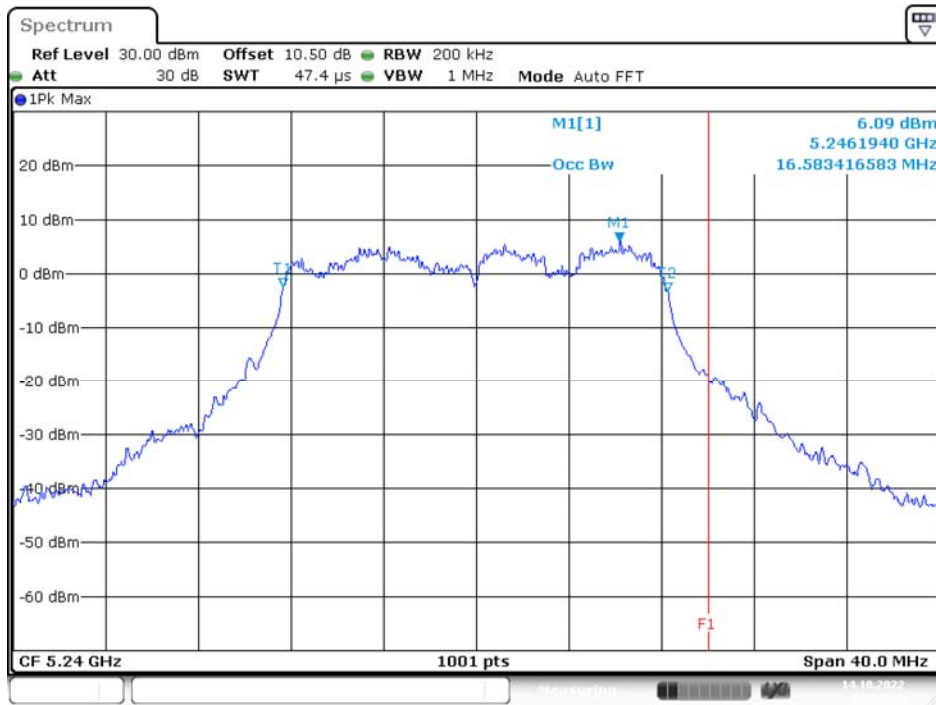


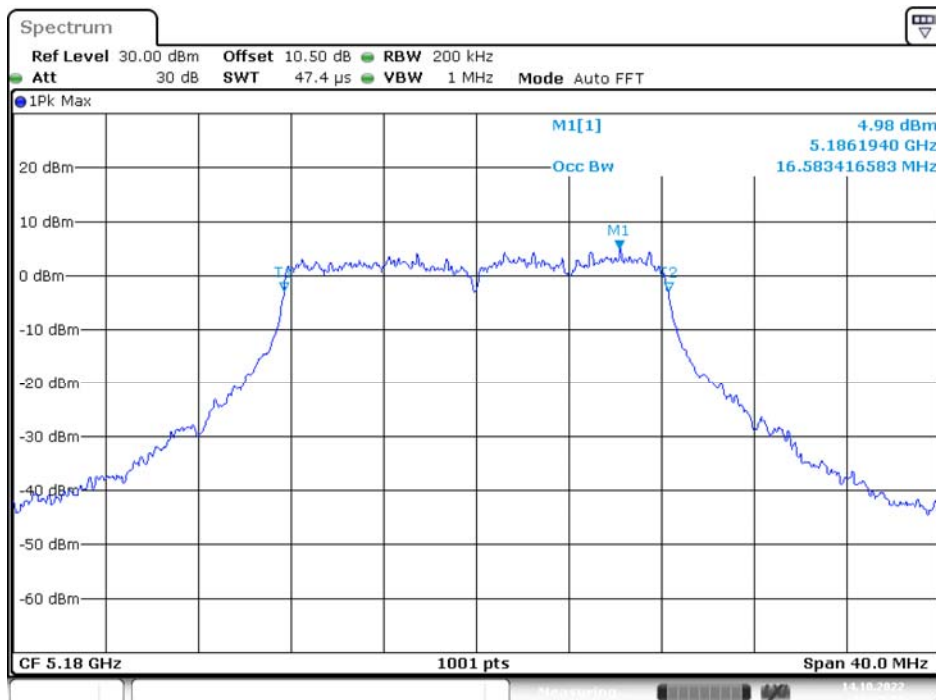
5240MHz



Date: 14.OCT.2022 09:52:43

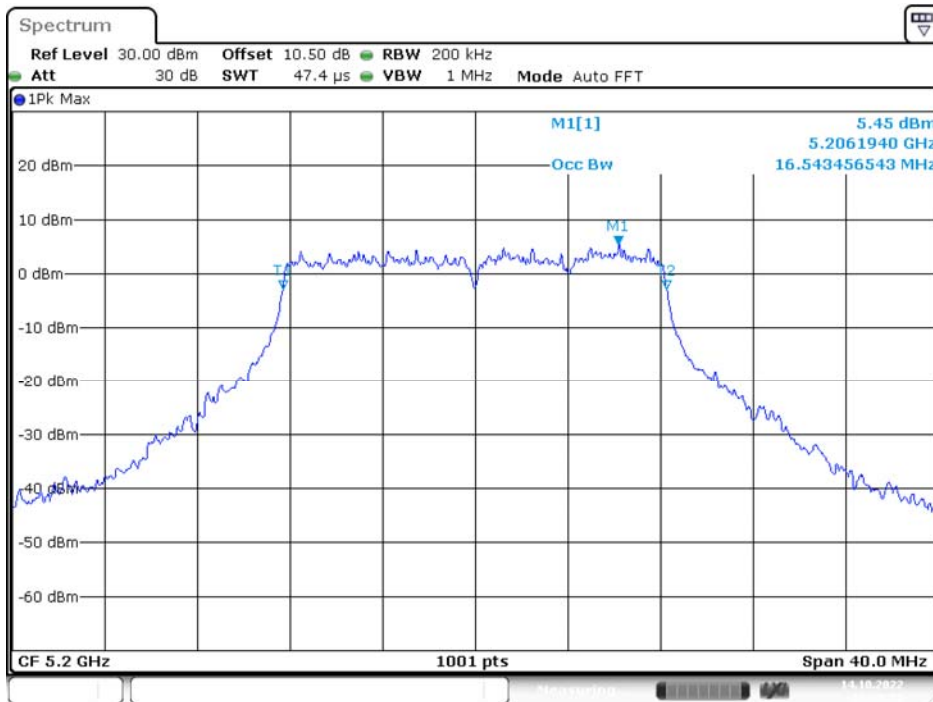
IEEE 802.11a Mode / 5150 ~ 5250MHz (chain 1)

5180MHz



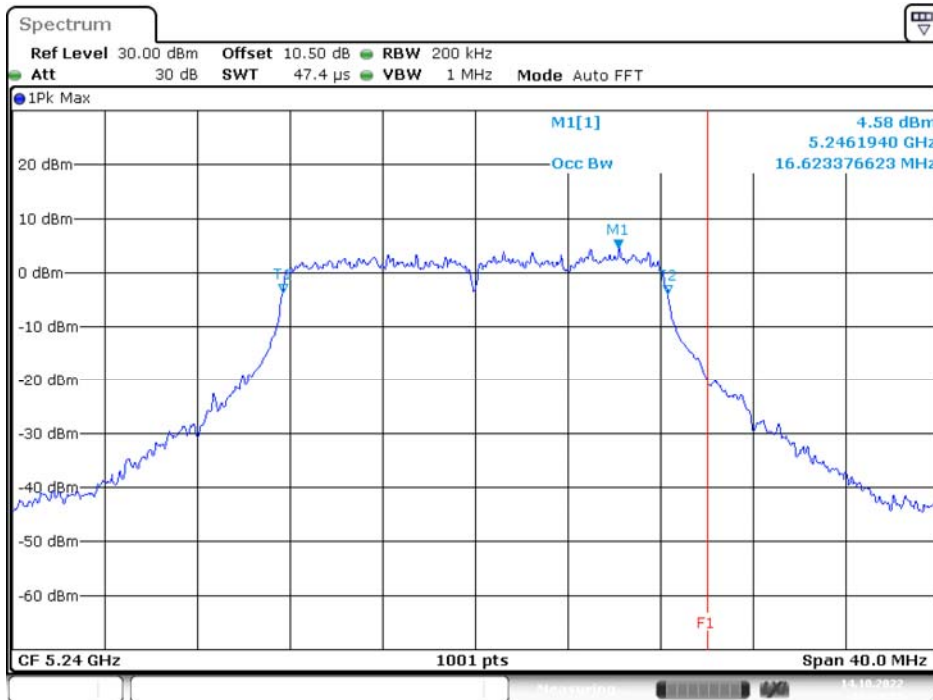
Date: 14.OCT.2022 10:15:07

5200MHz



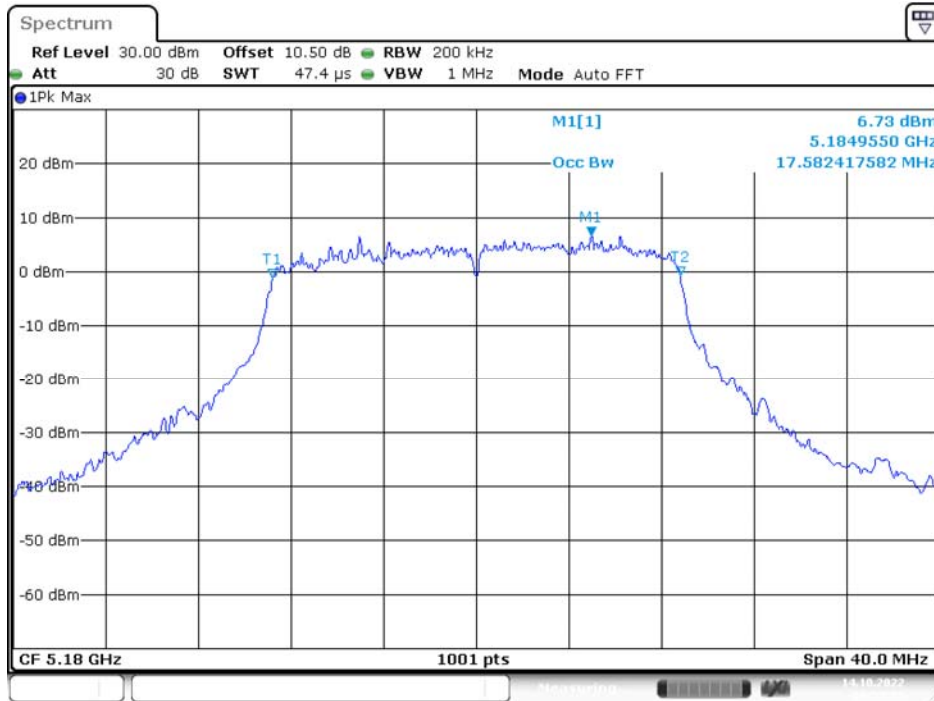
Date: 14.OCT.2022 10:16:32

5240MHz



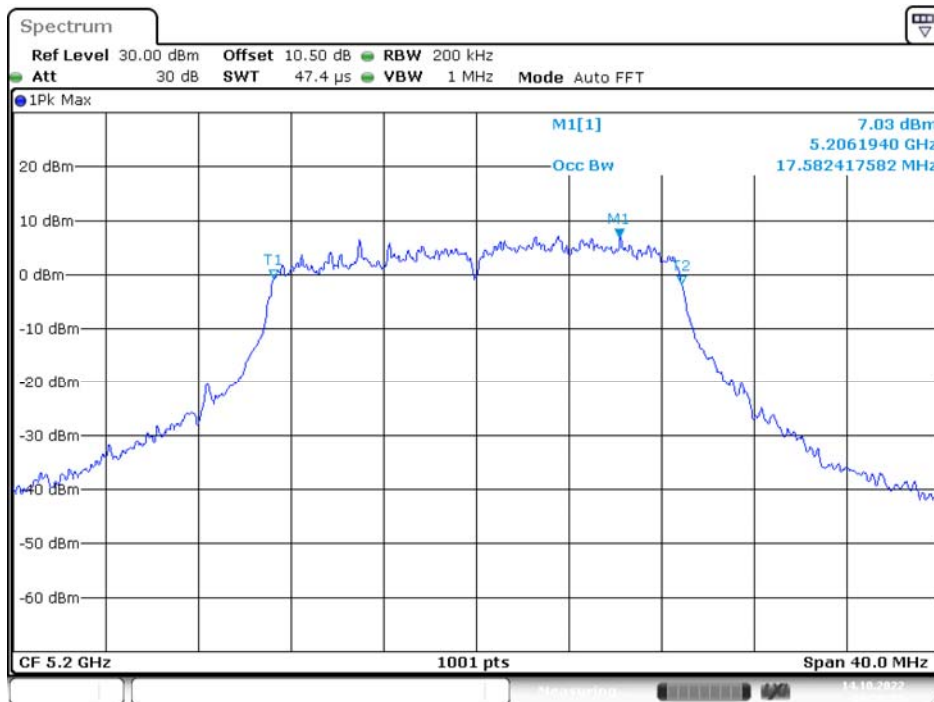
Date: 14.OCT.2022 10:18:06

IEEE 802.11ac VHT20 Mode / 5150 ~ 5250MHz (chain 0) 5180MHz



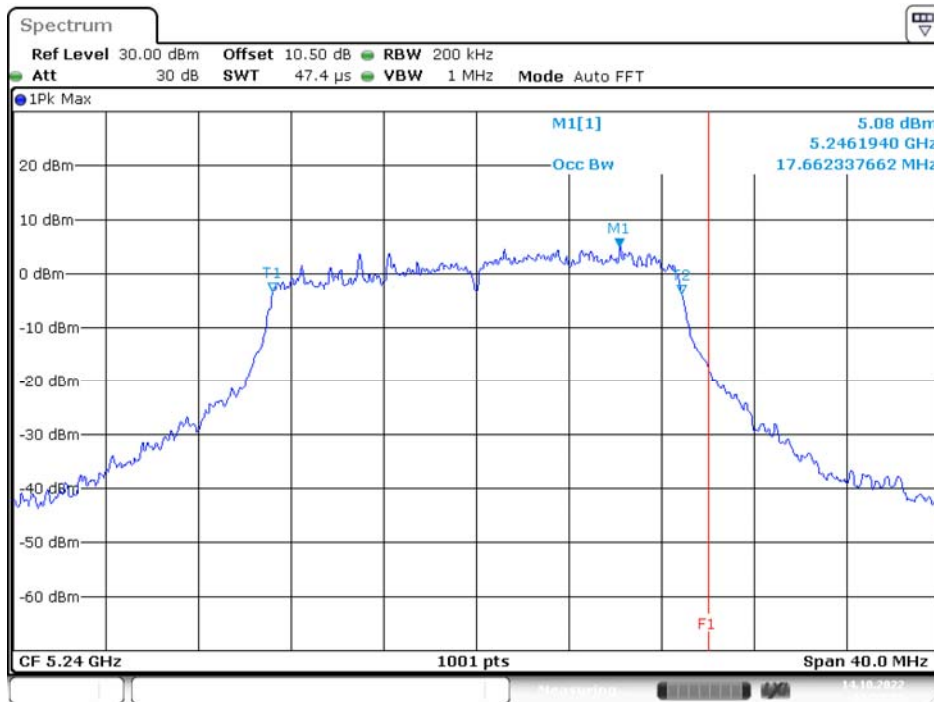
Date: 14.OCT.2022 09:55:06

5200MHz



Date: 14.OCT.2022 09:56:38

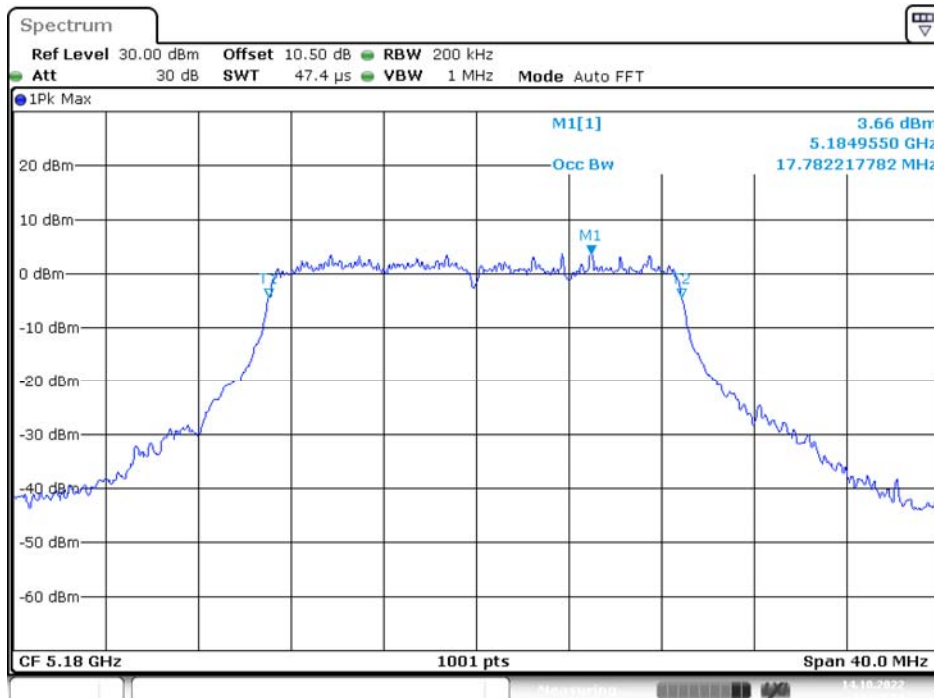
5240MHz



Date: 14.OCT.2022 11:55:35

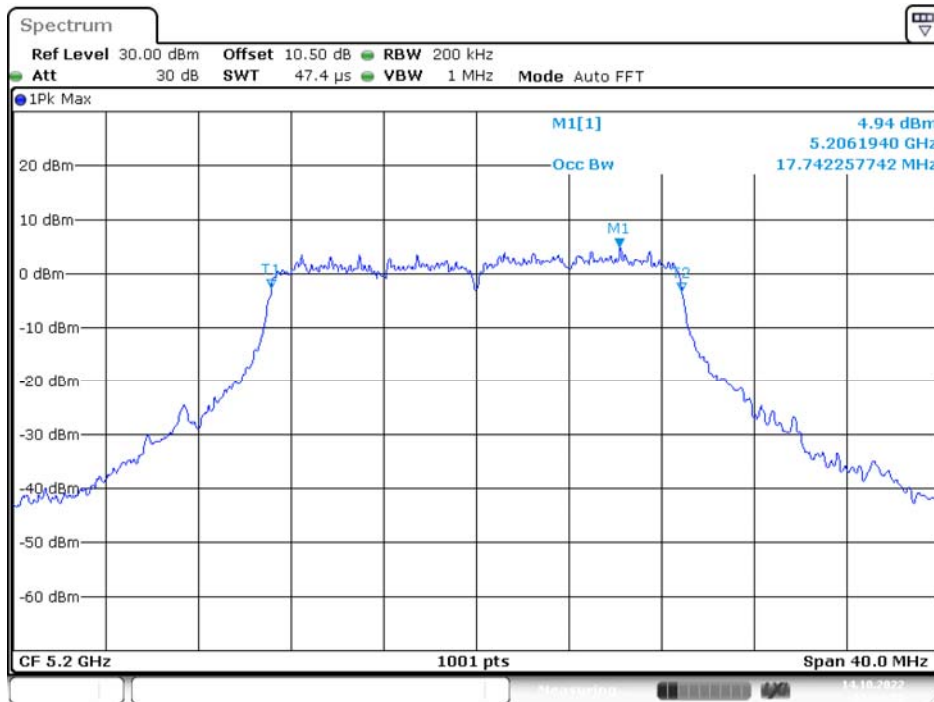
IEEE 802.11ac VHT20 Mode / 5150 ~ 5250MHz (chain 1)

