10 RSS-247 §6.2.1.2 – 26dB Attenuated Below The Channel Power

10.1 Applicable Standard

RSS-247 Clause 6.2.1.2

For transmitters with operating frequencies in the band 5150-5250 MHz, all emissions outside the band 5150-5350 MHz shall not exceed -27 dBm/MHz e.i.r.p. Any unwanted emissions that fall into the band 5250-5350 MHz shall be attenuated below the channel power by at least 26 dB, when measured using a resolution bandwidth between 1 and 5% of the occupied bandwidth (i.e. 99% bandwidth), above 5250 MHz. The 26 dB bandwidth may fall into the 5250-5350 MHz band; however, if the occupied bandwidth also falls within the 5250-5350 MHz band, the transmission is considered as intentional and the devices shall comply with all requirements in the band 5250-5350 MHz including implementing dynamic frequency selection (DFS) and TPC, on the portion of the emission that resides in the 5250-5350 MHz band.

10.2 Test Procedure

1. Set RBW = 1%~5% of the emission bandwidth.
2. Set the VBW > RBW.
3. Detector = RMS.
4. Trace mode = max hold
5. Measure the emission attenuated below the channel power

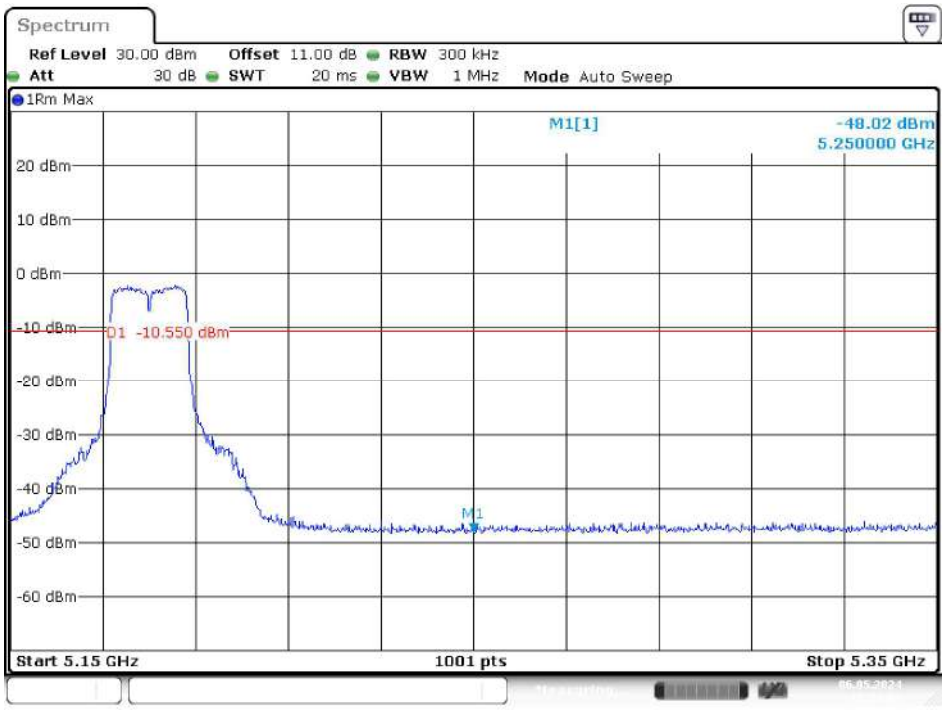
10.3 Test Results

The requirement is for 5150-5250 MHz band. The channel power please refer to the power test result in section 12.3.

Transmitting Mode:

IEEE 802.11a Mode / 5150 ~ 5250MHz

5180MHz



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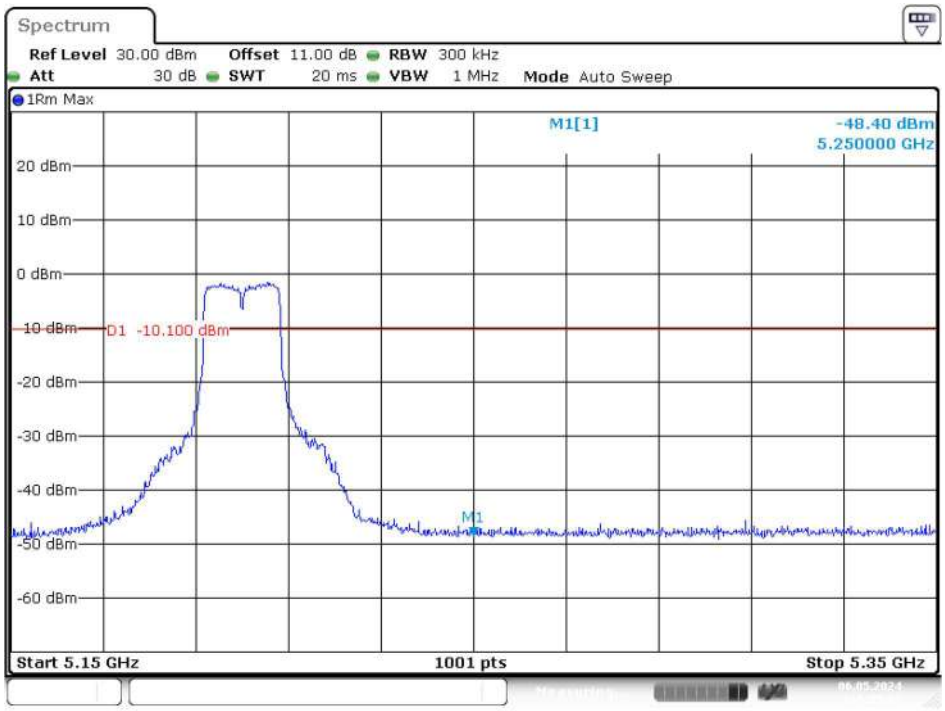
5200MHz



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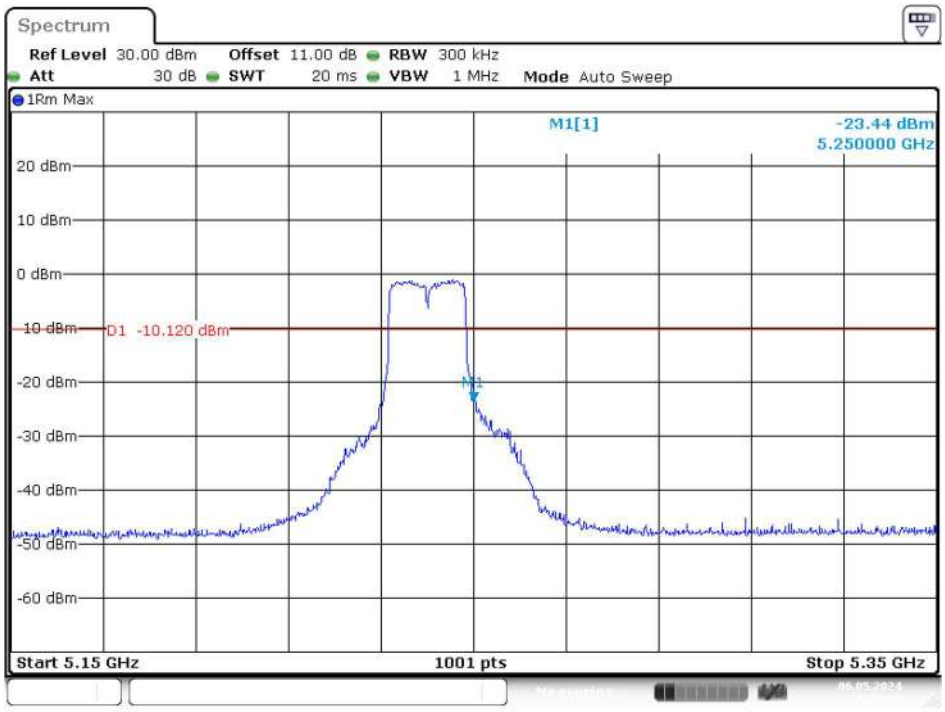
5240MHz



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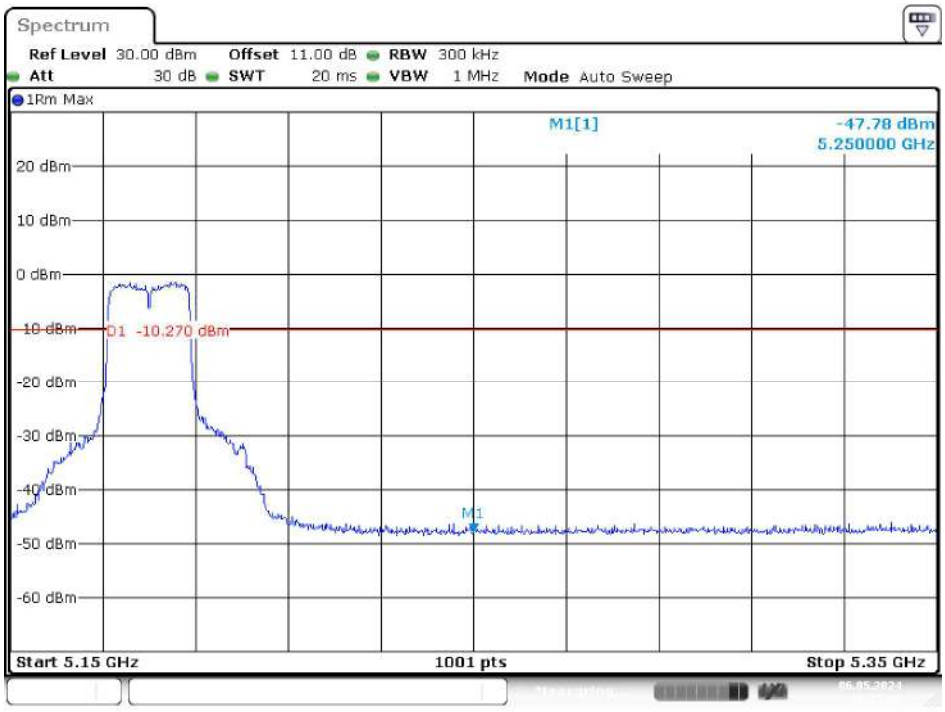
IEEE 802.11ac VHT20 Mode / 5150 ~ 5250MHz

5180MHz



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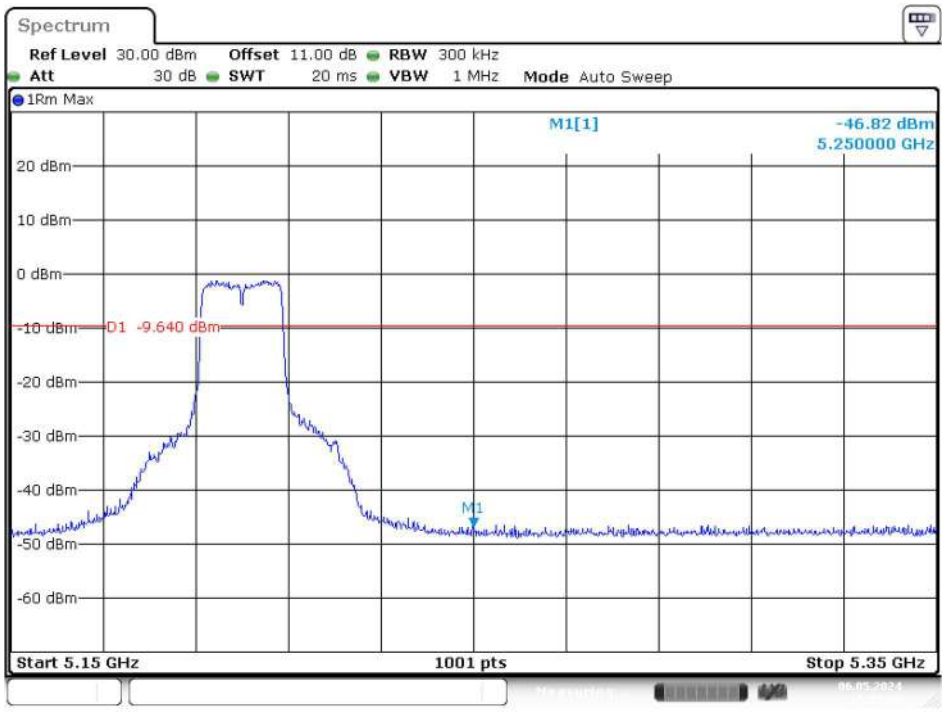
5200MHz



