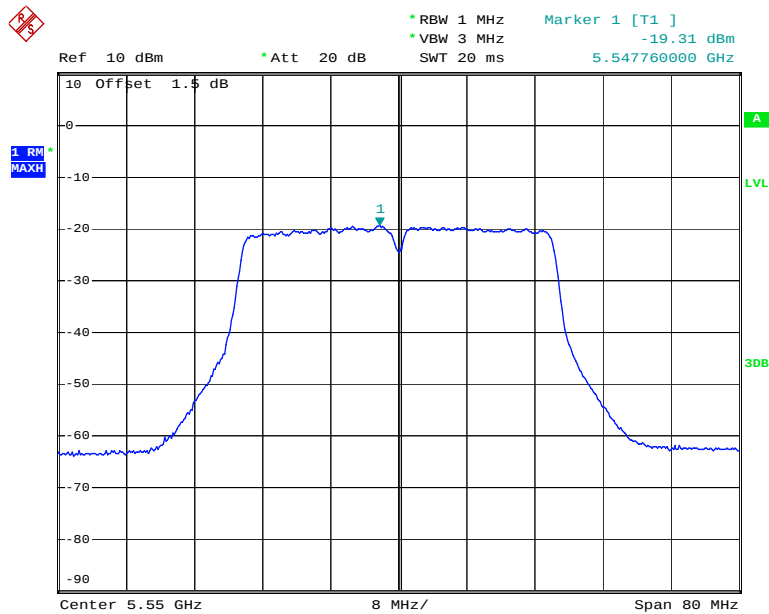
Date: 24.OCT.2020 15:14:16

802.11n ht40 Low Channel



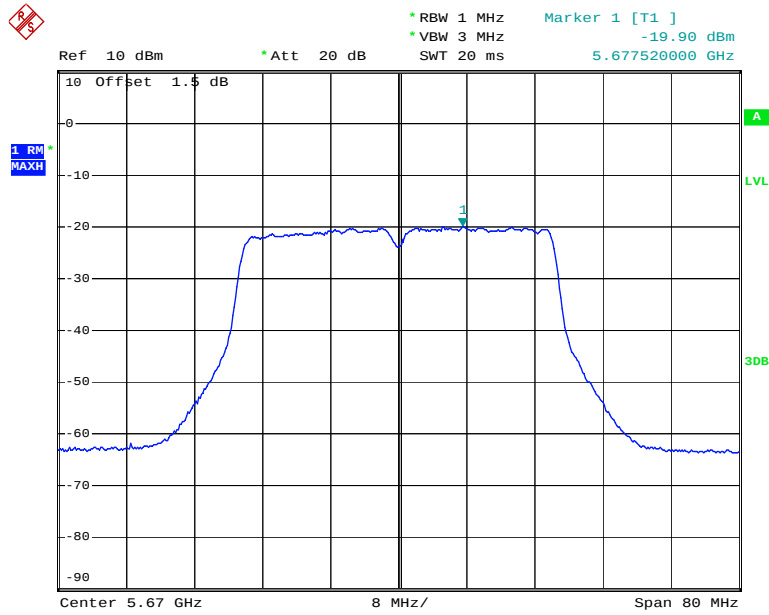
Date: 24.OCT.2020 15:10:19

802.11n ht40 Middle Channel



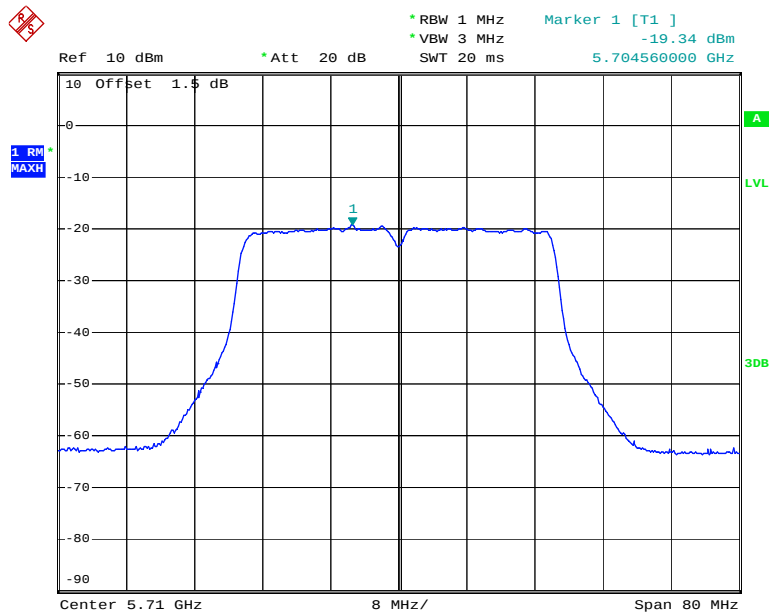
Date: 24.OCT.2020 15:10:39

802.11n ht40 High Channel



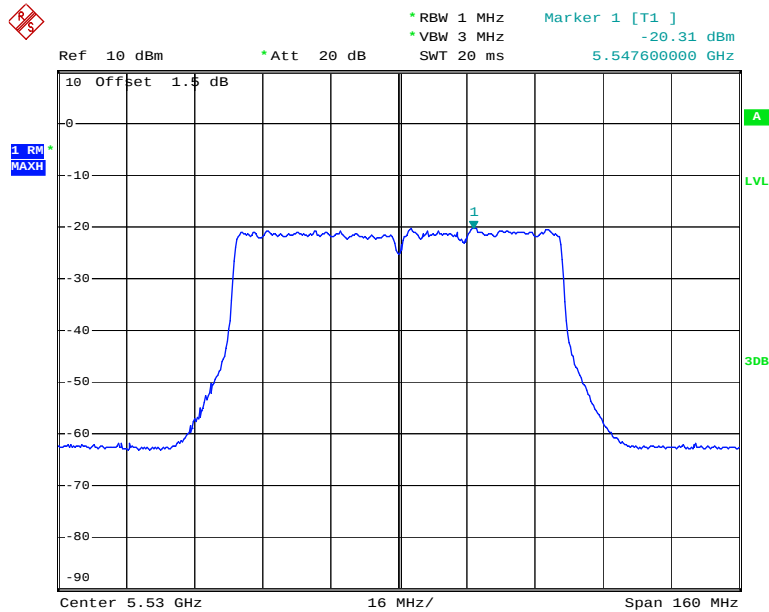
Date: 24.OCT.2020 15:11:11

802.11n ht40 5710MHz



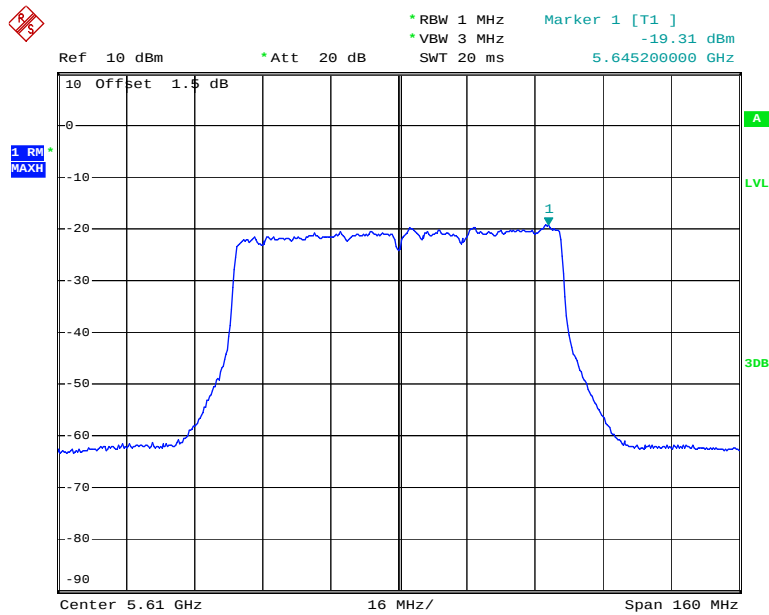
Date: 24.OCT.2020 15:11:49

802.11ac vht80 Low Channel



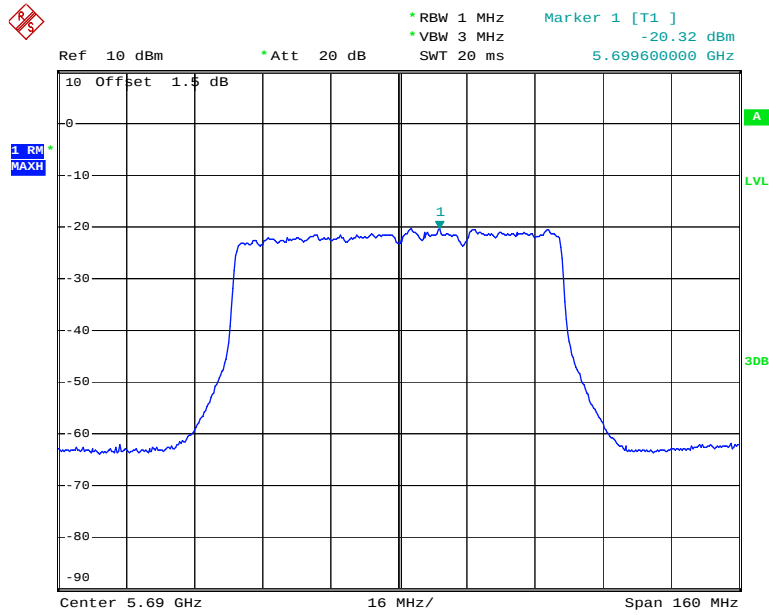
Date: 24.OCT.2020 15:08:22

802.11ac vht80 5610MHz



Date: 24.OCT.2020 15:09:39

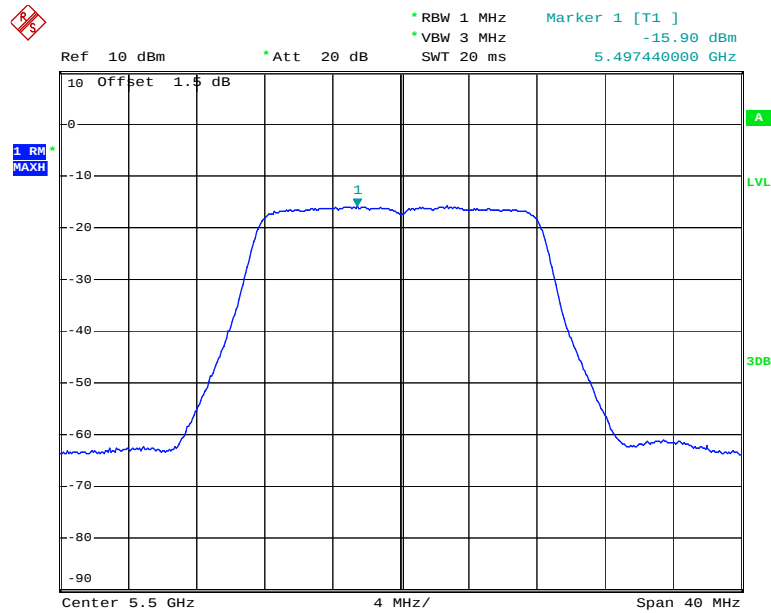
802.11ac vht80 5690MHz



Date: 24.OCT.2020 15:08:49

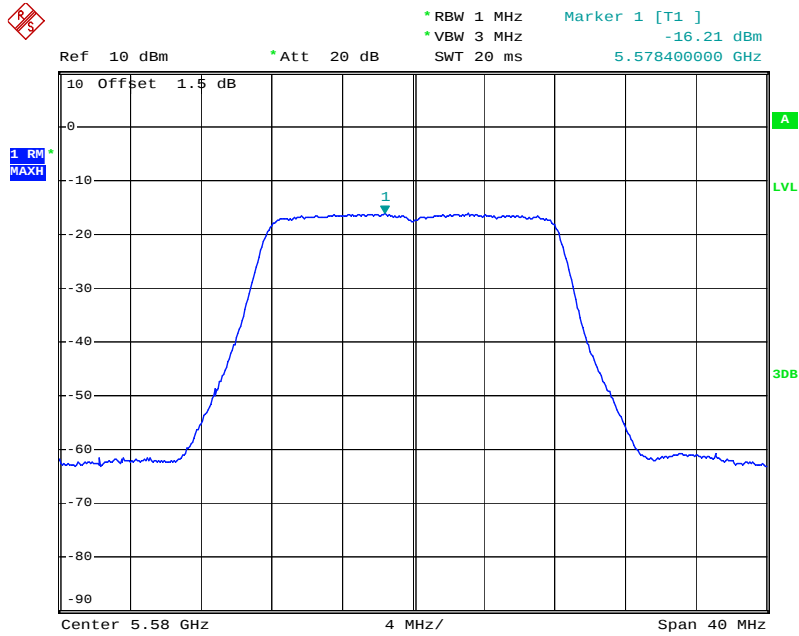
Chain 1:

802.11a Low Channel



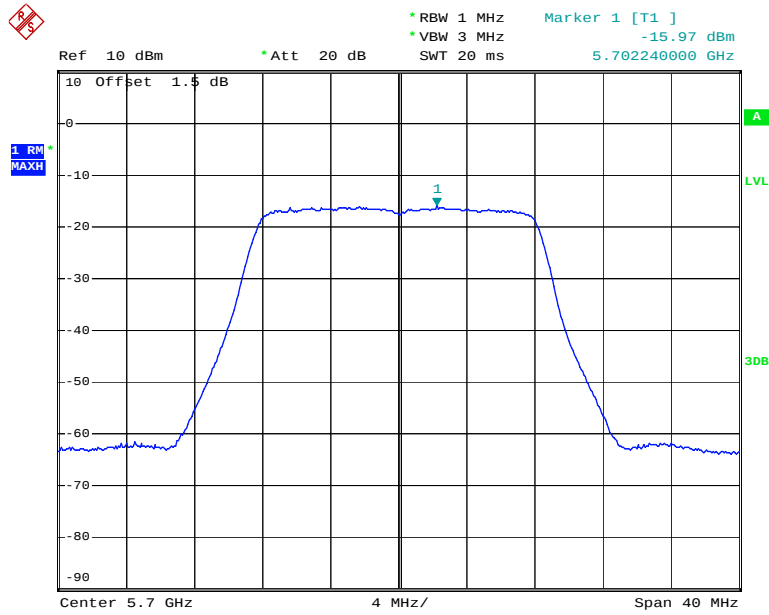
Date: 24.OCT.2020 15:51:06

802.11a Middle Channel



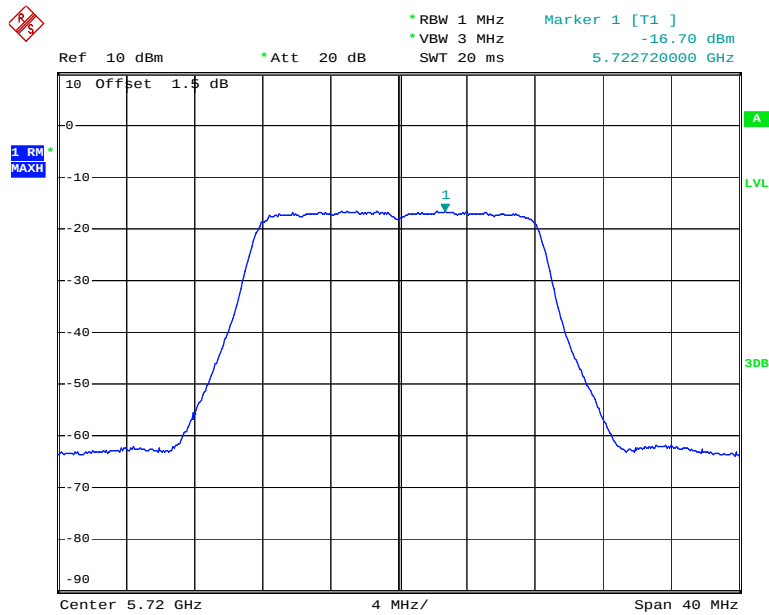
Date: 24.OCT.2020 15:50:20

802.11a High Channel



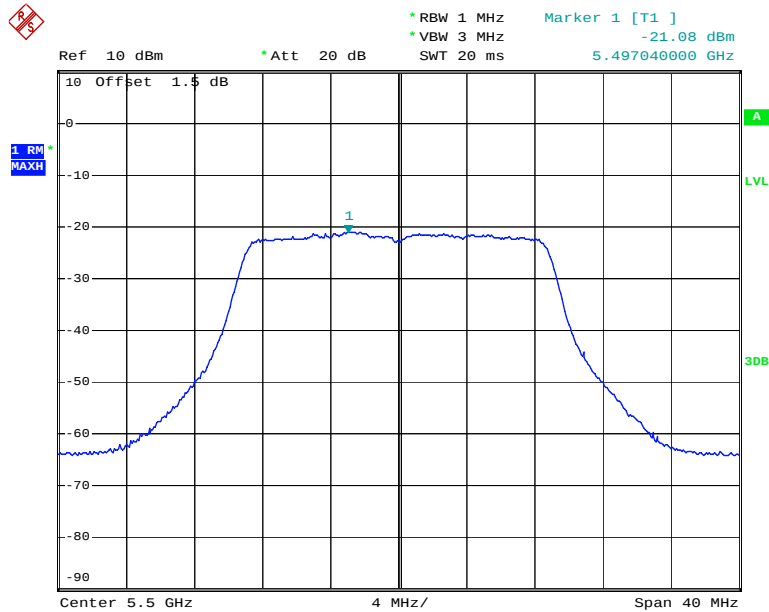
Date: 24.OCT.2020 15:49:37

802.11 a 5720MHz



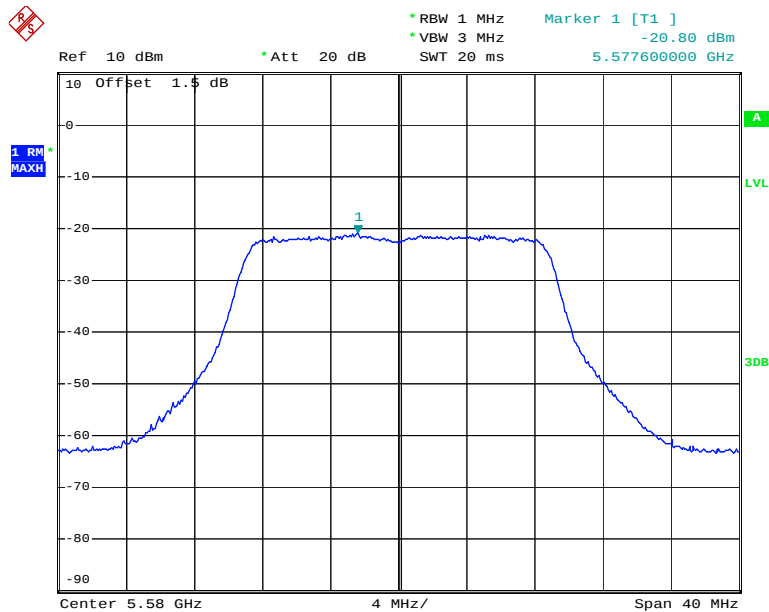
Date: 24.OCT.2020 15:48:17

802.11n ht20 Low Channel



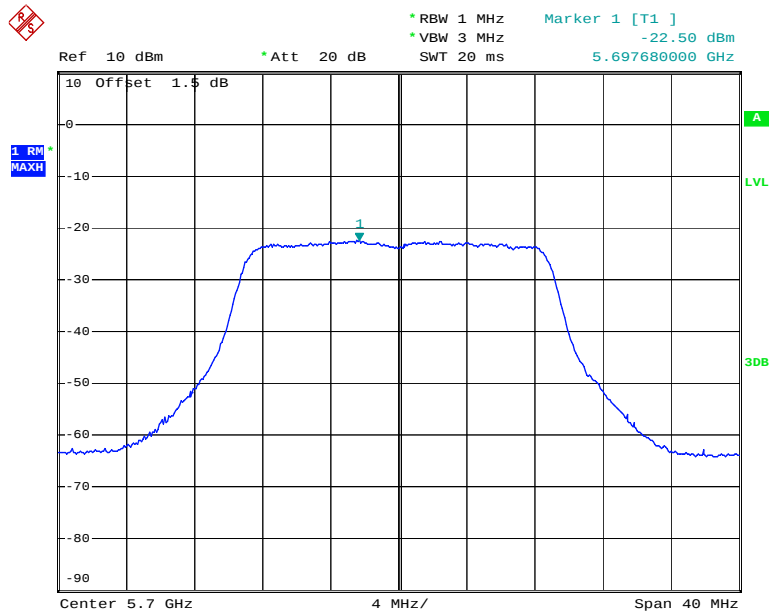
Date: 24.OCT.2020 15:45:07

802.11n ht20 Middle Channel



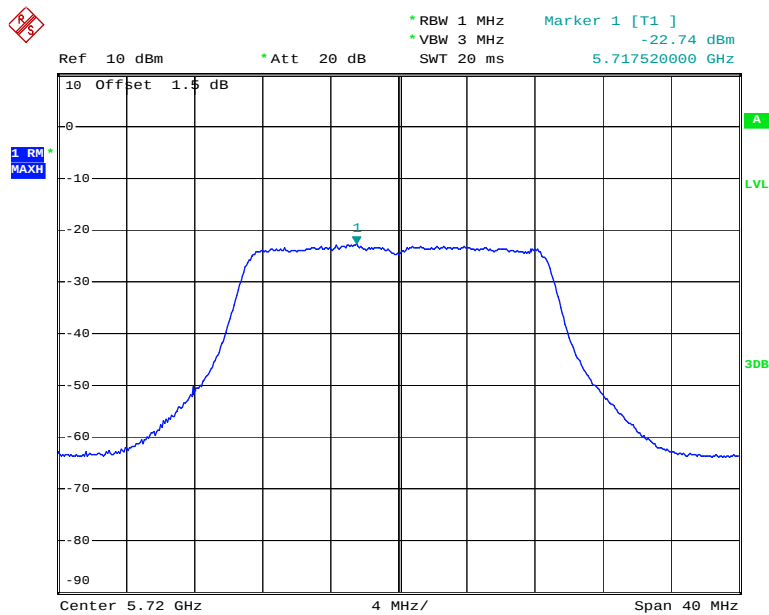
Date: 24.OCT.2020 15:45:36

802.11n ht20 High Channel



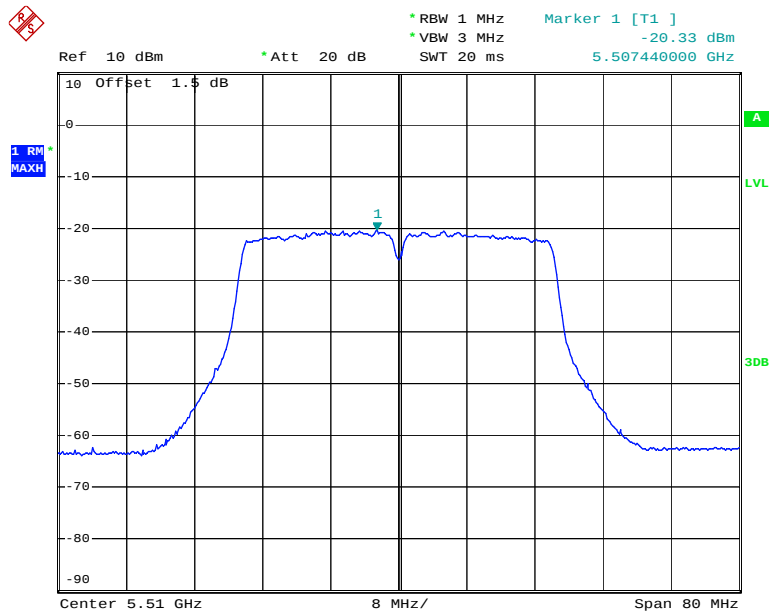
Date: 24.OCT.2020 15:46:05

802.11n ht20 5720 MHz



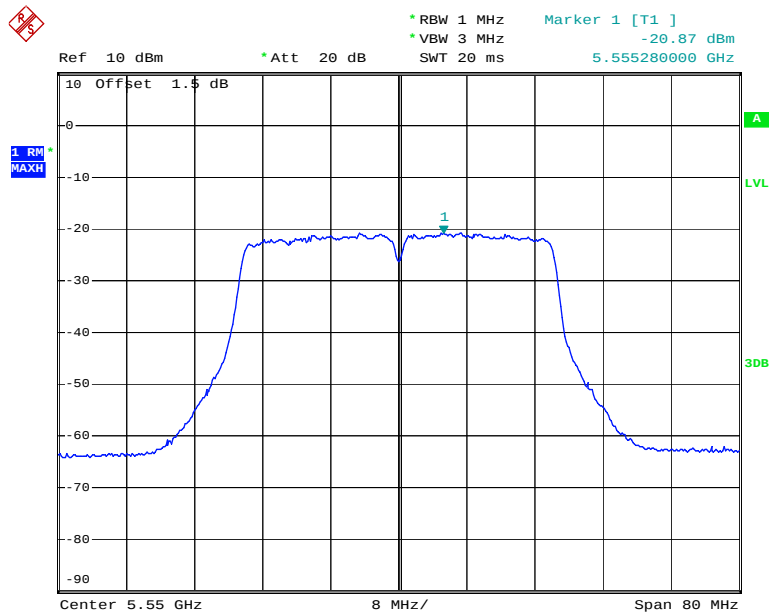
Date: 24.OCT.2020 15:46:55

802.11n ht40 Low Channel



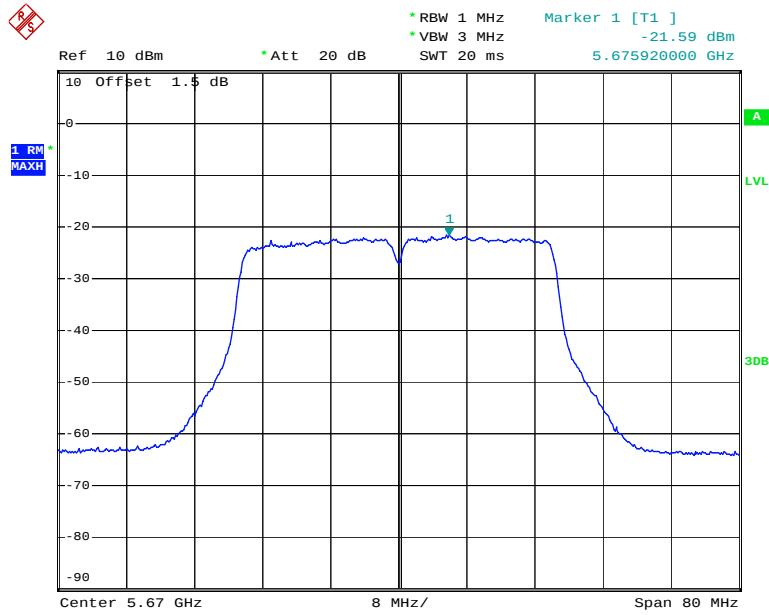
Date: 24.OCT.2020 15:42:47

802.11n ht40 Middle Channel



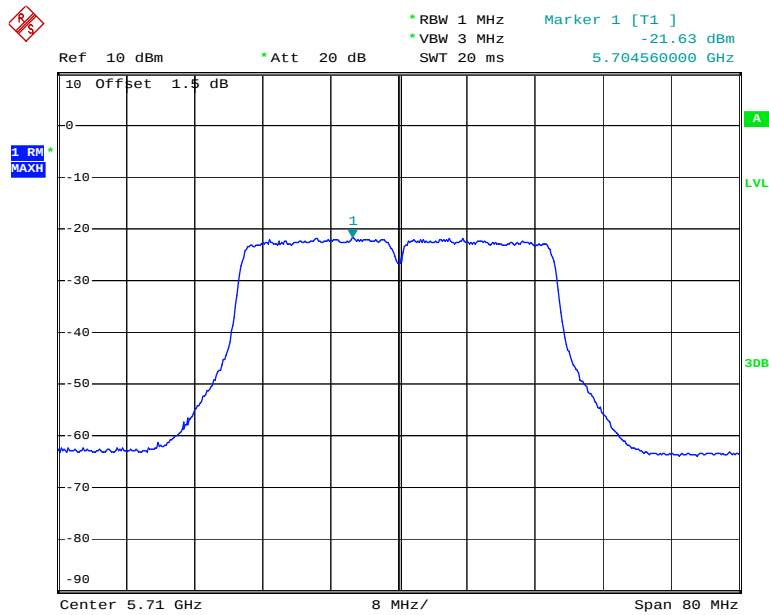
Date: 24.OCT.2020 15:43:07

802.11n ht40 High Channel



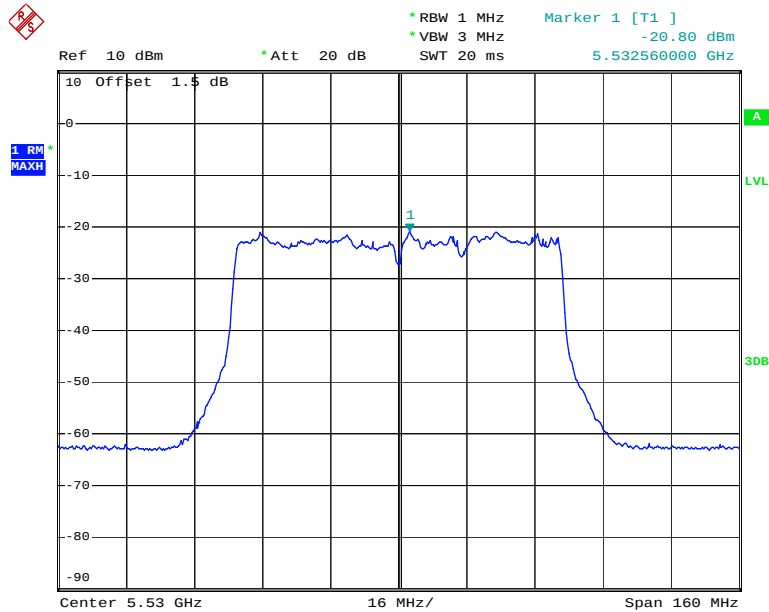
Date: 24.OCT.2020 15:43:30

802.11n ht40 5710MHz



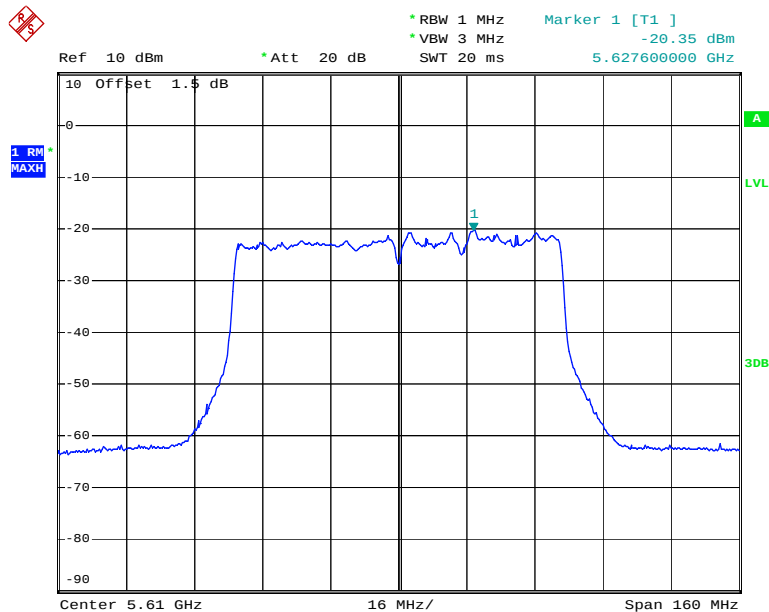
Date: 24.OCT.2020 15:44:12

802.11ac vht80 Low Channel



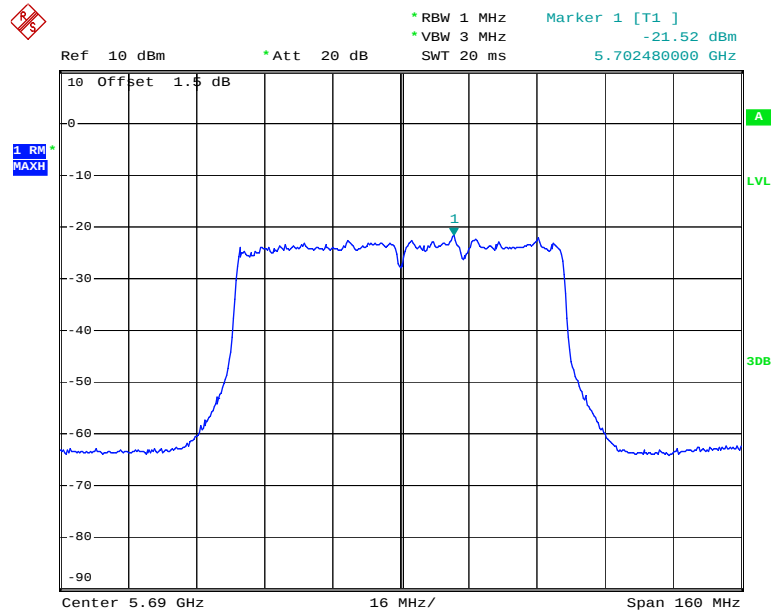
Date: 24.OCT.2020 15:42:01

802.11ac vht80 5610MHz



Date: 24.OCT.2020 15:40:28

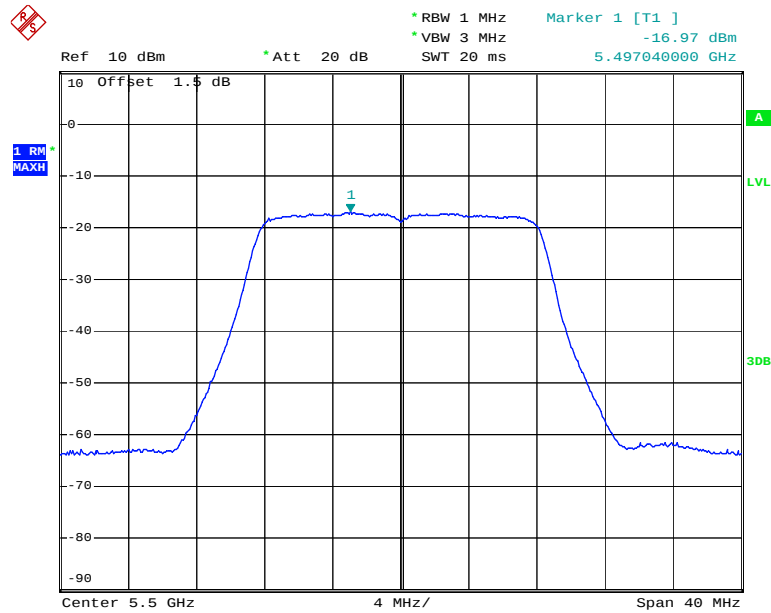
802.11ac vht80 5690MHz



Date: 24.OCT.2020 15:41:32

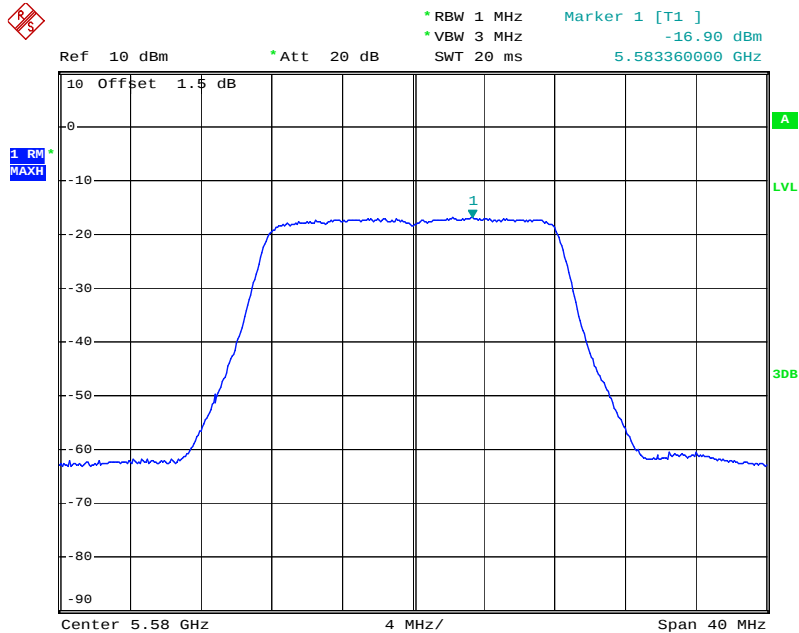
Chain 2:

802.11a Low Channel



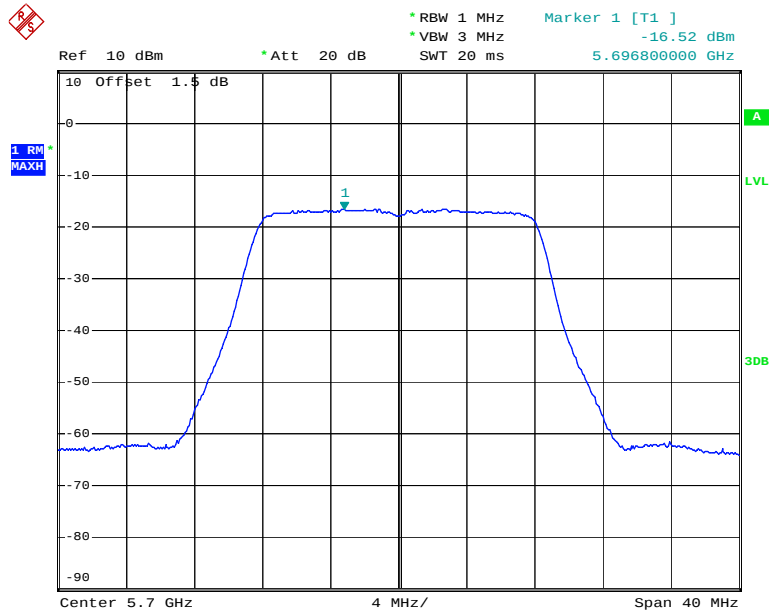
Date: 24.OCT.2020 15:26:32

802.11a Middle Channel



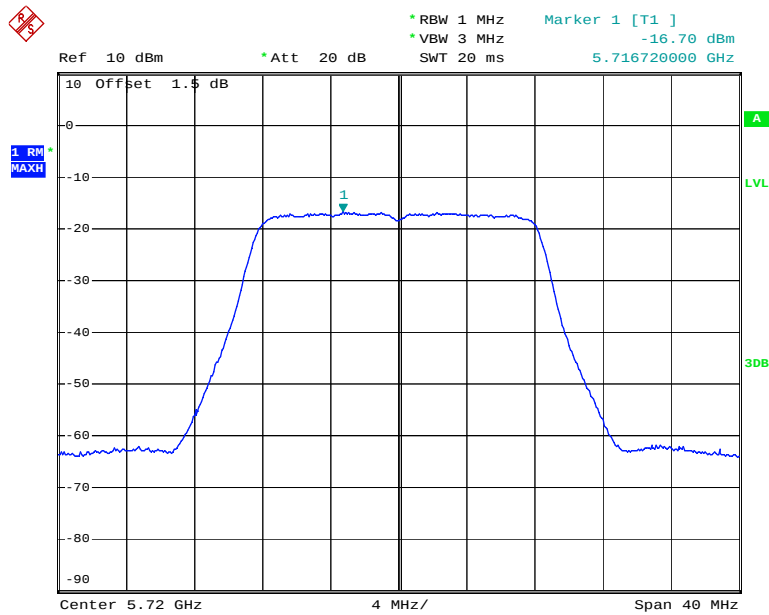
Date: 24.OCT.2020 15:27:18

802.11a High Channel



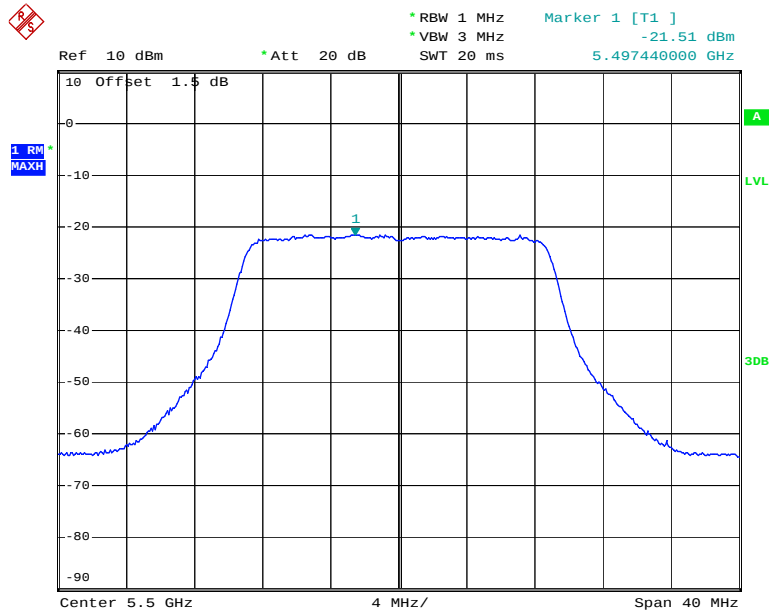
Date: 24.OCT.2020 15:27:42

802.11 a 5720MHz



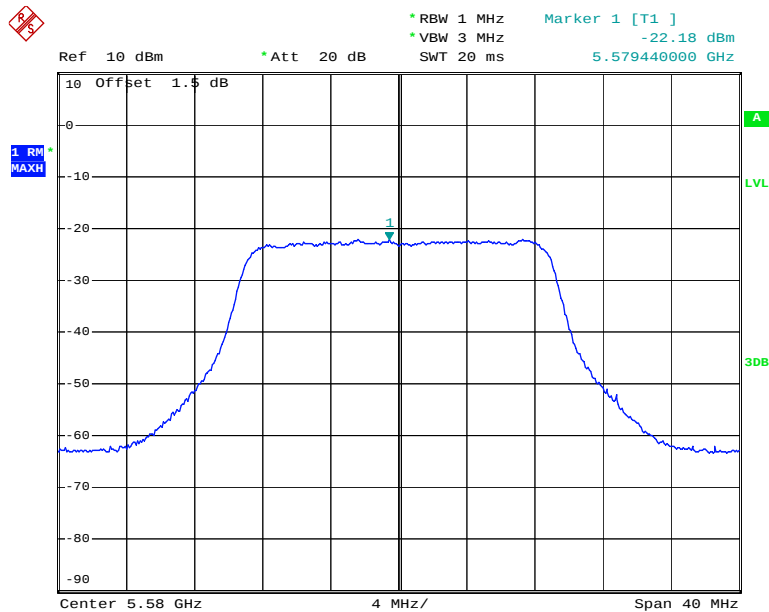
Date: 24.OCT.2020 15:19:31

802.11n ht20 Low Channel



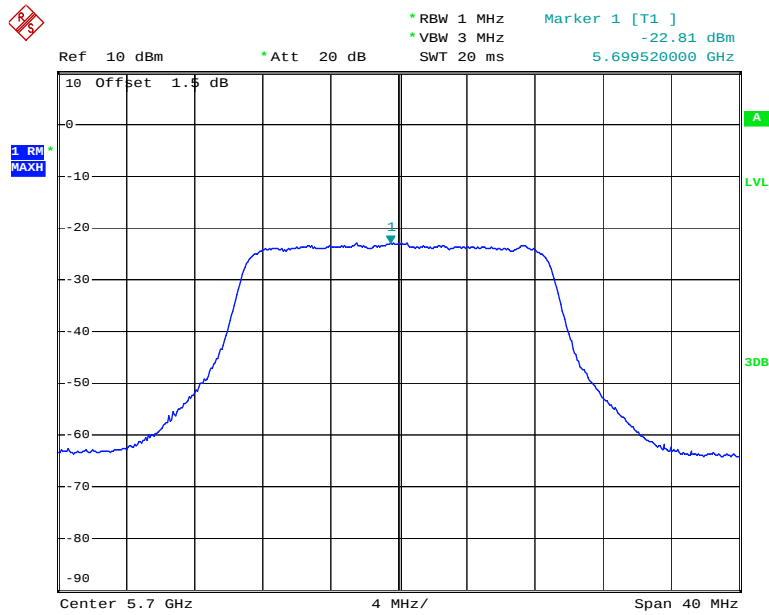
Date: 24.OCT.2020 15:33:35

802.11n ht20 Middle Channel



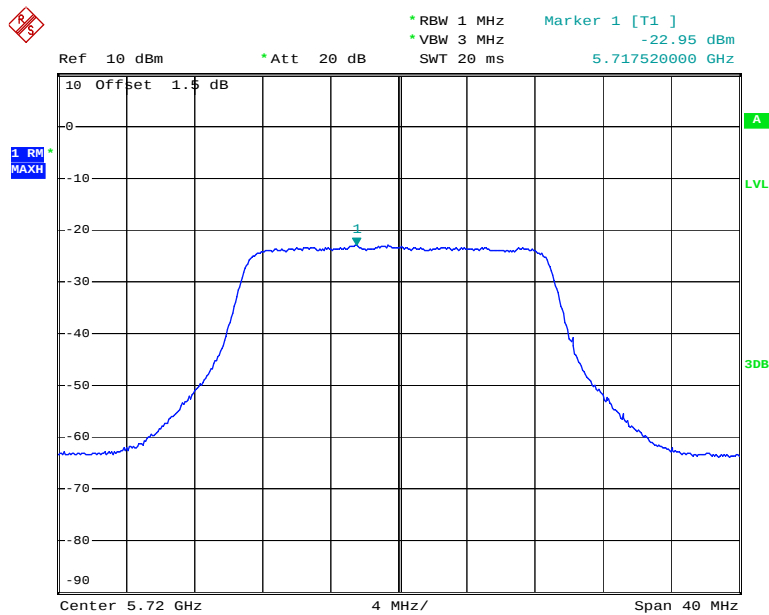
Date: 24.OCT.2020 15:33:11

802.11n ht20 High Channel



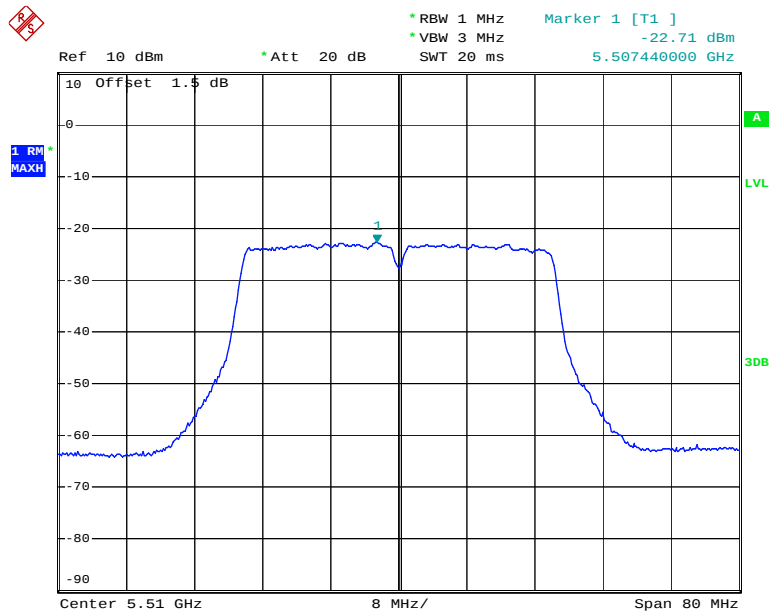
Date: 24.OCT.2020 15:30:08

802.11n ht20 5720 MHz



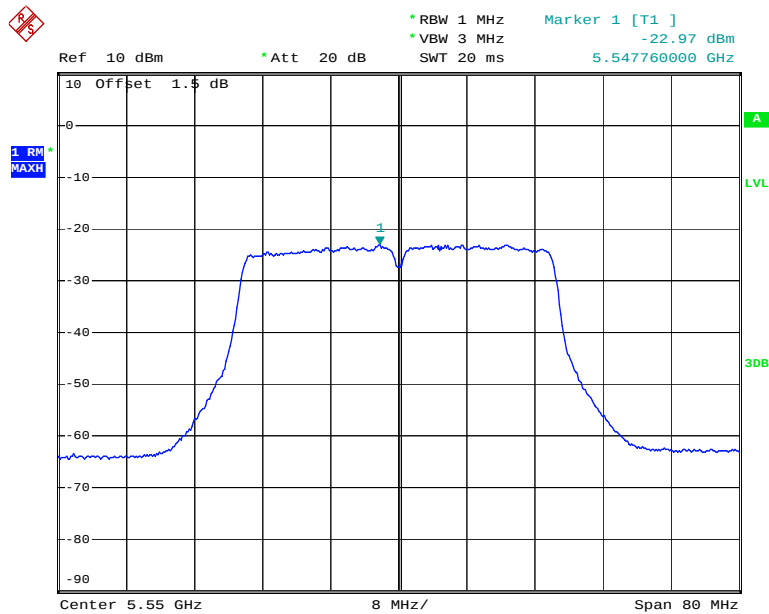
Date: 24.OCT.2020 15:31:38

802.11n ht40 Low Channel



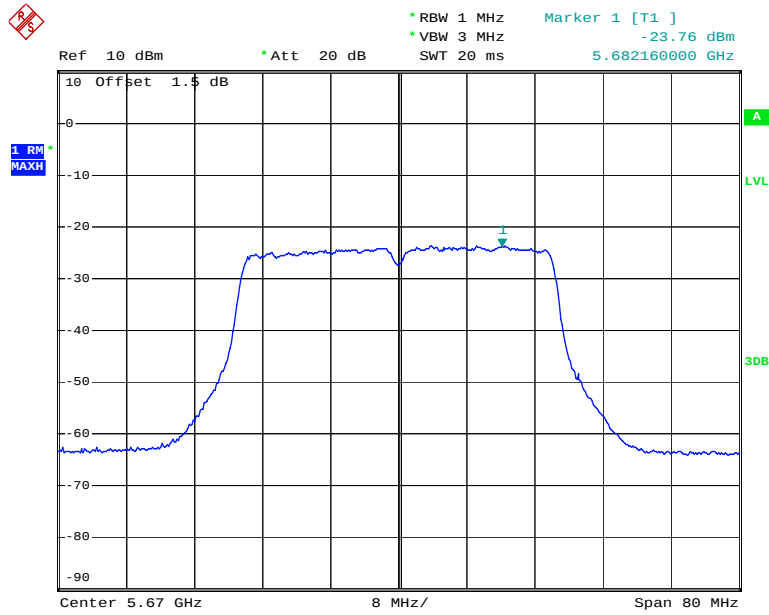
Date: 24.OCT.2020 15:34:41

802.11n ht40 Middle Channel



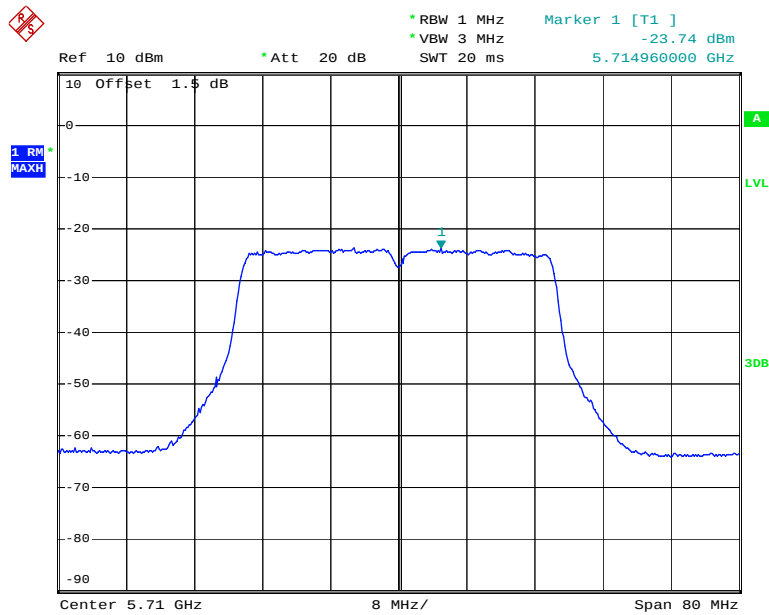
Date: 24.OCT.2020 15:35:14

802.11n ht40 High Channel



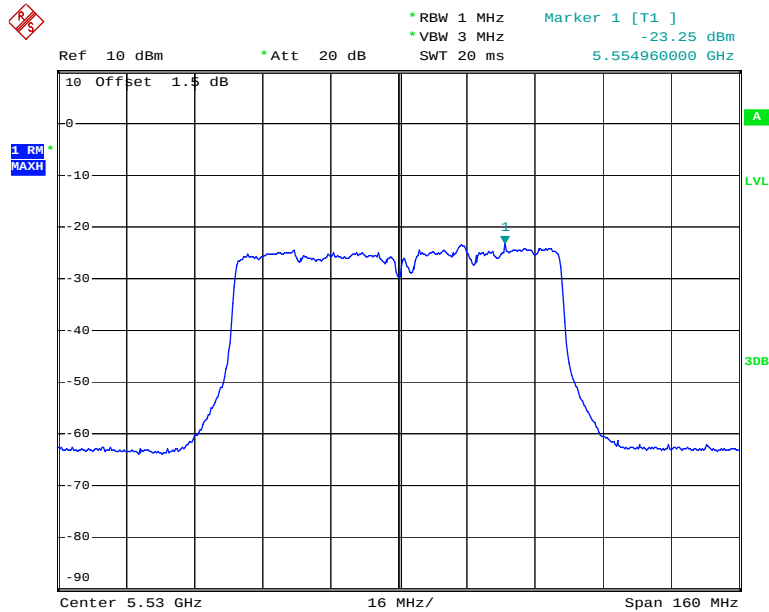
Date: 24.OCT.2020 15:35:38

802.11n ht40 5710MHz



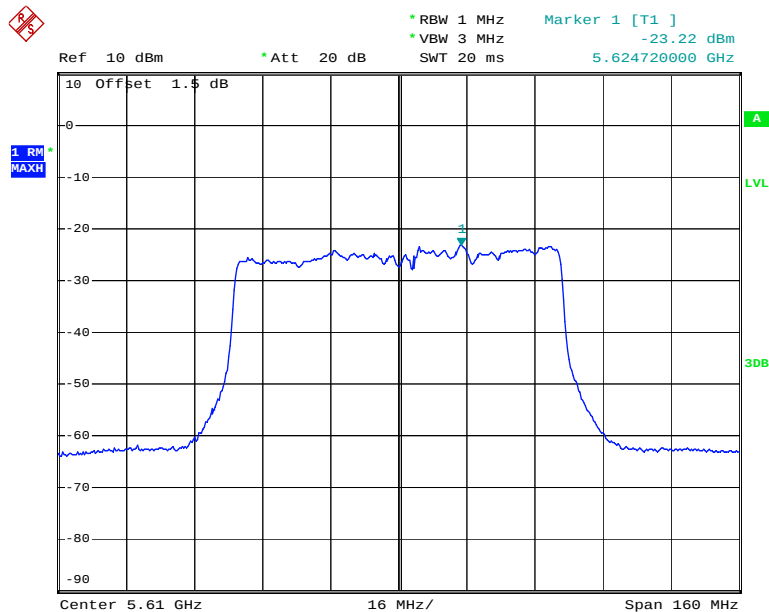
Date: 24.OCT.2020 15:36:47

802.11ac vht80 Low Channel



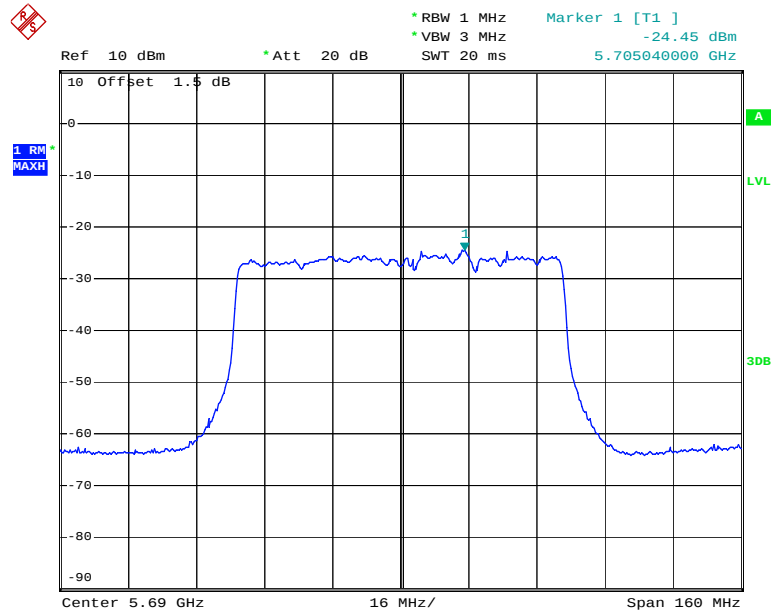
Date: 24.OCT.2020 15:37:36

802.11ac vht80 High Channel 5610MHz



Date: 24.OCT.2020 15:39:21

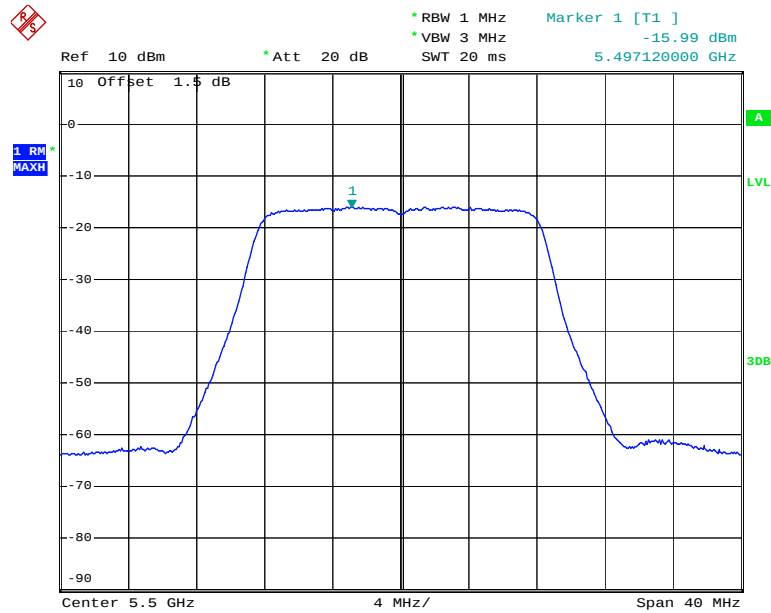
802.11ac vht80 High Channel



Date: 24.OCT.2020 15:38:04

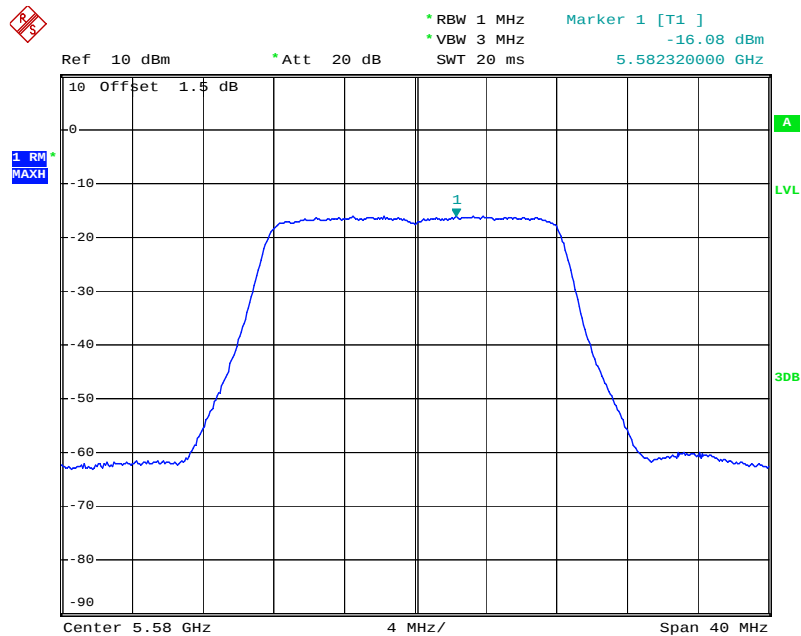
Chain 3:

802.11a Low Channel



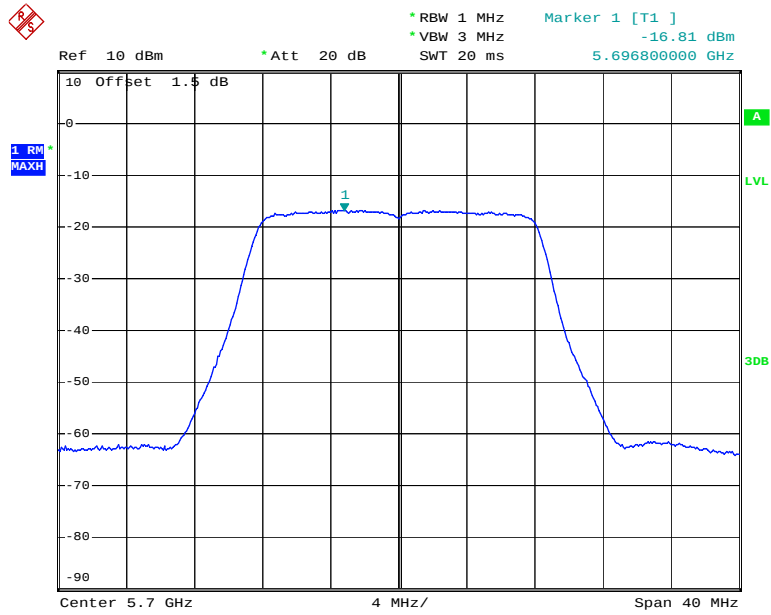
Date: 24.OCT.2020 15:52:15

802.11a Middle Channel



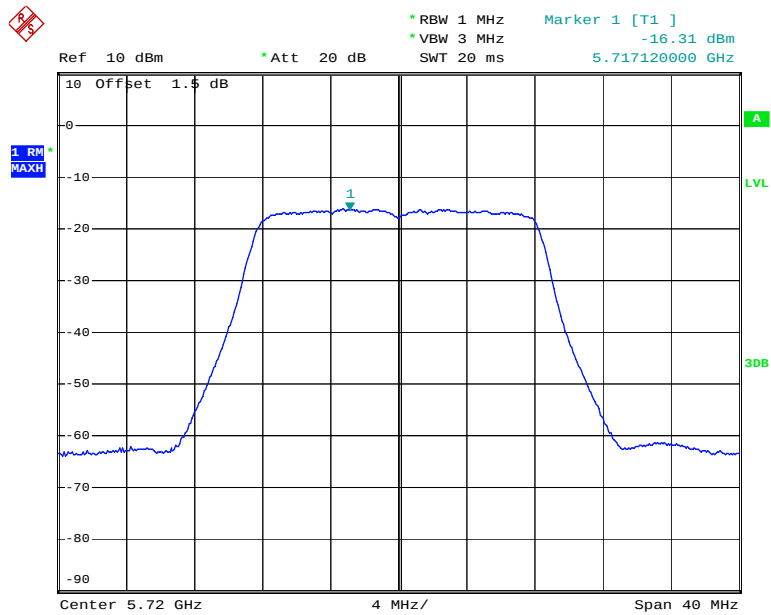
Date: 24.OCT.2020 15:52:37

802.11a High Channel



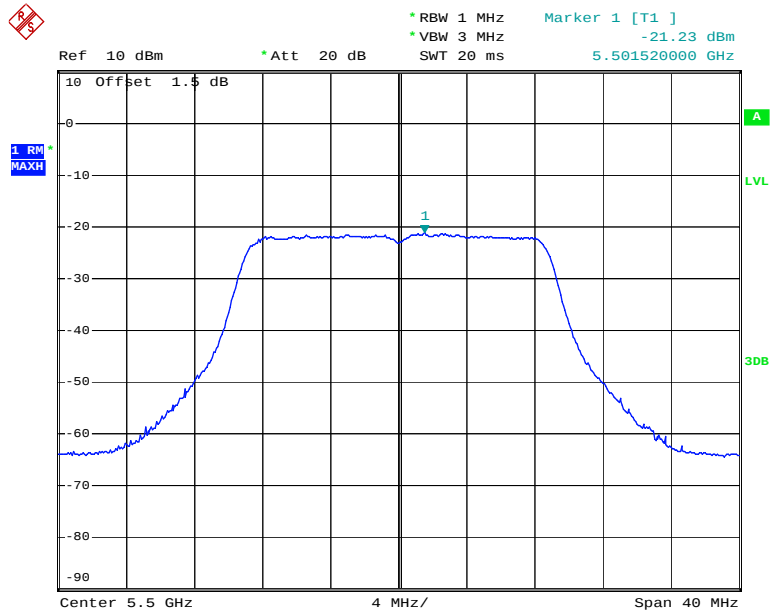
Date: 24.OCT.2020 15:53:03

802.11 a 5720MHz



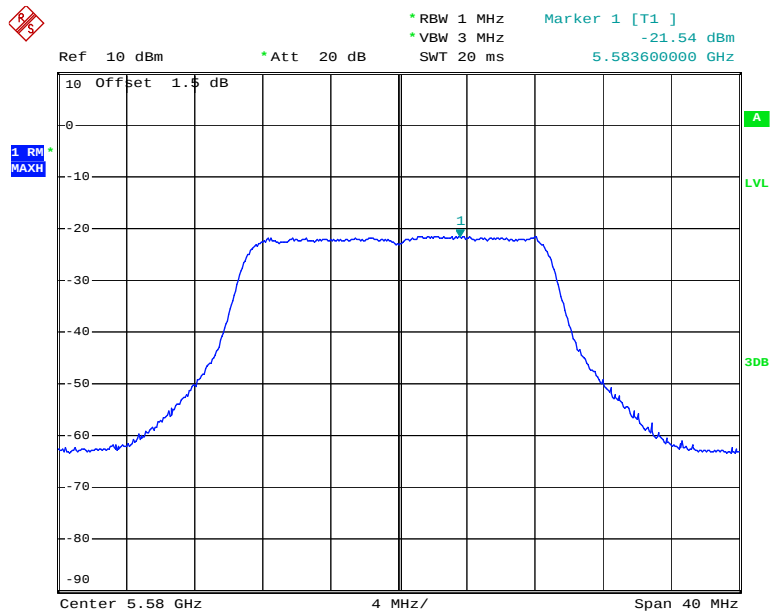
Date: 24.OCT.2020 15:53:42

802.11n ht20 Low Channel



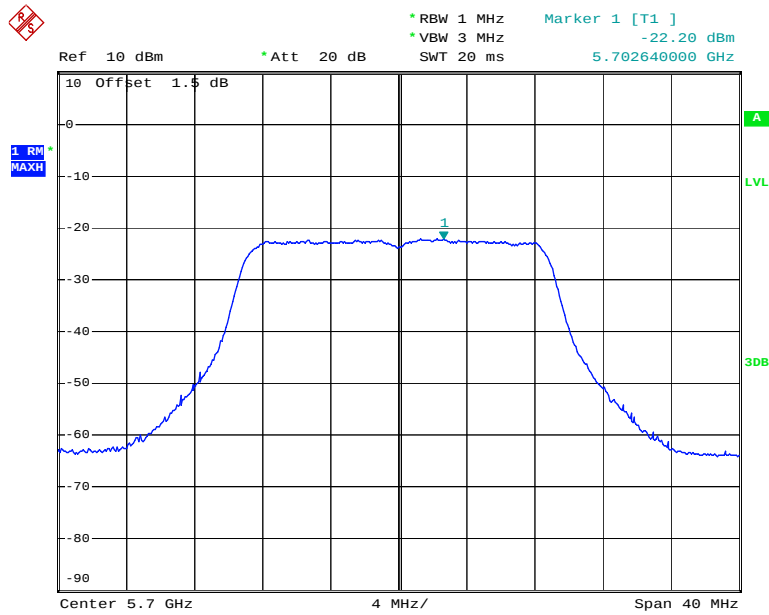
Date: 24.OCT.2020 15:56:30

802.11n ht20 Middle Channel



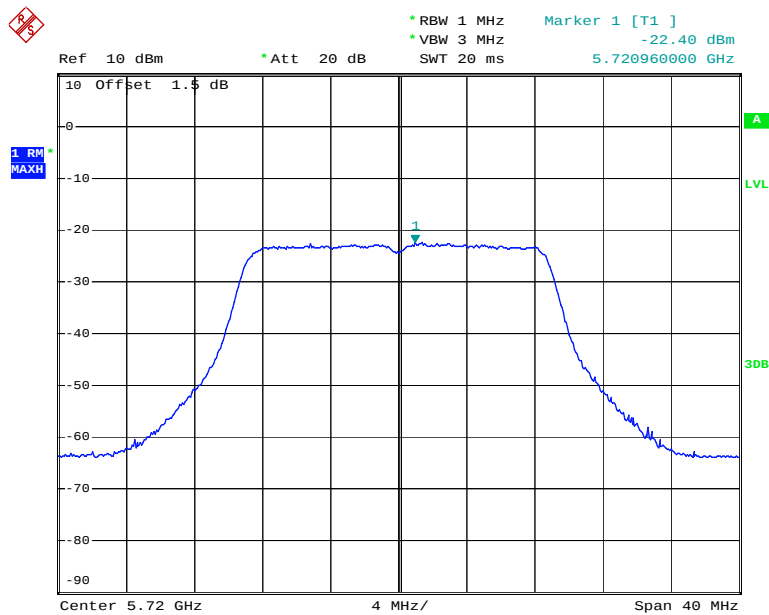
Date: 24.OCT.2020 15:56:08

802.11n ht20 High Channel



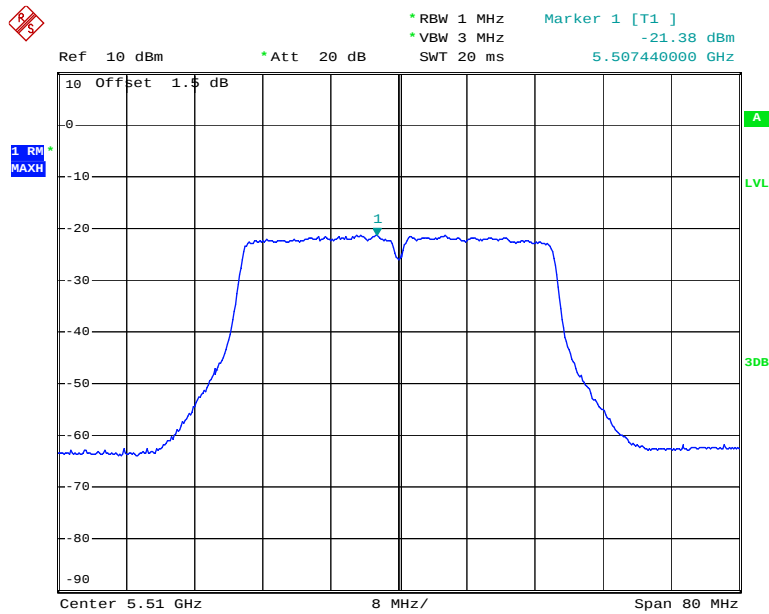
Date: 24.OCT.2020 15:55:18

802.11n ht20 High Channel 5720 MHz



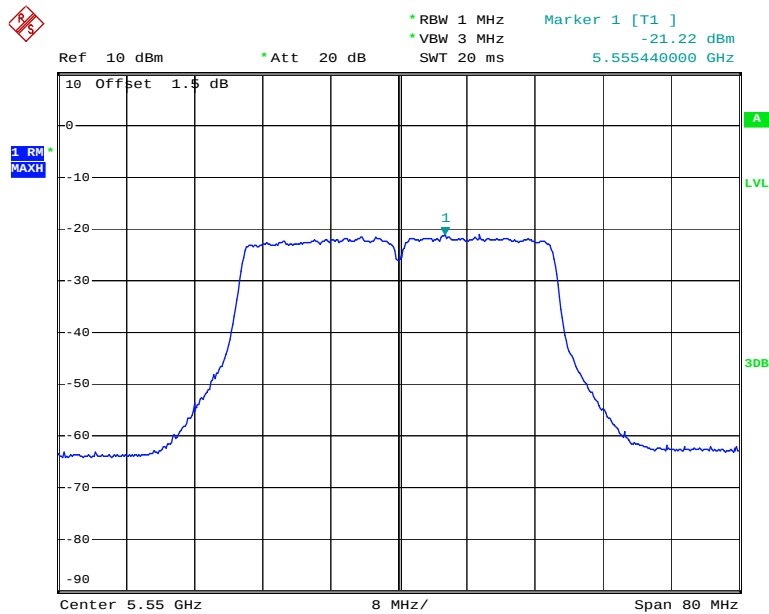
Date: 24.OCT.2020 15:54:39

802.11n ht40 Low Channel



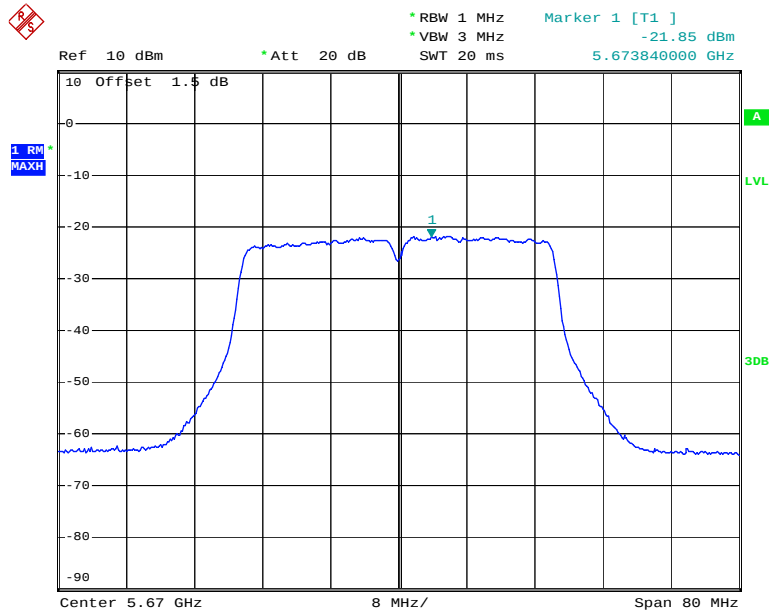
Date: 24.OCT.2020 15:57:20

802.11n ht40 Middle Channel



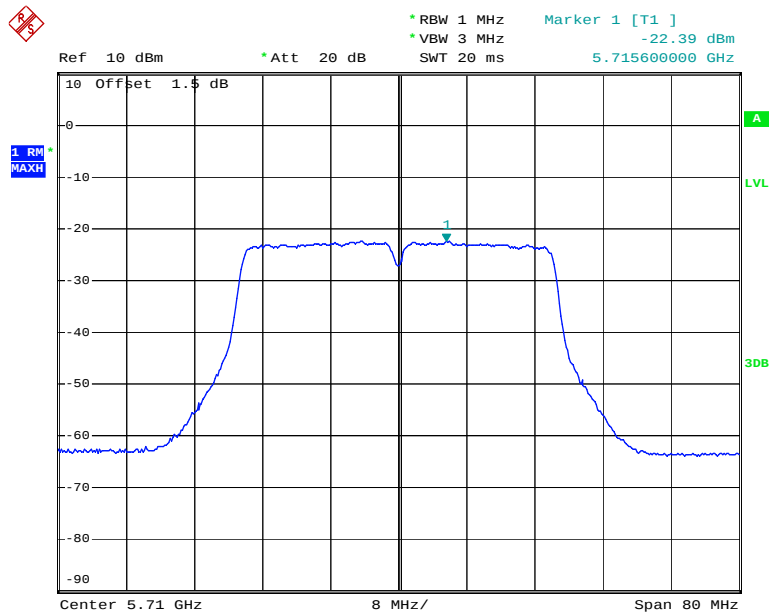
Date: 24.OCT.2020 15:57:42

802.11n ht40 High Channel



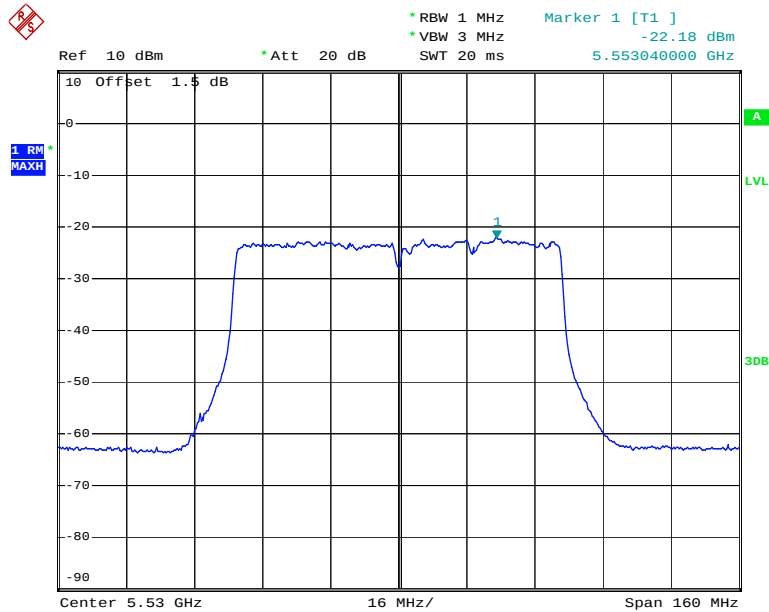
Date: 24.OCT.2020 15:58:08

802.11n ht40 5710MHz



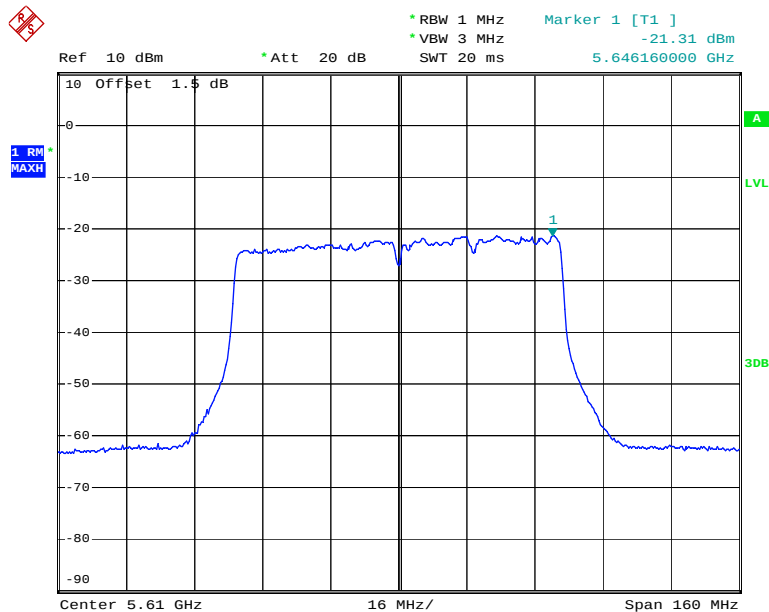
Date: 24.OCT.2020 15:58:43

802.11ac vht80 Low Channel



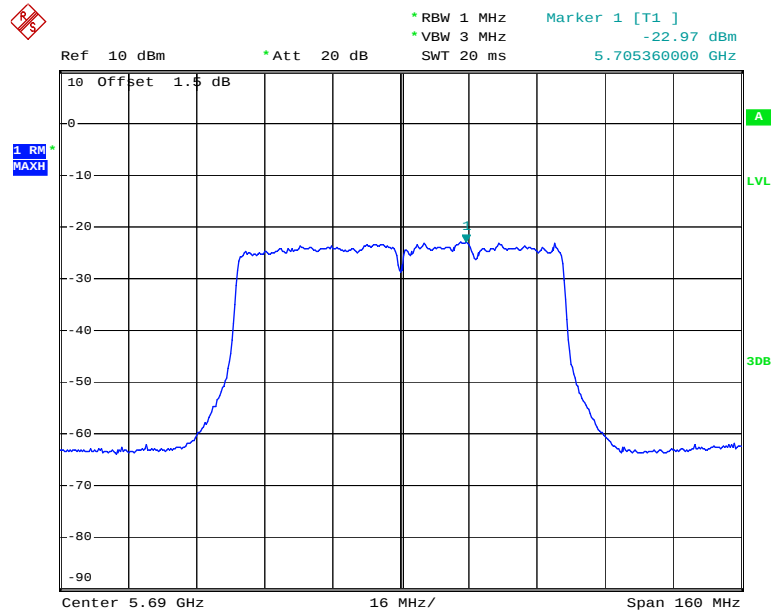
Date: 24.OCT.2020 16:00:03

802.11ac vht80 5610MHz



Date: 24.OCT.2020 16:01:22

802.11ac vht80 5690MHz



Date: 24.OCT.2020 16:00:32

**34 dBi Antenna:
5150-5250 MHz:**

Mode	Frequency (MHz)	Maximum Power Spectral Density (dBm/MHz)					FCC Limit
		Chain 0	Chain 1	Chain 2	Chain 3	Total	
802.11 a	5180	-0.91	-1.51	-1.36	-1.16	/	6
	5200	-1.32	-1.74	-2.10	-1.14	/	6
	5240	-0.93	-1.23	-1.91	-1.33	/	6
802.11n ht20	5180	-6.33	-6.70	-8.00	-7.00	-0.94	6
	5200	-6.67	-6.97	-8.20	-6.45	-1.00	6
	5240	-6.67	-6.33	-6.80	-6.01	-0.42	6
802.11n ht40	5190	-7.70	-8.49	-9.60	-8.25	-2.44	6
	5230	-7.71	-7.72	-8.31	-6.86	-1.60	6
802.11ac vht80	5210	-10.20	-10.21	-10.41	-9.73	-4.11	6

Note: This is a fixed point-to-point AP application, and this band is Only for FCC Use.

5725-5850 MHz:

Mode	Frequency (MHz)	Maximum Power Spectral Density (dBm/500kHz)					FCC/RSS Limit
		Chain 0	Chain 1	Chain 2	Chain 3	Total	
802.11 a	5745	11.49	11.41	11.05	12.45	/	30
	5785	10.73	11.18	10.18	12.25	/	30
	5825	10.61	11.17	10.56	11.45	/	30
802.11n ht20	5745	9.74	6.92	5.64	7.79	13.80	30
	5785	9.39	6.59	6.00	7.67	13.63	30
	5825	9.01	6.48	5.60	7.32	13.31	30
802.11n ht40	5755	6.06	3.77	2.01	3.95	10.21	30
	5795	5.44	2.77	1.71	3.69	9.64	30
802.11ac vht80	5775	3.58	1.01	-0.09	0.86	7.59	30

Note: Note: This is a fixed point-to-point AP application. For 5.8G band, same power level setting for all antenna configurations, the test plots please refer to 13dBi antenna part.

Note:

The maximum antenna gain is 34dBi in 5GHz band. Two sets of identical Sector Antenna should be installed. Each Sector Antenna has two Cross-polarized antennas, per KDB 662911 D01 Multiple Transmitter Output v02r01, Clause F) 2):

- b) *Sectorized antenna systems.* In sectorized antenna systems in which each antenna is used to transmit different data in a different direction from the other antennas, directional gain is equal to the gain of an individual sector antenna.
- c) *Cross-polarized antennas.* For a system in which the antennas have fixed orientations relative to one another that ensure that the antennas are cross-polarized regardless of any user actions, the directional gain is computed as follows.
 - (i) *Cross-polarized antennas with $N_{ANT} = 2$.* In the case of a transmitter with only two outputs driving a pair of antennas that are cross-polarized (e.g., vertical and horizontal or left-circular and right-circular), directional gain is the gain of an individual antenna. If the two antennas have different gains, the larger gain applies.

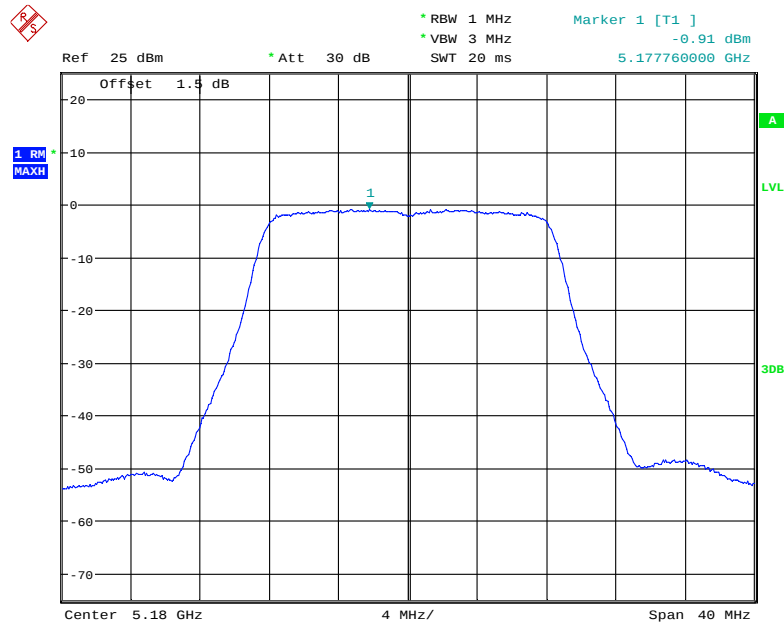
So:

$$\text{Directional gain} = G_{ANT} = 34\text{dBi}$$

Method SA-3 in KDB 789033 D02 General UNII Test Procedures New Rules v02r01 was used for PSD test.

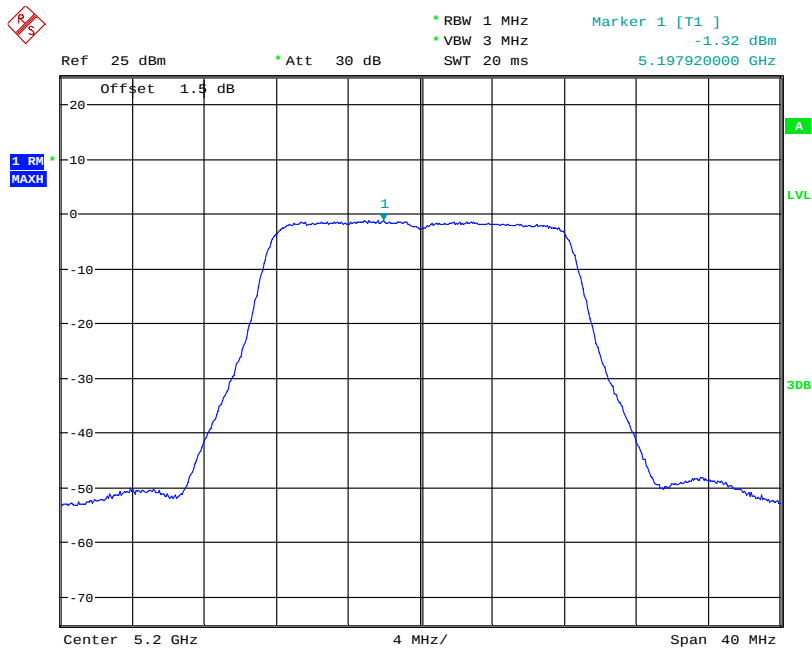
5150-5250 MHz, Chain 0:

802.11a Low Channel



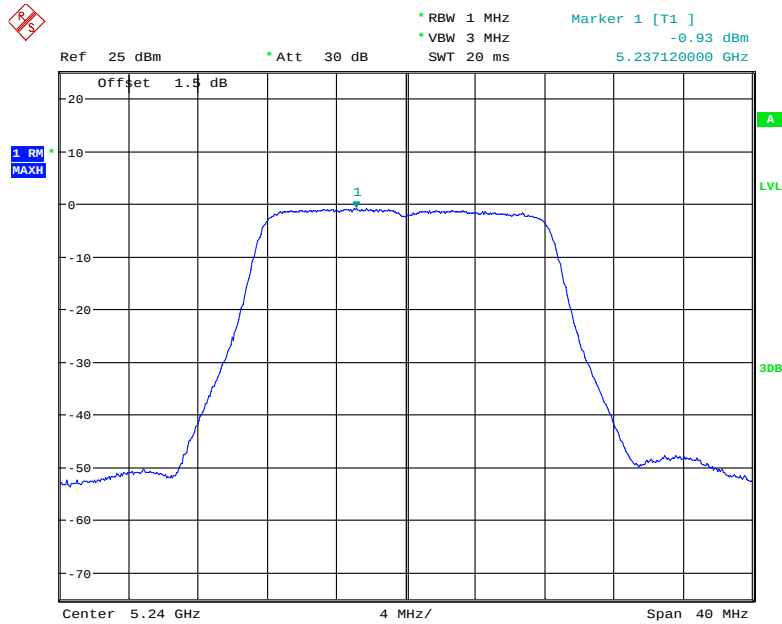
Date: 22.OCT.2020 14:20:23

802.11a Middle Channel



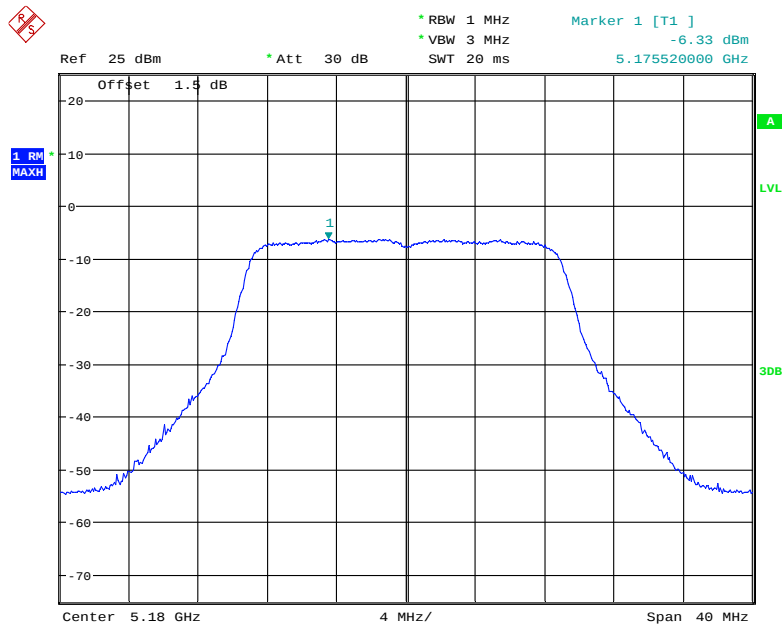
Date: 22.OCT.2020 14:20:00

802.11a High Channel



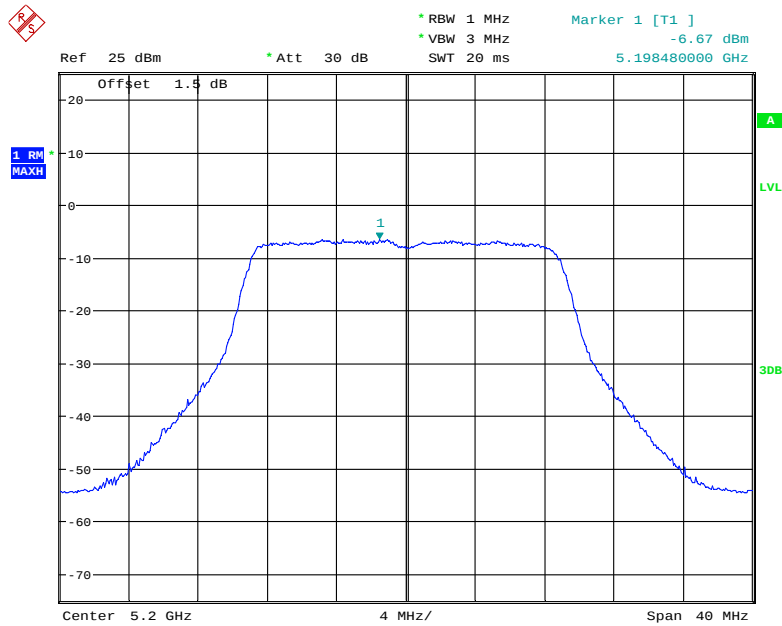
Date: 22.OCT.2020 14:20:47

802.11n ht20 Low Channel



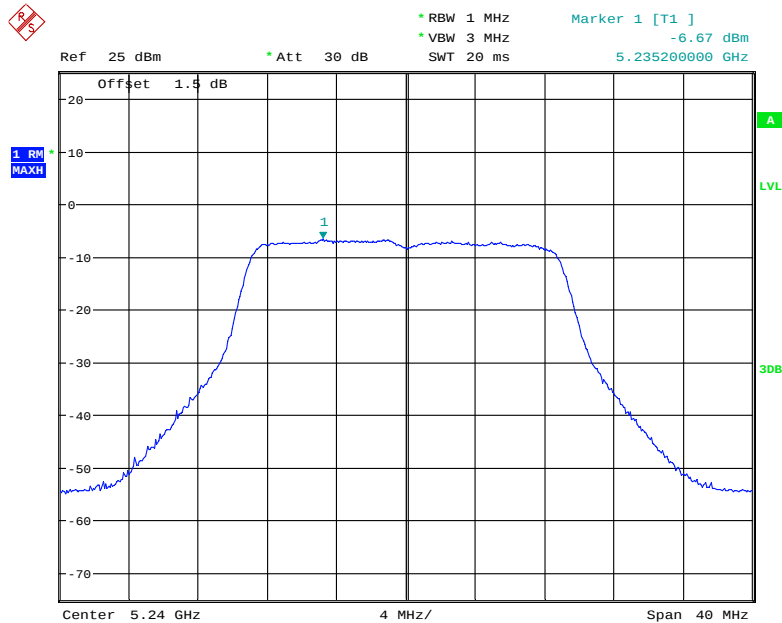
Date: 22.OCT.2020 14:23:21

802.11n ht20 Middle Channel



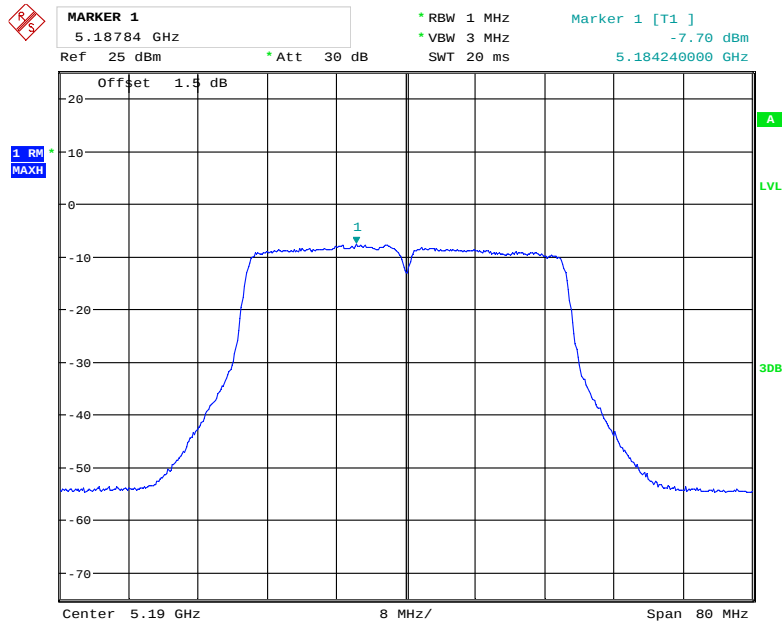
Date: 22.OCT.2020 14:22:56

802.11n ht20 High Channel



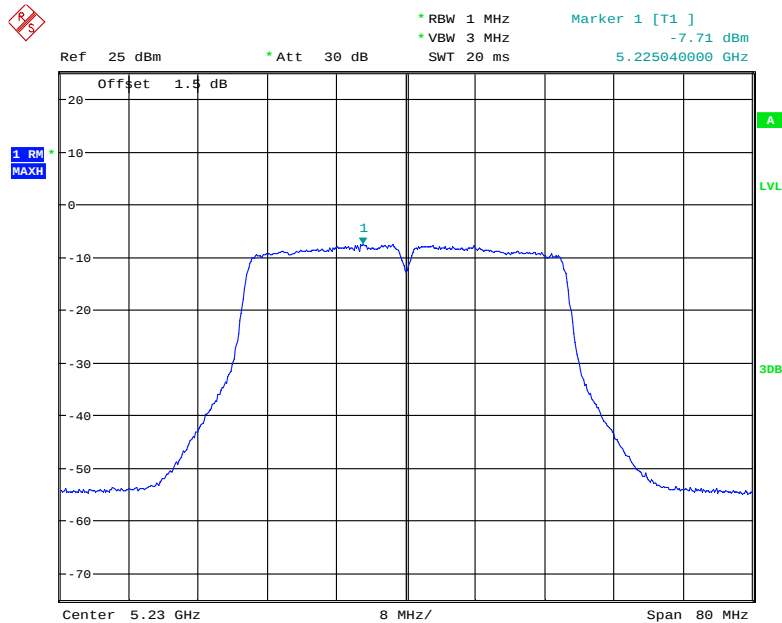
Date: 22.OCT.2020 14:22:34

802.11n ht40 Low Channel



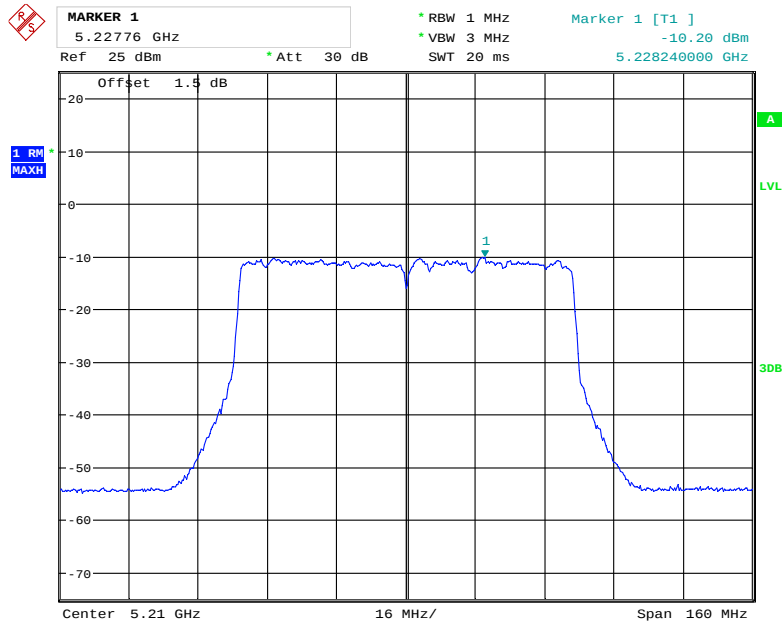
Date: 22.OCT.2020 14:24:15

802.11n ht40 High Channel



Date: 22.OCT.2020 14:24:42

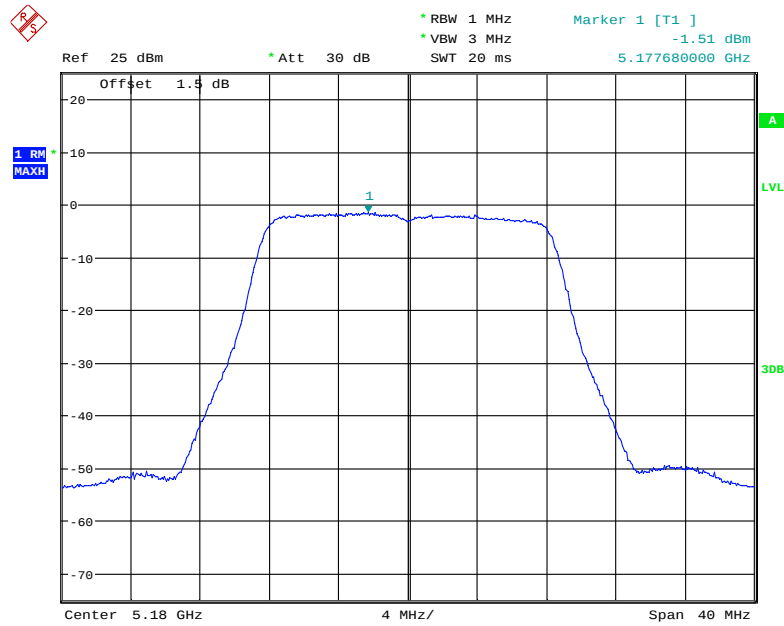
802.11ac vht80 Middle Channel



Date: 22.OCT.2020 14:25:37

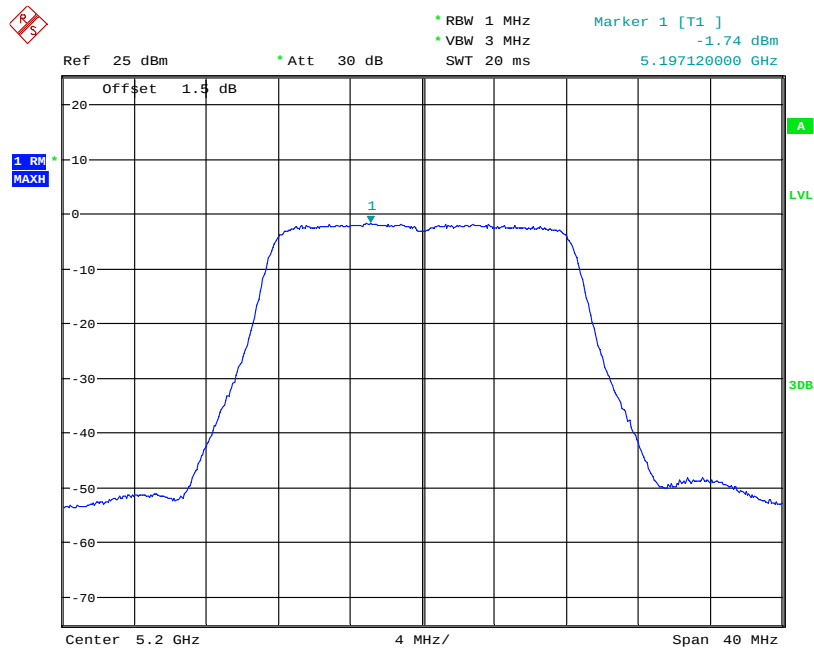
Chain 1:

802.11a Low Channel



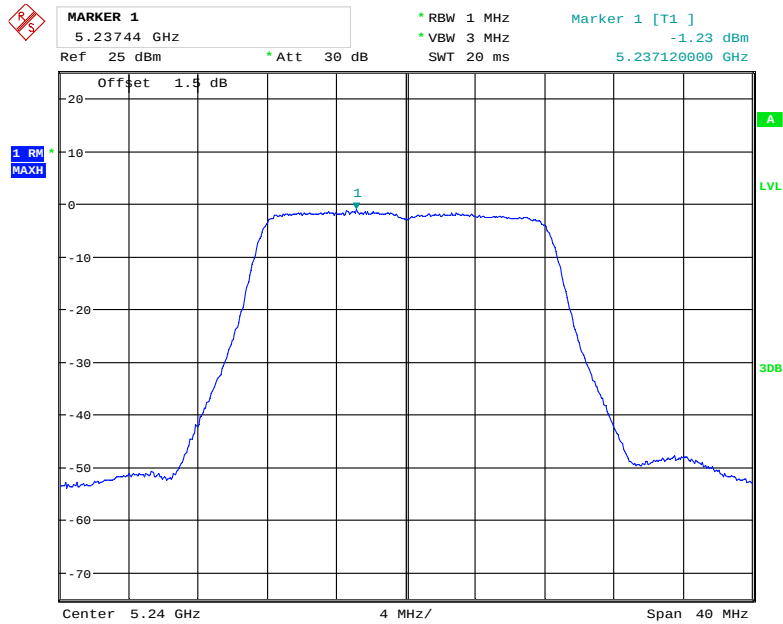
Date: 22.OCT.2020 14:36:20

802.11a Middle Channel



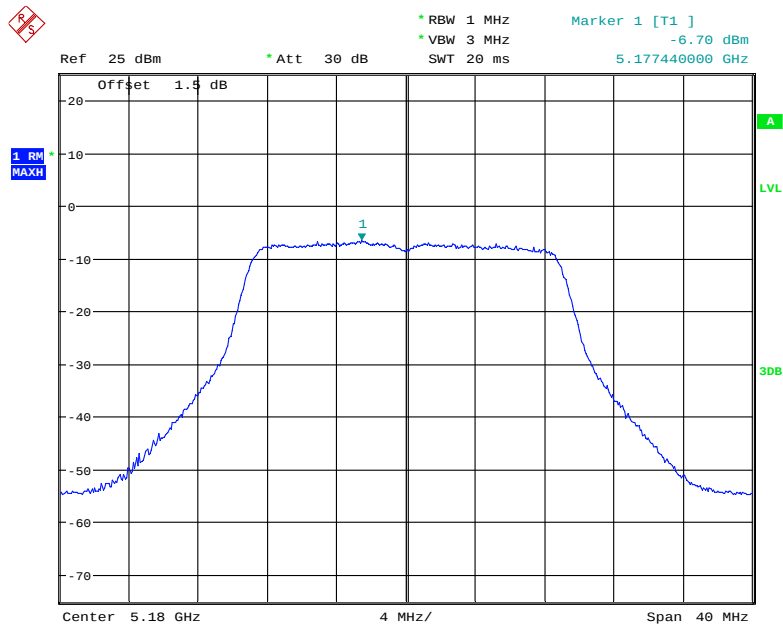
Date: 22.OCT.2020 14:35:58

802.11a High Channel



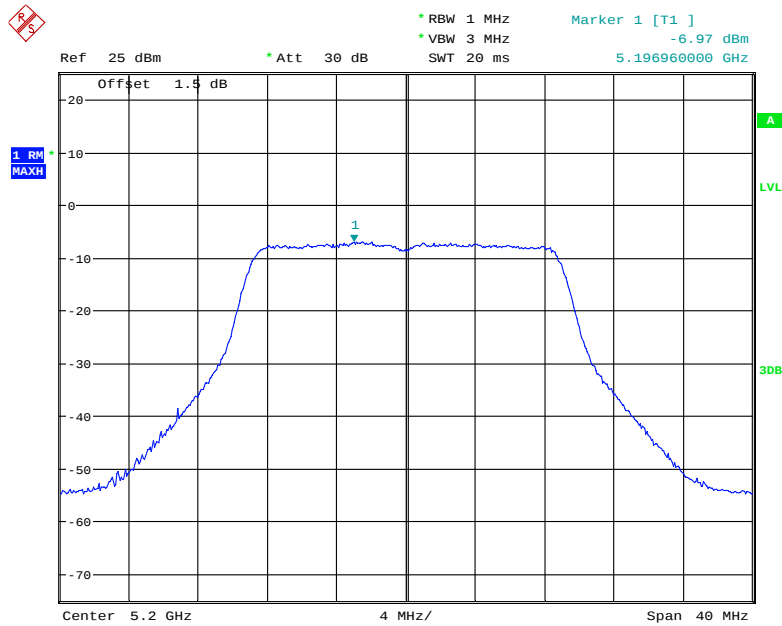
Date: 22.OCT.2020 14:35:28

802.11n ht20 Low Channel



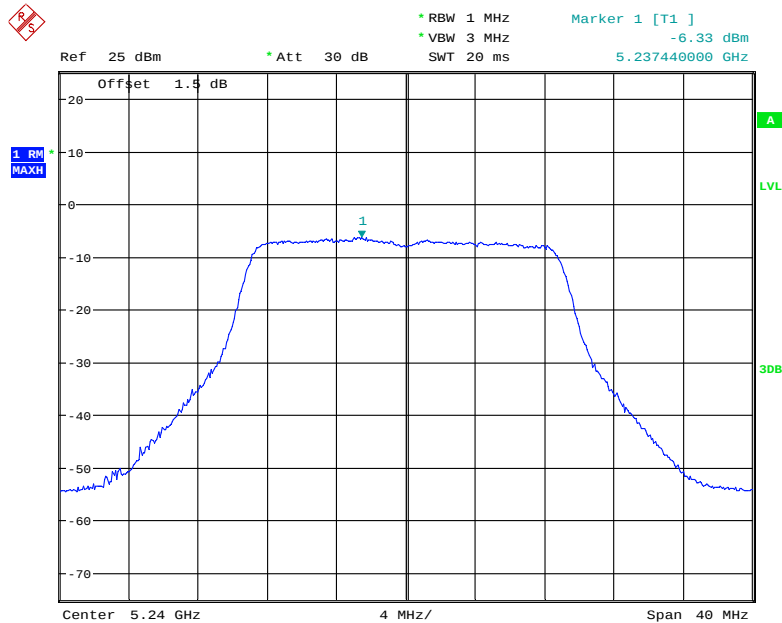
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802.11n ht20 Middle Channel



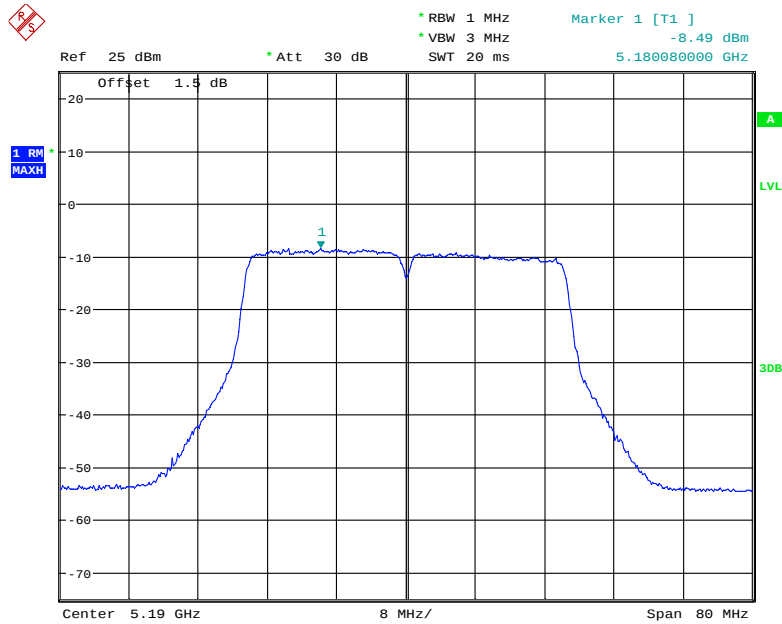
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802.11n ht20 High Channel