5180MHz



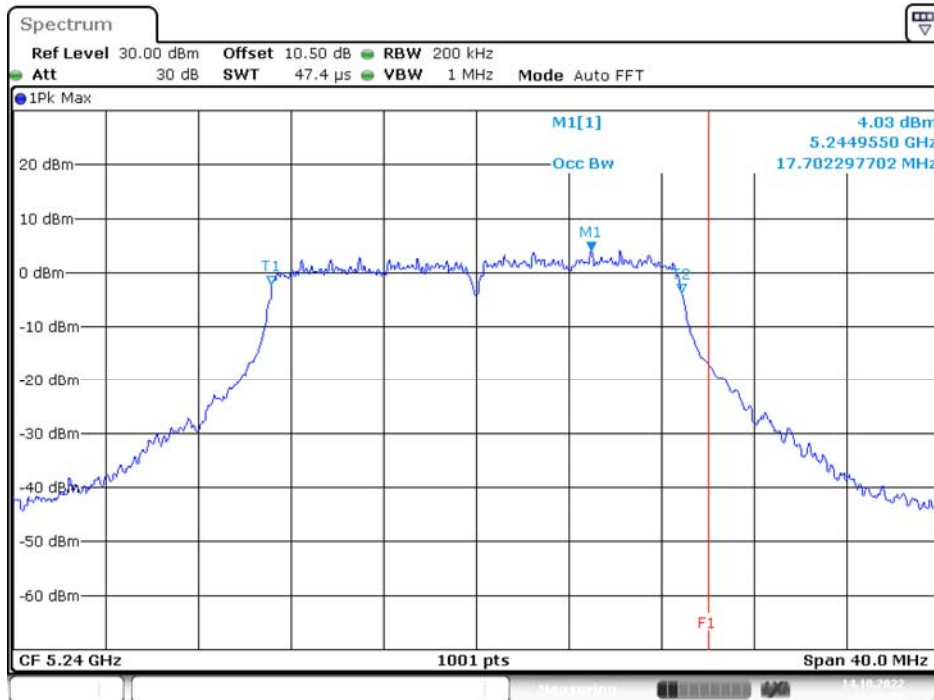
Date: 14.OCT.2022 11:12:55

5200MHz



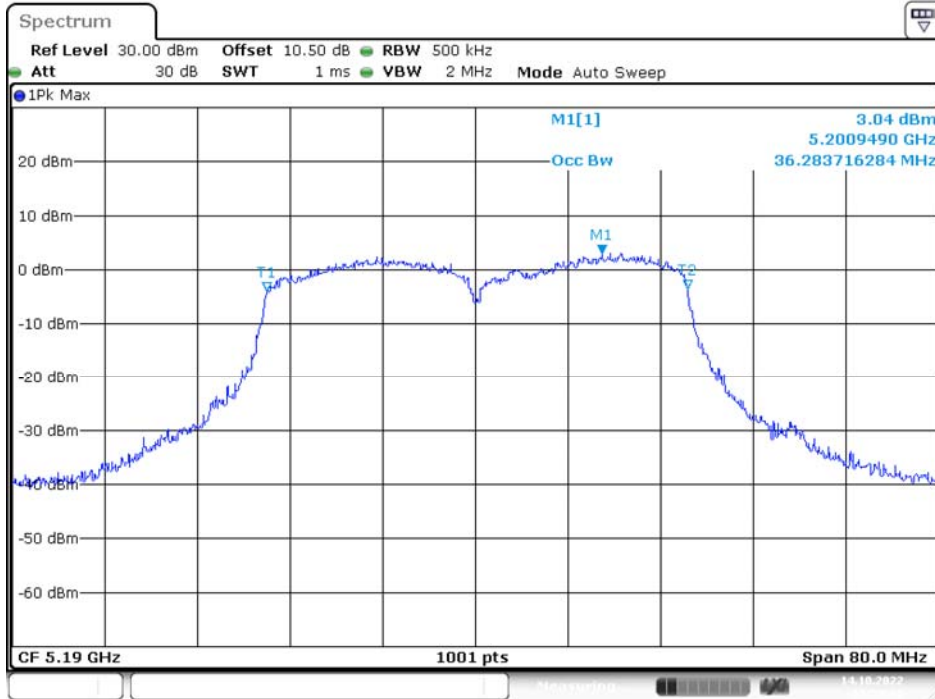
Date: 14.OCT.2022 11:14:28

5240MHz



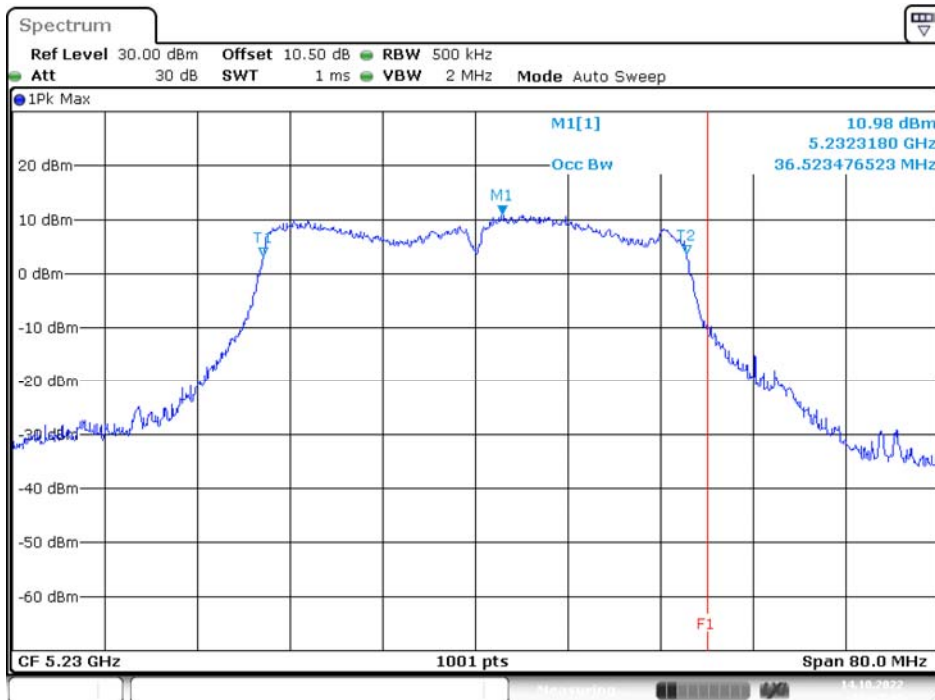
Date: 14.OCT.2022 11:16:03

IEEE 802.11ac VHT40 Mode / 5150 ~ 5250MHz (chain 0) 5190MHz



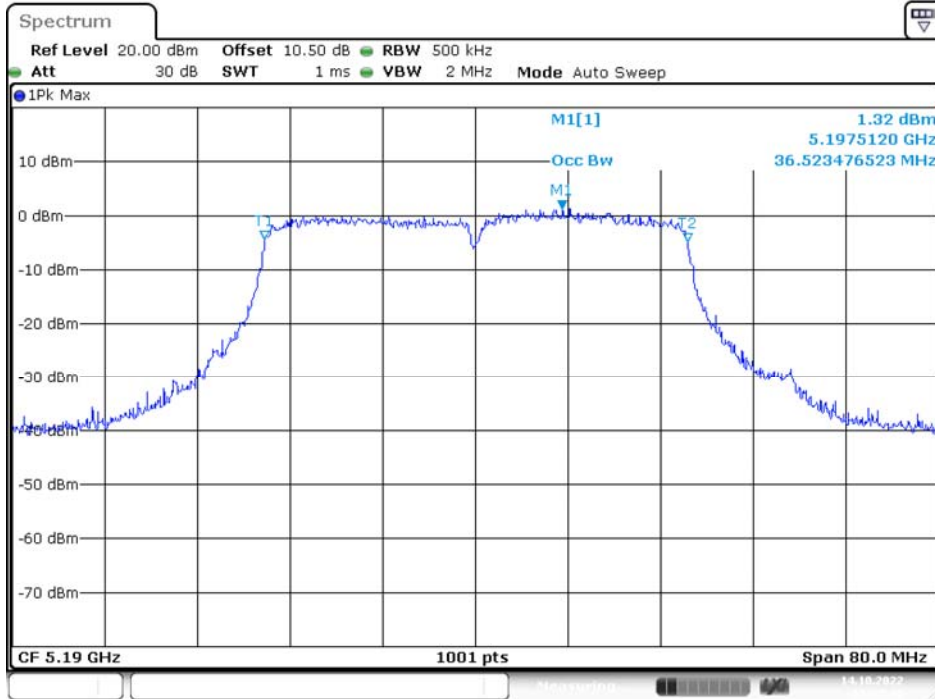
Date: 14.OCT.2022 11:59:43

5230MHz



Date: 14.OCT.2022 10:01:46

IEEE 802.11ac VHT40 Mode / 5150 ~ 5250MHz (chain 1)
5190MHz



Date: 14.OCT.2022 11:17:41

5230MHz



Date: 14.OCT.2022 11:19:23

IEEE 802.11ac VHT80 Mode / 5150 ~ 5250MHz (chain 0) 5210MHz



Date: 14.OCT.2022 10:03:44

IEEE 802.11ac VHT80 Mode / 5150 ~ 5250MHz (chain 1) 5210MHz



Date: 14.OCT.2022 11:21:26

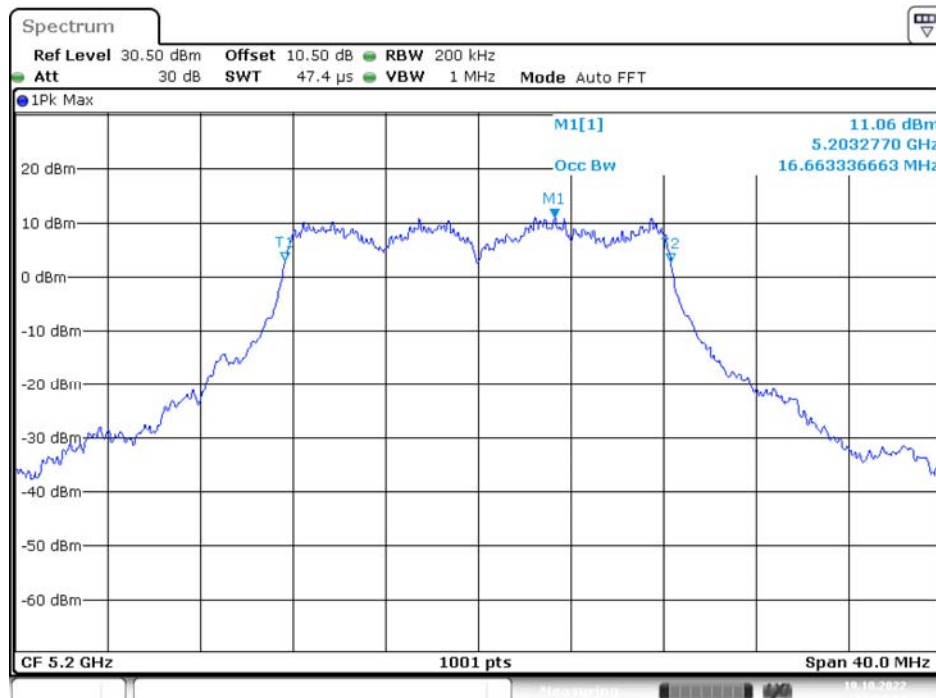
Mode 7:

IEEE 802.11a Mode / 5150 ~ 5250MHz (chain 0)
5180MHz



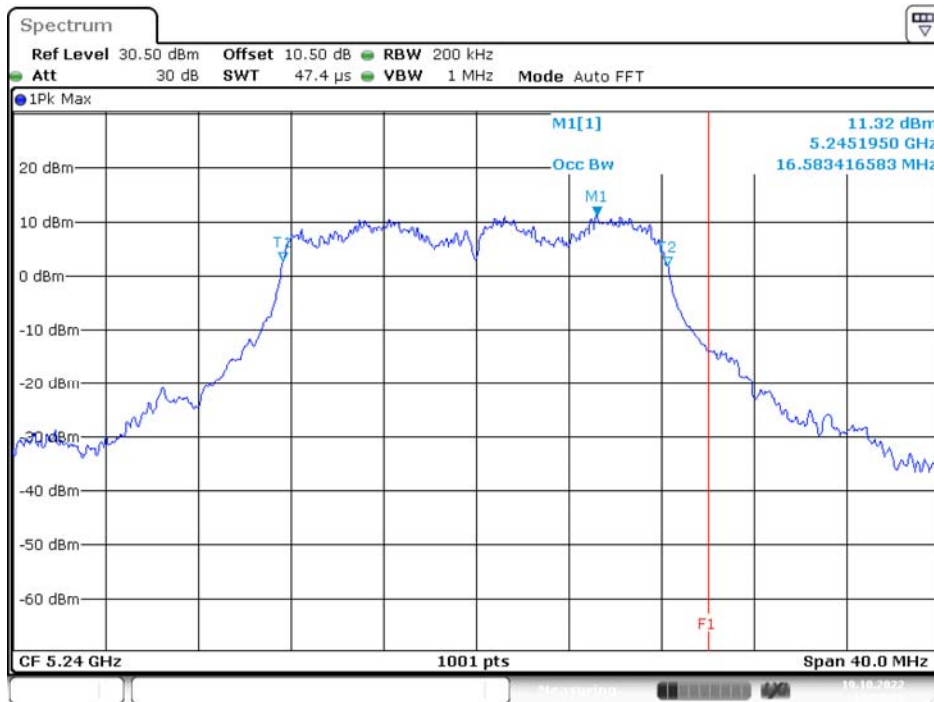
Date: 19.OCT.2022 11:49:09

5200MHz



Date: 19.OCT.2022 11:50:54

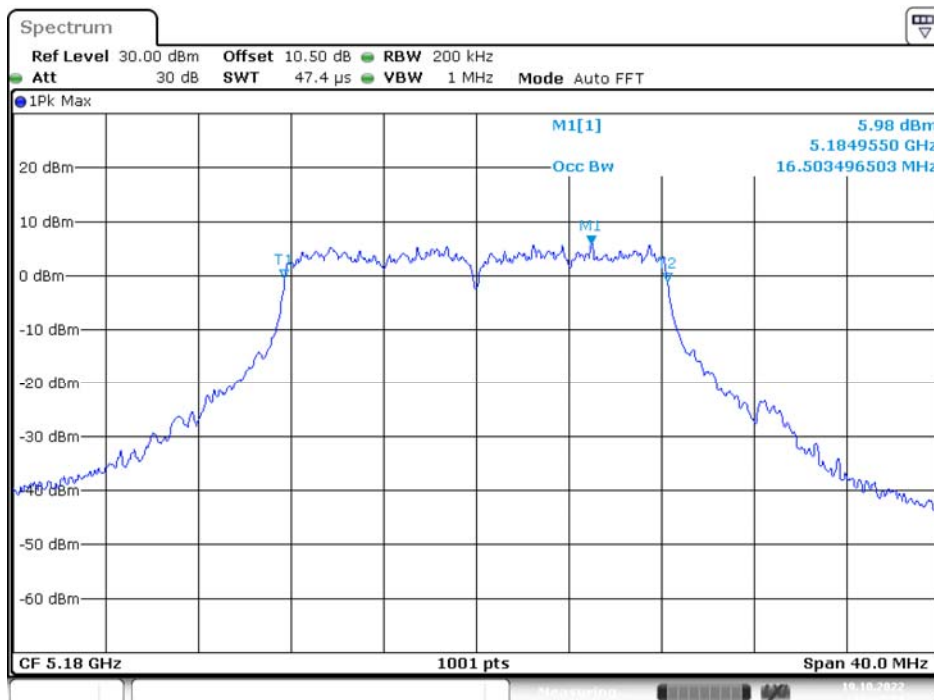
5240MHz



Date: 19.OCT.2022 11:52:22

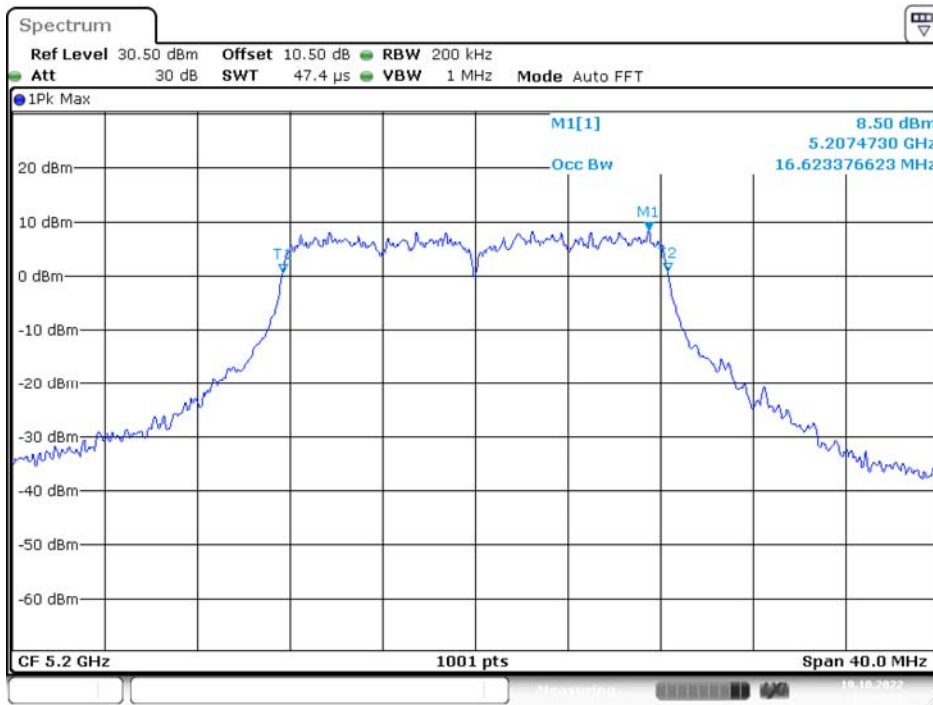
IEEE 802.11a Mode / 5150 ~ 5250MHz (chain 1)