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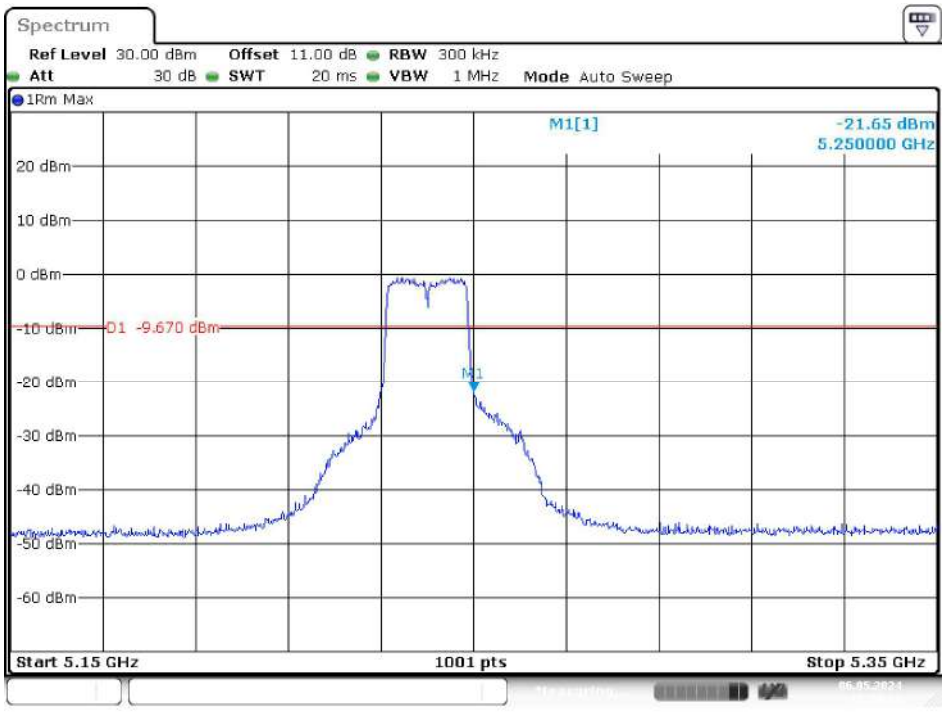
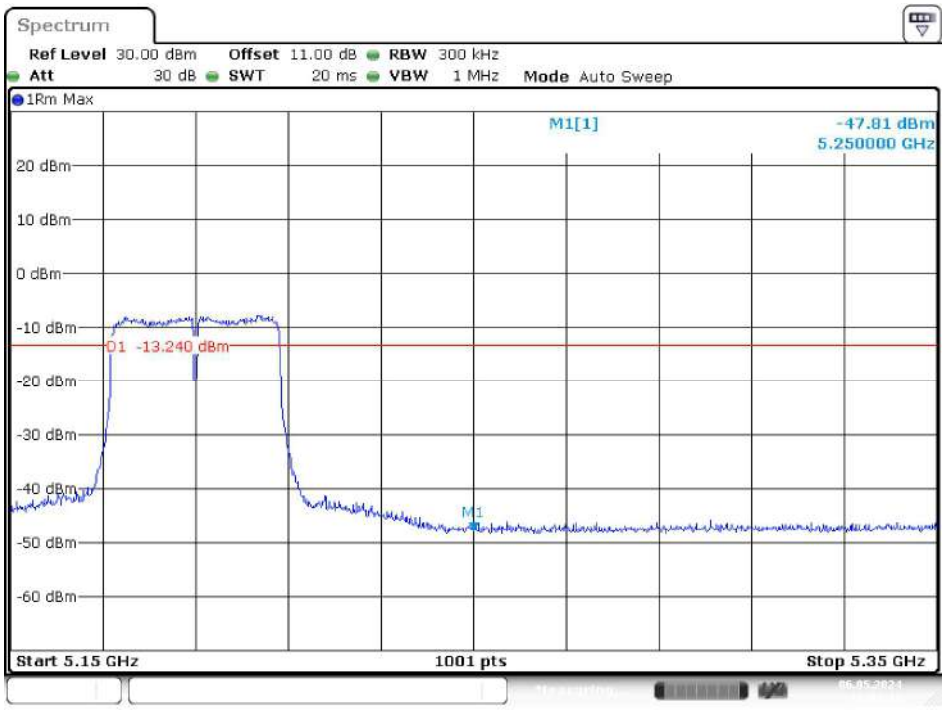
5240MHz



Date: 6.MAY.2024 15:59:32

IEEE 802.11ac VHT40 Mode / 5150 ~ 5250MHz

5190MHz



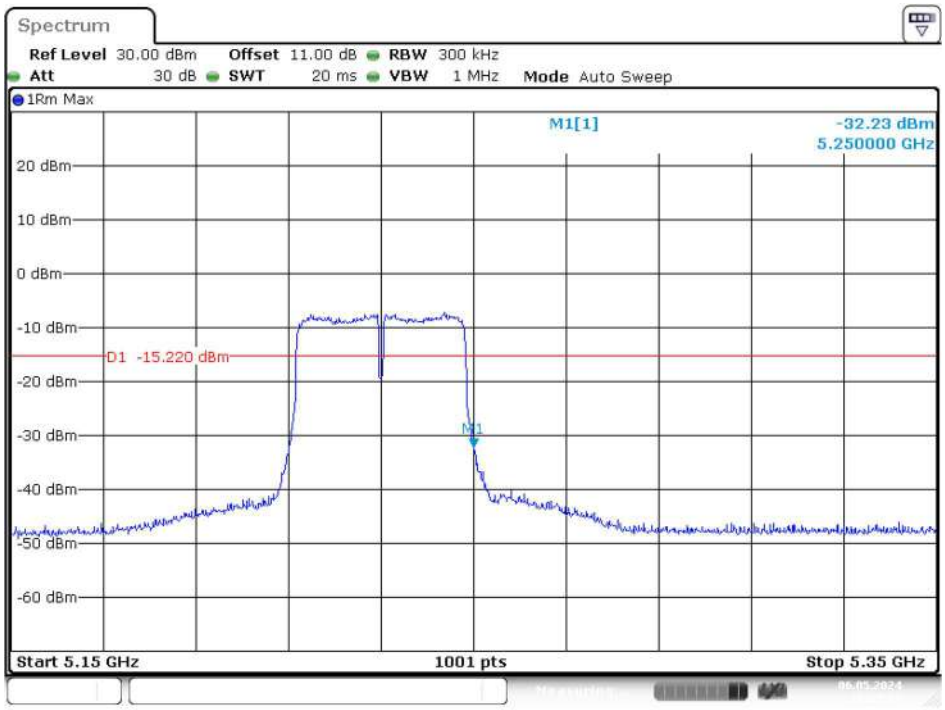
Date: 6.MAY.2024 16:01:18

5230MHz

Date: 6.MAY.2024 16:02:07

IEEE 802.11ac VHT80 Mode / 5150 ~ 5250MHz

5210MHz



Date: 6.MAY.2024 16:02:07

11 FCC §15.407(a)(e) & RSS-247 §6.2, RSS-GEN §6.7 – Emission Bandwidth And Occupied Bandwidth

11.1 Applicable Standard

As per FCC §15.407(a): The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test. If the device cannot be connected directly, alternative techniques acceptable to the Commission may be used. Measurements in the 5.725-5.85 GHz band are made over a reference bandwidth of 500 kHz or the 26 dB emission bandwidth of the device, whichever is less. Measurements in the 5.15-5.25 GHz, 5.25-5.35 GHz, and the 5.47-5.725 GHz bands are made over a bandwidth of 1 MHz or the 26 dB emission bandwidth of the device, whichever is less. A narrower resolution bandwidth can be used, provided that the measured power is integrated over the full reference bandwidth.

As per FCC §15.407(e): for equipment operating in the band 5725 – 5850 MHz, the minimum 6 dB bandwidth of U-NII devices shall be 500 kHz.

RSS-247 Clause 6.2.1.2

For transmitters with operating frequencies in the band 5150-5250 MHz, all emissions outside the band 5150-5350 MHz shall not exceed -27 dBm/MHz e.i.r.p. Any unwanted emissions that fall into the band 5250-5350 MHz shall be attenuated below the channel power by at least 26 dB, when measured using a resolution bandwidth between 1 and 5% of the occupied bandwidth (i.e. 99% bandwidth), above 5250 MHz. The 26 dB bandwidth may fall into the 5250-5350 MHz band; however, if the occupied bandwidth also falls within the 5250-5350 MHz band, the transmission is considered as intentional and the devices shall comply with all requirements in the band 5250-5350 MHz including implementing dynamic frequency selection (DFS) and TPC, on the portion of the emission that resides in the 5250-5350 MHz band.

RSS-247 Clause 6.2.4.2

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

11.2 Test Procedure

26dB Emission Bandwidth (EBW)

According to ANSI C63.10-2013 Section 12.4.1

a) Set RBW = approximately 1% of the emission bandwidth.
b) Set the VBW > RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

Minimum Emission Bandwidth for the band 5.725-5.85 GHz

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

Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 KHz for the band 5.715-5.85 GHz. The following procedure shall be used for measuring this bandwidth:

a) Set RBW = 100 kHz.

b) Set the video bandwidth (VBW) ≥ 3 × RBW.

c) Detector = Peak.

d) Trace mode = max hold.

e) Sweep = auto couple.

f) Allow the trace to stabilize.

g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

99% Occupied Bandwidth:

According to ANSI C63.10-2013 Section 12.4.2&6.9.3

The occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5% of the total mean power of the given emission. The following procedure shall be used for measuring 99% power bandwidth:

a) The instrument center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be between 1.5 times and 5.0 times the OBW.

b) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW, and VBW shall be approximately three times the RBW, unless otherwise specified by the applicable requirement.

c) Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than [10 log (OBW/RBW)] below the reference level. Specific guidance is given in 4.1.5.2.

d) Step a) through step c) might require iteration to adjust within the specified range.

e) Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.

f) Use the 99% power bandwidth function of the instrument (if available) and report the measured bandwidth.

g) If the instrument does not have a 99% power bandwidth function, then the trace data points are recovered and directly summed in linear power terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5% of the total is reached; that frequency is recorded as the upper frequency. The 99% power bandwidth is the difference between these two frequencies.

h) The occupied bandwidth shall be reported by providing plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

11.3 Test Results

Test mode: Transmitting

5150-5250MHz

UNII Band	Mode	Channel	Frequency (MHz)	26dB Emission Bandwidth (MHz)	99% Emission Bandwidth (MHz)
UNII-1	802.11a	36	5180	34.48	16.94
		40	5200	34.80	17.06
		48	5240	35.60	17.42
	802.11ac 20	36	5180	38.82	18.10
		40	5200	38.98	18.26
		48	5240	41.54	18.98
	802.11ac 40	38	5190	44.16	36.68
		46	5230	49.28	36.76
	802.11ac 80	42	5210	83.68	75.92

The 99% Occupied Bandwidth have not fallen into the band 5250-5350MHz, please refer to the test plots of 99% Occupied Bandwidth.

5725-5850MHz

UNII Band	Mode	Channel	Frequency (MHz)	6dB Emission Bandwidth (MHz)	99% Emission Bandwidth (MHz)	Limit (kHz)	Result
UNII-3	802.11a	149	5745	16.52	28.69	≥500	PASS
		157	5785	16.52	26.77	≥500	PASS
		165	5825	16.52	24.65	≥500	PASS
	802.11ac 20	149	5745	17.80	29.85	≥500	PASS
		157	5785	17.76	28.29	≥500	PASS
		165	5825	17.80	26.61	≥500	PASS
	802.11ac 40	151	5755	36.48	45.00	≥500	PASS
		159	5795	36.40	39.80	≥500	PASS
	802.11ac 80	155	5775	76.32	76.88	≥500	PASS

The 99% Occupied Bandwidth have not fallen into the band 5470-5725MHz, please refer to the test plots of 99% Occupied Bandwidth.

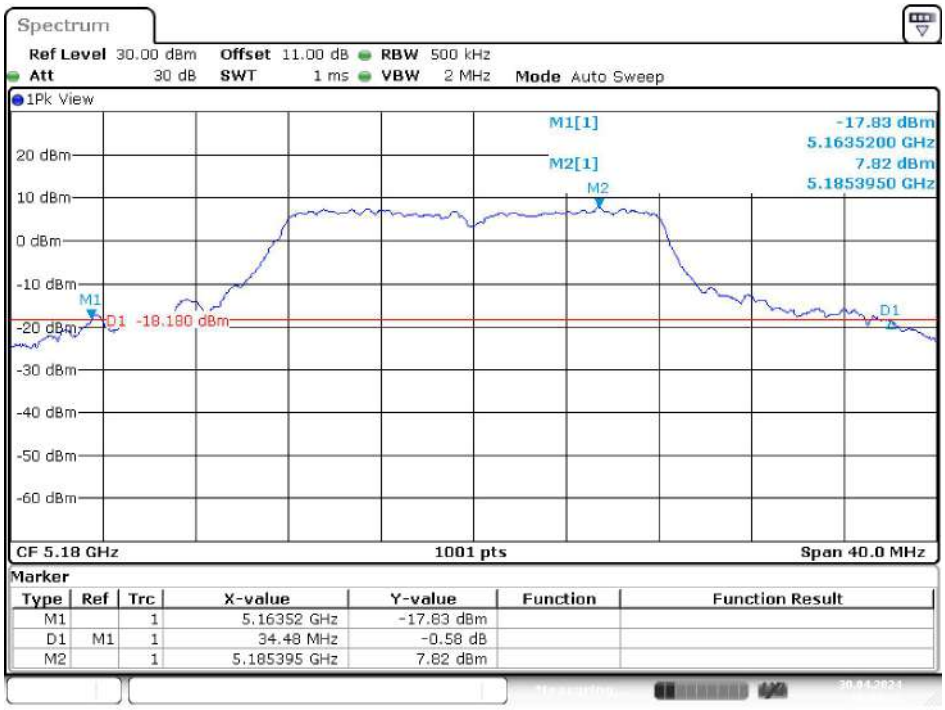
Please refer to the following plots

Transmitting Mode:

UNII-1 Band I / BW 26dBc

IEEE 802.11a Mode / 5150 ~ 5250MHz

5180MHz



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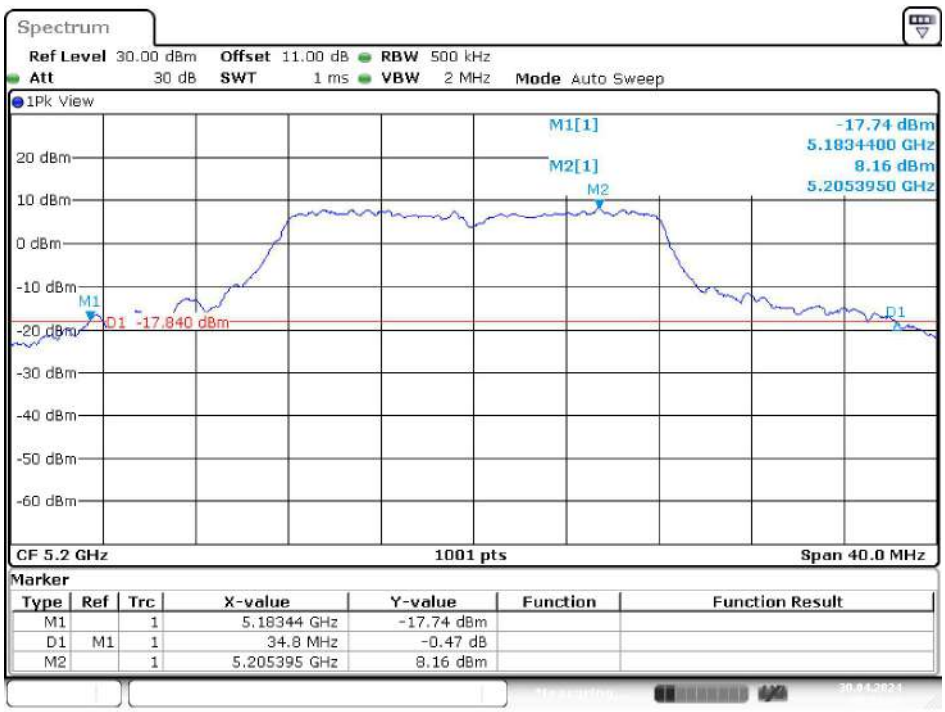
5200MHz