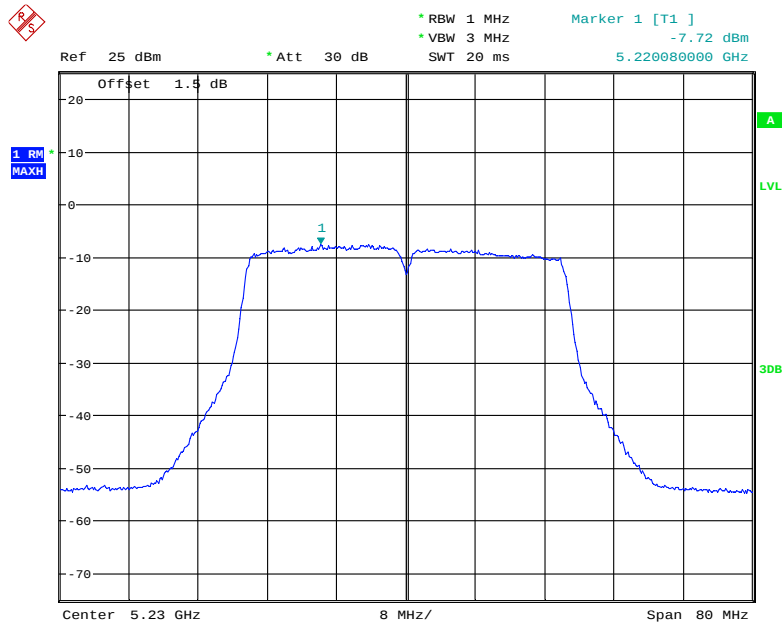
Date: 22.OCT.2020 14:37:37

802.11n ht40 Low Channel



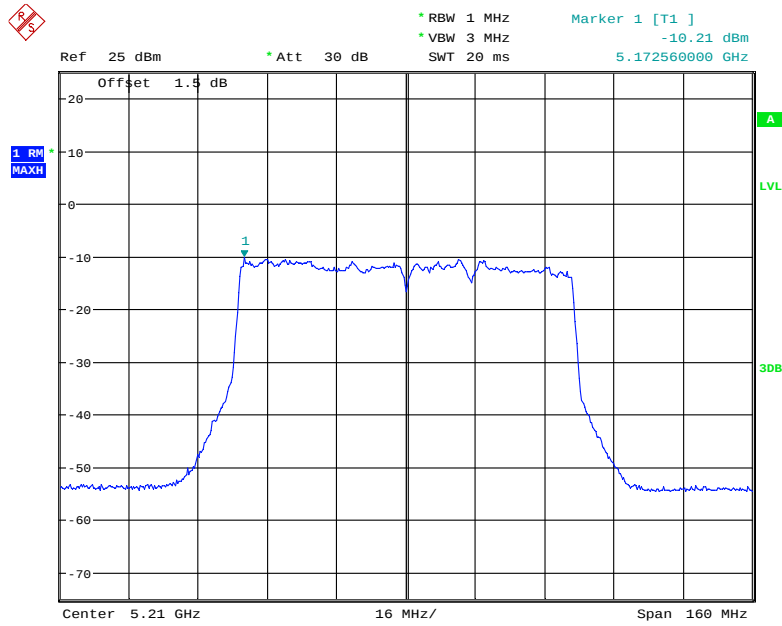
Date: 22.OCT.2020 14:38:18

802.11n ht40 High Channel



Date: 22.OCT.2020 14:38:40

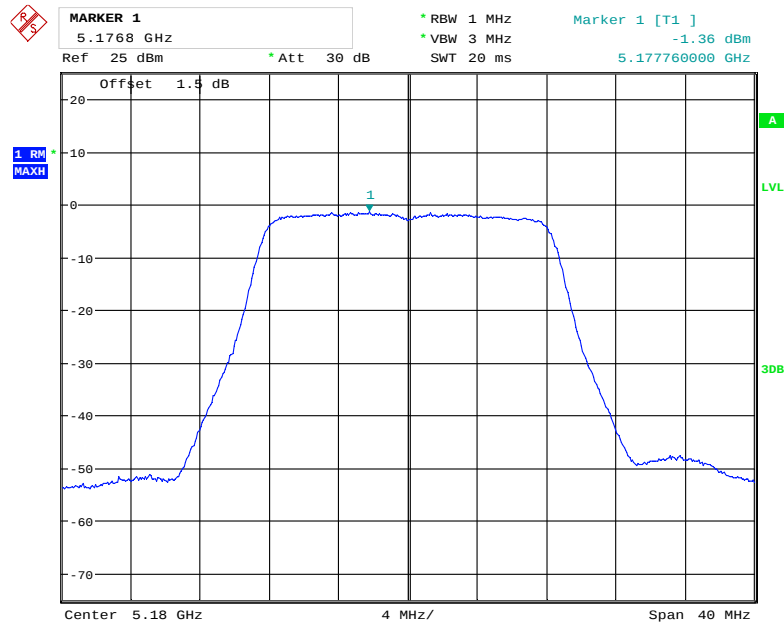
802.11ac vht80 Middle Channel



Date: 22.OCT.2020 14:39:27

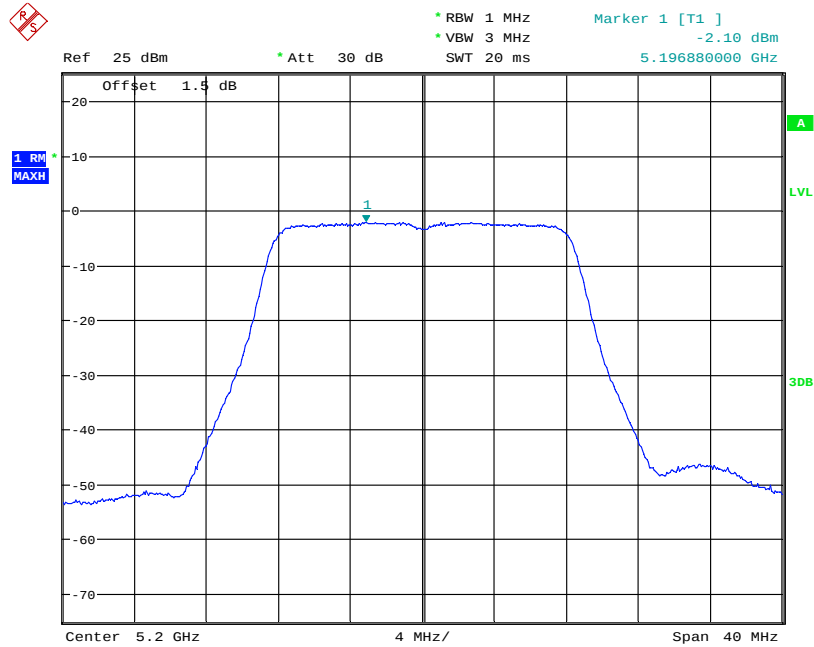
Chain 2:

802.11a Low Channel



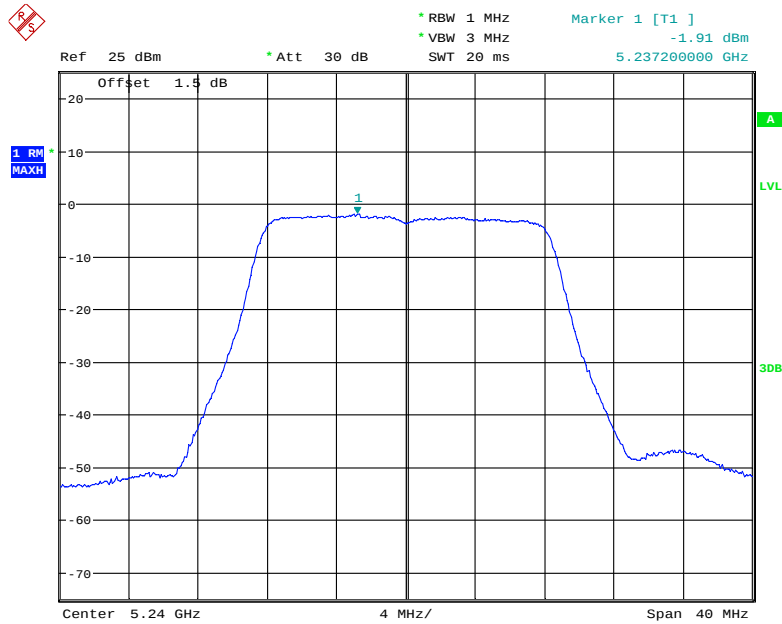
Date: 22.OCT.2020 14:31:55

802.11a Middle Channel



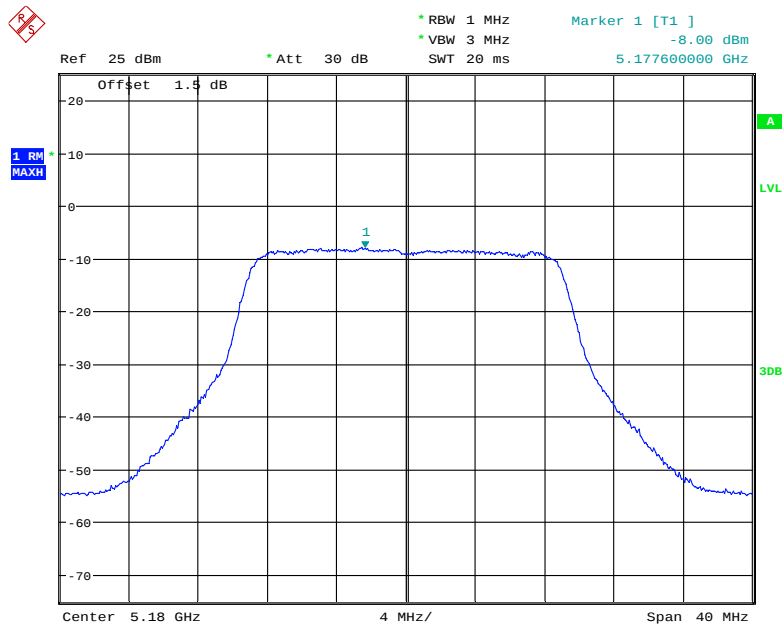
Date: 22.OCT.2020 14:32:18

802.11a High Channel



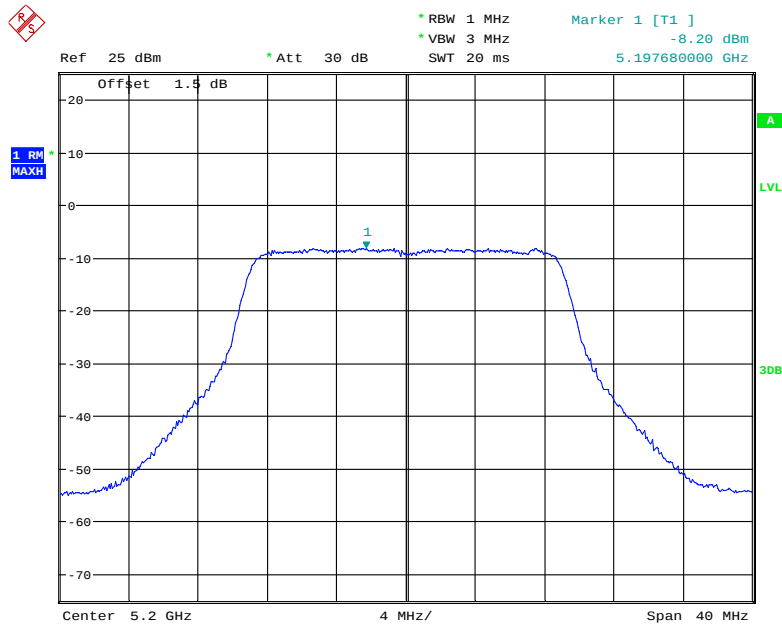
Date: 22.OCT.2020 14:34:06

802.11n ht20 Low Channel



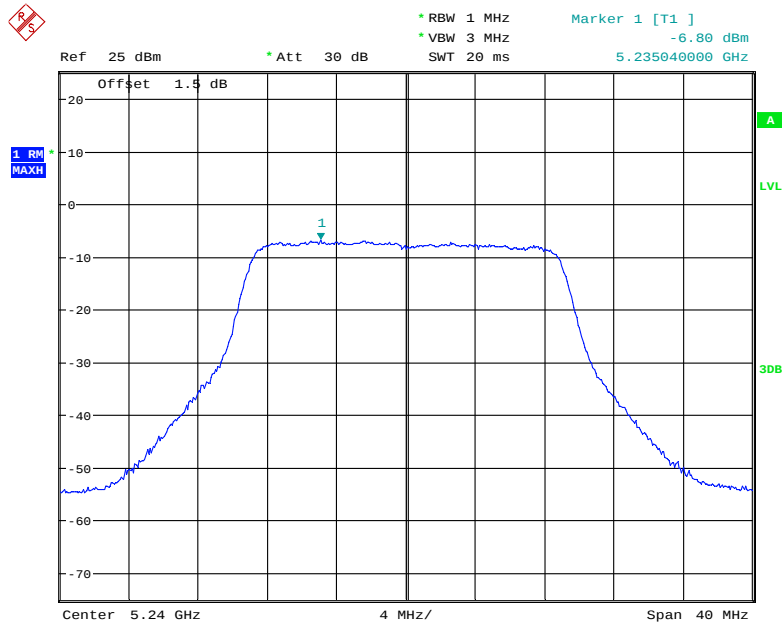
Date: 22.OCT.2020 14:28:30

802.11n ht20 Middle Channel



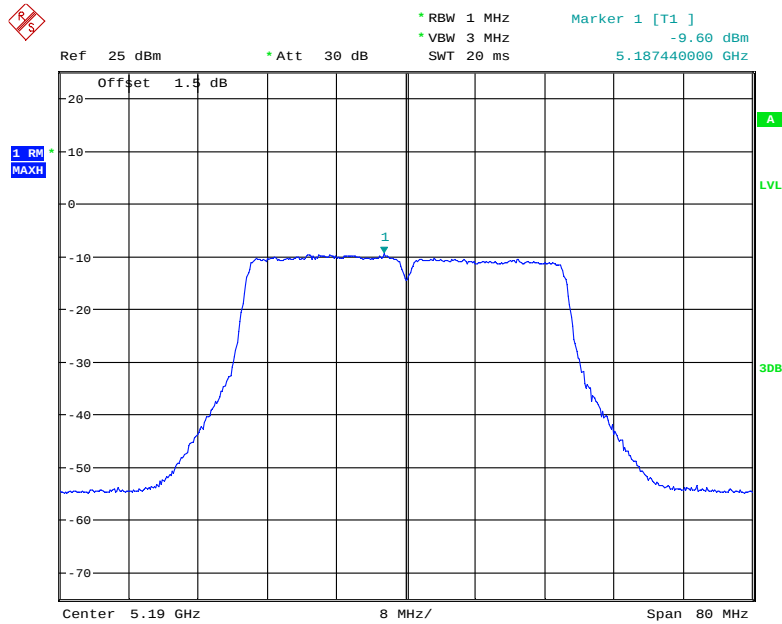
Date: 22.OCT.2020 14:28:55

802.11n ht20 High Channel



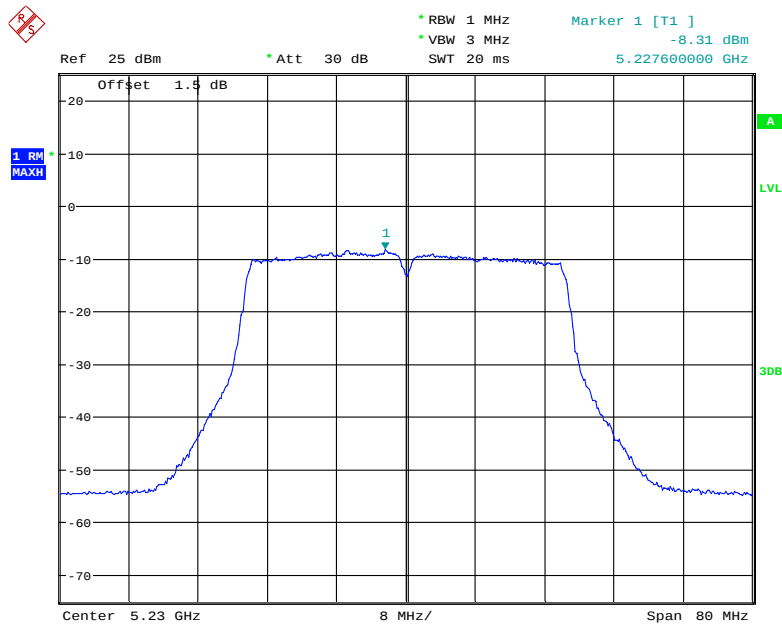
Date: 22.OCT.2020 14:29:17

802.11n ht40 Low Channel



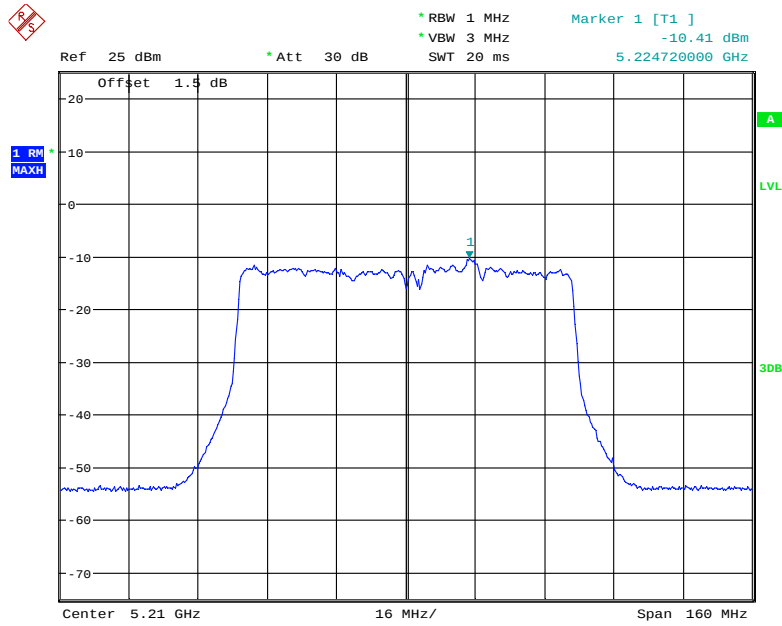
Date: 22.OCT.2020 14:27:22

802.11n ht40 High Channel



Date: 22.OCT.2020 14:27:51

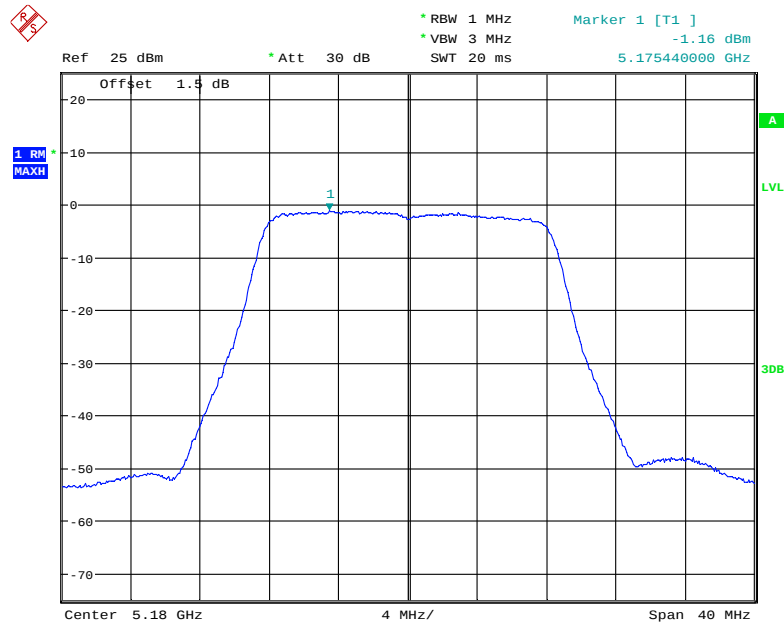
802.11ac vht80 Middle Channel



Date: 22.OCT.2020 14:26:36

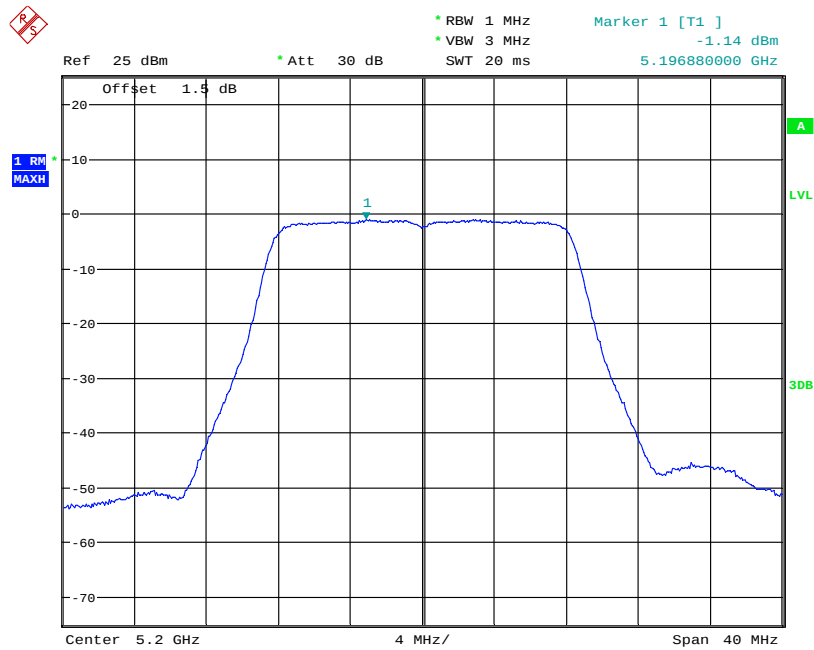
Chain 3:

802.11a Low Channel



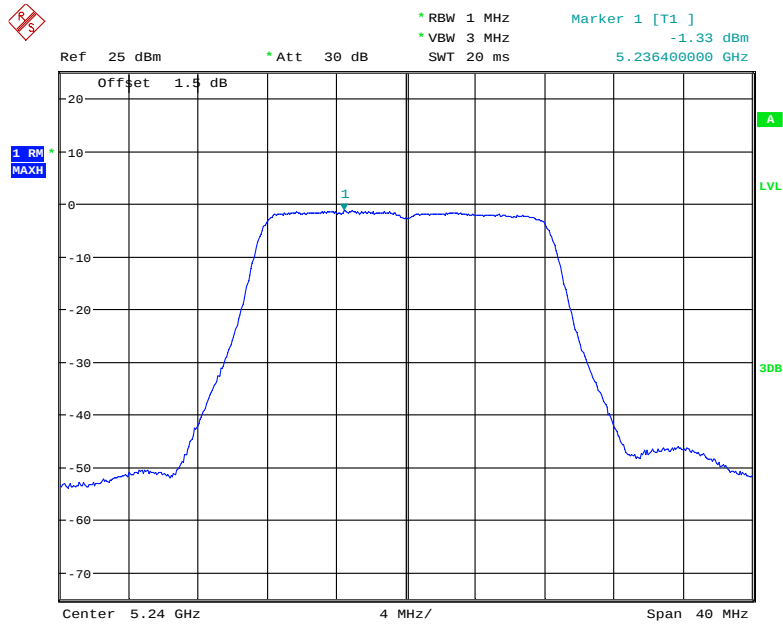
Date: 22.OCT.2020 14:46:16

802.11a Middle Channel



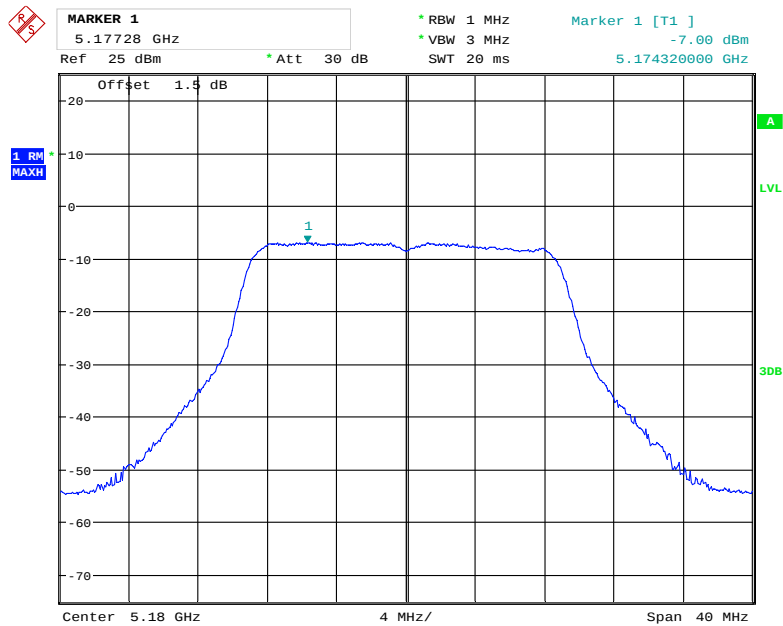
Date: 22.OCT.2020 14:45:52

802.11a High Channel



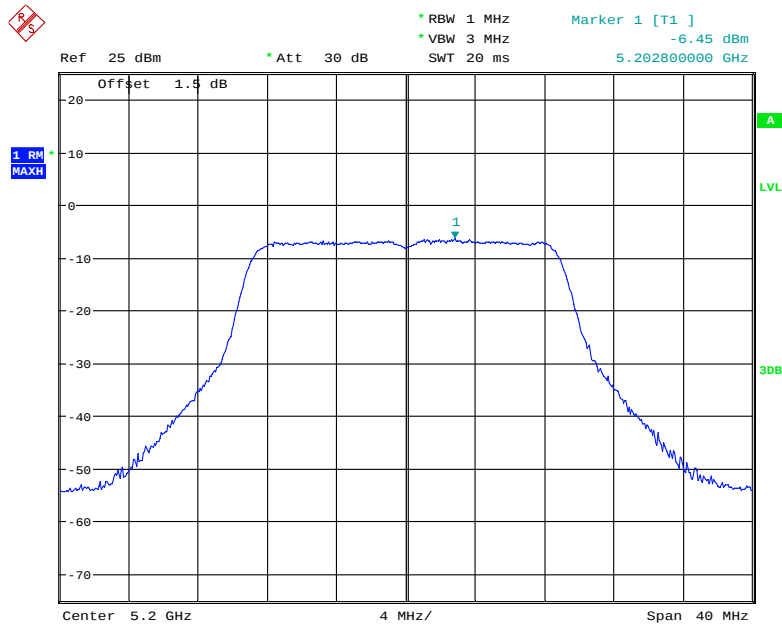
Date: 22.OCT.2020 14:45:12

802.11n ht20 Low Channel



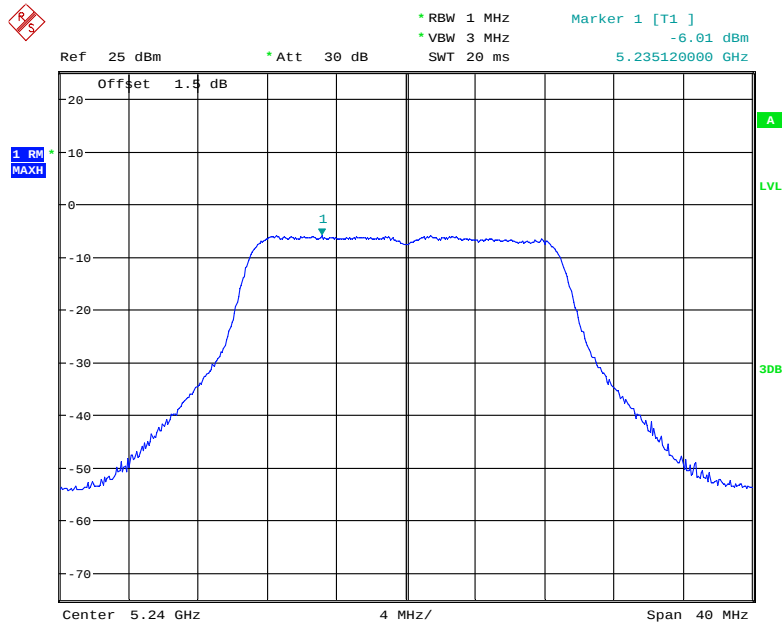
Date: 22.OCT.2020 14:43:15

802.11n ht20 Middle Channel



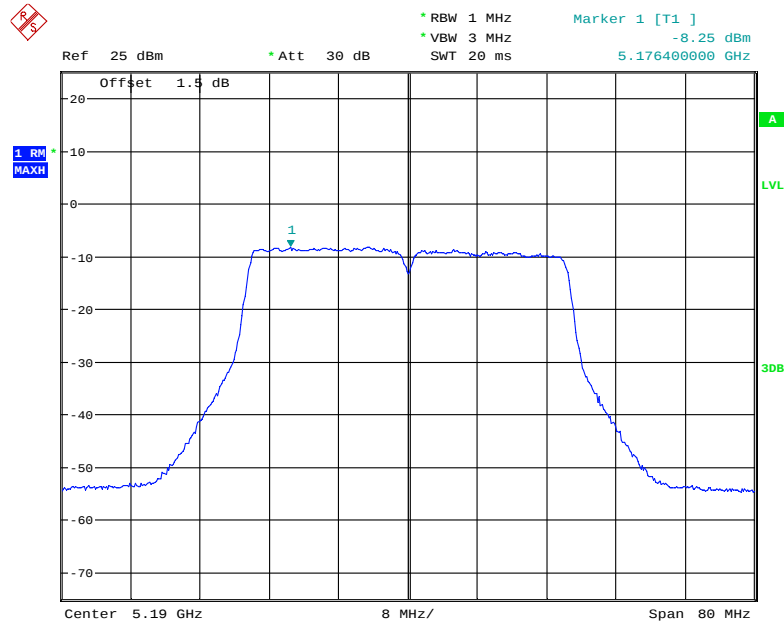
Date: 22.OCT.2020 14:43:38

802.11n ht20 High Channel



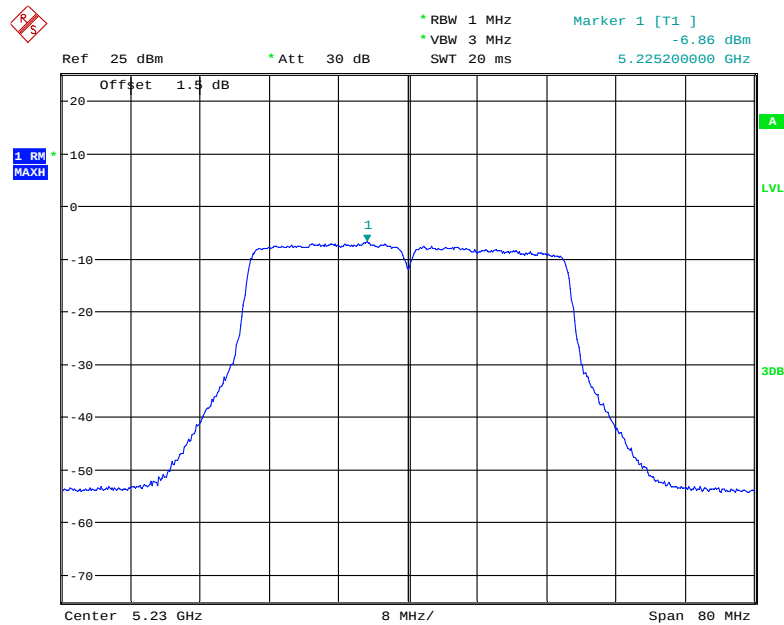
Date: 22.OCT.2020 14:44:00

802.11n ht40 Low Channel



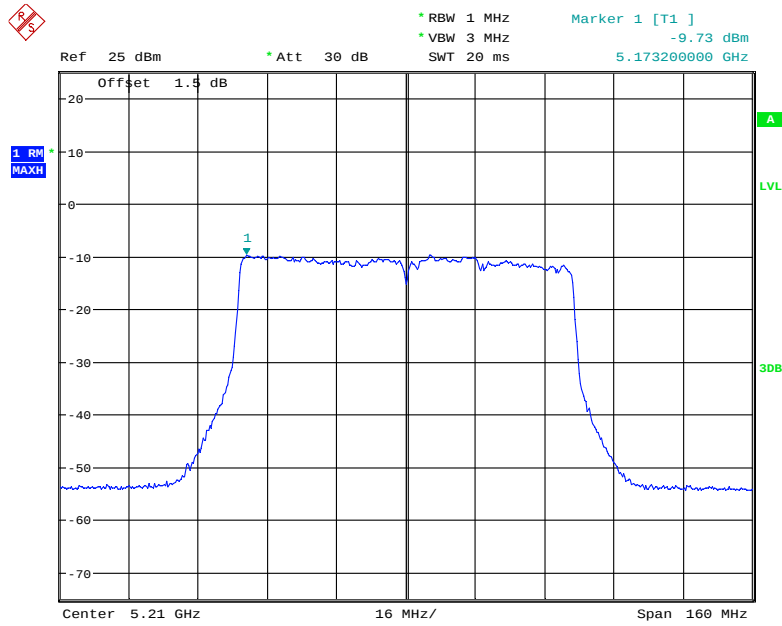
Date: 22.OCT.2020 14:41:11

802.11n ht40 High Channel



Date: 22.OCT.2020 14:41:35

802.11ac vht80 Middle Channel



Date: 22.OCT.2020 14:40:29

RSS-247 CLAUSE 6.4- ADDITIONAL REQUIREMENT

Applicable Standard

According to RSS-247 Clause 6.4 Additional requirement

The following requirements shall apply:

- a) The device shall automatically discontinue transmission in cases of absence of information to transmit, or operational failure. A description on how this is done shall accompany the application for equipment certification. Note that this is not intended to prohibit transmission of control or signalling information or the use of repetitive codes where required by the technology.
- b) All LE-LAN devices must contain security features to protect against modification of software by unauthorized parties.