5180MHz



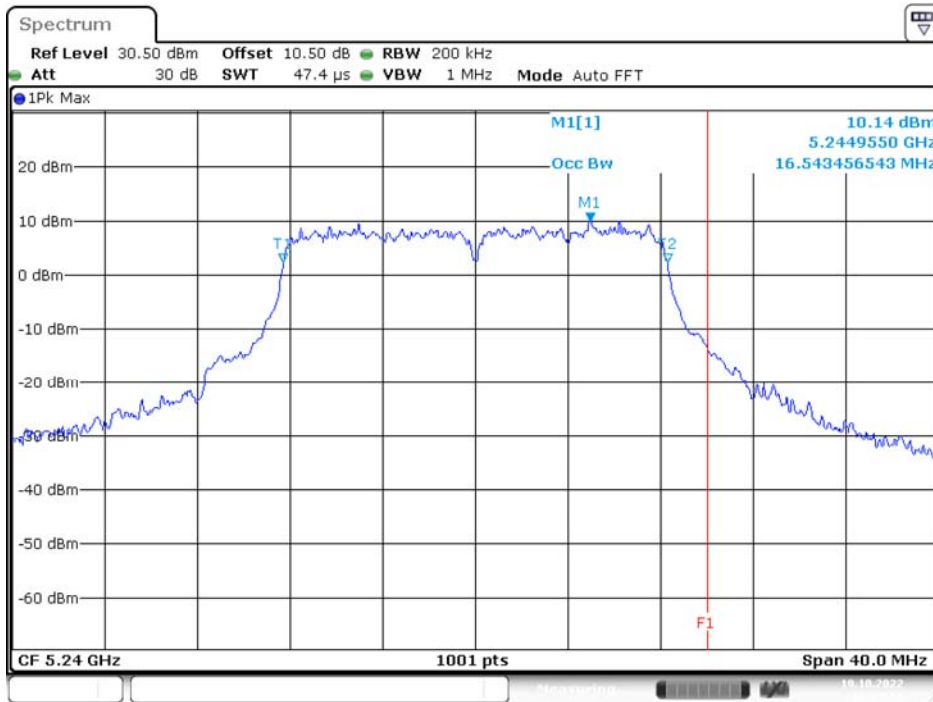
Date: 19.OCT.2022 12:07:24

5200MHz



Date: 19.OCT.2022 12:10:37

5240MHz



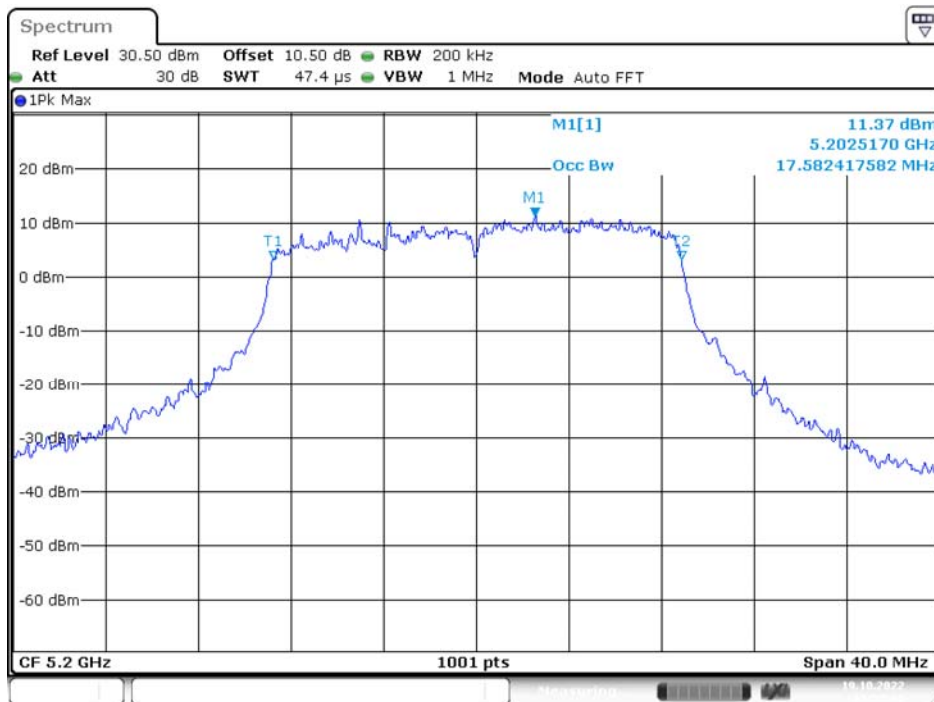
Date: 19.OCT.2022 12:12:18

IEEE 802.11ac VHT20 Mode / 5150 ~ 5250MHz (chain 0) 5180MHz



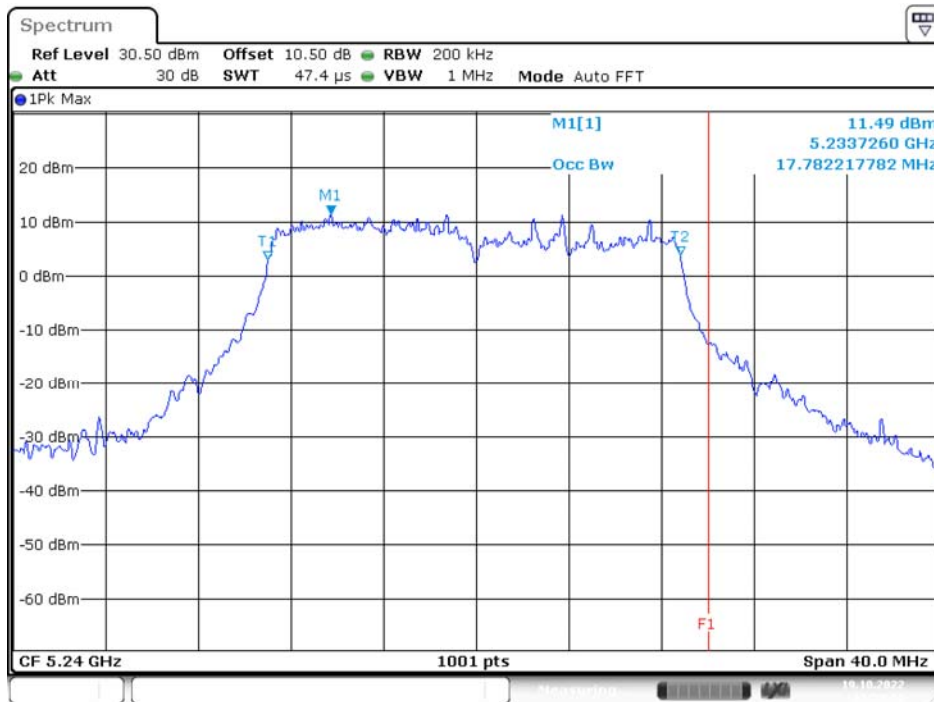
Date: 19.OCT.2022 11:56:14

5200MHz



Date: 19.OCT.2022 11:57:49

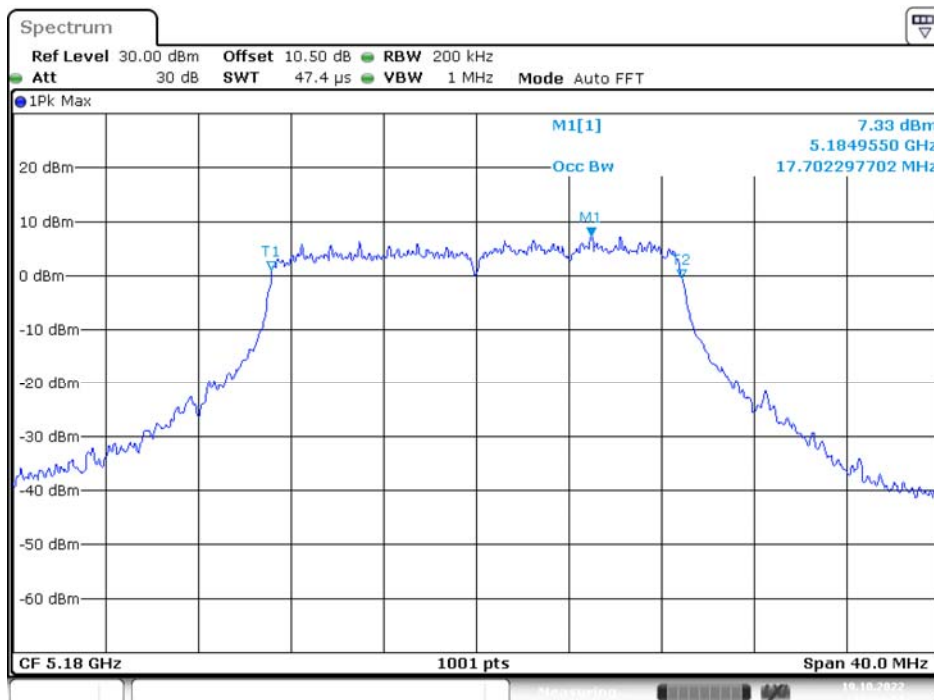
5240MHz



Date: 19.OCT.2022 11:59:17

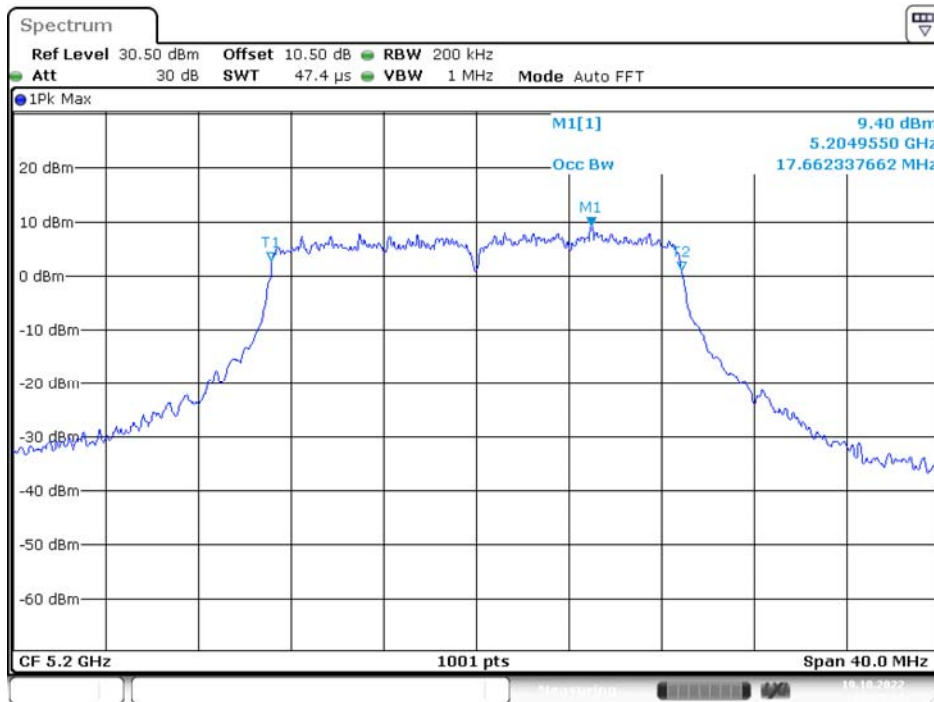
IEEE 802.11ac VHT20 Mode / 5150 ~ 5250MHz (chain 1)

5180MHz



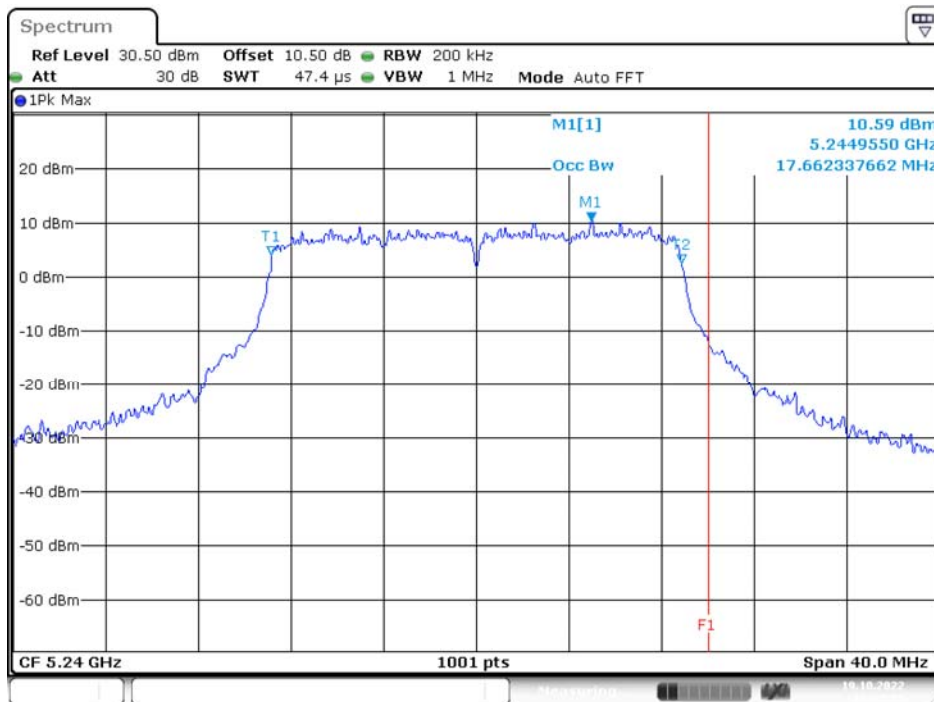
Date: 19.OCT.2022 12:14:11

5200MHz



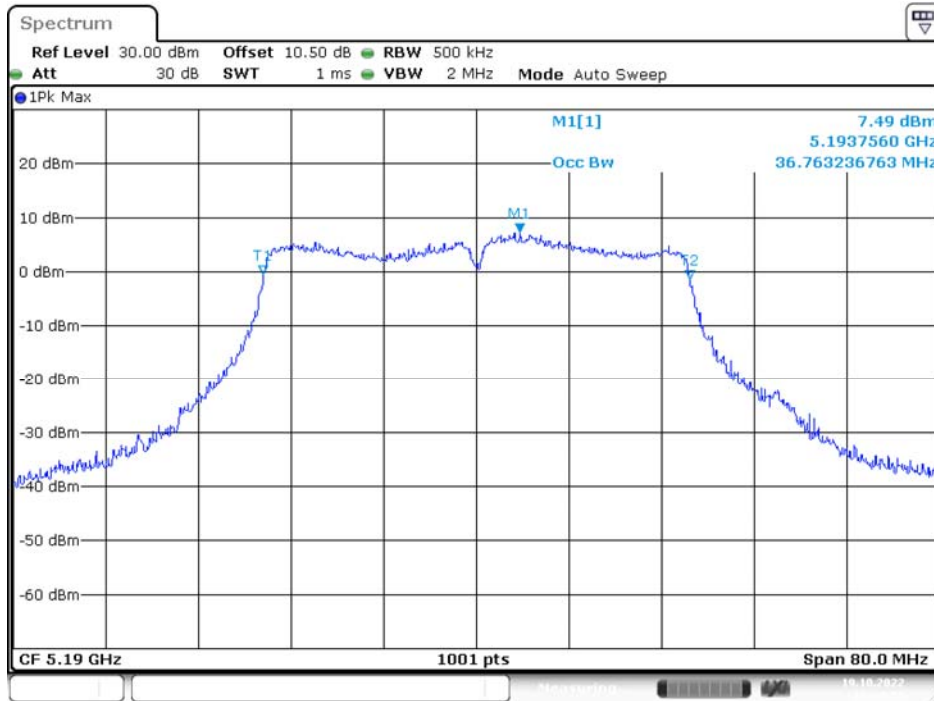
Date: 19.OCT.2022 12:15:41

5240MHz



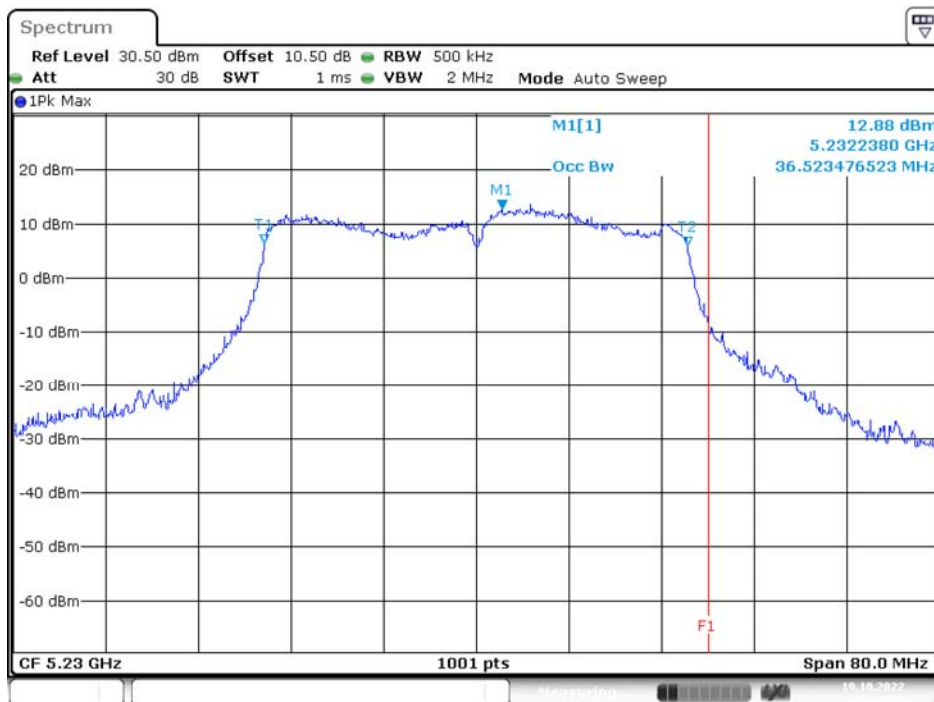
Date: 19.OCT.2022 12:17:05

IEEE 802.11ac VHT40 Mode / 5150 ~ 5250MHz (chain 0) 5190MHz



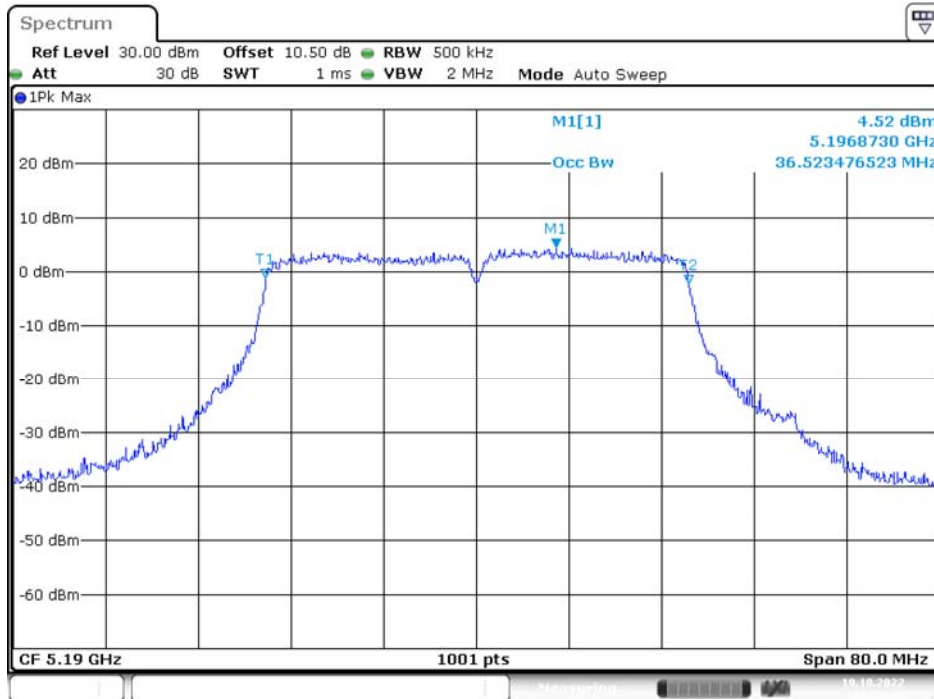
Date: 19.OCT.2022 12:00:55

5230MHz



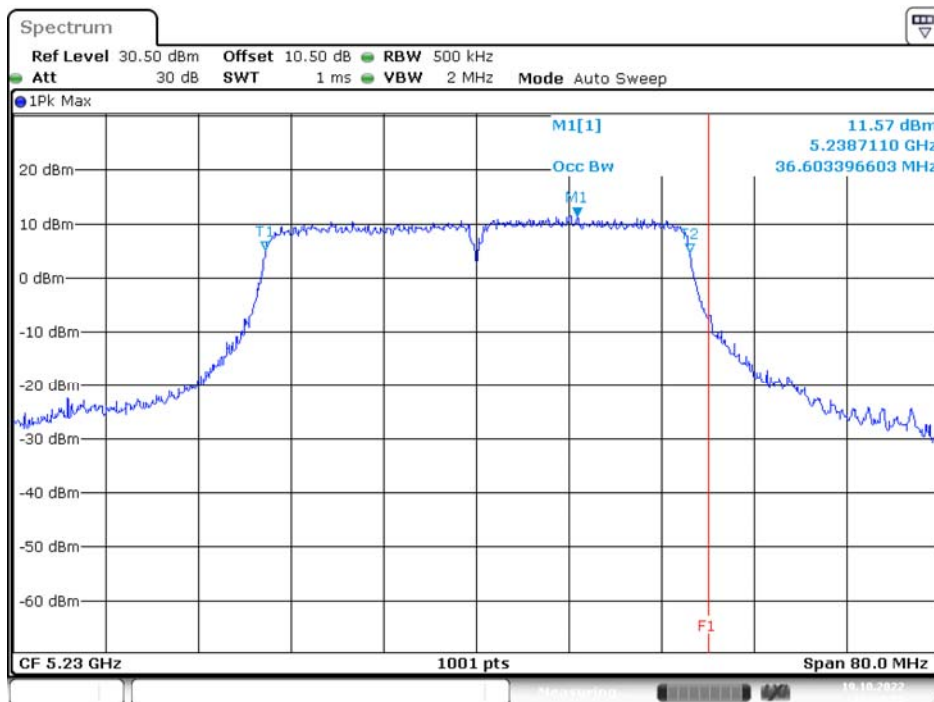
Date: 19.OCT.2022 12:02:36

IEEE 802.11ac VHT40 Mode / 5150 ~ 5250MHz (chain 1) 5190MHz



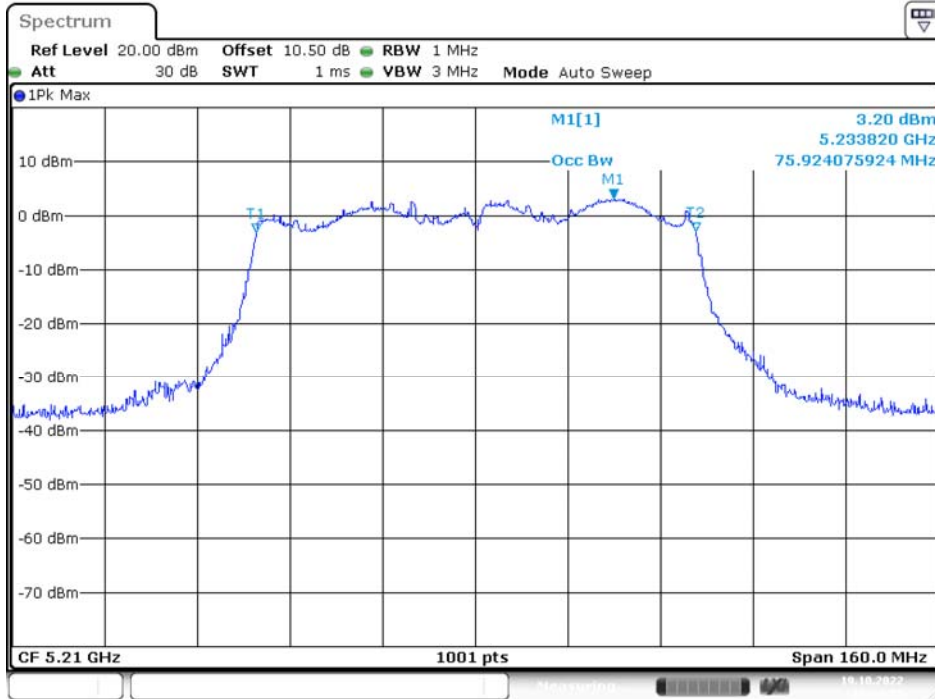
Date: 19.OCT.2022 12:18:46

5230MHz



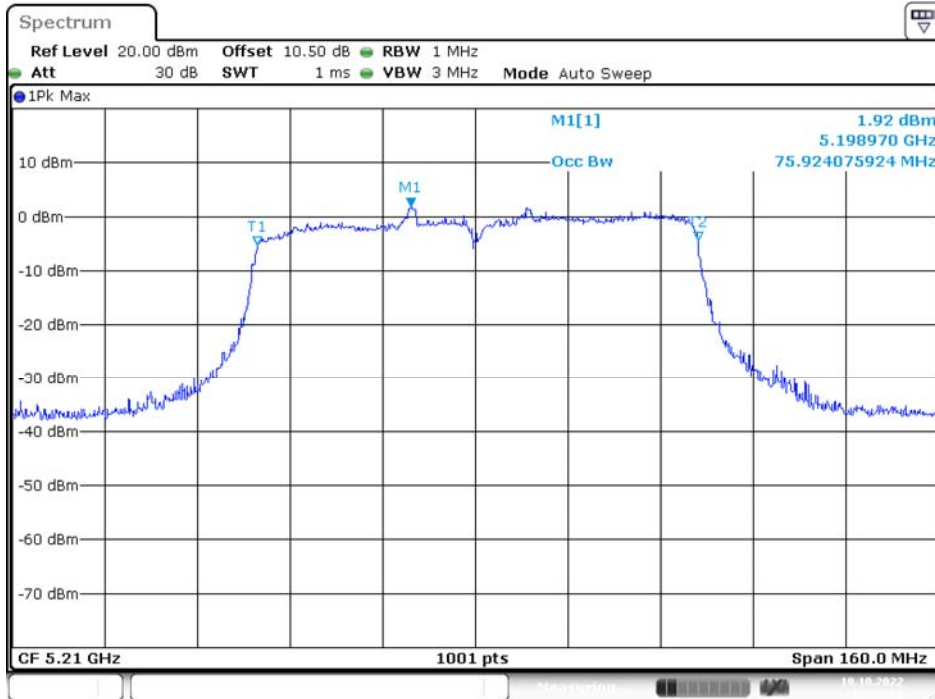
Date: 19.OCT.2022 12:20:21

IEEE 802.11ac VHT80 Mode / 5150 ~ 5250MHz (chain 0)
5210MHz



Date: 19.OCT.2022 12:04:23

IEEE 802.11ac VHT80 Mode / 5150 ~ 5250MHz (chain 1)
5210MHz



Date: 19.OCT.2022 12:22:13

10 FCC §15.407(a) – Maximum Output Power

10.1 Applicable Standard

According to FCC §15.407(a)(1)(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. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. 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.

10.2 Test Procedure

The use Power Meter

1. Place the EUT on a bench and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to a Power sensor.

10.3 Test Results

Test Mode: Transmitting

Maximum Conducted Average Output Power

Mode 1:

UNII Band	Mode	Channel	Frequency (MHz)	Maximum Conducted Average Output Power (dBm)			Duty Factor (dB)	Total Maximum Conducted Average Output Power With Duty Factor (dBm)	Limit (dBm)
				Chain 0	Chain 1	Total			
UNII-1	802.11a	36	5180	8.15	7.63	10.91	0.51	11.42	30
		40	5200	8.34	7.74	11.06	0.51	11.57	30
		48	5240	8.78	8.44	11.62	0.51	12.13	30
	802.11n HT20	36	5180	7.65	7.05	10.37	0.32	10.69	30
		40	5200	7.82	7.80	10.82	0.32	11.14	30
		48	5240	7.91	7.92	10.93	0.32	11.25	30
	802.11n HT40	38	5190	1.37	1.01	4.20	0.32	4.52	30
		46	5230	1.87	1.19	4.55	0.32	4.87	30
	802.11ac VHT20	36	5180	7.72	7.22	10.49	0.18	10.67	30
		40	5200	8.06	7.39	10.75	0.18	10.93	30
		48	5240	8.54	7.97	11.27	0.18	11.45	30
	802.11ac VHT40	38	5190	1.37	1.02	4.21	0.32	4.53	30
		46	5230	1.94	1.19	4.59	0.32	4.91	30
	802.11ac VHT80	42	5210	-3.28	-4.47	-0.82	0.71	-0.11	30

The device is a point-to-point access points. the 2 antenna maximum antenna gain are 15dBi, and employed Cyclic Delay

Diversity (CDD) for 802.11 MIMO transmitting, per KDB 662911 D01 Multiple Transmitter Output v02r01,

For power measurements on IEEE 802.11 devices, Array Gain = 0 dB (i.e., no array gain) for NANT ≤ 4.