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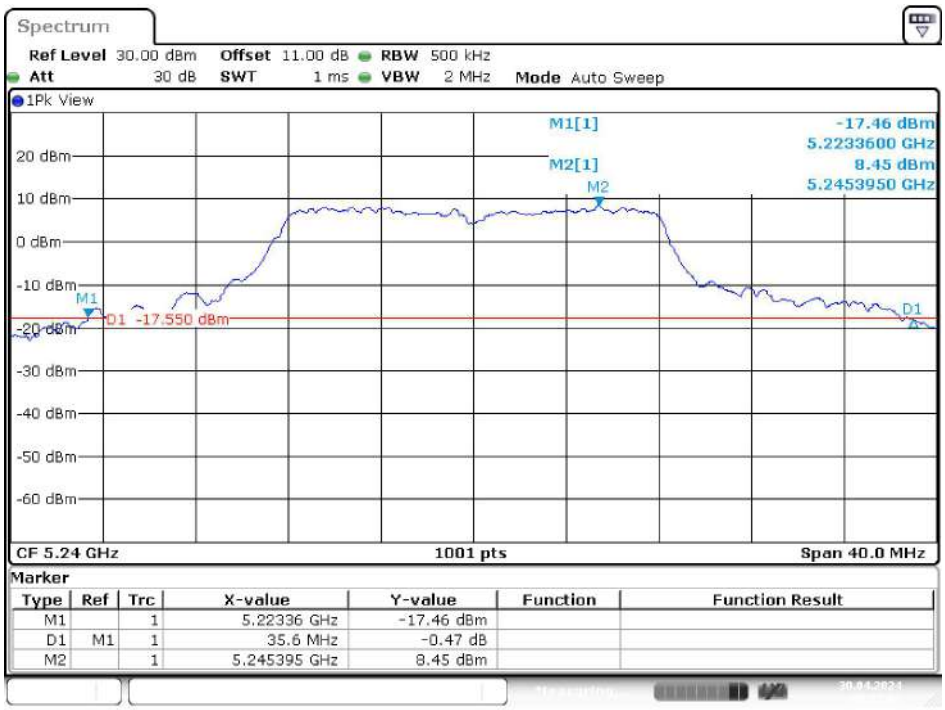
5240MHz



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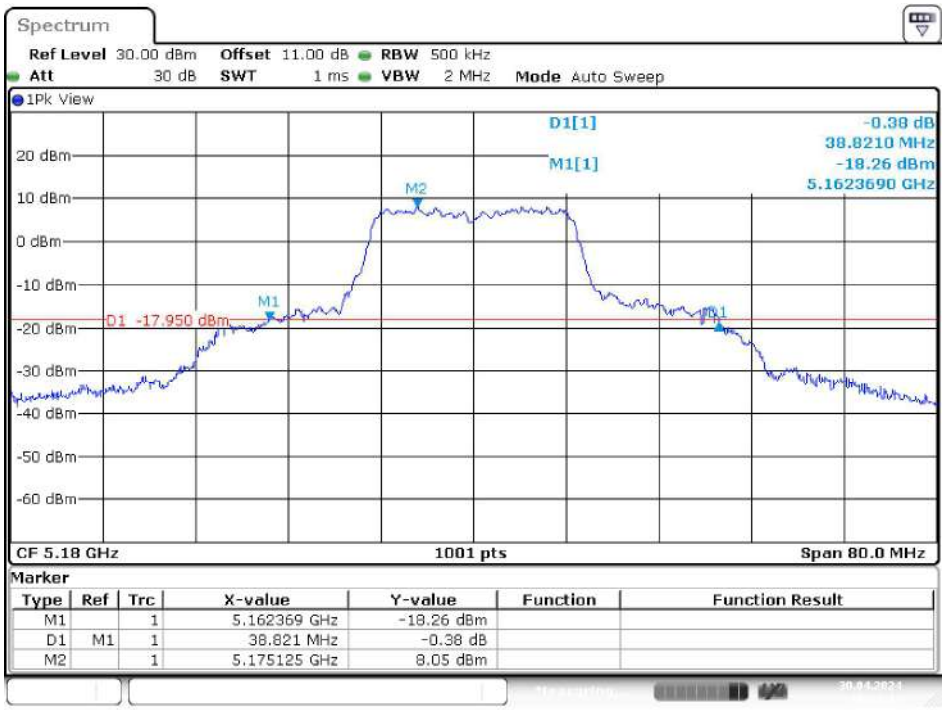
IEEE 802.11ac VHT20 Mode / 5150 ~ 5250MHz

5180MHz



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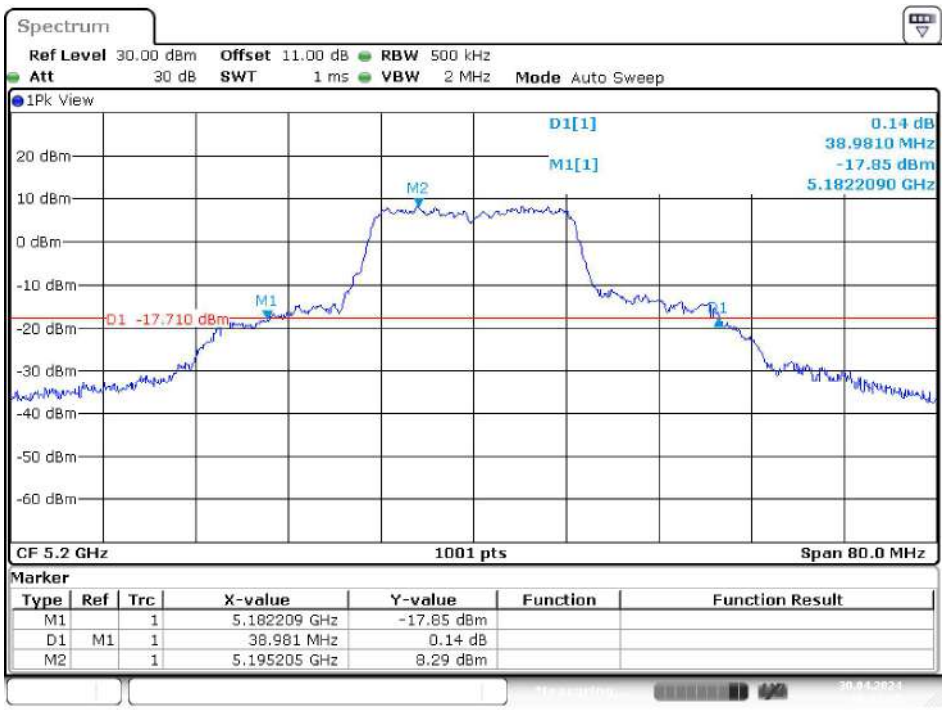
5200MHz



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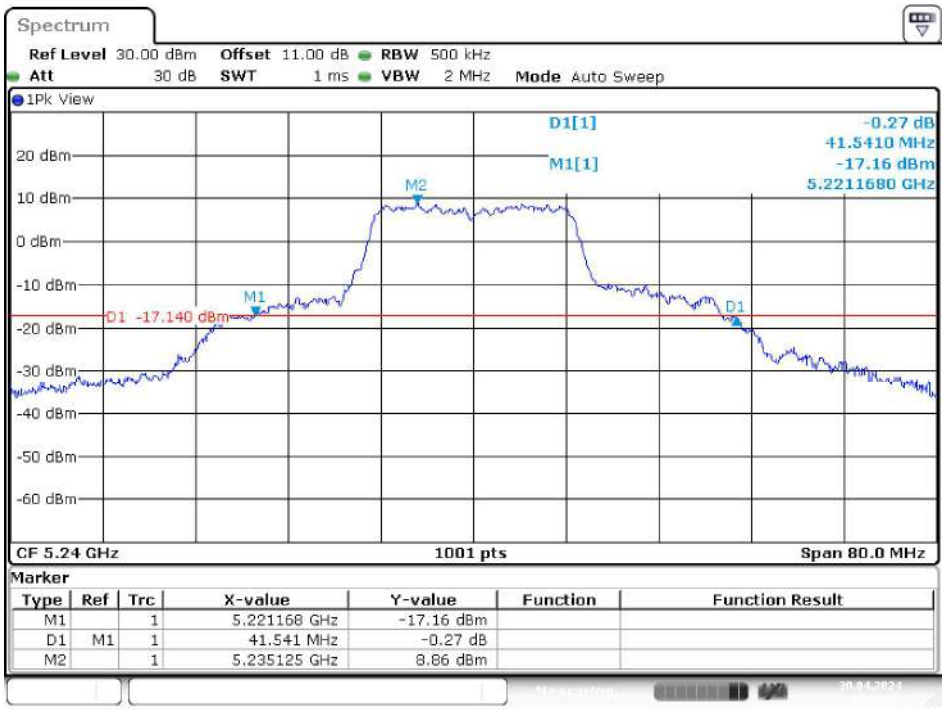
5240MHz



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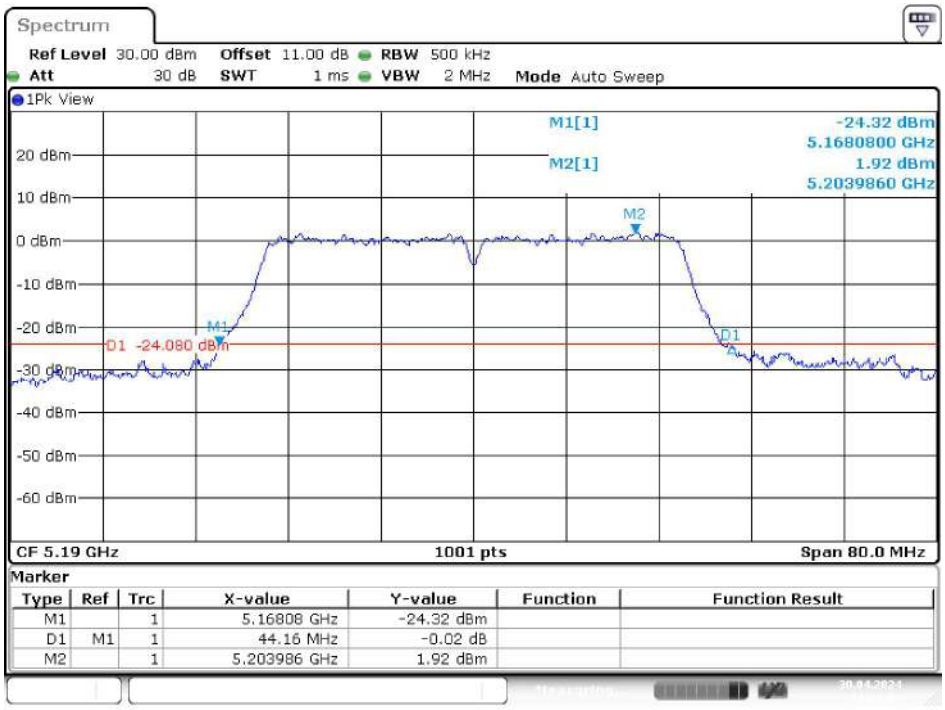
IEEE 802.11ac VHT40 Mode / 5150 ~ 5250MHz

5190MHz



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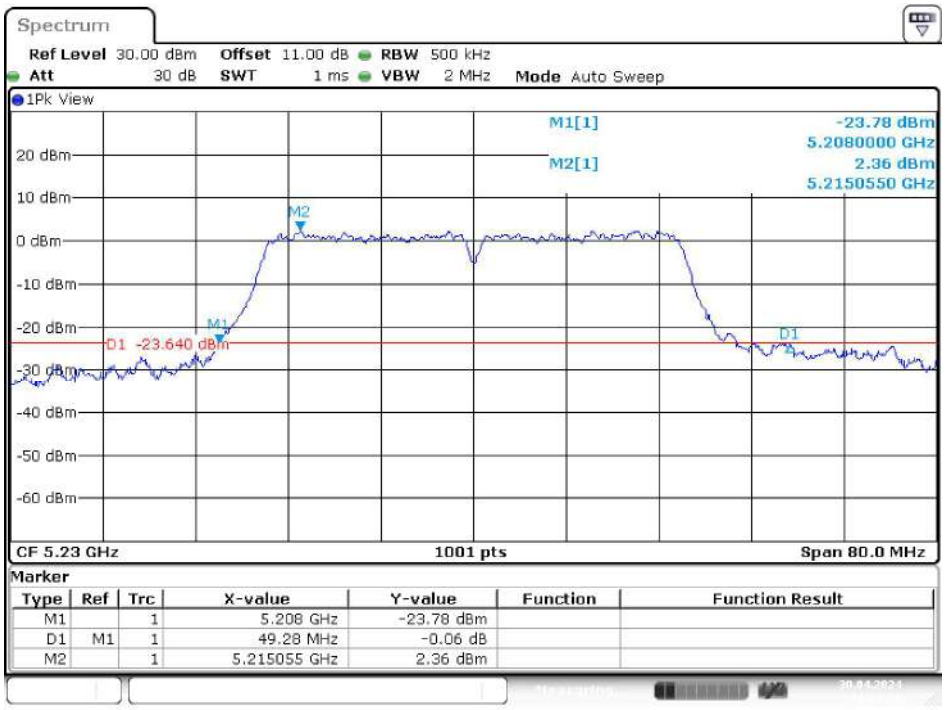
5230MHz