Manufacturers must implement security features in any digitally modulated devices capable of operating in any of the frequency ranges within the 5 GHz band, so that third parties are not able to reprogram the device to operate outside the parameters for which the device was certified. The software must prevent the user from operating the transmitter with operating frequencies, output power, modulation types or other radio frequency parameters outside those that were approved for the device. Manufacturers may use various means, including the use of a private network that allows only authenticated users to download software, electronic signatures in software or coding in hardware that is decoded by software to verify that new software can be legally loaded into a device to meet these requirements and must describe the methods in their application for equipment certification.

Manufacturers must take steps to ensure that DFS functionality cannot be disabled by the operator of the LE-LAN device.

- c) The user manual for LE-LAN devices shall contain instructions related to the restrictions mentioned in the above sections, namely that:
 - i. the device for operation in the band 5150–5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems;⁴
 - ii. for devices with detachable antenna(s), the maximum antenna gain permitted for devices in the bands 5250-5350 MHz and 5470-5725 MHz shall be such that the equipment still complies with the e.i.r.p. limit;
 - iii. for devices with detachable antenna(s), the maximum antenna gain permitted for devices in the band 5725-5850 MHz shall be such that the equipment still complies with the e.i.r.p. limits as appropriate; and
 - iv. where applicable, antenna type(s), antenna models(s), and worst-case tilt angle(s) necessary to remain compliant with the e.i.r.p. elevation mask requirement set forth in section 6.2.2.3 shall be clearly indicated.

Result

Compliance.

RSS-247 Clause 6.4 a):

The device shall automatically discontinue transmission in cases of absence of information to transmit, or operational failure. Please refer to the declaration

RSS-247 Clause 6.4 b):

The devices must contain security features to protect against modification of software by unauthorized parties. Please refer to the declaration

RSS-247 Clause 6.4 c):

The device operates on 5250-5350MHz, 5470-5600MHz & 5650-5725MHz and 5725-5850MHz, the antennas were professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit, all the EIPR compliance with RSS-247 requirement.

5150-5250 MHz was disabled by software for Canada Market

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