The device have two antenna, so array gain is 0 dB.

Mode 5:

UNII Band	Mode	Channel	Frequency (MHz)	Maximum Conducted Average Output Power (dBm)			Duty Factor (dB)	Total Maximum Conducted Average Output Power With Duty Factor (dBm)	Limit (dBm)
				Chain 0	Chain 1	Total			
UNII-1	802.11a	36	5180	17.50	15.02	19.44	0.51	19.95	30
		40	5200	18.13	15.25	19.93	0.51	20.44	30
		48	5240	16.25	14.27	18.38	0.51	18.89	30
	802.11n HT20	36	5180	16.88	14.60	18.90	0.32	19.22	30
		40	5200	17.78	14.91	19.59	0.32	19.91	30
		48	5240	16.33	13.79	18.25	0.32	18.57	30
	802.11n HT40	38	5190	12.76	9.79	14.53	0.32	14.85	30
		46	5230	19.85	17.23	21.74	0.32	22.06	30
	802.11ac VHT20	36	5180	17.46	14.65	19.29	0.18	19.47	30
		40	5200	17.78	14.91	19.59	0.18	19.77	30
		48	5240	16.31	13.71	18.21	0.18	18.39	30
	802.11ac VHT40	38	5190	12.61	9.75	14.42	0.32	14.74	30
		46	5230	20.52	18.31	22.56	0.32	22.88	30
	802.11ac VHT80	42	5210	10.87	8.12	12.72	0.71	13.43	30

The device is a point-to-point access points. the 2 antenna maximum antenna gain are 8.16dBi, and employed Cyclic Delay Diversity (CDD) for 802.11 MIMO transmitting, per KDB 662911 D01 Multiple Transmitter Output v02r01, For power measurements on IEEE 802.11 devices, Array Gain = 0 dB (i.e., no array gain) for NANT ≤ 4. The device have two antenna, so array gain is 0 dB.

Mode 7:

UNII Band	Mode	Channel	Frequency (MHz)	Maximum Conducted Average Output Power (dBm)			Duty Factor (dB)	Total Maximum Conducted Average Output Power With Duty Factor (dBm)	Limit (dBm)
				Chain 0	Chain 1	Total			
UNII-1	802.11a	36	5180	18.53	16.03	20.47	0.51	20.98	30
		40	5200	20.59	18.42	22.65	0.51	23.16	30
		48	5240	21.37	19.69	23.62	0.51	24.13	30
	802.11n HT20	36	5180	19.33	17.24	21.42	0.32	21.74	30
		40	5200	21.15	18.53	23.04	0.32	23.36	30
		48	5240	21.19	19.57	23.47	0.32	23.79	30
	802.11n HT40	38	5190	14.95	12.98	17.09	0.32	17.41	30
		46	5230	21.13	19.59	23.44	0.32	23.76	30
	802.11ac VHT20	36	5180	19.21	17.23	21.34	0.18	21.52	30
		40	5200	21.19	18.50	23.06	0.18	23.24	30
		48	5240	21.76	19.78	23.89	0.18	24.07	30
	802.11ac VHT40	38	5190	14.91	12.94	17.05	0.32	17.37	30
		46	5230	21.66	19.70	23.80	0.32	24.12	30
	802.11ac VHT80	42	5210	10.10	7.94	12.16	0.71	12.87	30

The device is a point-to-point access points. the 2 antenna maximum antenna gain are 2dBi, and employed Cyclic Delay Diversity (CDD) for 802.11 MIMO transmitting, per KDB 662911 D01 Multiple Transmitter Output v02r01, For power measurements on IEEE 802.11 devices, Array Gain = 0 dB (i.e., no array gain) for NANT ≤ 4. The device have two antenna, so array gain is 0 dB.

11 FCC § 15.407(a) – Power Spectral Density

11.1 Applicable Standard

According to FCC §15.407(a)(1)(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. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. 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.

11.2 Test Procedure

The measurements are base on FCC KDB 789033 D02 General UNII Test Proceдыres New Rules v02r01: Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices section F: Maximum power spectral density (PPSD)

11.3 Test Results

Test Mode: Transmitting

Mode 1 :

UNII Band	Mode	Channel	Frequency (MHz)	Power Spectral Density (dBm/MHz)			Duty Factor (dB)	Power Spectral Density with duty factor (dBm/MHz)	Limit (dBm/MHz)
				Chain 0	Chain 1	Total			
UNII-1	802.11a	36	5180	4.50	4.82	7.67	0.51	8.18	17
		40	5200	4.90	4.86	7.89	0.51	8.40	17
		48	5240	5.15	5.31	8.24	0.51	8.75	17
	802.11ac VHT20	36	5180	3.75	3.09	6.44	0.18	6.62	17
		40	5200	4.45	3.01	6.80	0.18	6.98	17
		48	5240	4.00	3.20	6.63	0.18	6.81	17
	802.11ac VHT40	38	5190	-5.14	-5.93	-2.51	0.32	-2.19	17
		46	5230	-5.45	-6.32	-2.85	0.32	-2.53	17
	802.11ac VHT80	42	5210	-11.47	-12.01	-8.72	0.71	-8.01	17

The device is a point-to-point access points. the 2 antenna maximum antenna gain are 15dBi, and 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:

Array Gain = 10 log(NANT/NSS) dB.

So:

Directional gain = GANT + Array Gain = 15+10*log(2) = 18.01 dBi < 23 dBi

Mode 5 :

UNII Band	Mode	Channel	Frequency (MHz)	Power Spectral Density (dBm/MHz)			Duty Factor (dB)	Power Spectral Density with duty factor (dBm/MHz)	Limit (dBm/MHz)
				Chain 0	Chain 1	Total			
UNII-1	802.11a	36	5180	12.13	11.37	14.78	0.51	15.29	17
		40	5200	12.95	12.28	15.64	0.51	16.15	17
		48	5240	11.67	11.21	14.46	0.51	14.97	17
	802.11ac VHT20	36	5180	12.18	9.95	14.22	0.18	14.40	17
		40	5200	12.40	10.42	14.53	0.18	14.71	17
		48	5240	10.54	9.42	13.03	0.18	13.21	17
	802.11ac VHT40	38	5190	4.54	2.10	6.50	0.32	6.82	17
		46	5230	12.21	11.42	14.84	0.32	15.16	17
	802.11ac VHT80	42	5210	0.98	-0.90	3.15	0.71	3.86	17

The device is a point-to-point access points. the 2 antenna maximum antenna gain are 8.16dBi, and 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:

Array Gain = 10 log(NANT/NSS) dB.

So:

Directional gain = GANT + Array Gain = 8.16+10*log(2) = 11.17 dBi < 23 dBi

Mode 7 :

UNII Band	Mode	Channel	Frequency (MHz)	Power Spectral Density (dBm/MHz)			Duty Factor (dB)	Power Spectral Density with duty factor (dBm/MHz)	Limit (dBm/MHz)
				Chain 0	Chain 1	Total			
UNII-1	802.11a	36	5180	9.29	6.45	11.11	0.51	11.62	17
		40	5200	11.37	9.00	13.36	0.51	13.87	17
		48	5240	11.94	10.67	14.36	0.51	14.87	17
	802.11ac VHT20	36	5180	10.04	7.11	11.83	0.18	12.01	17
		40	5200	11.41	8.83	13.32	0.18	13.50	17
		48	5240	11.50	10.00	13.82	0.18	14.00	17
	802.11ac VHT40	38	5190	2.94	0.11	4.76	0.32	5.08	17
		46	5230	9.08	7.06	11.20	0.32	11.52	17
	802.11ac VHT80	42	5210	-3.80	-5.90	-1.71	0.71	-1.00	17

The device is a point-to-point access points. the 2 antenna maximum antenna gain are 2dBi, and 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:

Array Gain = 10 log(NANT/NSS) dB.

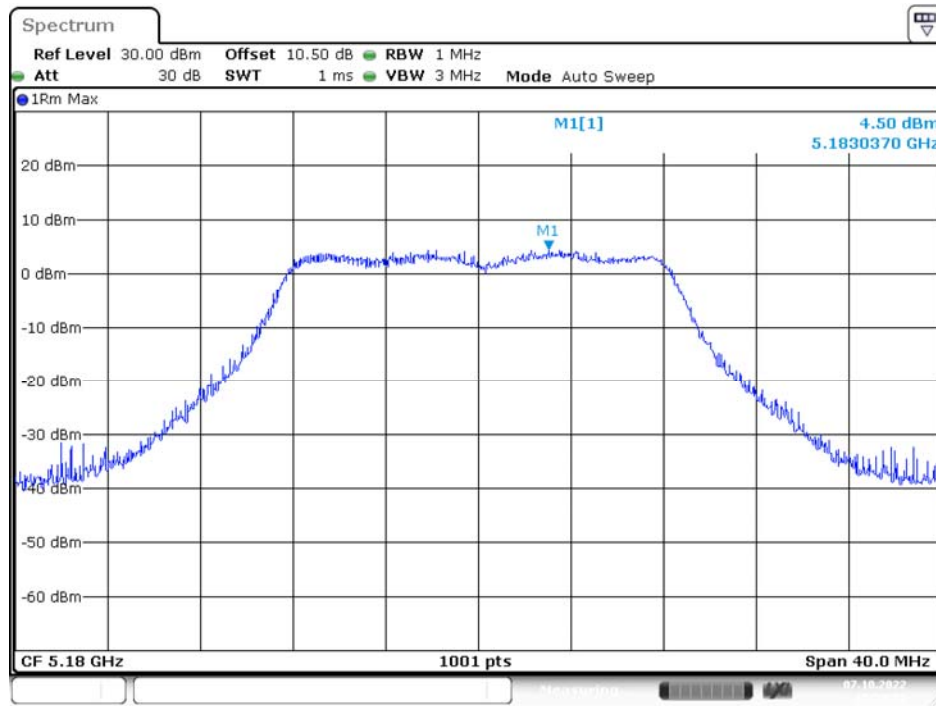
So:

Directional gain = GANT + Array Gain = 2+10*log(2) = 5.01 dBi < 23 dB

Please refer to the following plot

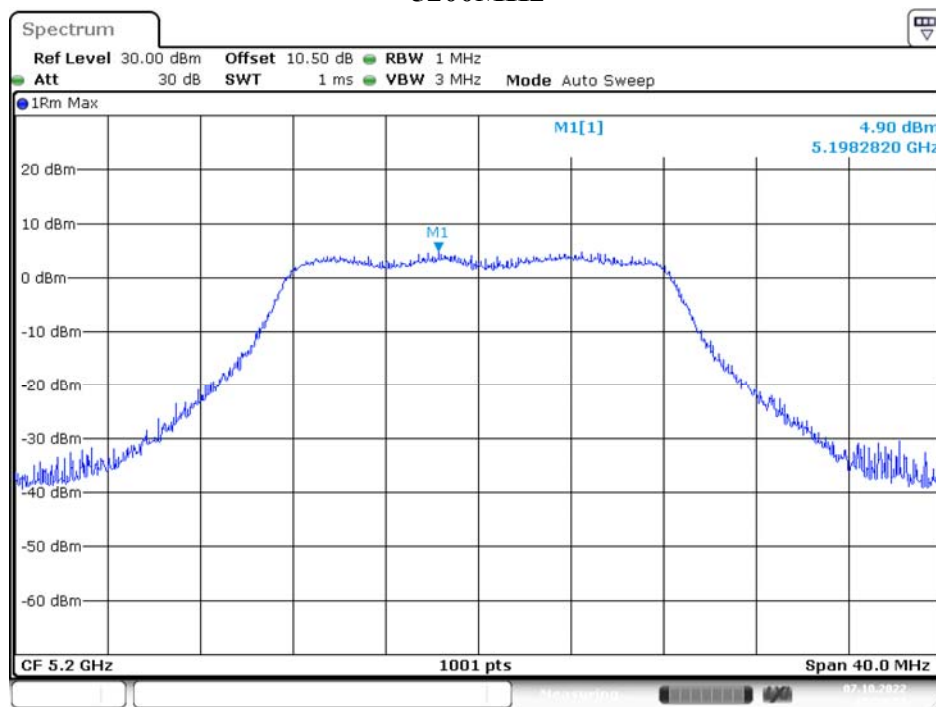
UNII-1 Band I PSD

Mode 1:
IEEE 802.11a Mode / 5150 ~ 5250MHz (chain 0)
5180MHz



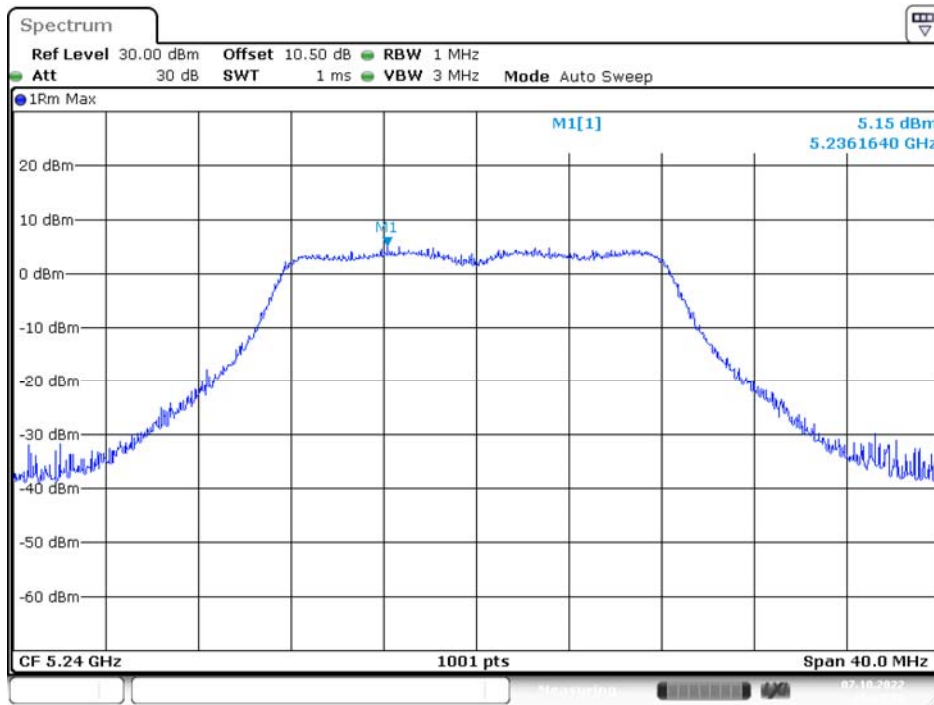
Date: 7.OCT.2022 15:58:22

5200MHz



Date: 7.OCT.2022 15:59:51

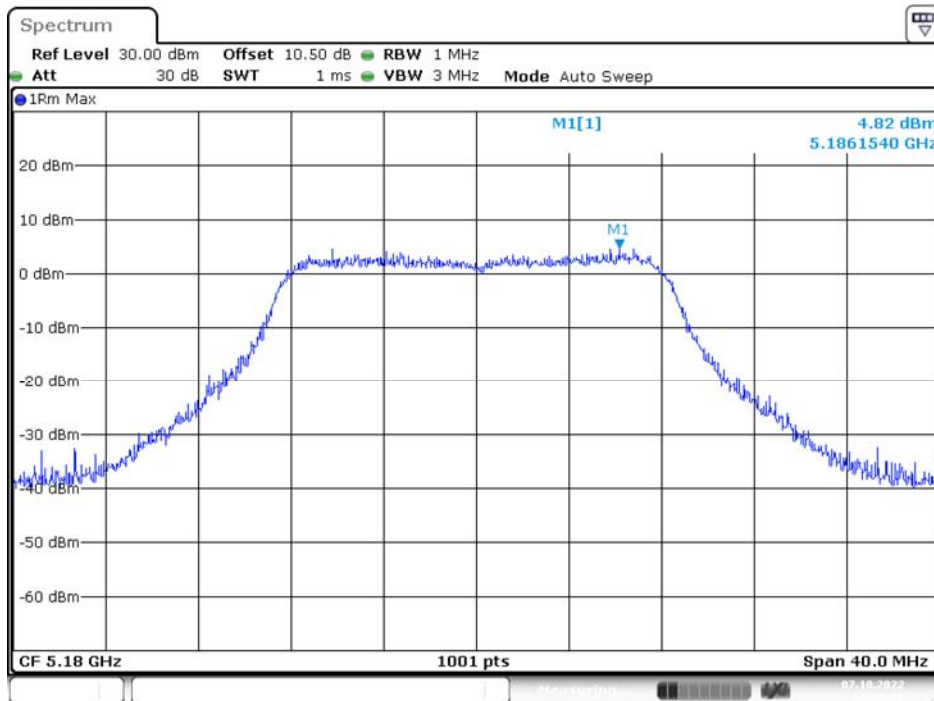
5240MHz



Date: 7.OCT.2022 16:01:29

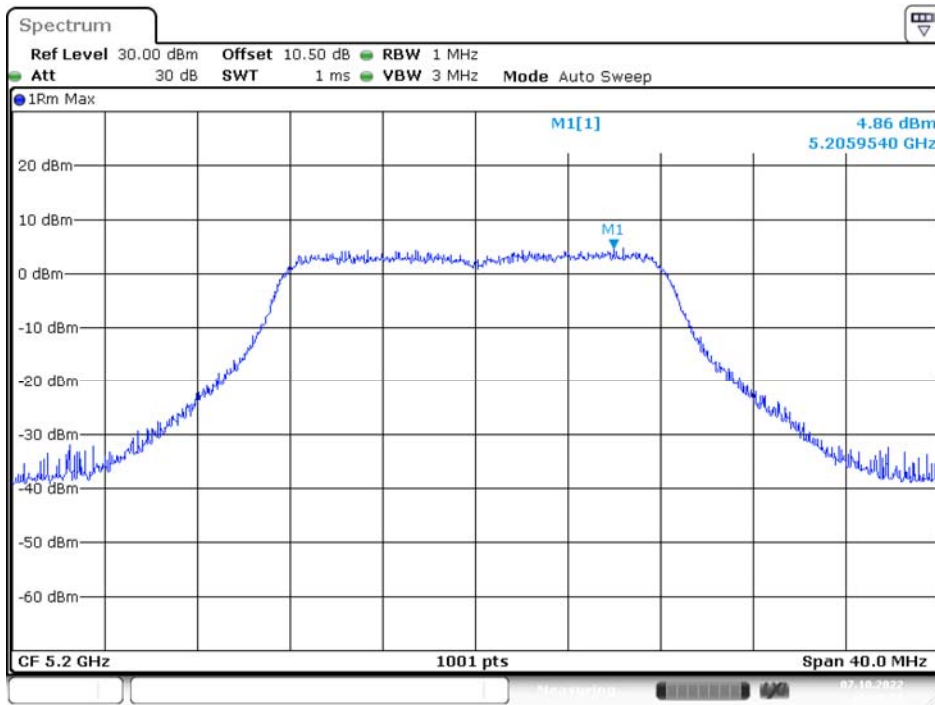
IEEE 802.11a Mode / 5150 ~ 5250MHz (chain 1)