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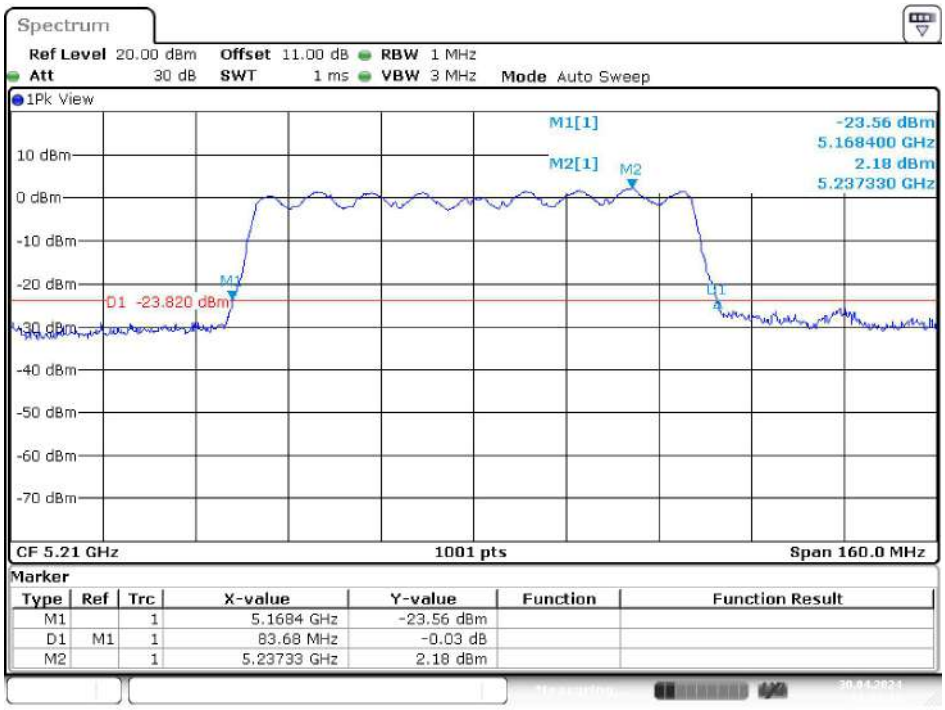
IEEE 802.11ac VHT80 Mode / 5150 ~ 5250MHz

5210MHz



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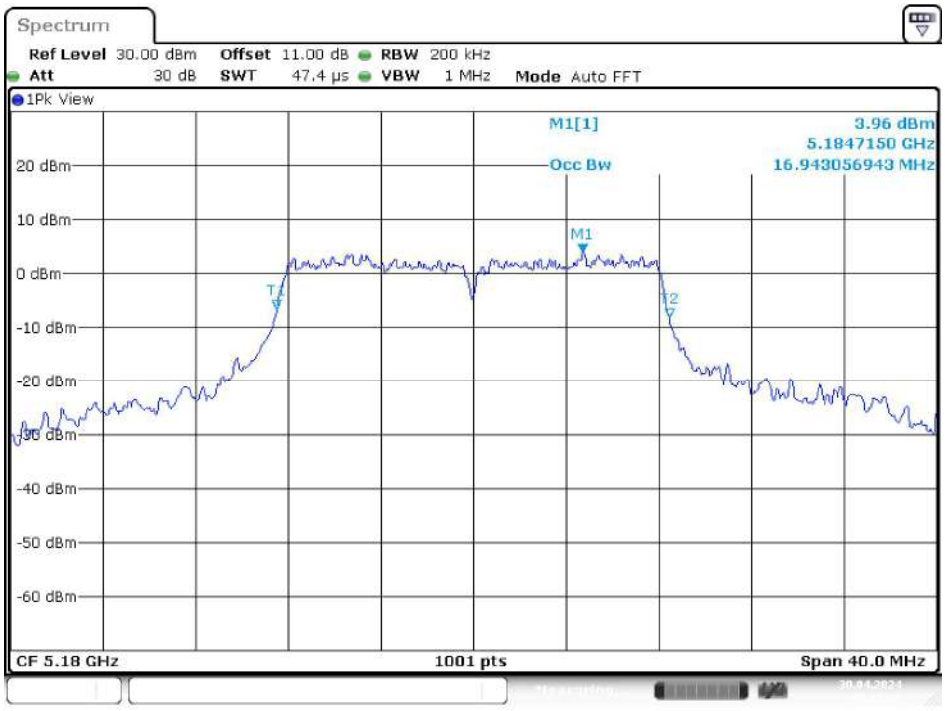
UNII-1 Band I / OBW 99%

IEEE 802.11a Mode / 5150 ~ 5250MHz

5180MHz



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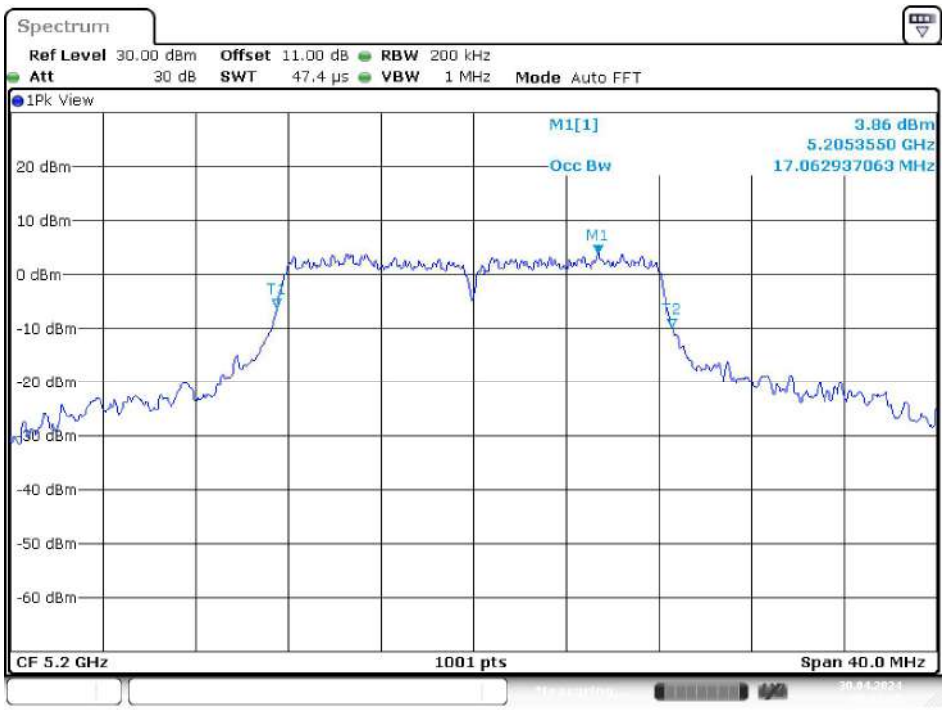
5200MHz



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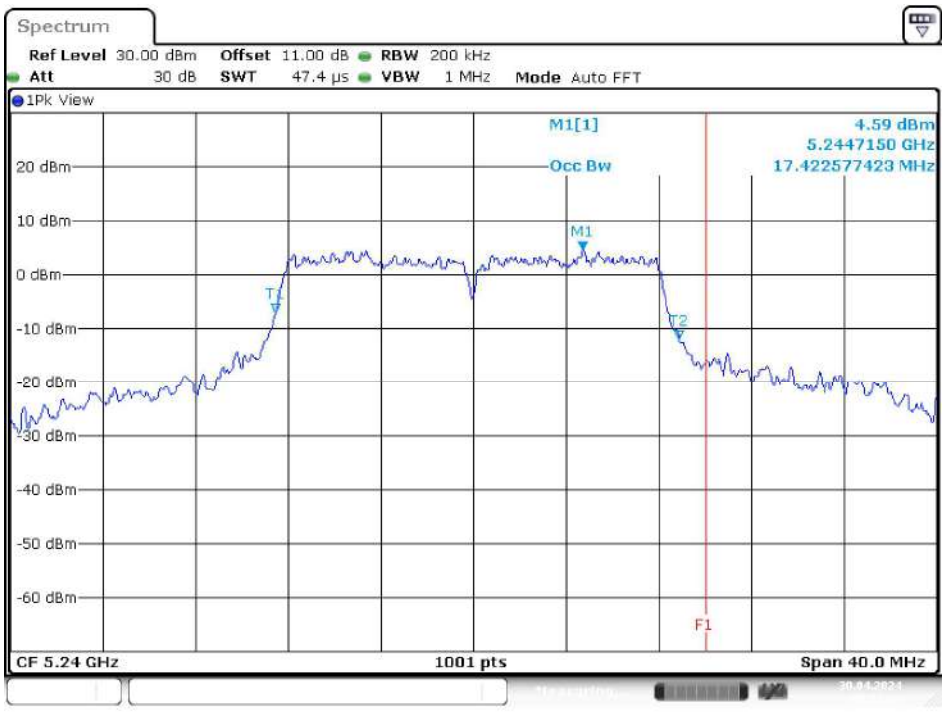
5240MHz



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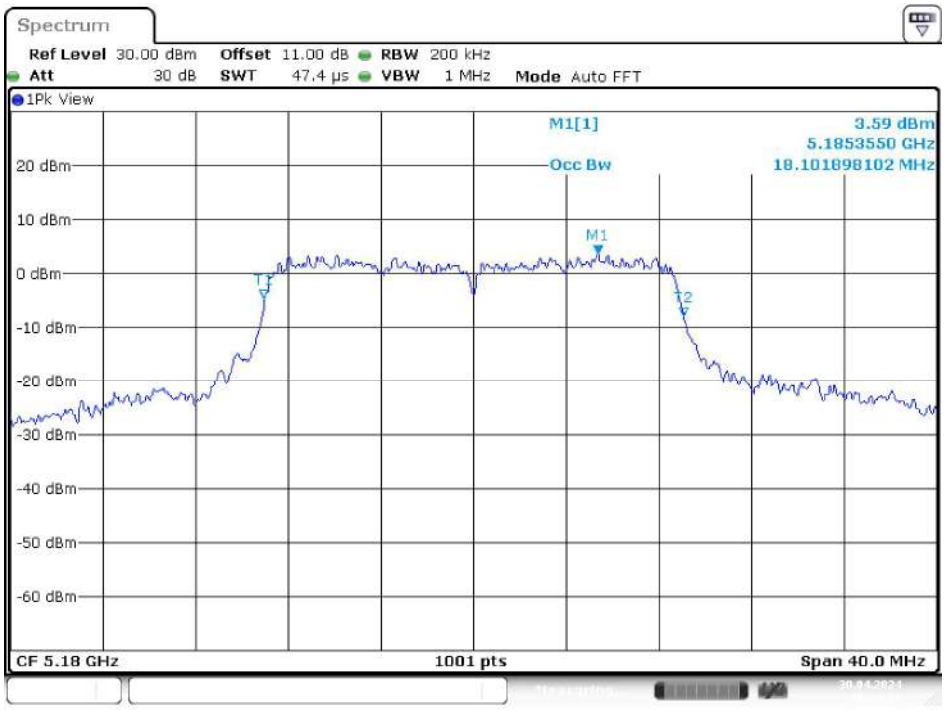
IEEE 802.11ac VHT20 Mode / 5150 ~ 5250MHz

5180MHz



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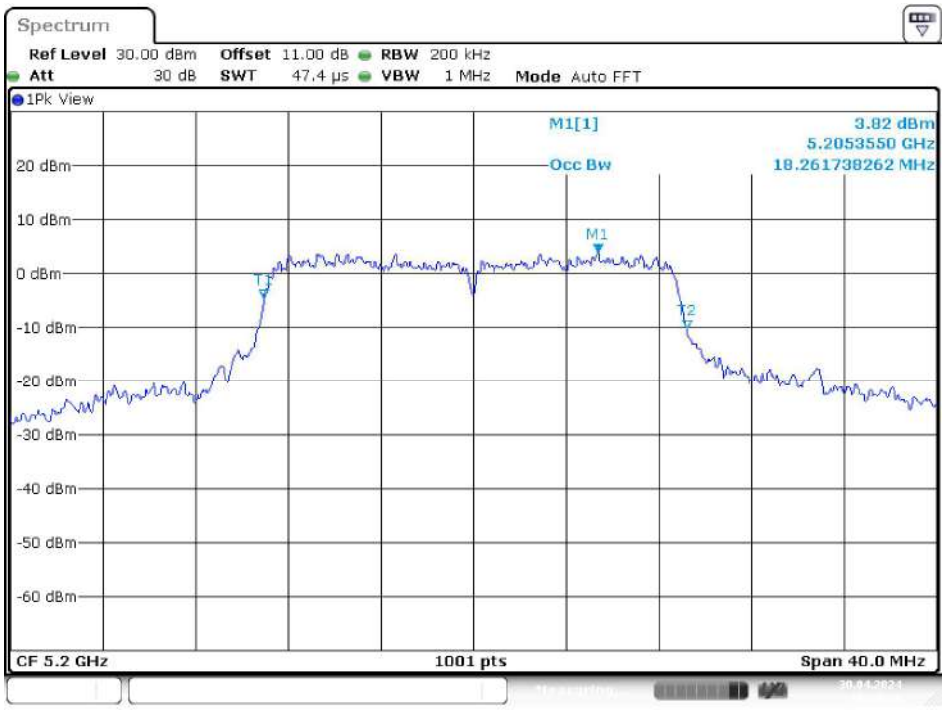
5200MHz



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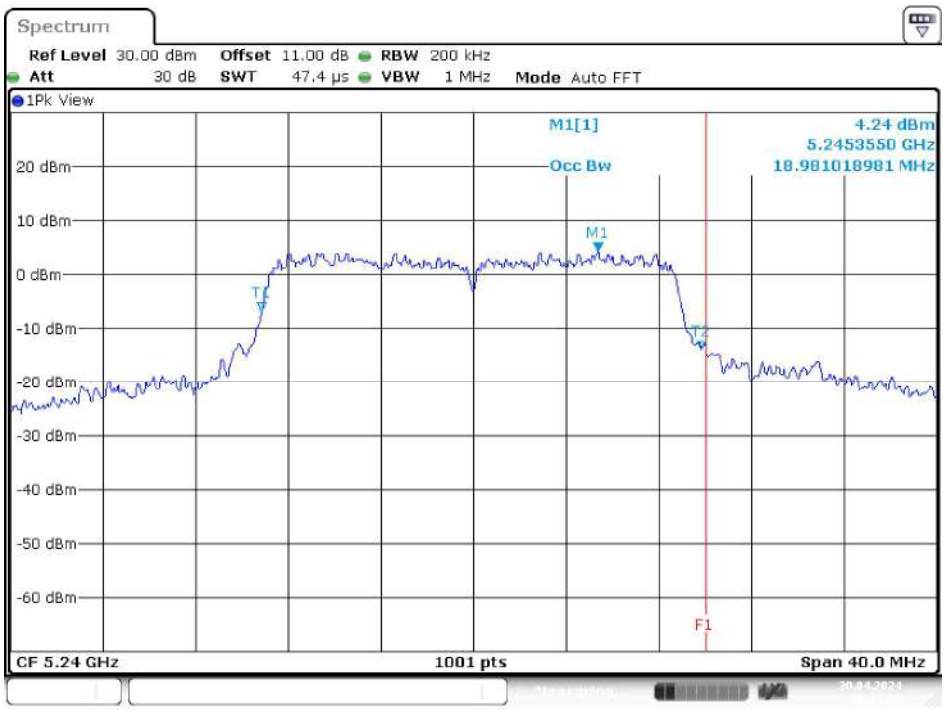
5240MHz



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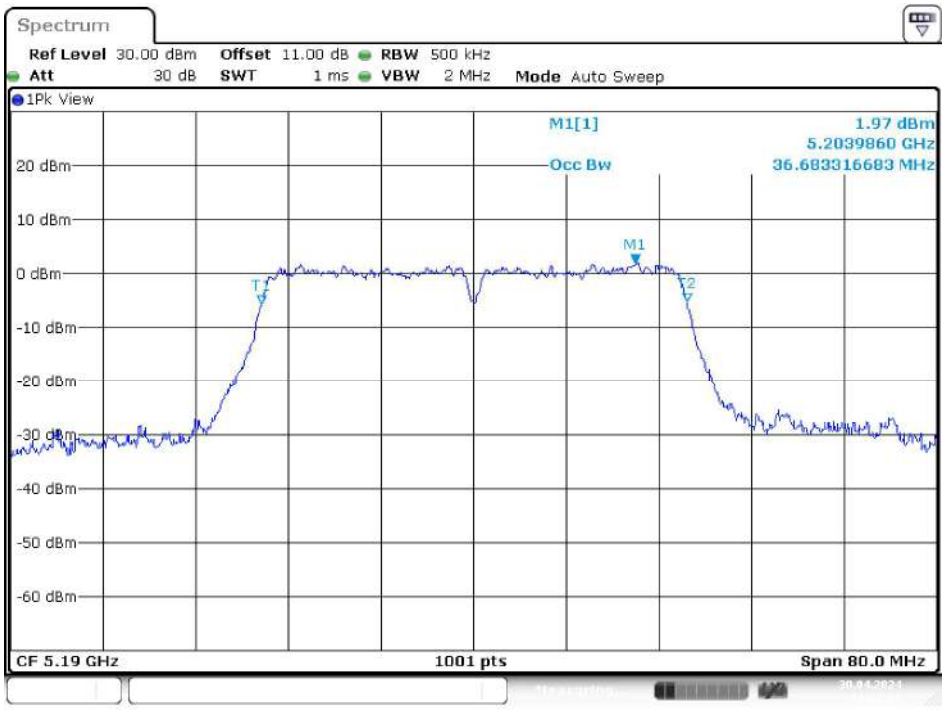
IEEE 802.11ac VHT40 Mode / 5150 ~ 5250MHz

5190MHz



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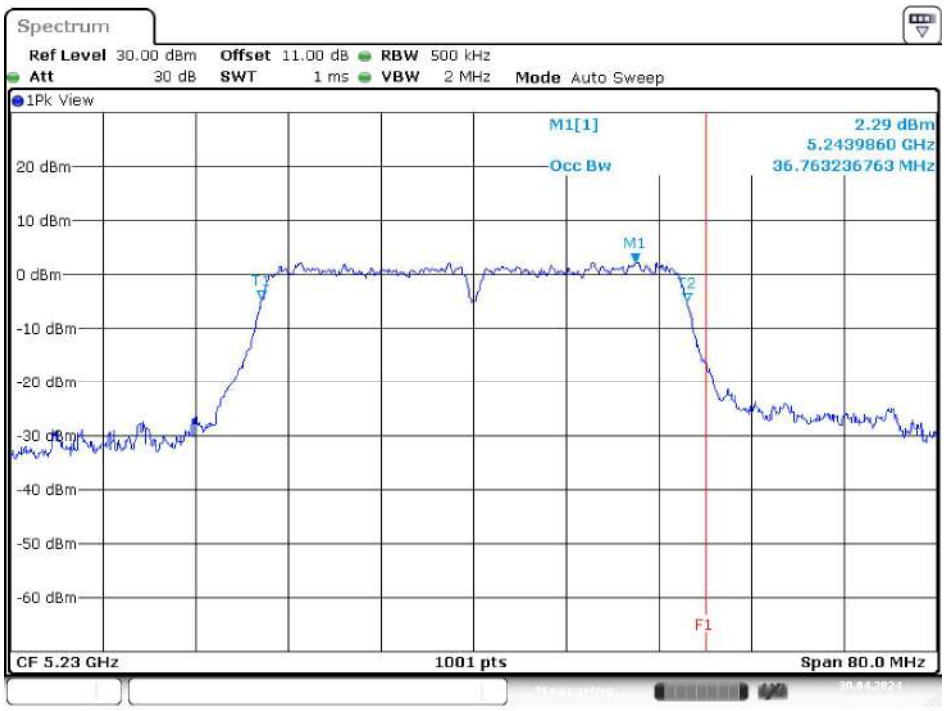
5230MHz



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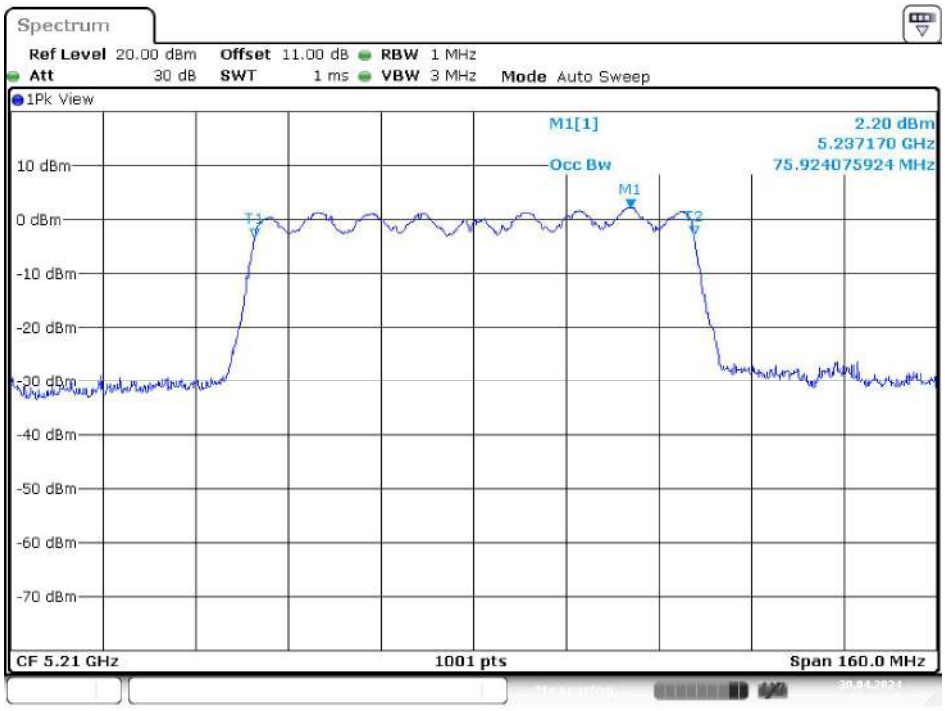
IEEE 802.11ac VHT80 Mode / 5150 ~ 5250MHz

5210MHz



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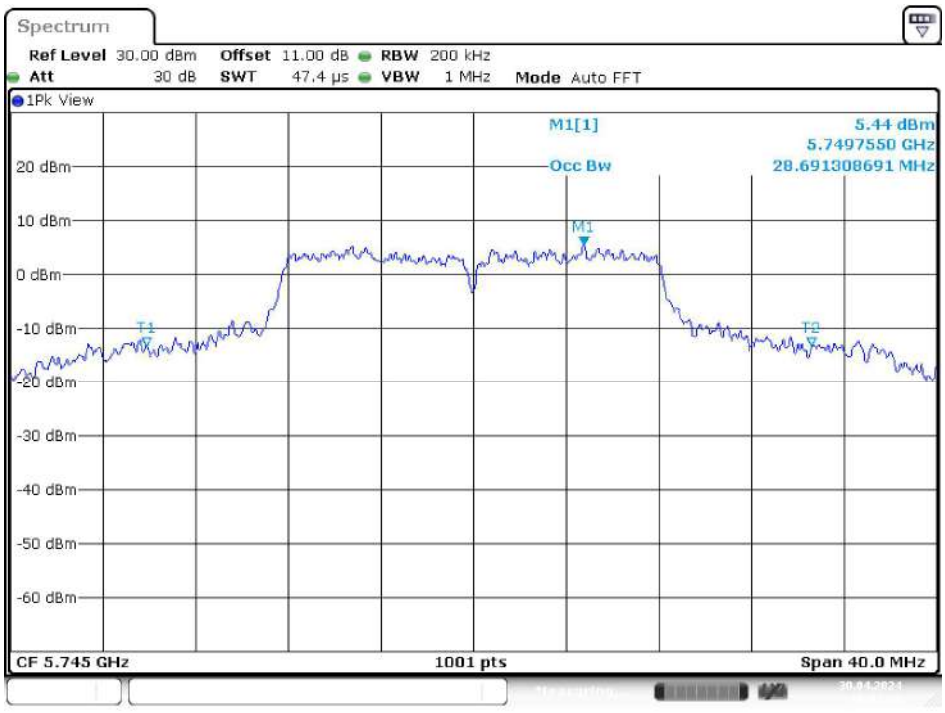
UNII-3 Band IV / OBW 99%

IEEE 802.11a Mode / 5725 ~ 5850MHz

5745MHz



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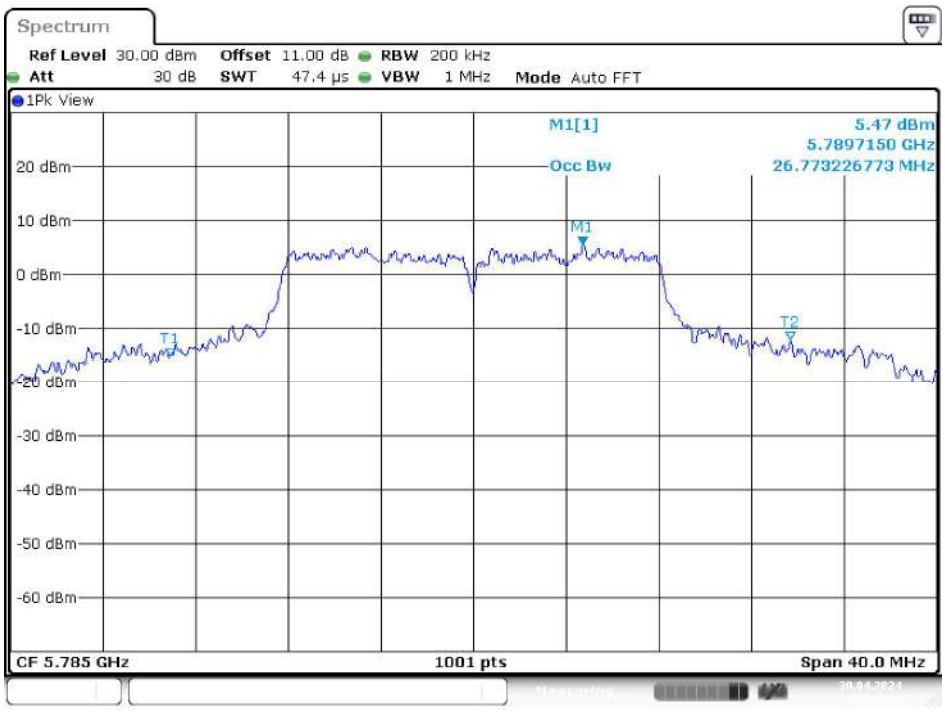
5785MHz



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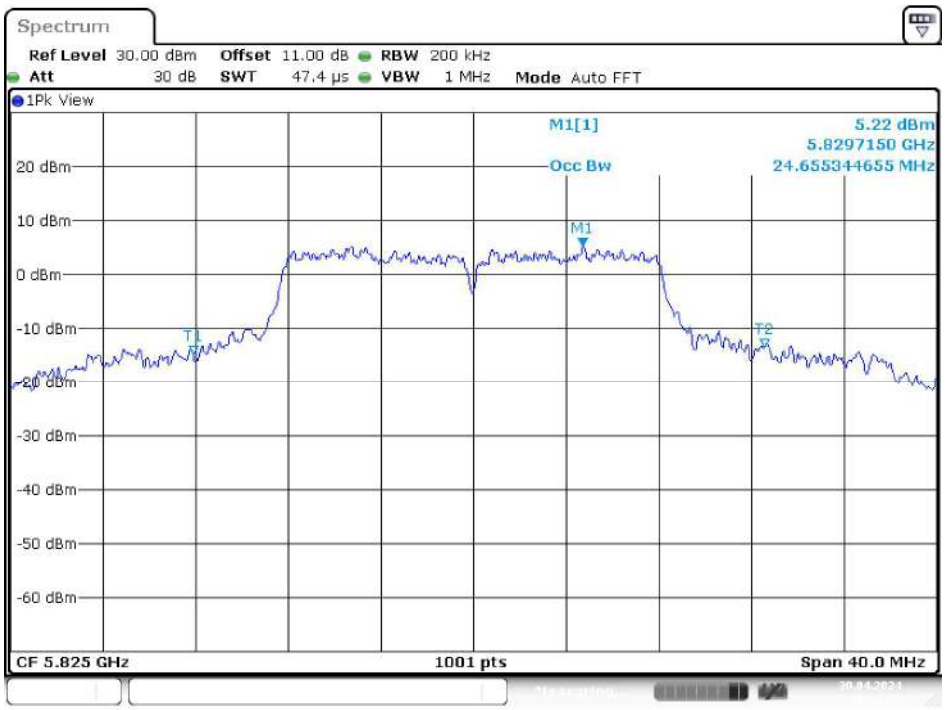
5825MHz