5180MHz



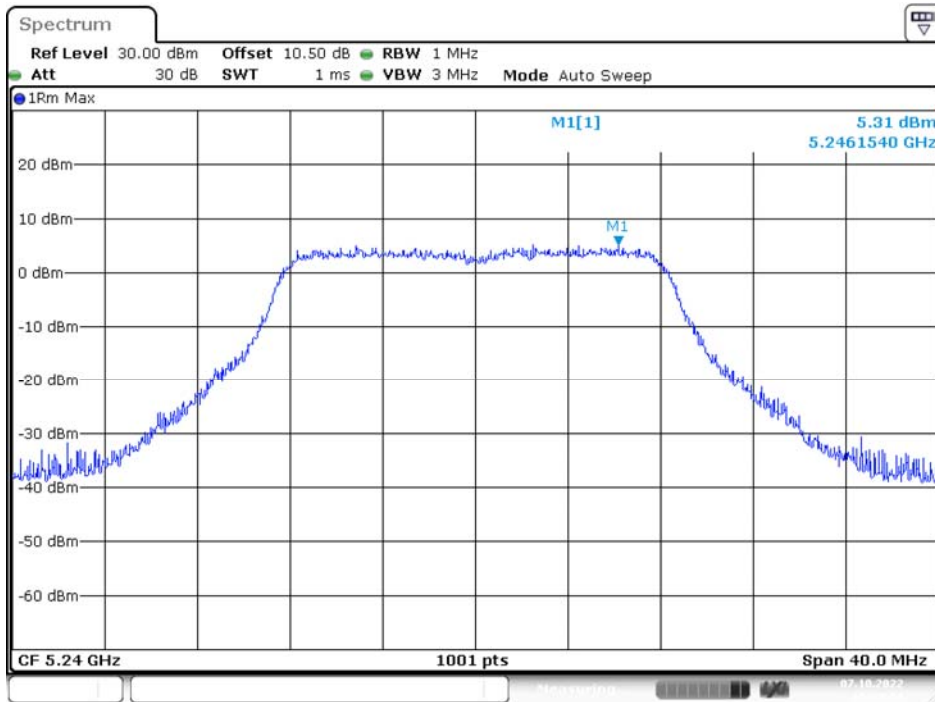
Date: 7.OCT.2022 16:15:26

5200MHz



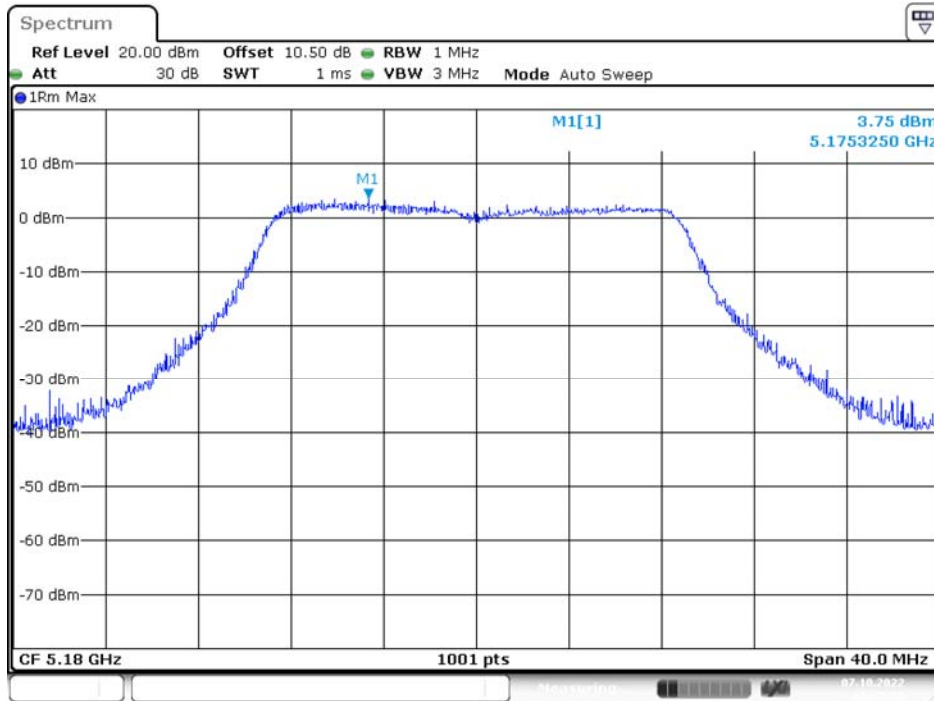
Date: 7.OCT.2022 16:16:51

5240MHz



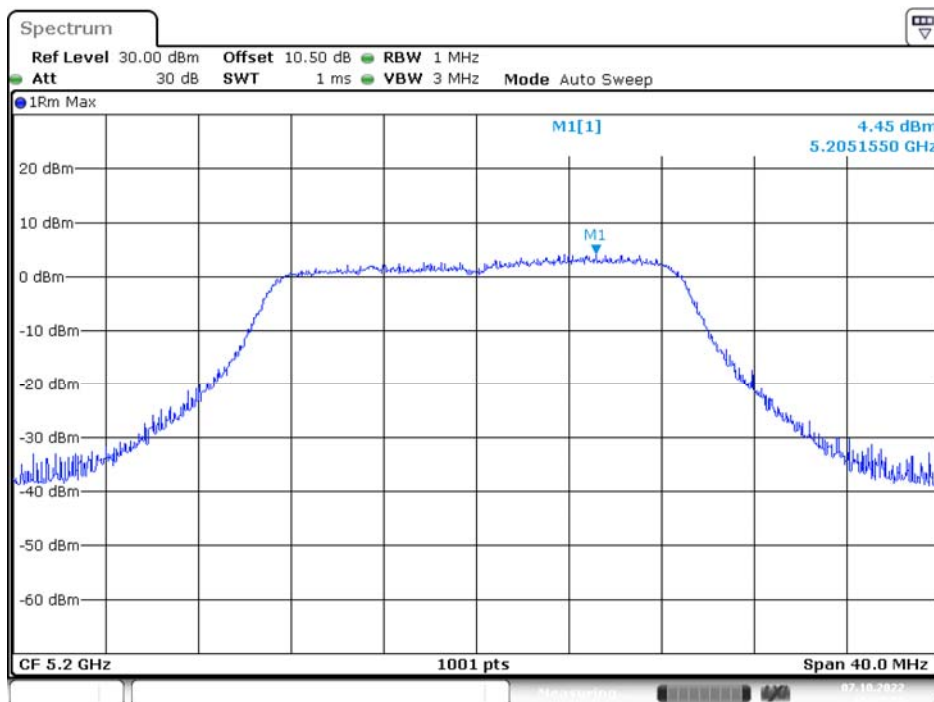
Date: 7.OCT.2022 16:18:14

IEEE 802.11ac VHT20 Mode / 5150 ~ 5250MHz (chain 0) 5180MHz



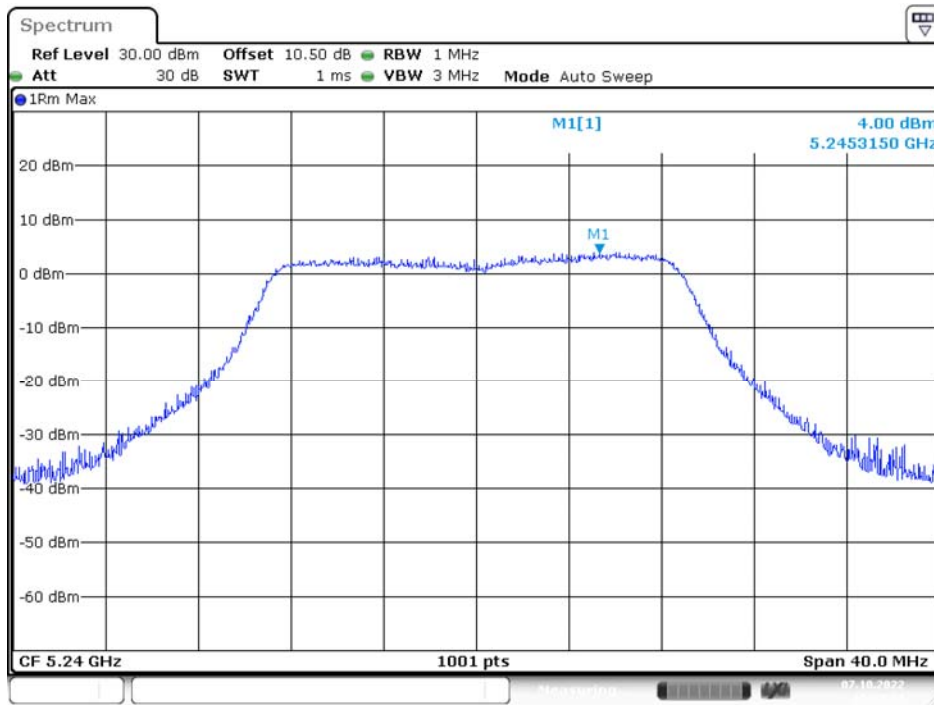
Date: 7.OCT.2022 16:35:40

5200MHz



Date: 7.OCT.2022 16:37:08

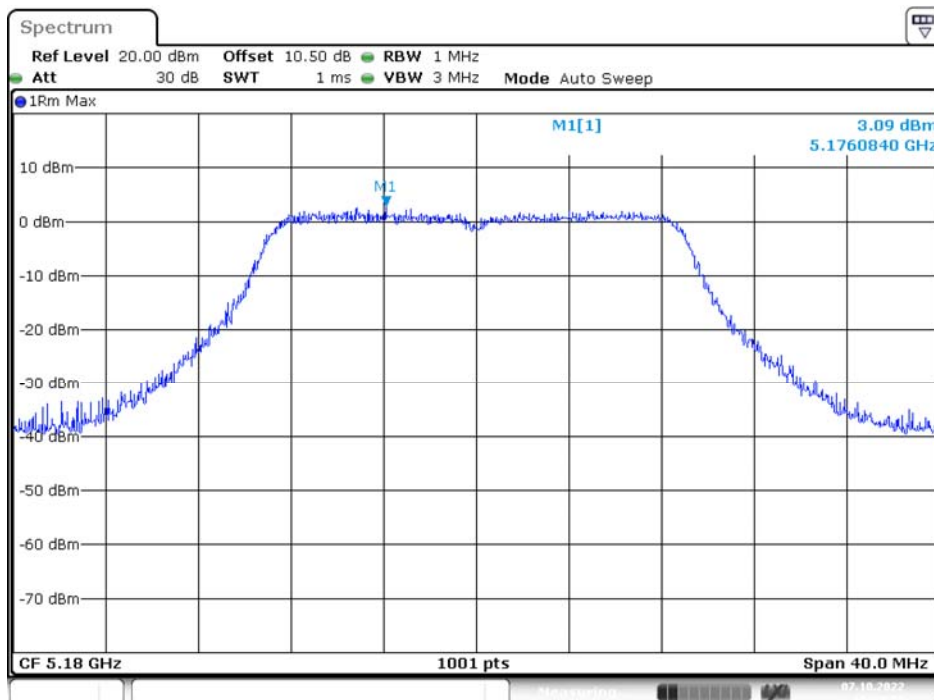
5240MHz



Date: 7.OCT.2022 16:38:34

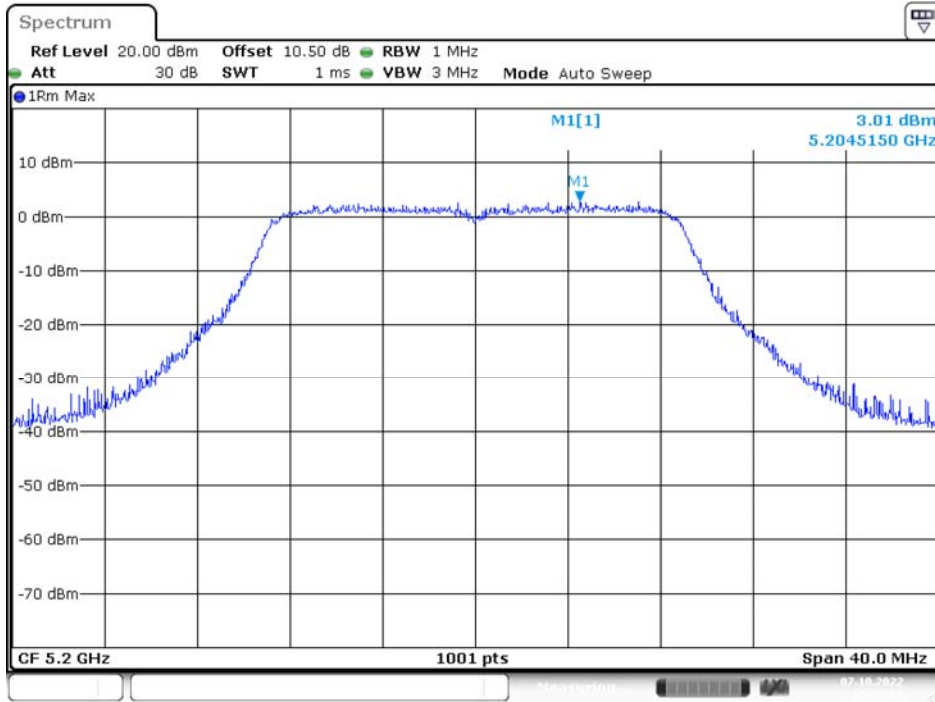
IEEE 802.11ac VHT20 Mode / 5150 ~ 5250MHz (chain 1)