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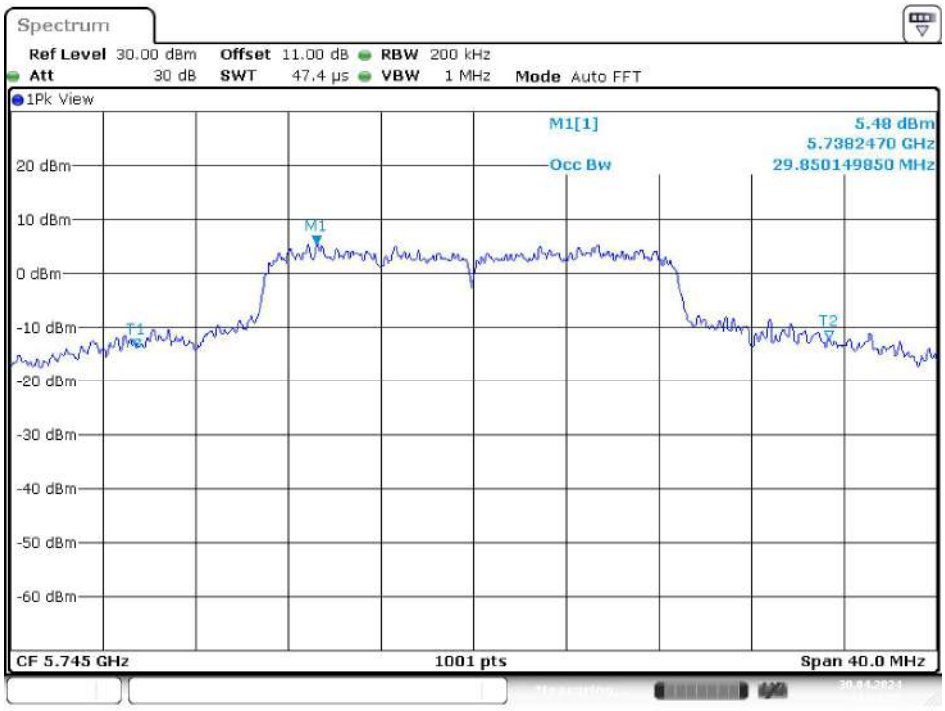
IEEE 802.11ac VHT20 Mode / 5725 ~ 5850MHz

5745MHz



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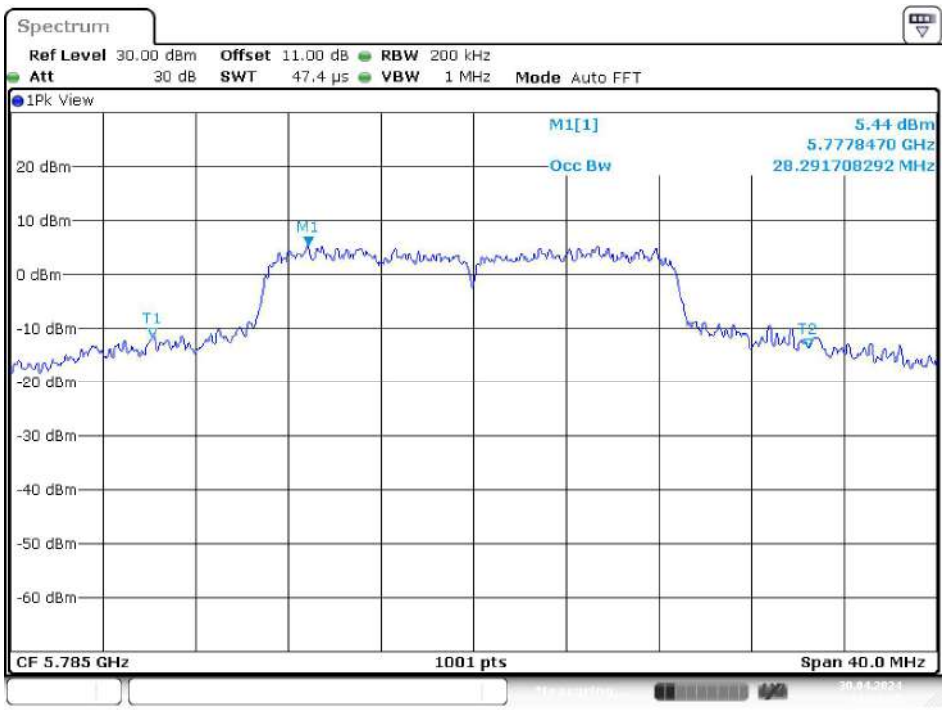
5785MHz



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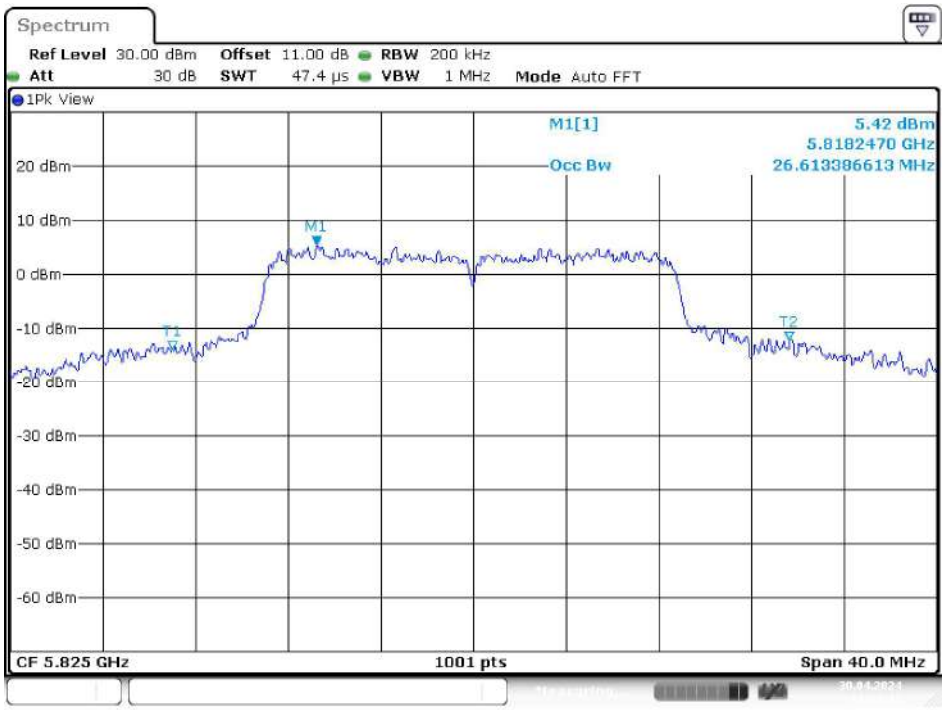
5825MHz



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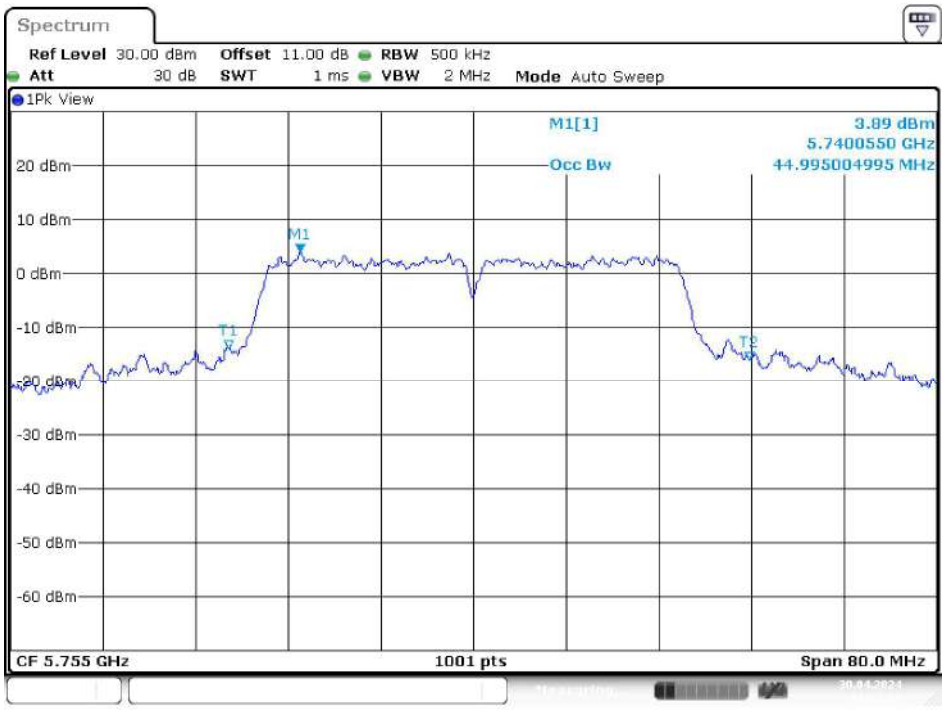
IEEE 802.11ac VHT40 Mode / 5725 ~ 5850MHz

5755MHz



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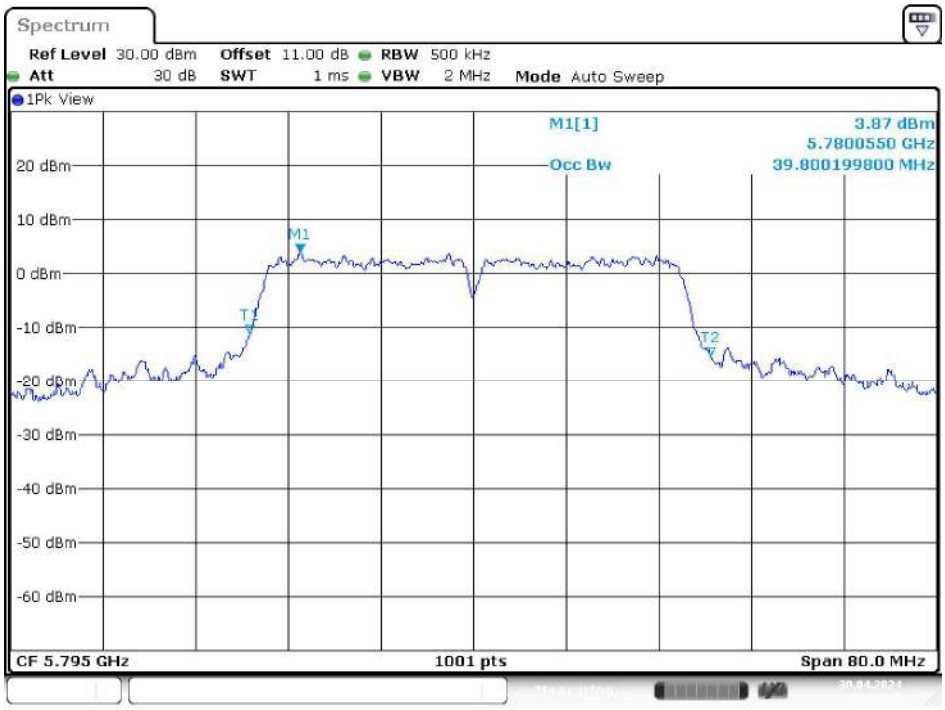
5795MHz



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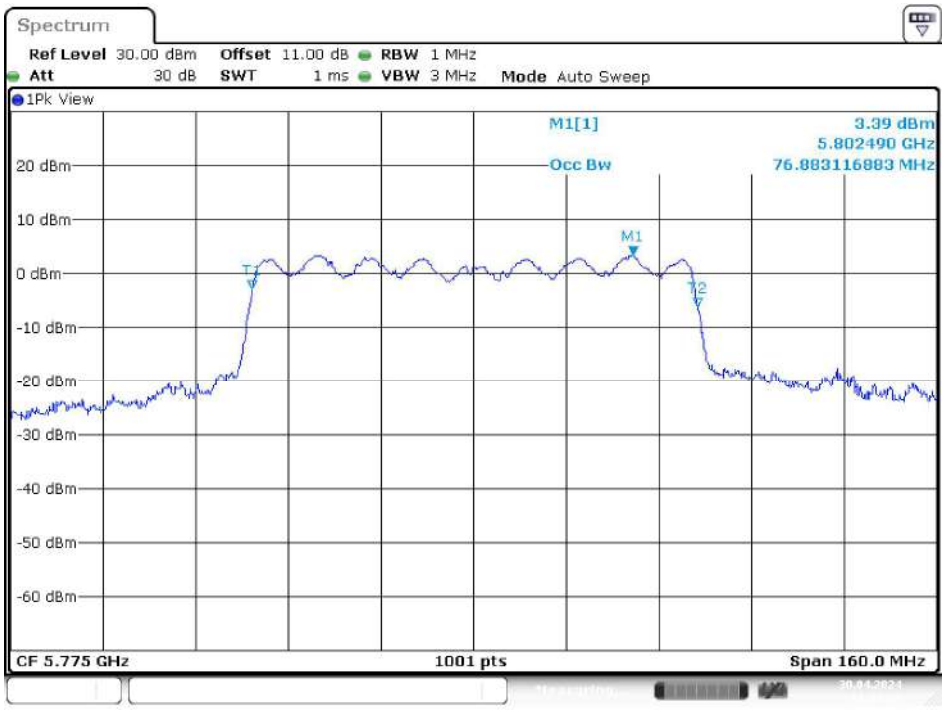
IEEE 802.11ac VHT80 Mode / 5725 ~ 5850MHz

5775MHz



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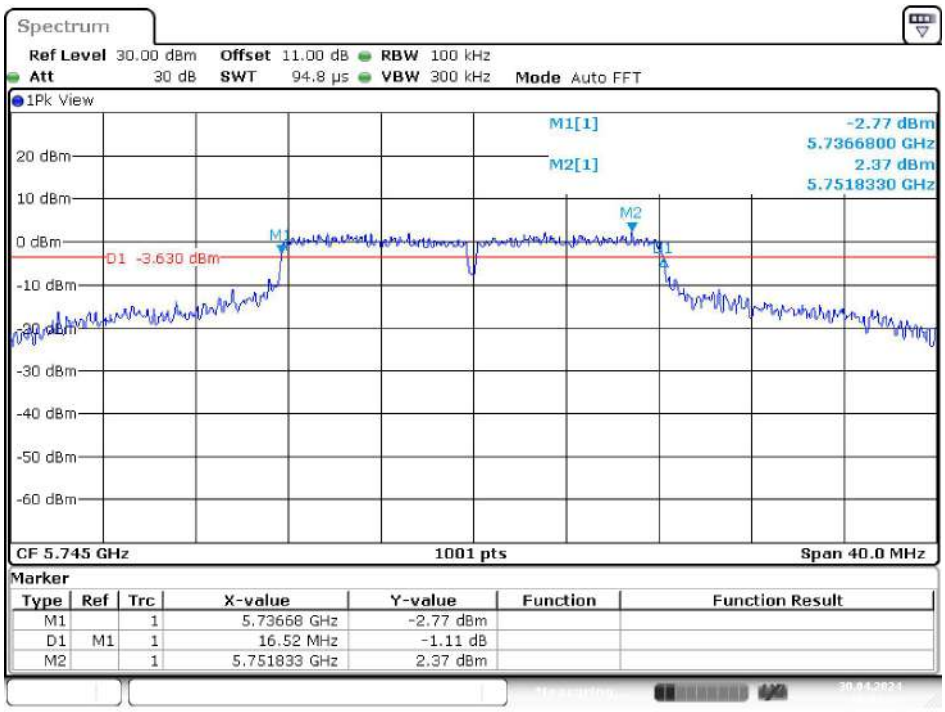
UNII-3 Band IV / BW 6dBc