5180MHz



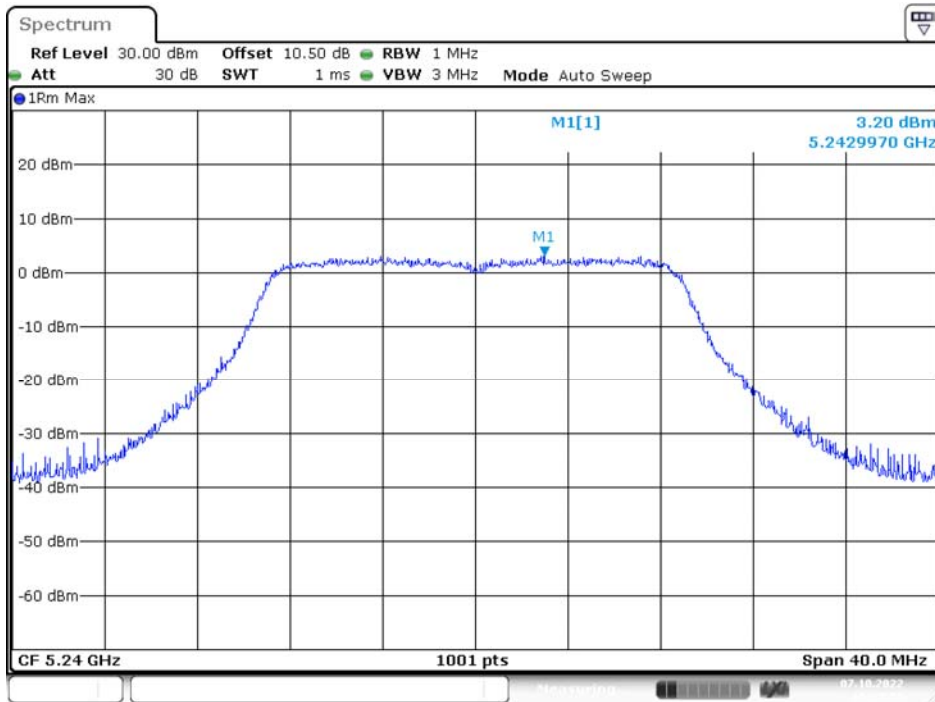
Date: 7.OCT.2022 16:20:00

5200MHz



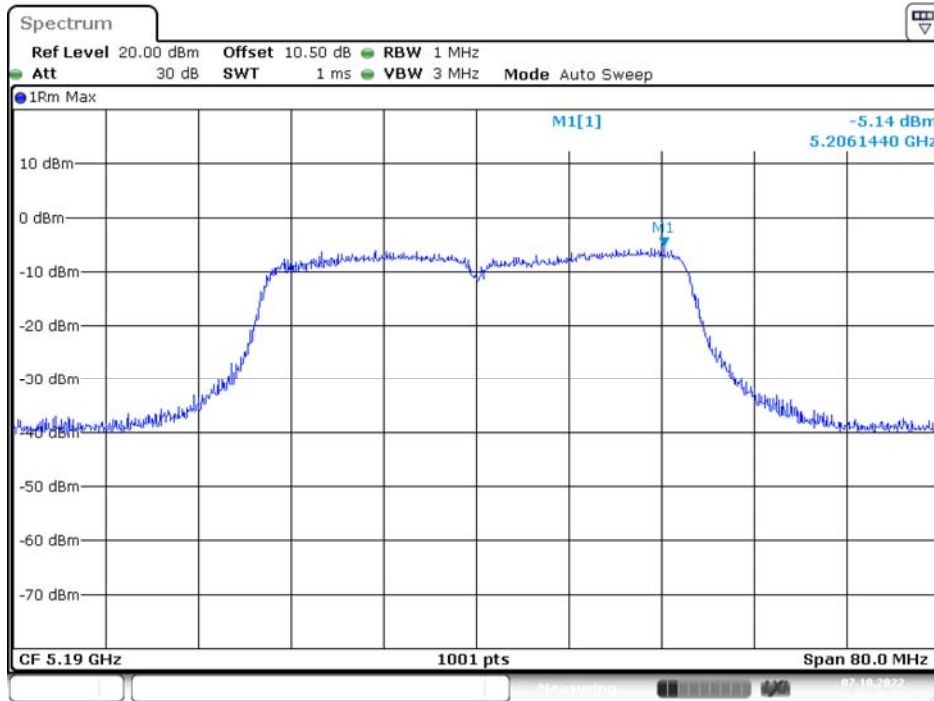
Date: 7.OCT.2022 16:21:27

5240MHz



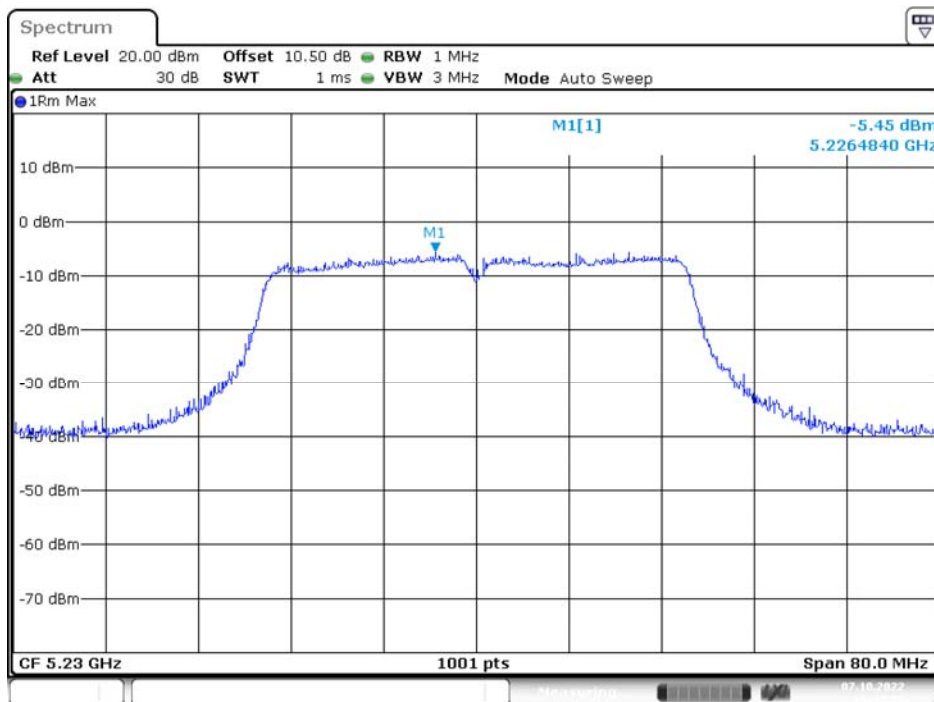
Date: 7.OCT.2022 16:22:57

IEEE 802.11ac VHT40 Mode / 5150 ~ 5250MHz (chain 0) 5190MHz



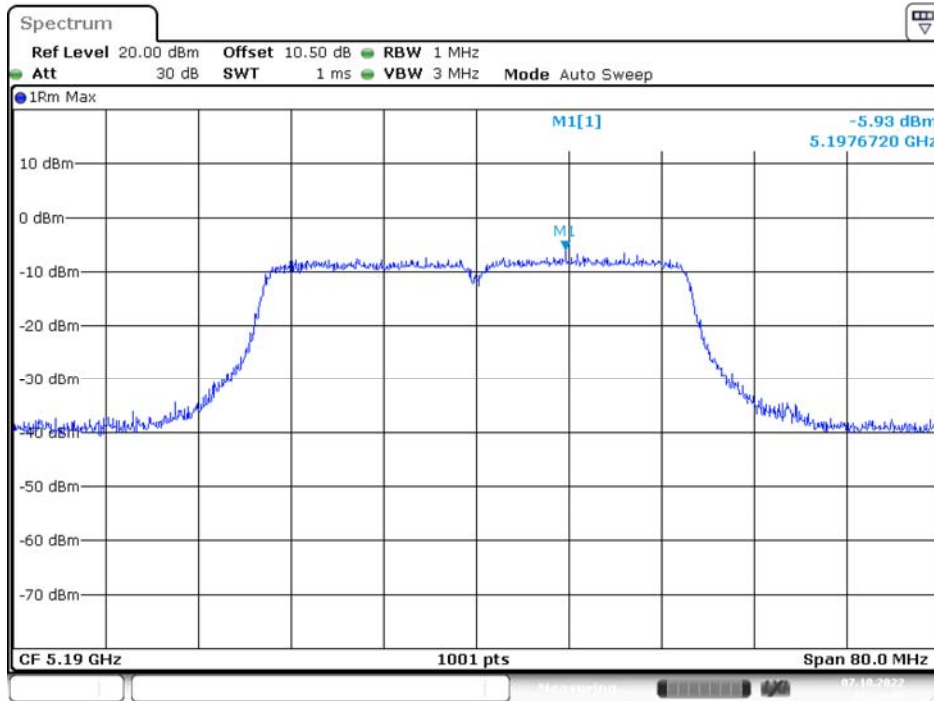
Date: 7.OCT.2022 16:40:38

5230MHz



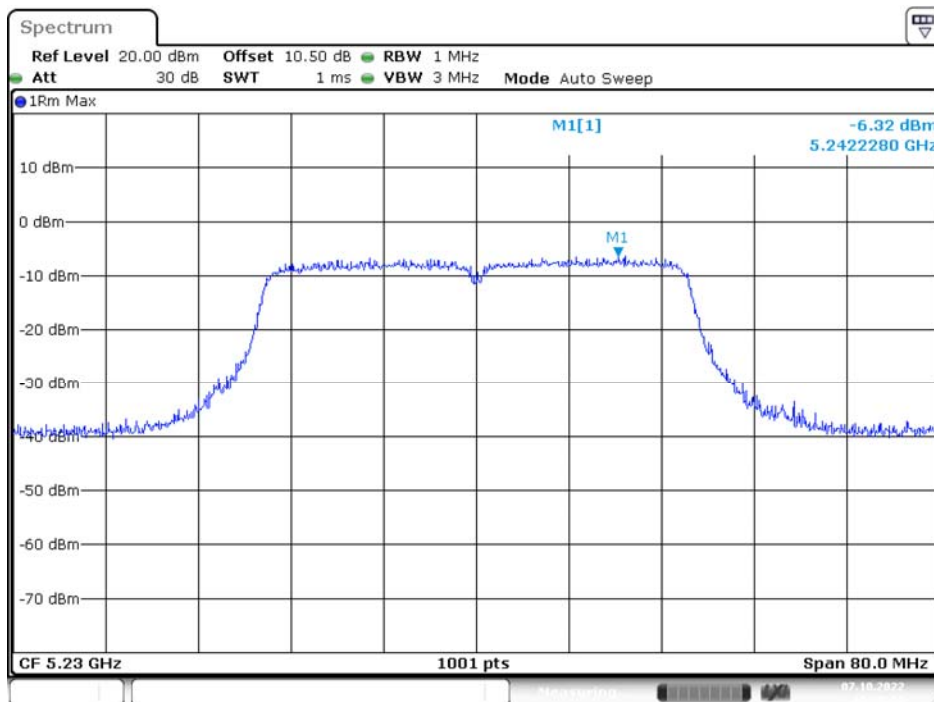
Date: 7.OCT.2022 16:42:24

IEEE 802.11ac VHT40 Mode / 5150 ~ 5250MHz (chain 1) 5190MHz



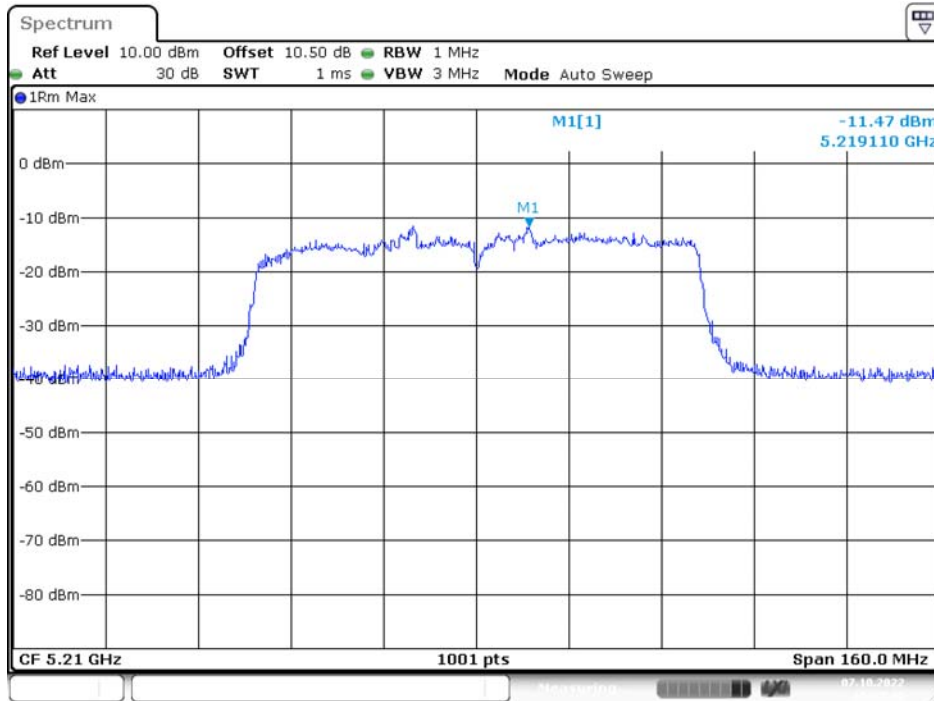
Date: 7.OCT.2022 16:24:40

5230MHz



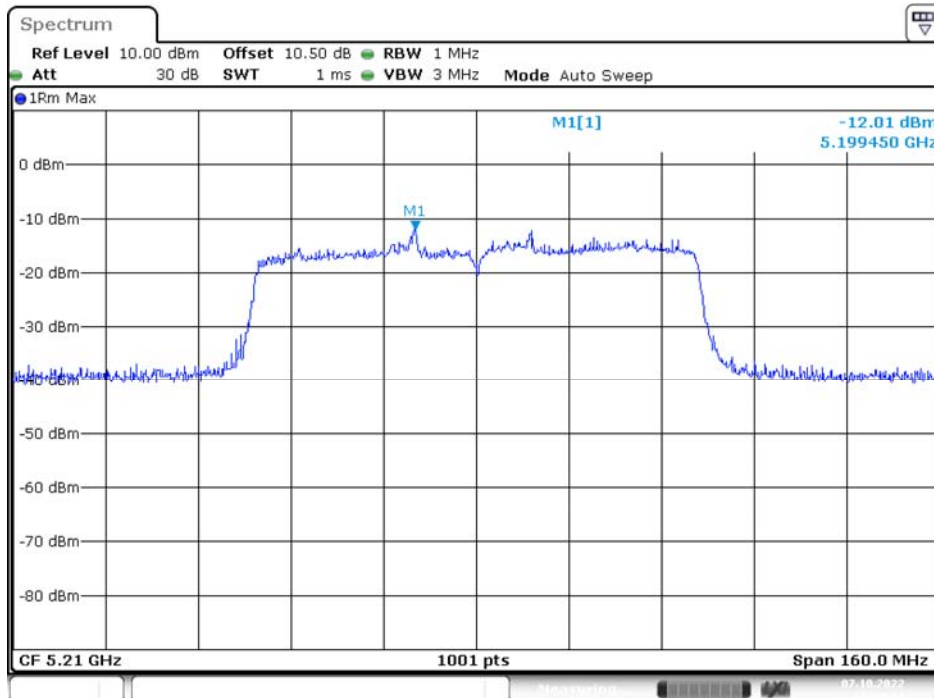
Date: 7.OCT.2022 16:26:19

IEEE 802.11ac VHT80 Mode / 5150 ~ 5250MHz (chain 0) 5210MHz



Date: 7.OCT.2022 16:11:46

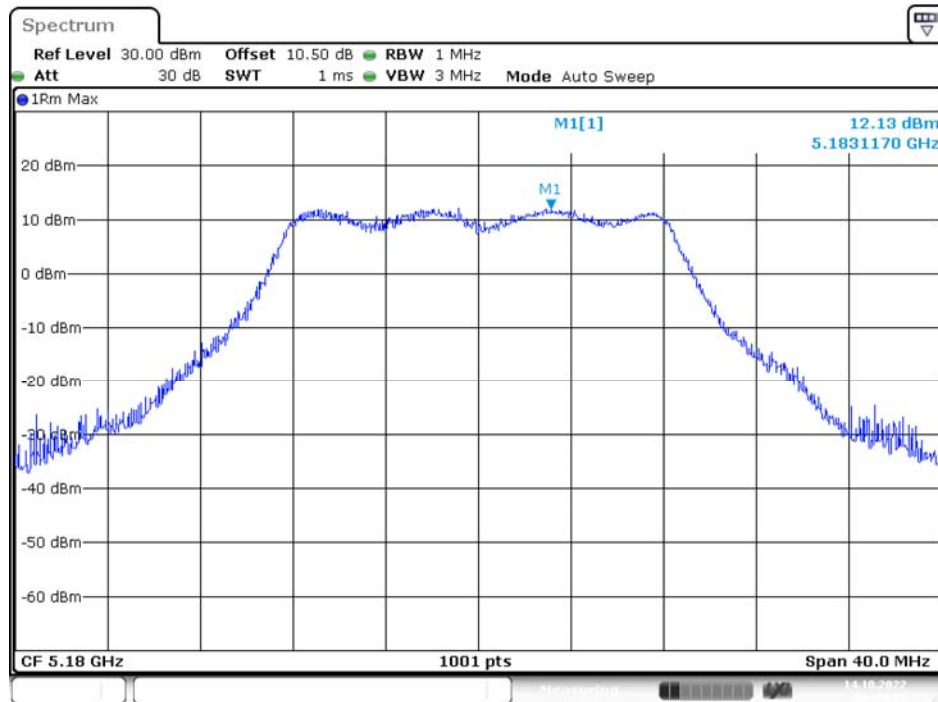
IEEE 802.11ac VHT80 Mode / 5150 ~ 5250MHz (chain 1) 5210MHz



Date: 7.OCT.2022 16:28:11

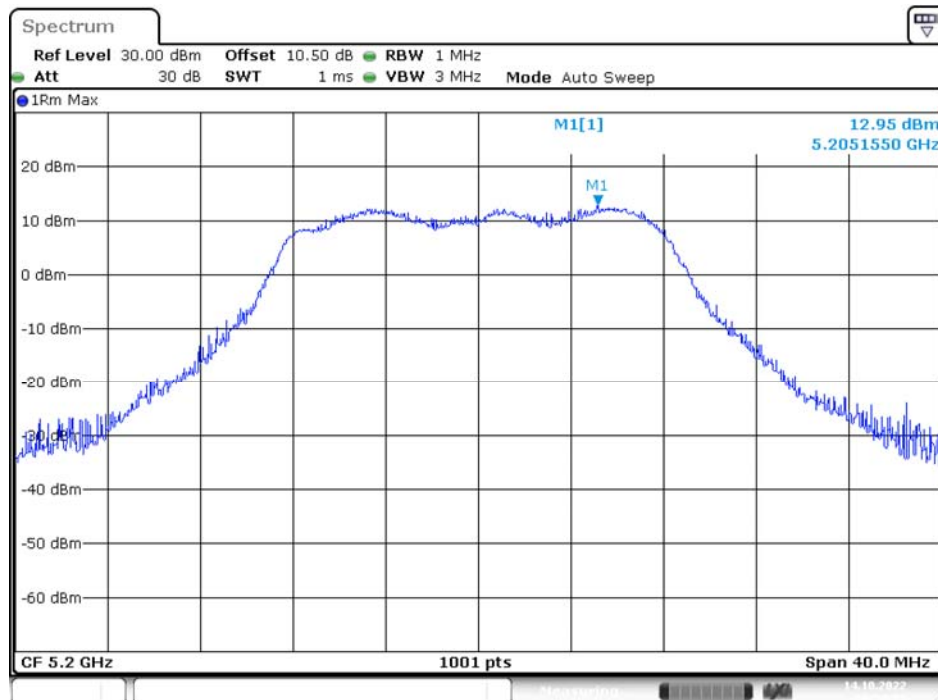
Mode 5:

IEEE 802.11a Mode / 5150 ~ 5250MHz (chain 0)
5180MHz



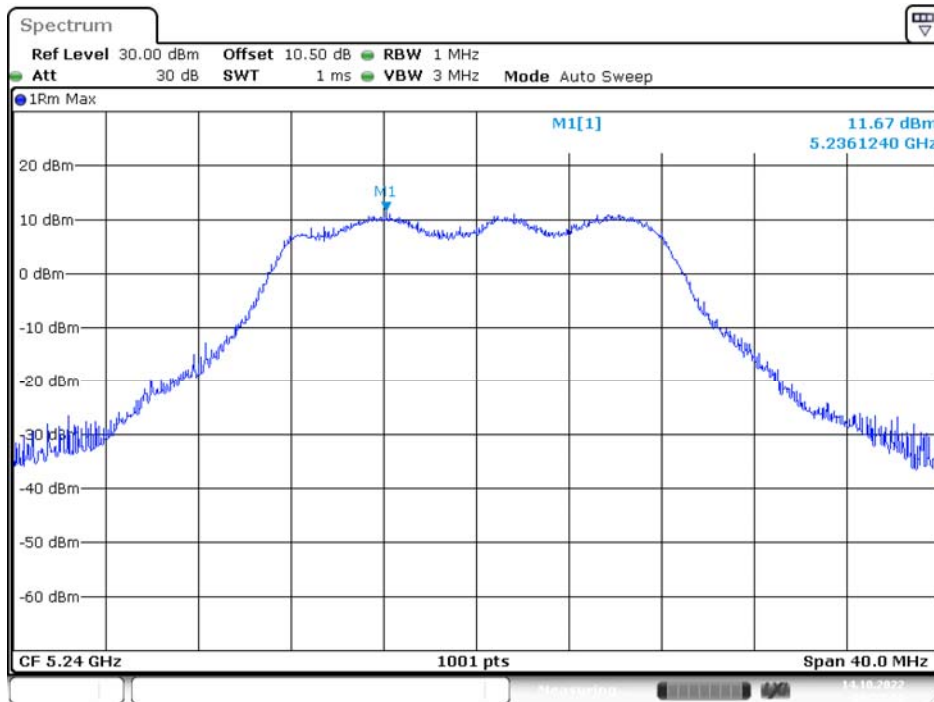
Date: 14.OCT.2022 09:48:39

5200MHz



Date: 14.OCT.2022 09:50:39

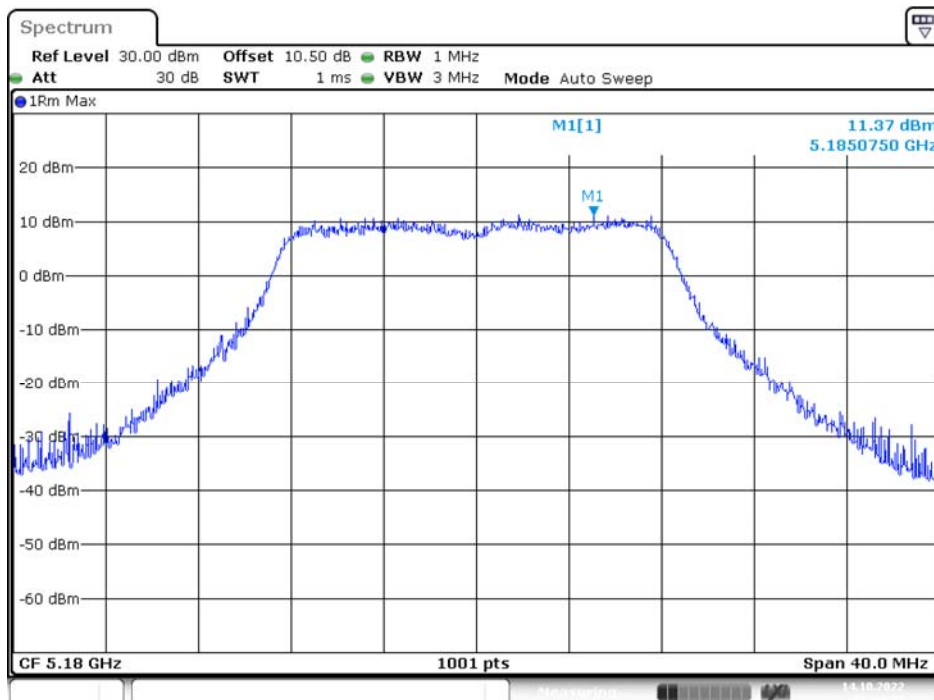
5240MHz



Date: 14.OCT.2022 09:52:16

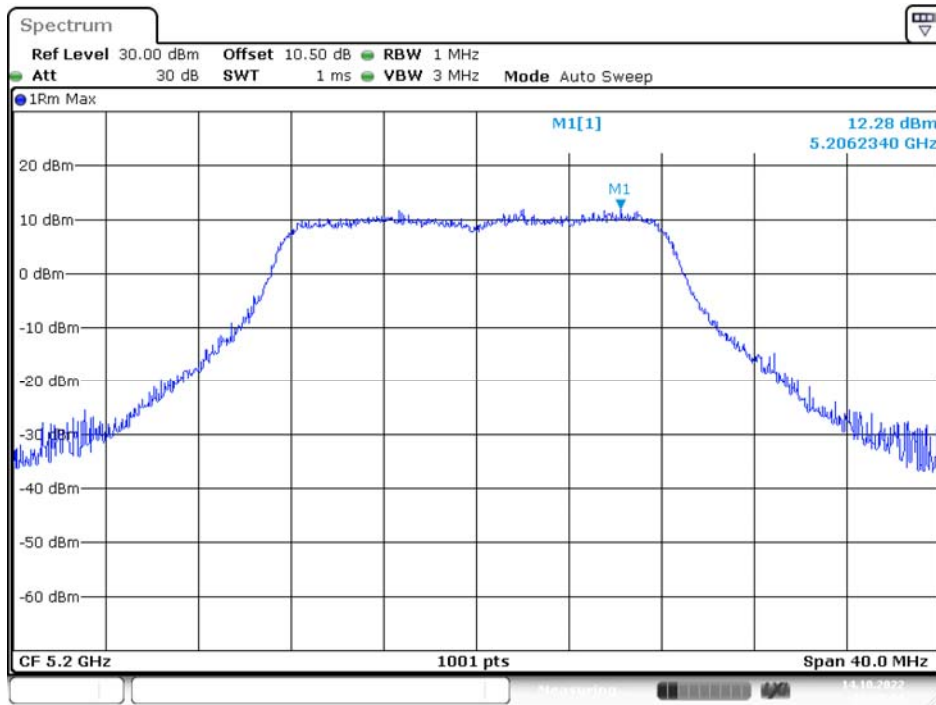
IEEE 802.11a Mode / 5150 ~ 5250MHz (chain 1)

5180MHz



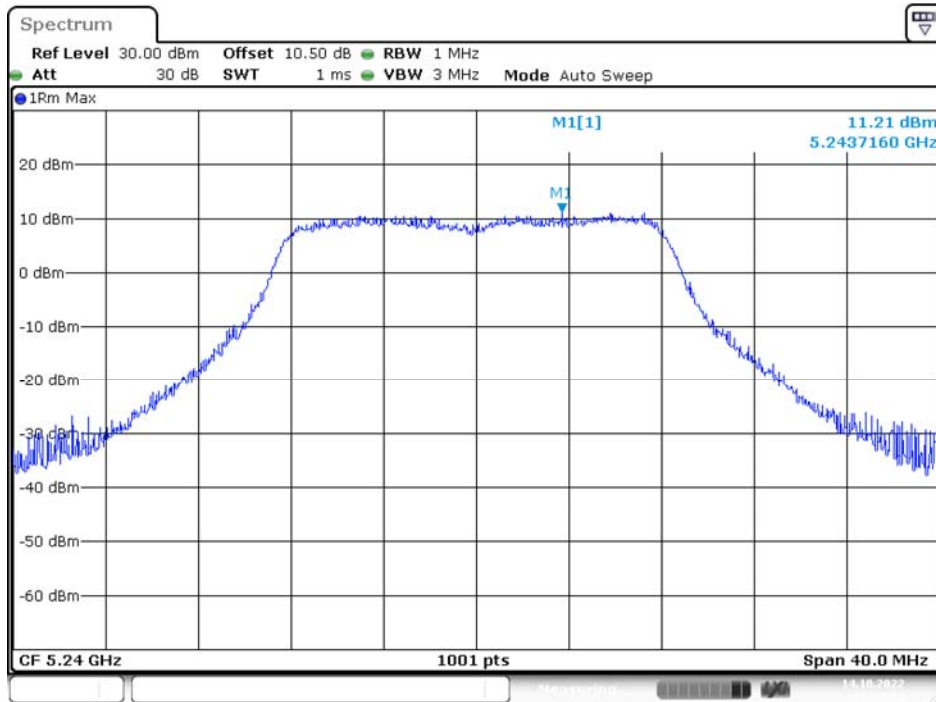
Date: 14.OCT.2022 10:14:39

5200MHz



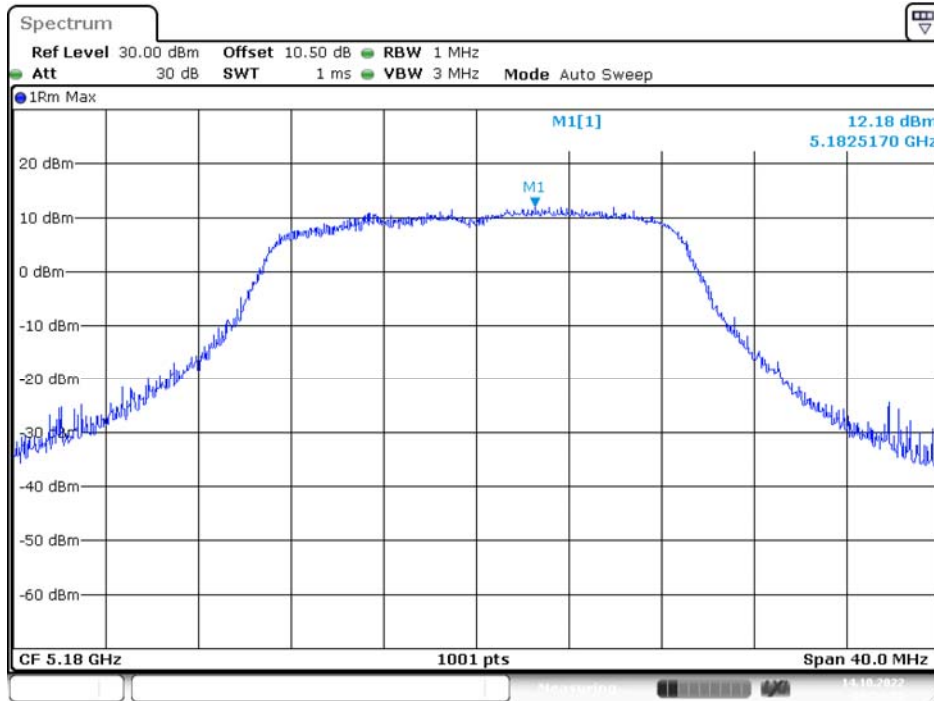
Date: 14.OCT.2022 10:16:05

5240MHz



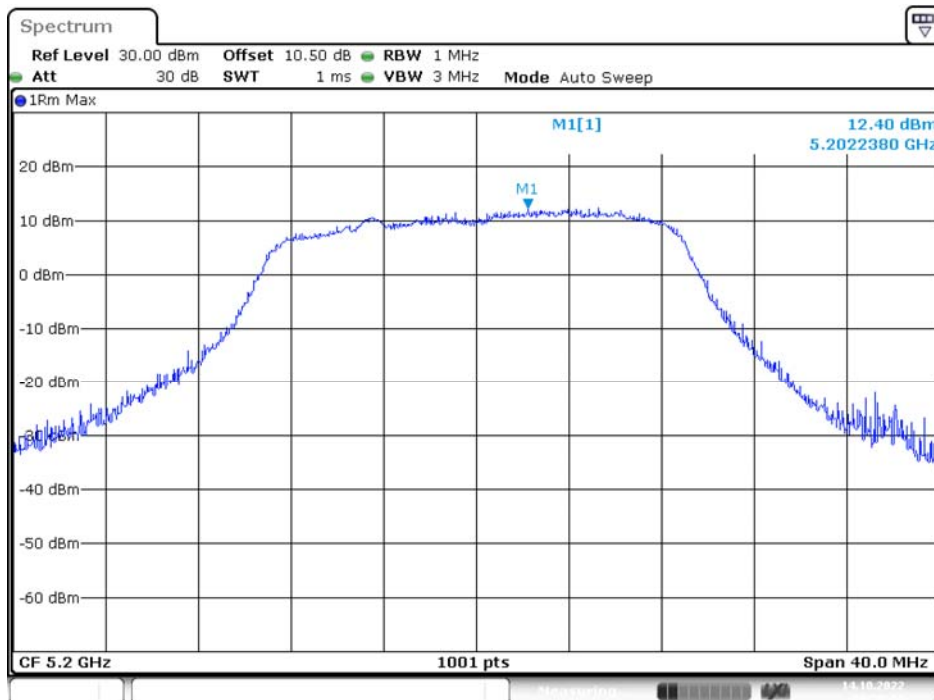
Date: 14.OCT.2022 10:17:38

IEEE 802.11ac VHT20 Mode / 5150 ~ 5250MHz (chain 0) 5180MHz



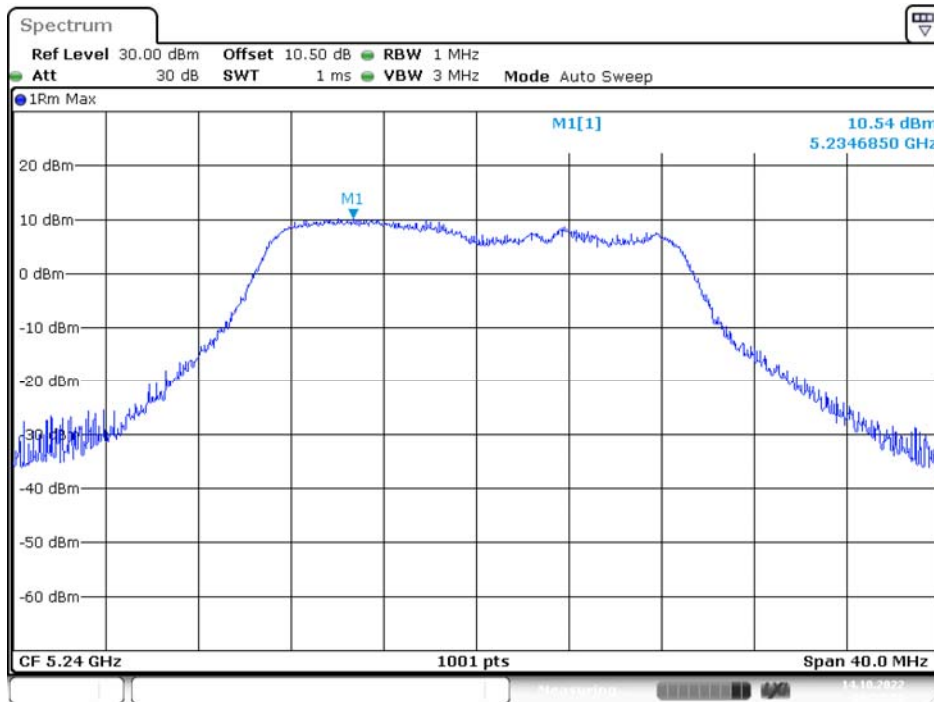
Date: 14.OCT.2022 09:54:38

5200MHz



Date: 14.OCT.2022 09:56:10

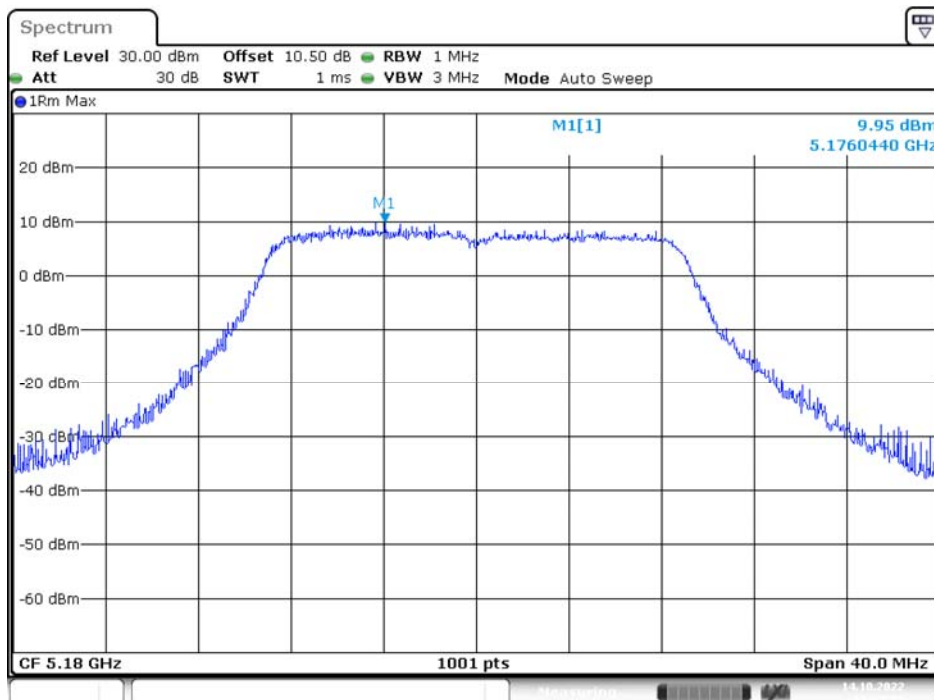
5240MHz



Date: 14.OCT.2022 09:57:56

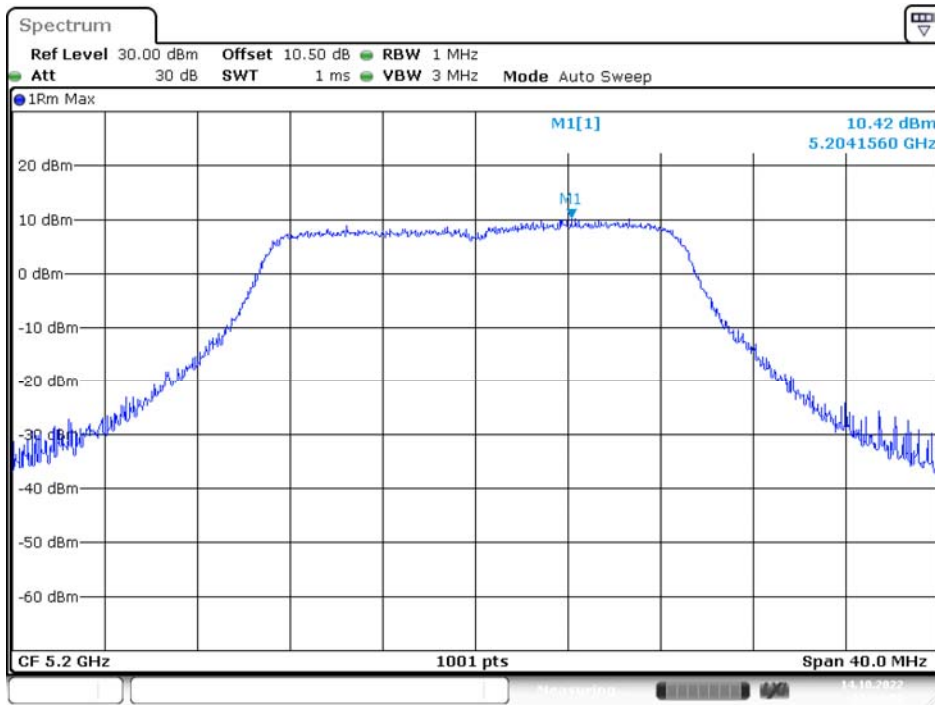
IEEE 802.11ac VHT20 Mode / 5150 ~ 5250MHz (chain 1)

5180MHz



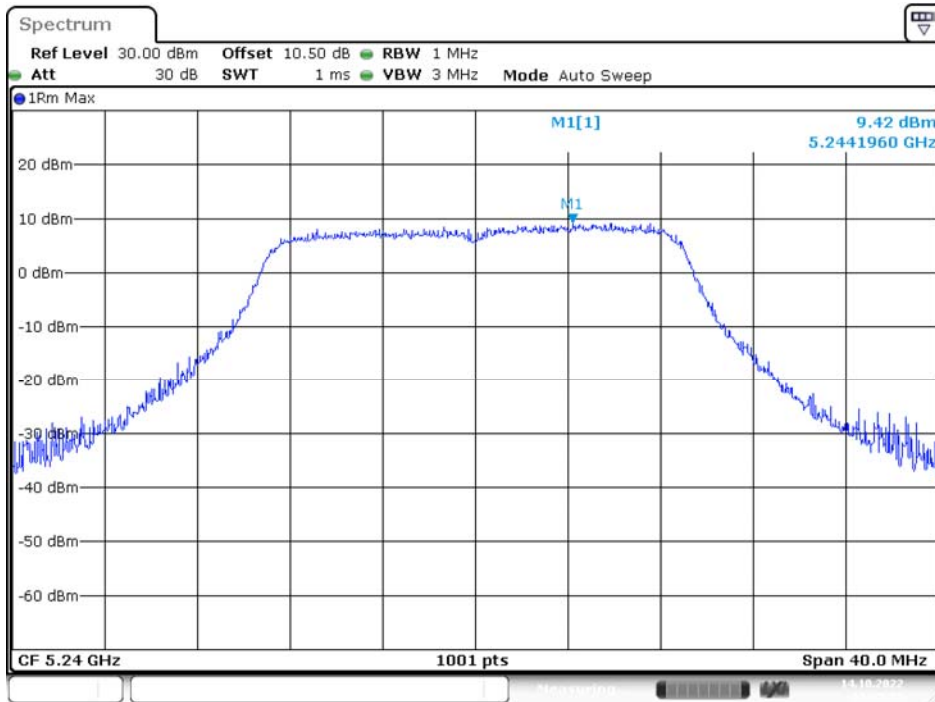
Date: 14.OCT.2022 11:12:27

5200MHz



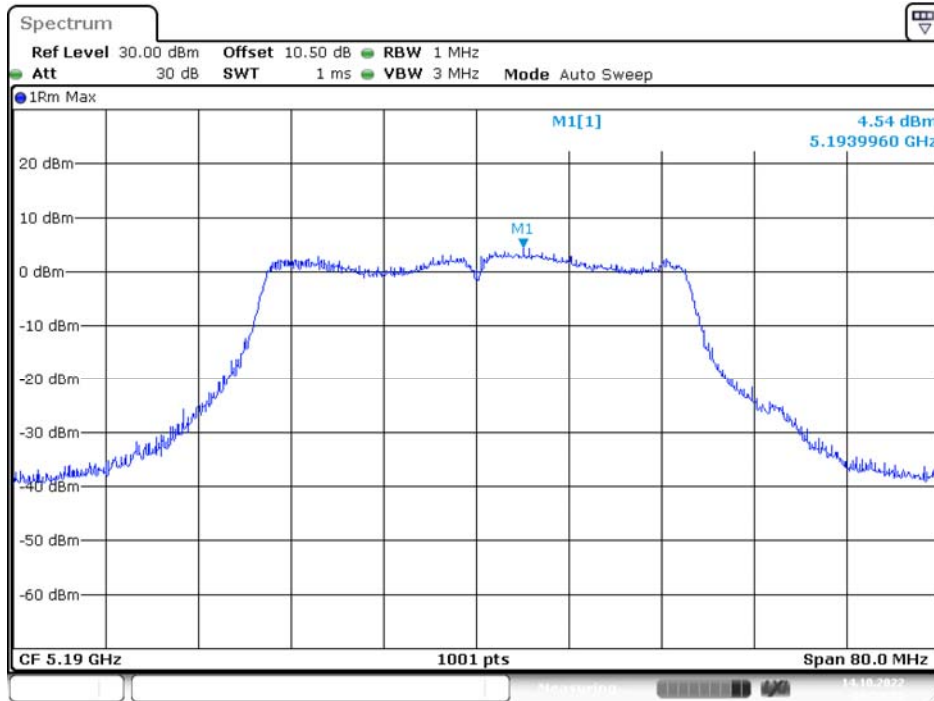
Date: 14.OCT.2022 11:14:01

5240MHz



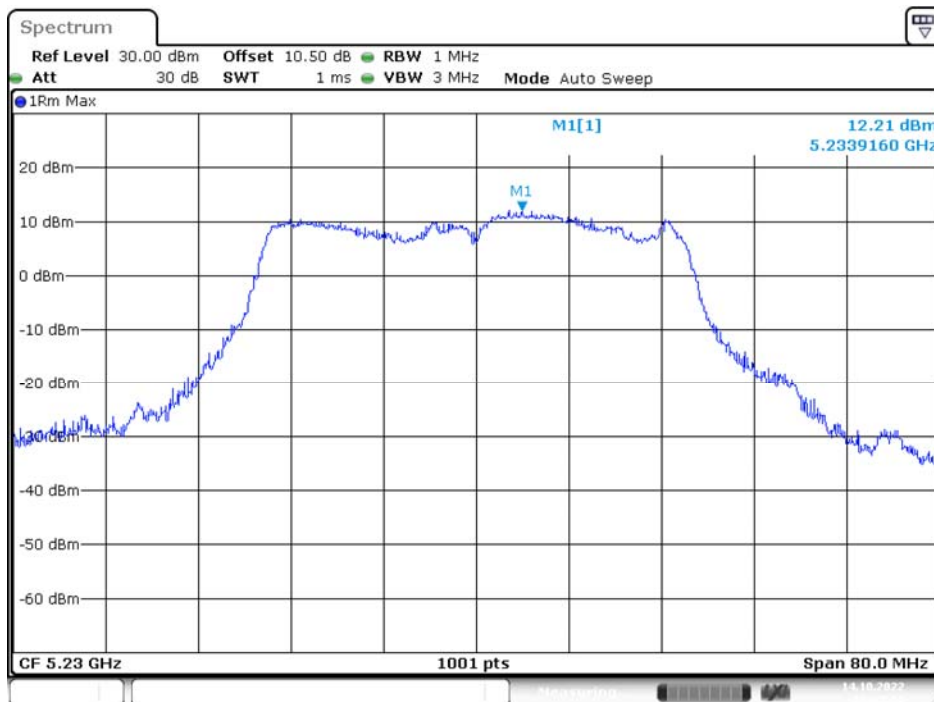
Date: 14.OCT.2022 11:15:35

IEEE 802.11ac VHT40 Mode / 5150 ~ 5250MHz (chain 0) 5190MHz



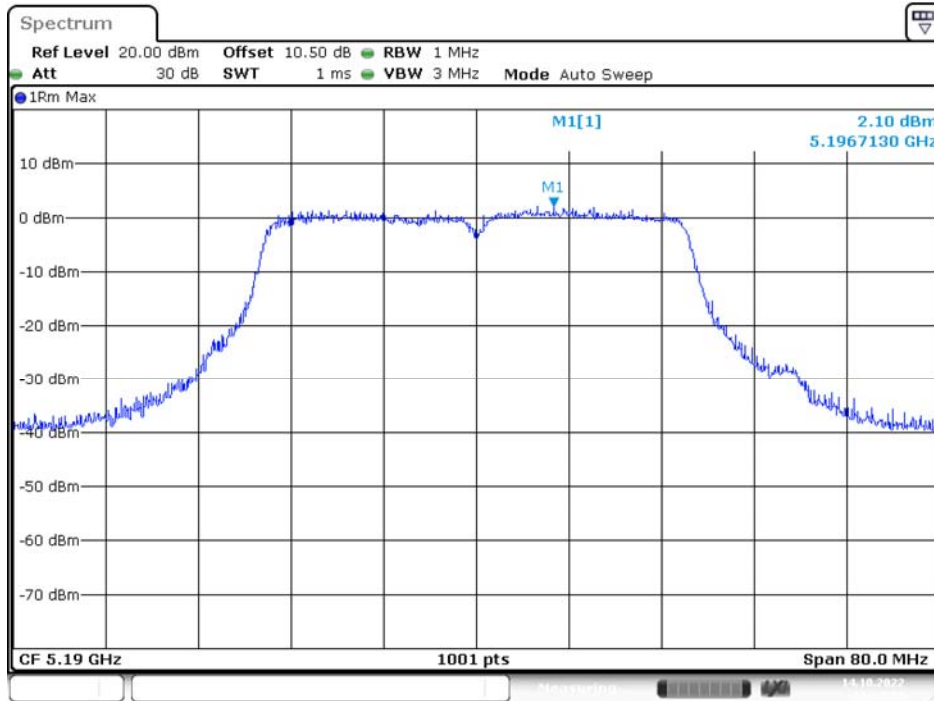
Date: 14.OCT.2022 09:59:38

5230MHz



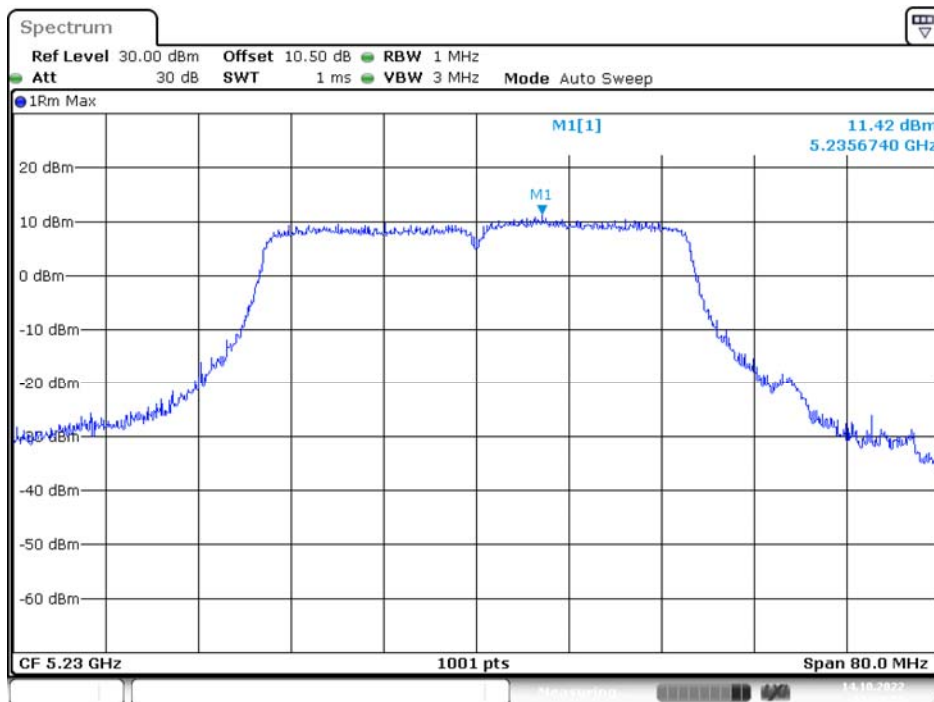
Date: 14.OCT.2022 10:01:18

IEEE 802.11ac VHT40 Mode / 5150 ~ 5250MHz (chain 1) 5190MHz



Date: 14.OCT.2022 11:17:13

5230MHz



Date: 14.OCT.2022 11:18:56

IEEE 802.11ac VHT80 Mode / 5150 ~ 5250MHz (chain 0) 5210MHz



Date: 14.OCT.2022 10:03:17

IEEE 802.11ac VHT80 Mode / 5150 ~ 5250MHz (chain 1) 5210MHz

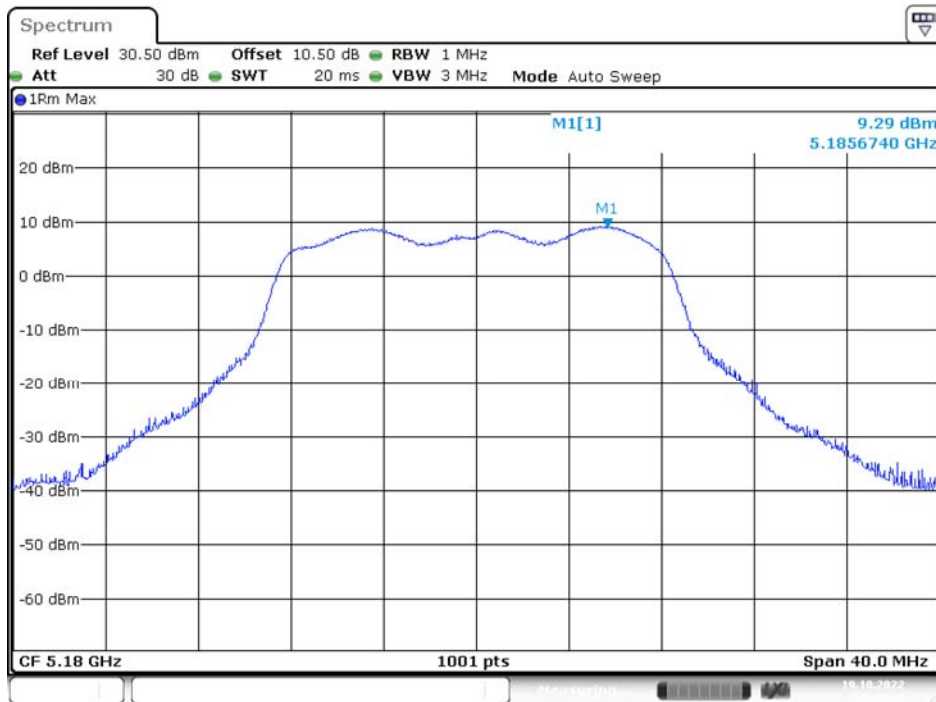


Date: 14.OCT.2022 11:20:59

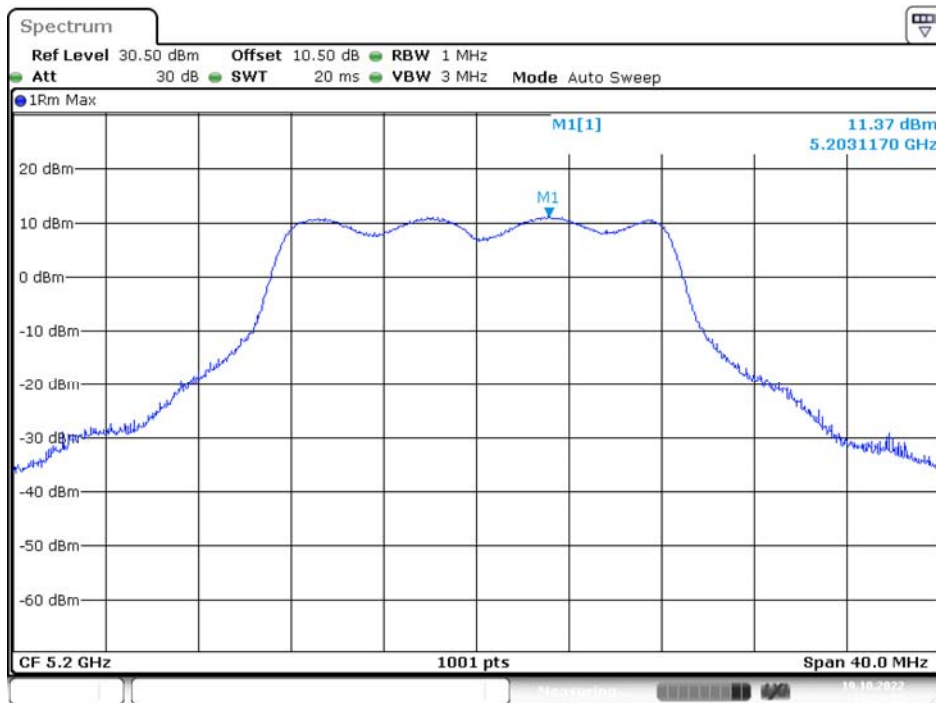
Mode 7:

IEEE 802.11a Mode / 5150 ~ 5250MHz (chain 0)