IEEE 802.11a Mode / 5725 ~ 5850MHz

5745MHz



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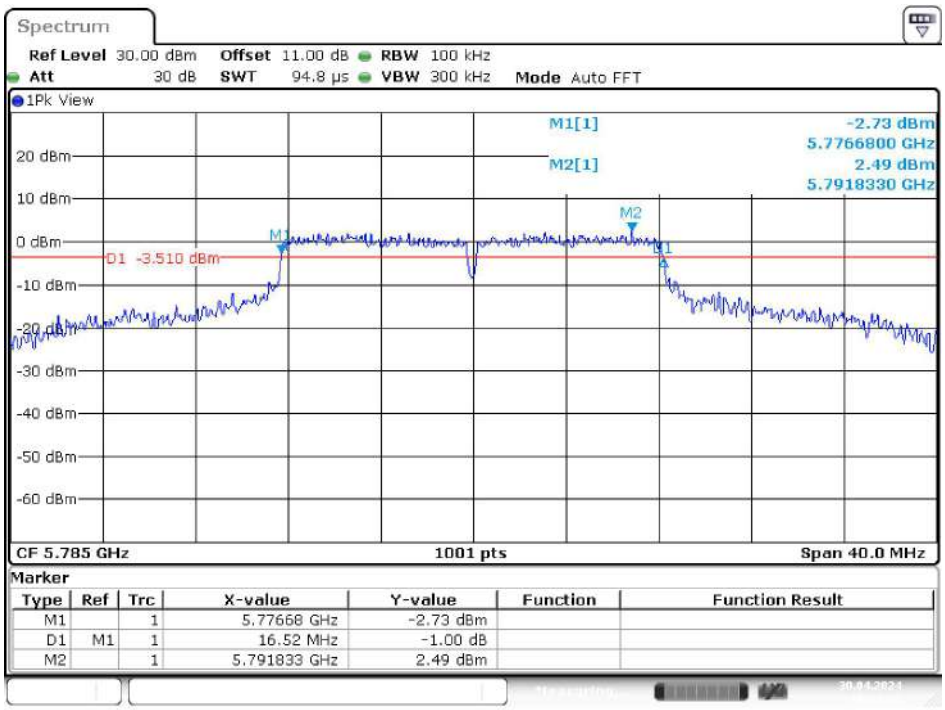
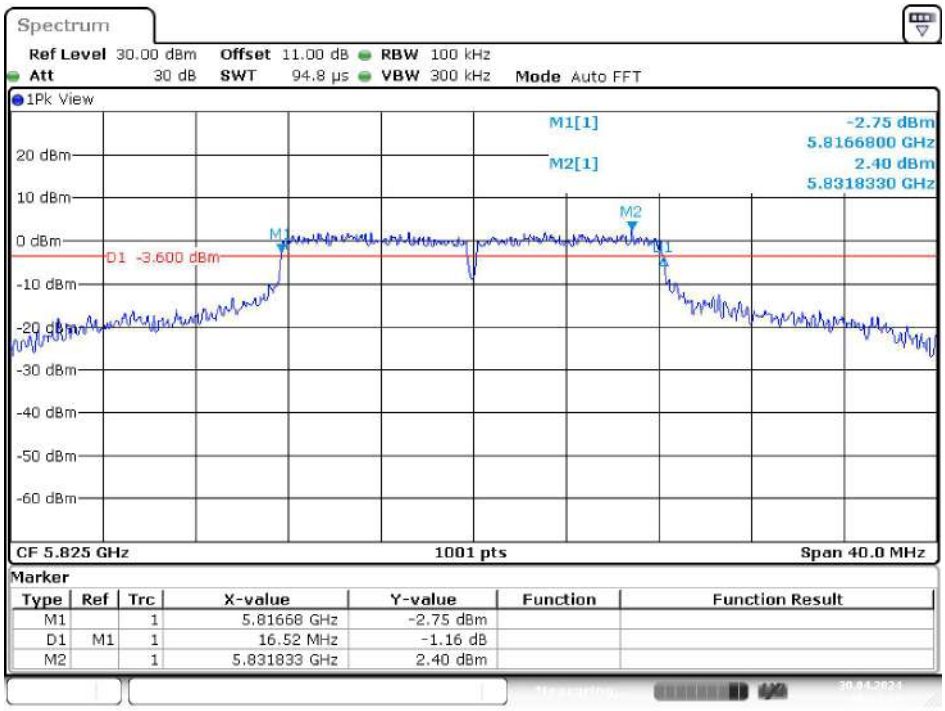
5785MHz



Date: 30.APR.2024 10:11:43

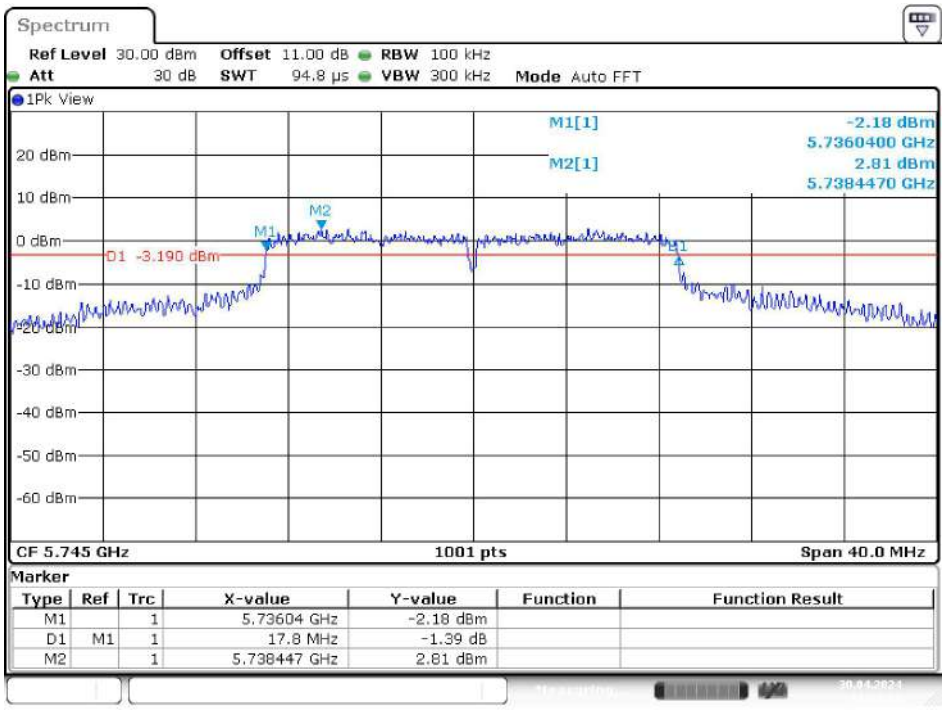
5825MHz



Date: 30.APR.2024 10:17:23

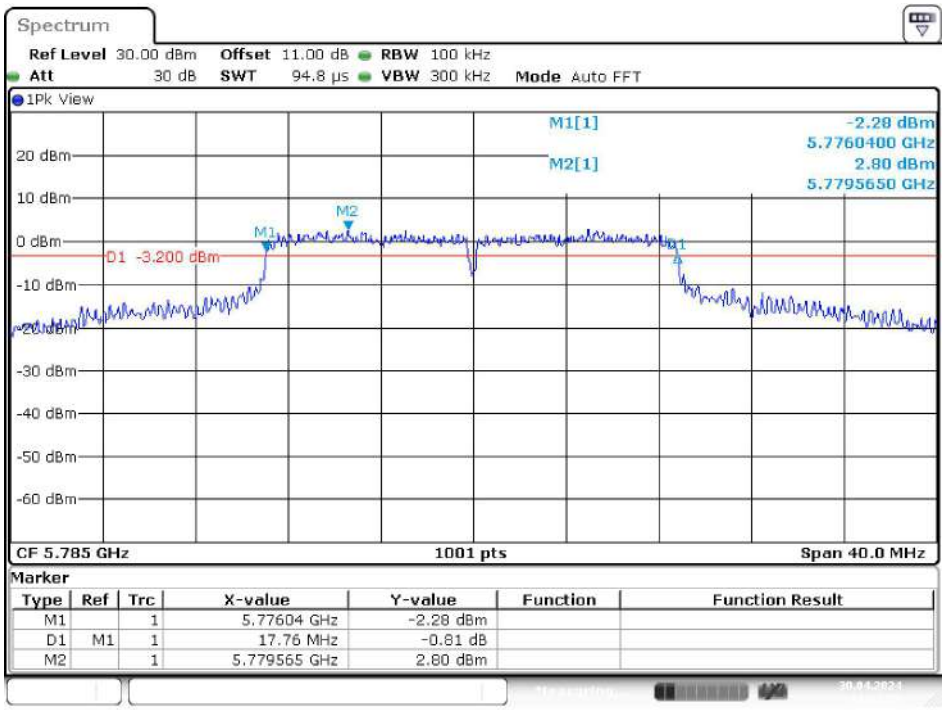
IEEE 802.11ac VHT20 Mode / 5725 ~ 5850MHz

5745MHz



Date: 30.APR.2024 11:11:21

5785MHz



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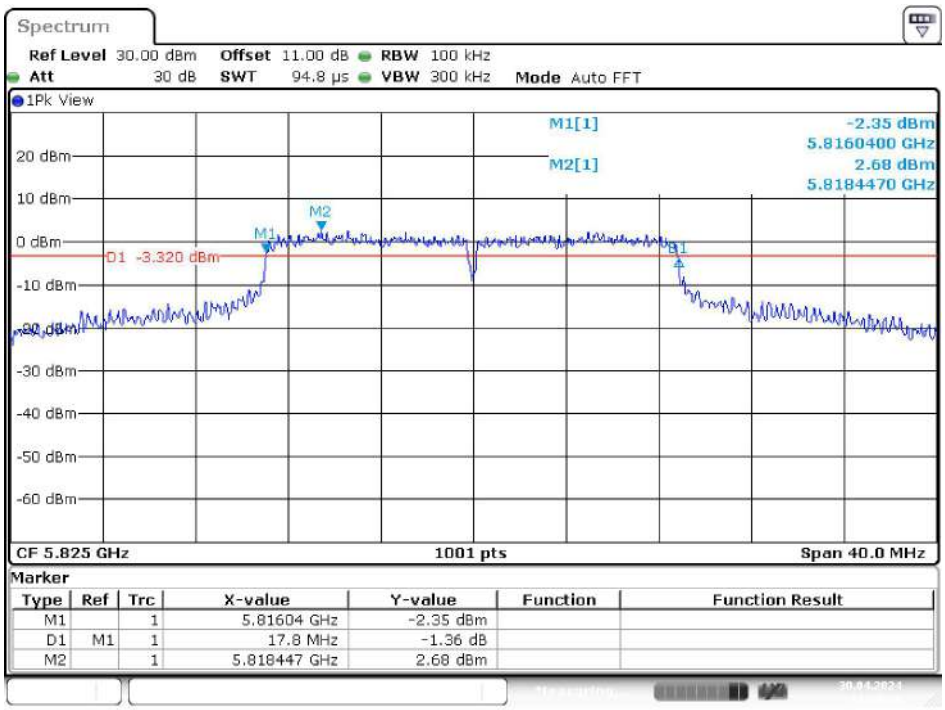
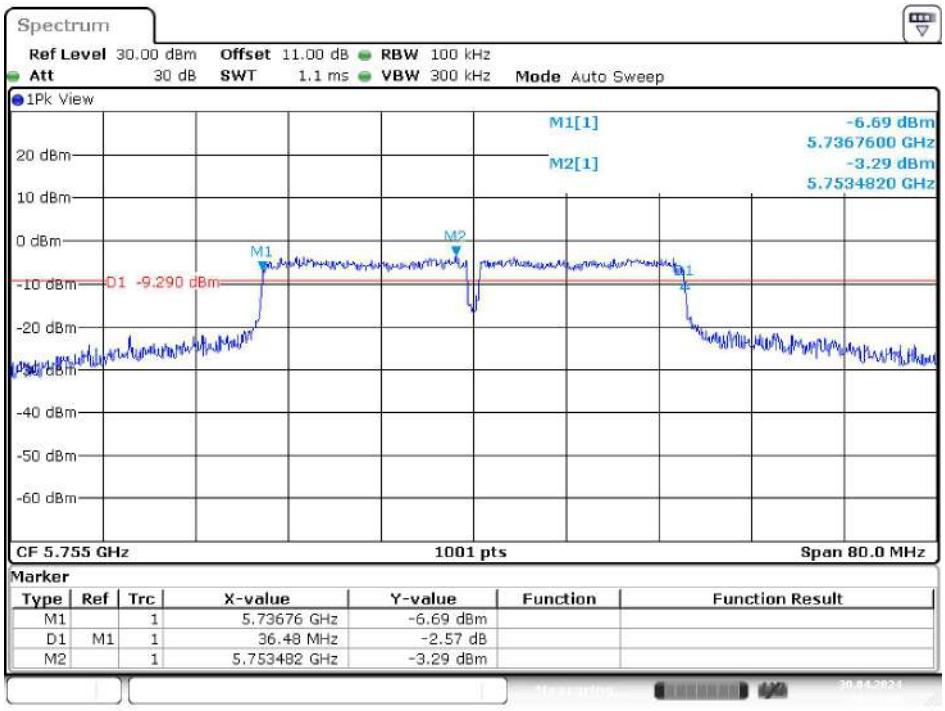
5825MHz