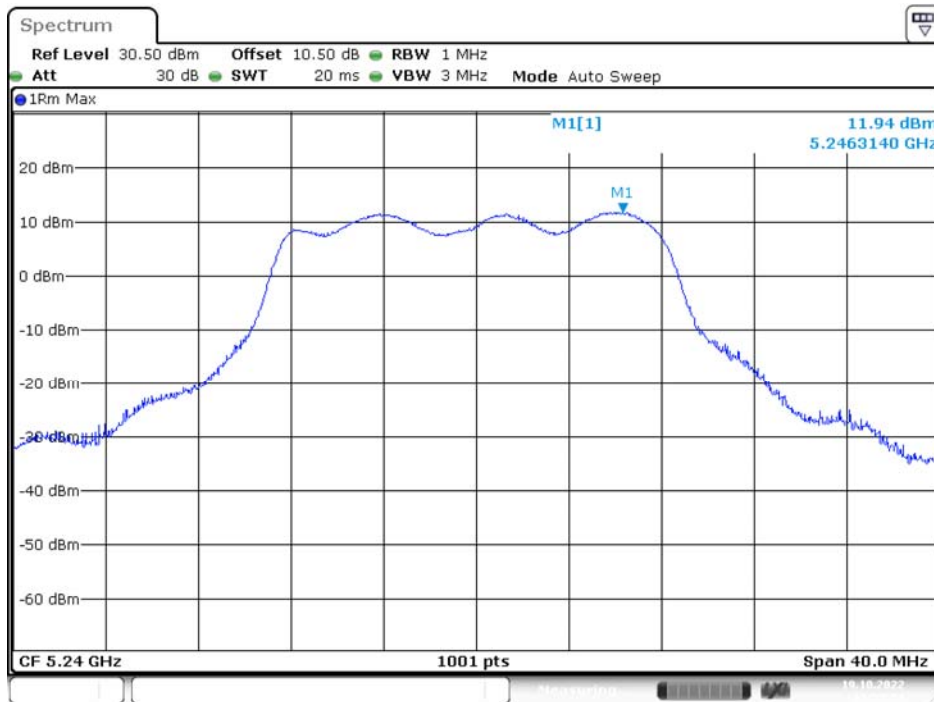
5180MHz



5200MHz



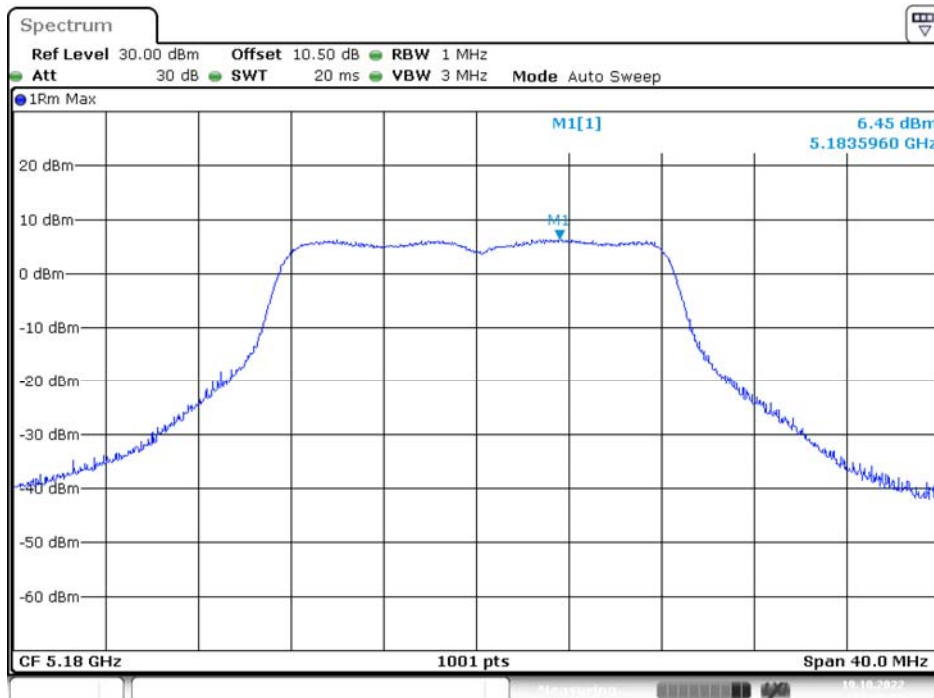
5240MHz



Date: 19.OCT.2022 11:51:55

IEEE 802.11a Mode / 5150 ~ 5250MHz (chain 1)

5180MHz



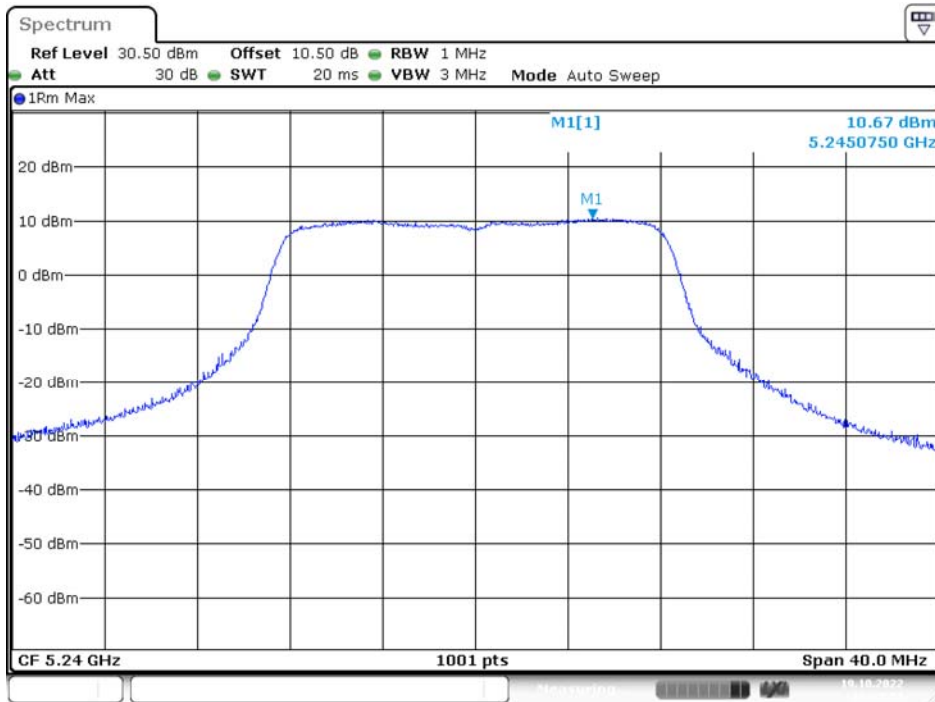
Date: 19.OCT.2022 12:06:57

5200MHz



Date: 19.OCT.2022 12:10:10

5240MHz



Date: 19.OCT.2022 12:11:51

IEEE 802.11ac VHT20 Mode / 5150 ~ 5250MHz (chain 0) 5180MHz



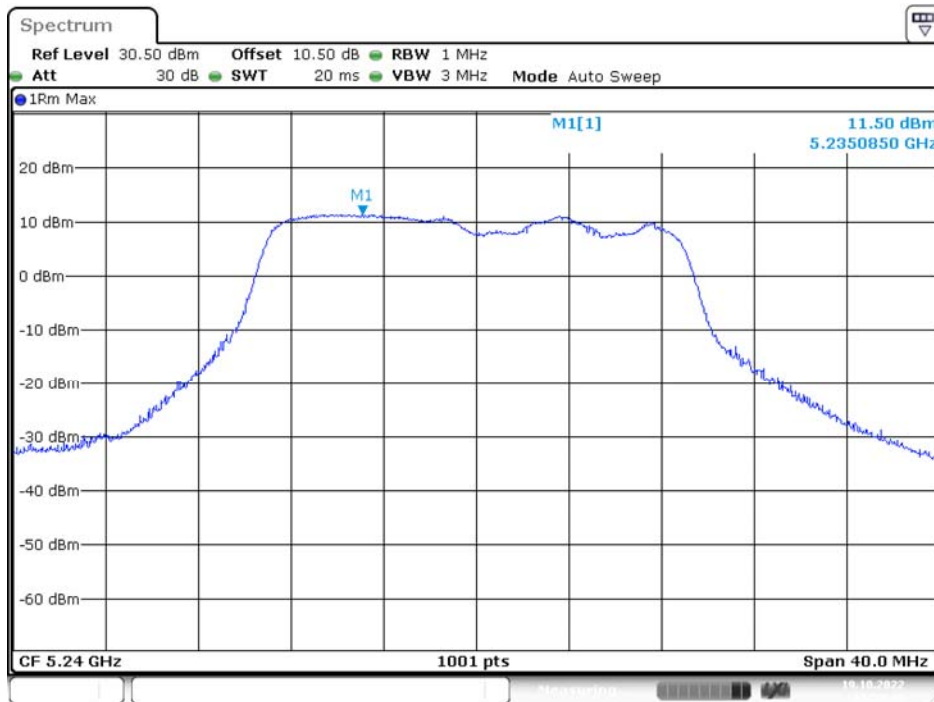
Date: 19.OCT.2022 11:55:47

5200MHz



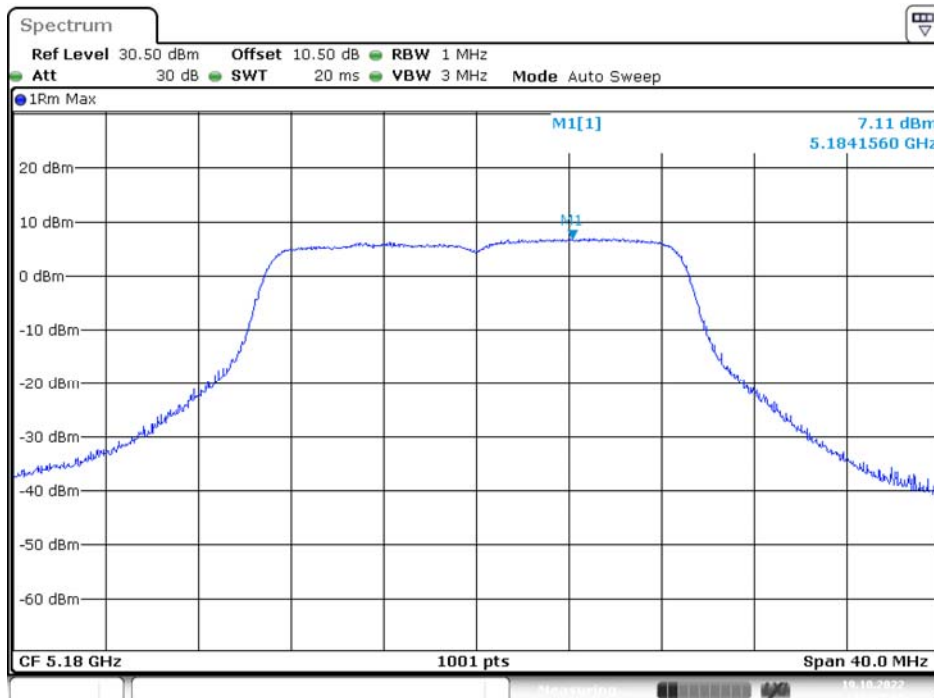
Date: 19.OCT.2022 11:57:21

5240MHz



Date: 19.OCT.2022 11:58:50

IEEE 802.11ac VHT20 Mode / 5150 ~ 5250MHz (chain 1) 5180MHz



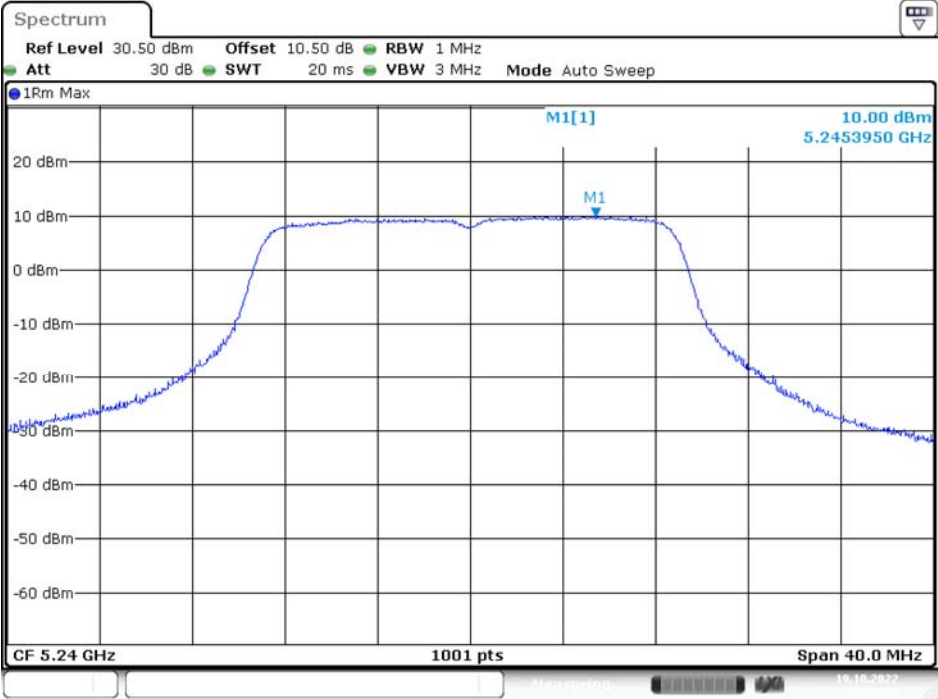
Date: 19.OCT.2022 12:13:44

5200MHz



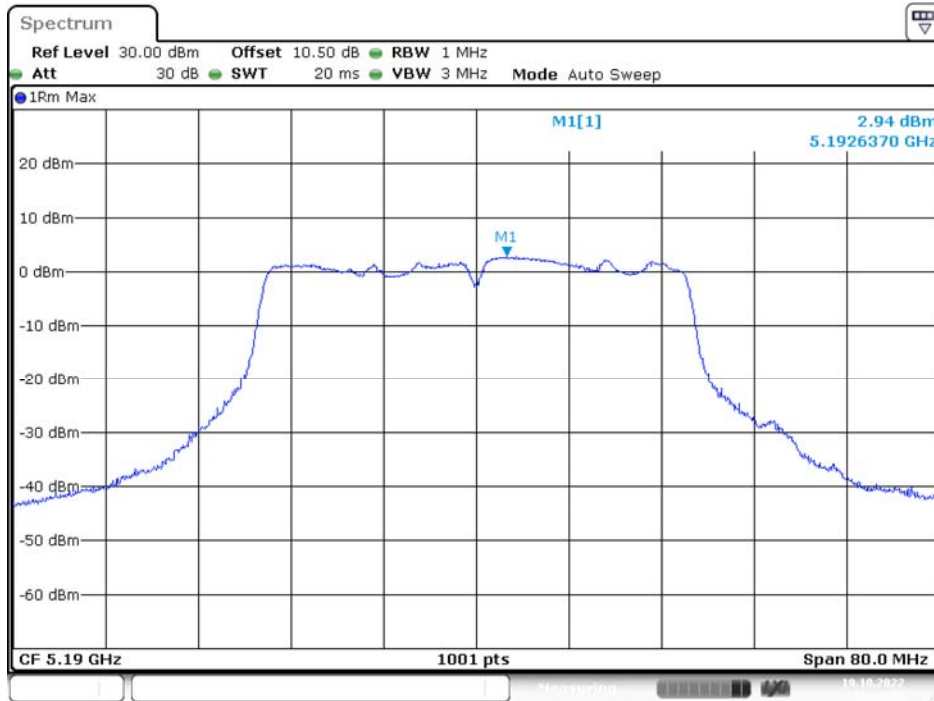
Date: 19.OCT.2022 12:15:14

5240MHz



Date: 19.OCT.2022 12:16:38

IEEE 802.11ac VHT40 Mode / 5150 ~ 5250MHz (chain 0)
5190MHz



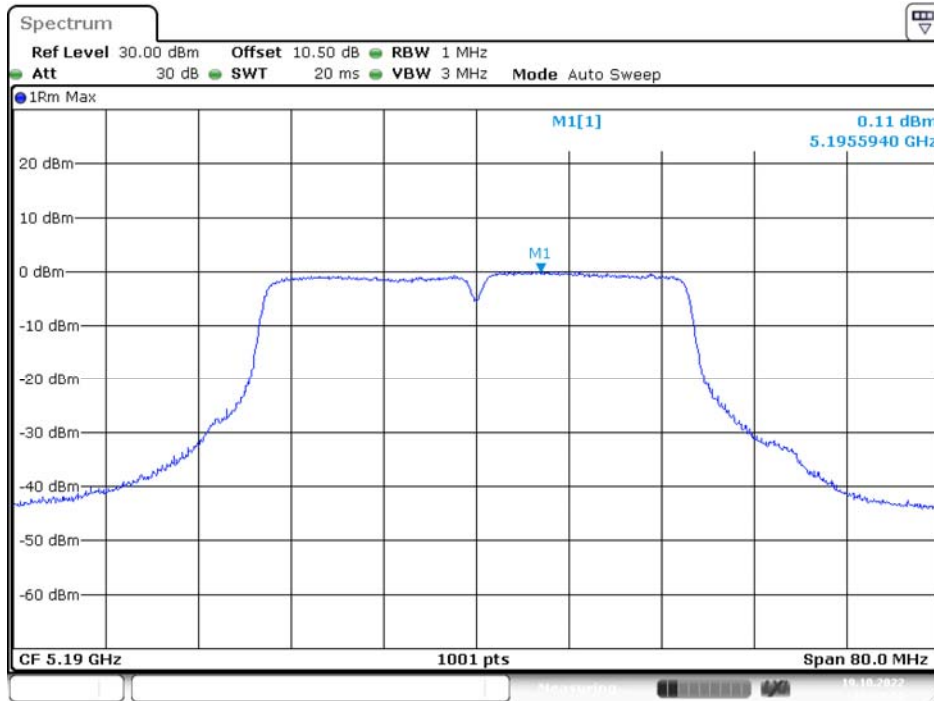
Date: 19.OCT.2022 12:00:27

5230MHz



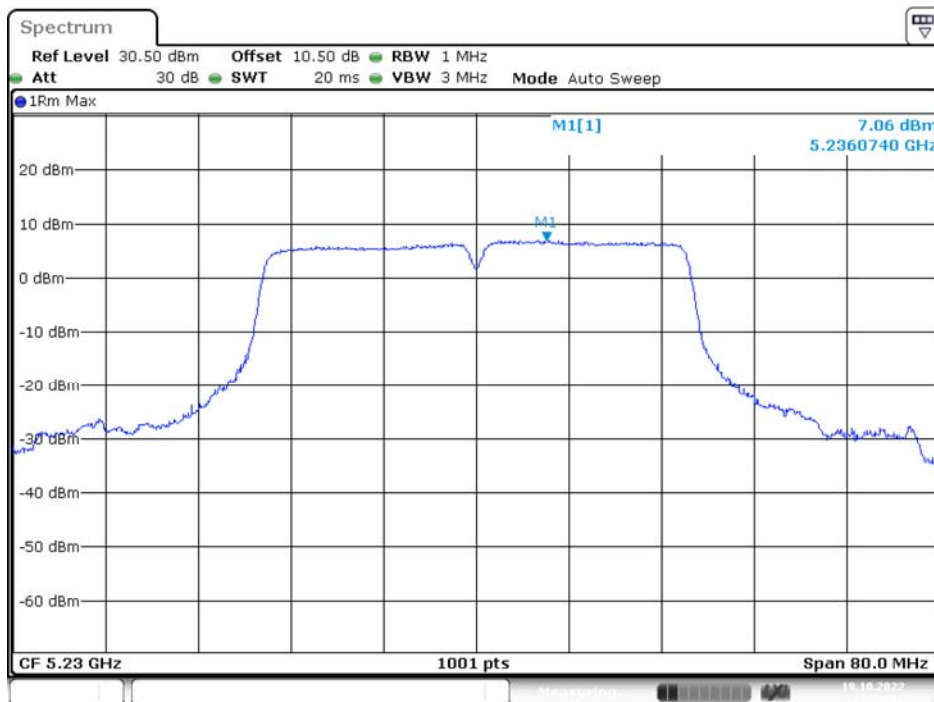
Date: 19.OCT.2022 12:02:08

IEEE 802.11ac VHT40 Mode / 5150 ~ 5250MHz (chain 1) 5190MHz



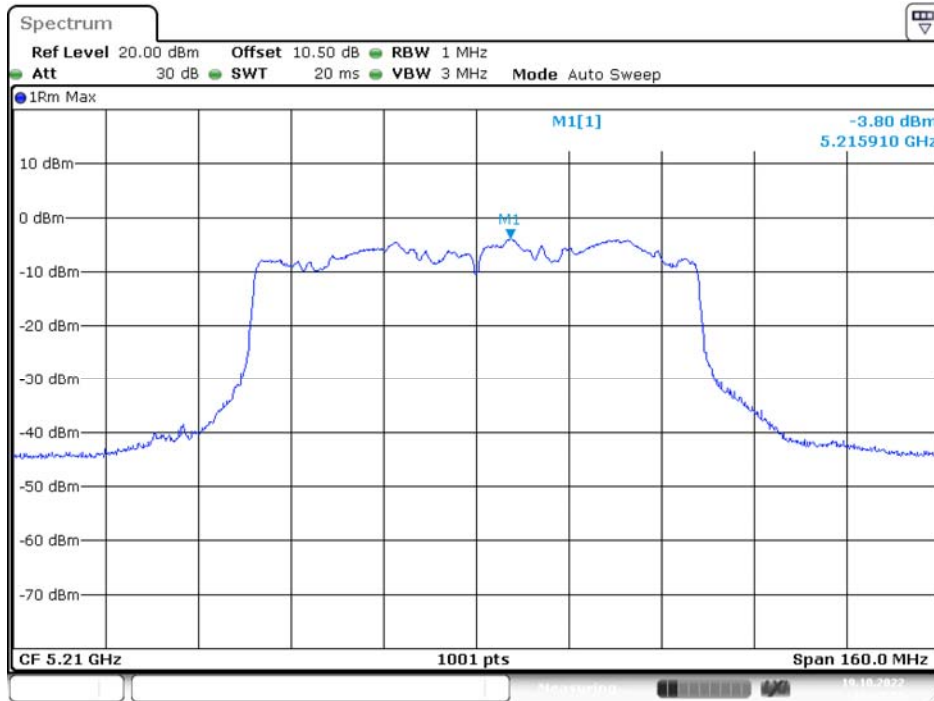
Date: 19.OCT.2022 12:18:18

5230MHz



Date: 19.OCT.2022 12:19:53

IEEE 802.11ac VHT80 Mode / 5150 ~ 5250MHz (chain 0) 5210MHz



Date: 19.OCT.2022 12:03:56

IEEE 802.11ac VHT80 Mode / 5150 ~ 5250MHz (chain 1) 5210MHz



Date: 19.OCT.2022 12:21:45

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