Date: 30.APR.2024 11:20:37

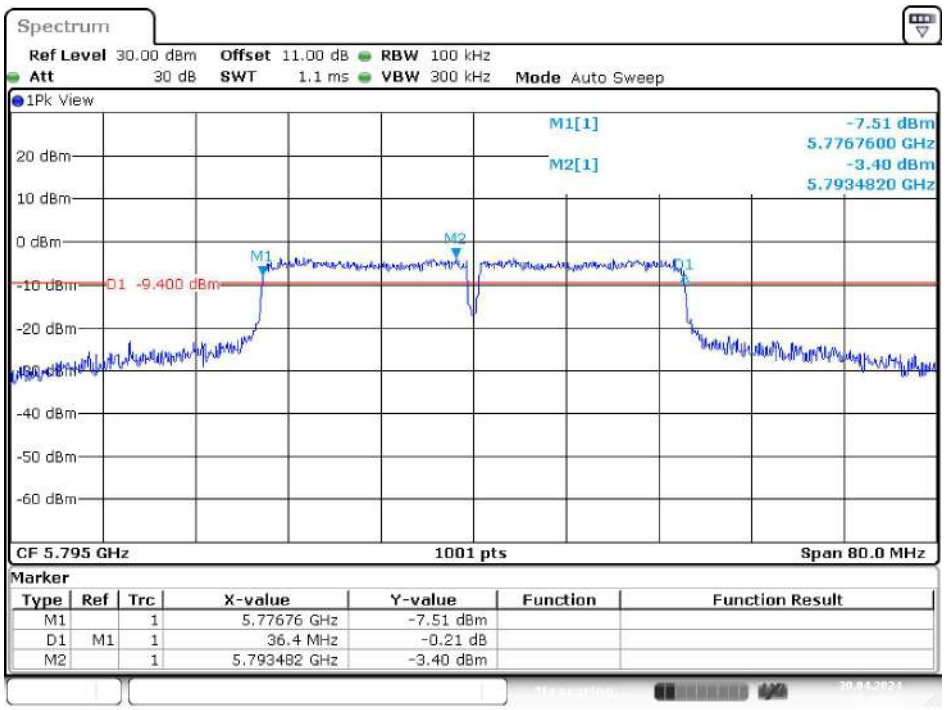
IEEE 802.11ac VHT40 Mode / 5725 ~ 5850MHz

5755MHz



Date: 30.APR.2024 11:26:26

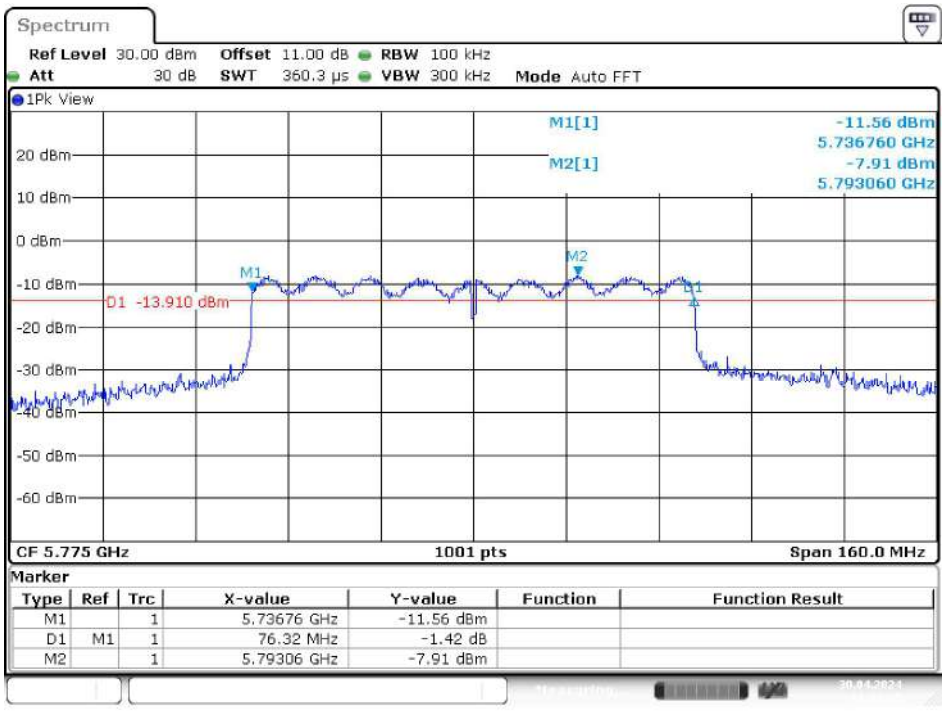
5795MHz



Date: 30.APR.2024 11:33:42

IEEE 802.11ac VHT80 Mode / 5725 ~ 5850MHz

5775MHz



Date: 30.APR.2024 11:43:36

12 FCC §15.407(a) & RSS-247 §6.2 – Maximum Output Power

12.1 Applicable Standard

According to FCC §15.407(a):

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.

For 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.

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 §6.2:

For the 5.15-5.25 GHz band

For OEM devices installed in vehicles, the maximum e.i.r.p. shall not exceed 30 mW or 1.76 + 10 log10B, dBm, whichever is less. 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 log10B, 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.

For the 5.725-5.85 GHz bands

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-multipoint Footnote3 systems, omnidirectional applications and multiple collocated transmitters transmitting the same information.

12.2 Test Procedure

According to ANSI C63.10-2013 Section 12.3.3.1

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.

12.3 Test Results

Test Mode: Transmitting

Conducted Average Output Power

Pre-scan Mode 1 and Mode 2, Worst case is the Mode 1

5150-5250 MHz

Mode 1

Test Modes	Channel	Frequency (MHz)	Maximum Conducted Average Output Power (dBm)	FCC Master Limit (dBm)	FCC Client Limit (dBm)	EIRP Power (dBm)	RSS-247 EIRP Limit (dBm)
802.11a	36	5180	15.45	30	24	18.87	22.29
	40	5200	15.90	30	24	19.32	22.32
	48	5240	15.88	30	24	19.30	22.41
802.11ac VHT20	36	5180	15.73	30	24	19.15	22.58
	40	5200	16.36	30	24	19.78	22.62
	48	5240	16.33	30	24	19.75	22.78
802.11ac VHT40	38	5190	12.76	30	24	16.18	23
	46	5230	13.12	30	24	16.54	23
802.11ac VHT80	42	5210	10.78	30	24	14.20	23

Note: The device supports softAP mode and client mode.

The maximum antenna gain is 3.42 dBi.

Mode 2 (spot check the worst case channel) :

Test Modes	Channel	Frequency (MHz)	Maximum Conducted Average Output Power (dBm)	FCC Master Limit (dBm)	FCC Client Limit (dBm)	EIRP Power (dBm)	RSS-247 EIRP Limit (dBm)
802.11ac VHT20	40	5200	16.34	30	24	19.76	22.62

Result: The test data results of Mode 1 and Mode 2 are close.

5725-5850 MHz

Mode 1

Test Modes	Channel	Frequency (MHz)	Maximum Conducted Average Output Power (dBm)	FCC / RSS-247 Limit (dBm)
802.11a	149	5745	16.85	30
	157	5785	16.91	30
	165	5825	16.87	30
802.11ac VHT20	149	5745	17.33	30
	157	5785	17.37	30
	165	5825	17.27	30
802.11ac VHT40	151	5755	14.33	30
	159	5795	14.32	30
802.11ac VHT80	155	5775	12.27	30

Mode 2 (spot check the worst case channel) :

Test Modes	Channel	Frequency (MHz)	Maximum Conducted Average Output Power (dBm)	FCC / RSS-247 Limit (dBm)
802.11ac VHT20	157	5785	17.34	30

Result: The test data results of Mode 1 and Mode 2 are close.

13 FCC §15.407(a) & RSS-247 §6.2 – Power Spectral Density

13.1 Applicable Standard

According to FCC §15.407(a):

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.

For 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.

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 30dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6dBi 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 6dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6dBi 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 §6.2:

For the 5.15-5.25 GHz band

For OEM devices installed in vehicles, the maximum e.i.r.p. shall not exceed 30 mW or 1.76 + 10 log10B, dBm, whichever is less. 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 log10B, 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.

For the 5.725-5.85 GHz bands

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-multipoint Footnote3 systems, omnidirectional applications and multiple collocated transmitters transmitting the same information.

13.2 Test Procedure

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

Duty cycle > 98%, Method SA-1 was used.

13.3 Test Results

Test Mode: Transmitting

5150-5250 MHz

UNII Band	Mode	Channel	Frequency (MHz)	Power Spectral Density (dBm/MHz)	FCC Master Limit (dBm/MHz)	FCC Client Limit (dBm/MHz)	RSS-247 EIRP Power Spectral Density (dBm/MHz)	
							Result	Limit
UNII-1	802.11a	36	5180	3.64	17	11	7.06	10
		40	5200	4.06	17	11	7.48	10
		48	5240	4.25	17	11	7.67	10
	802.11ac 20	36	5180	3.59	17	11	7.01	10
		40	5200	3.91	17	11	7.33	10
		48	5240	4.26	17	11	7.68	10
	802.11ac 40	38	5190	-2.37	17	11	1.05	10
		46	5230	-2.16	17	11	1.26	10
	802.11ac 80	42	5210	-5.83	17	11	-2.41	10

Note: The device supports softAP mode and client mode.

The maximum antenna gain is 3.42 dBi.

5725-5850 MHz

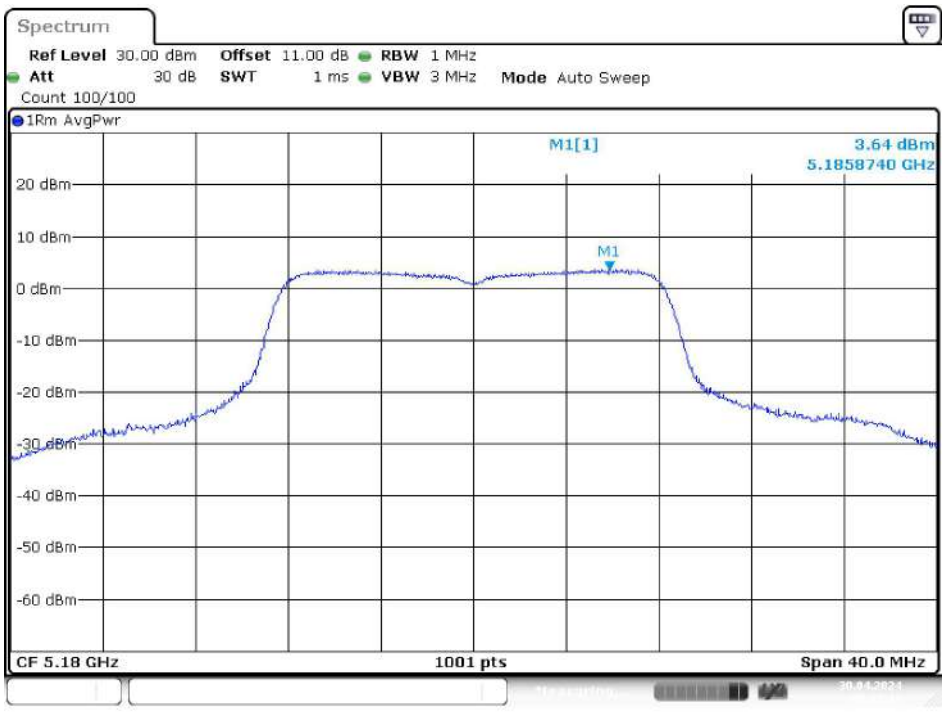
UNII Band	Mode	Channel	Frequency (MHz)	Power Spectral Density (dBm/500kHz)	Limit (dBm/500kHz)
UNII-3	802.11a	149	5745	1.97	30
		157	5785	2.04	30
		165	5825	2.14	30
	802.11ac 20	149	5745	2.10	30
		157	5785	2.18	30
		165	5825	2.14	30
	802.11ac 40	151	5755	-3.74	30
		159	5795	-3.98	30
	802.11ac 80	155	5775	-7.55	30

Please refer to the following plots

UNII-1 Band I / PSD

IEEE 802.11a Mode / 5150 ~ 5250MHz

5180MHz



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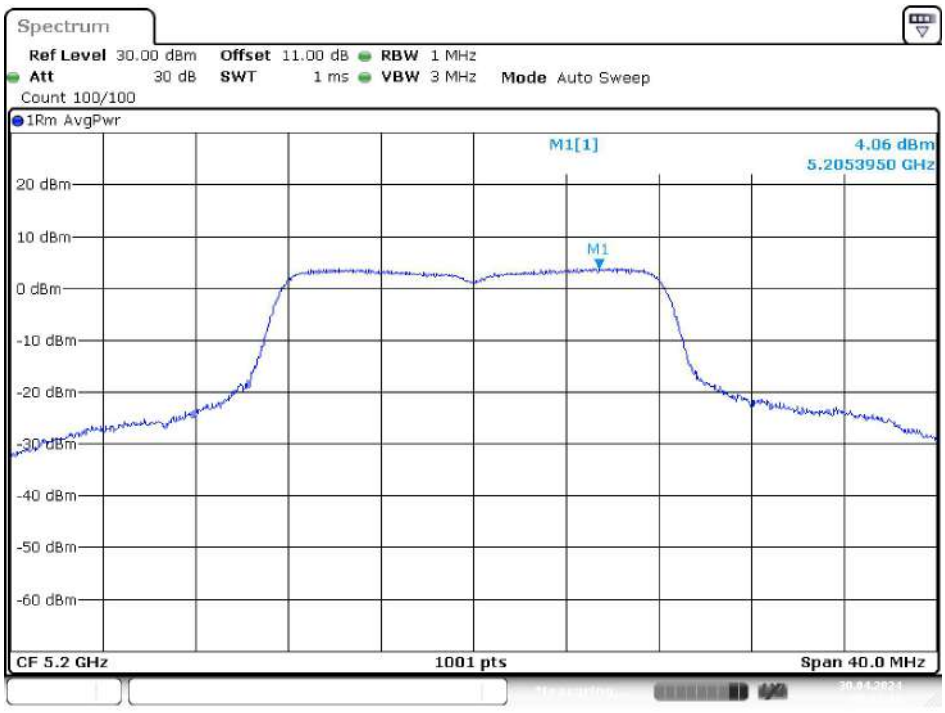
5200MHz



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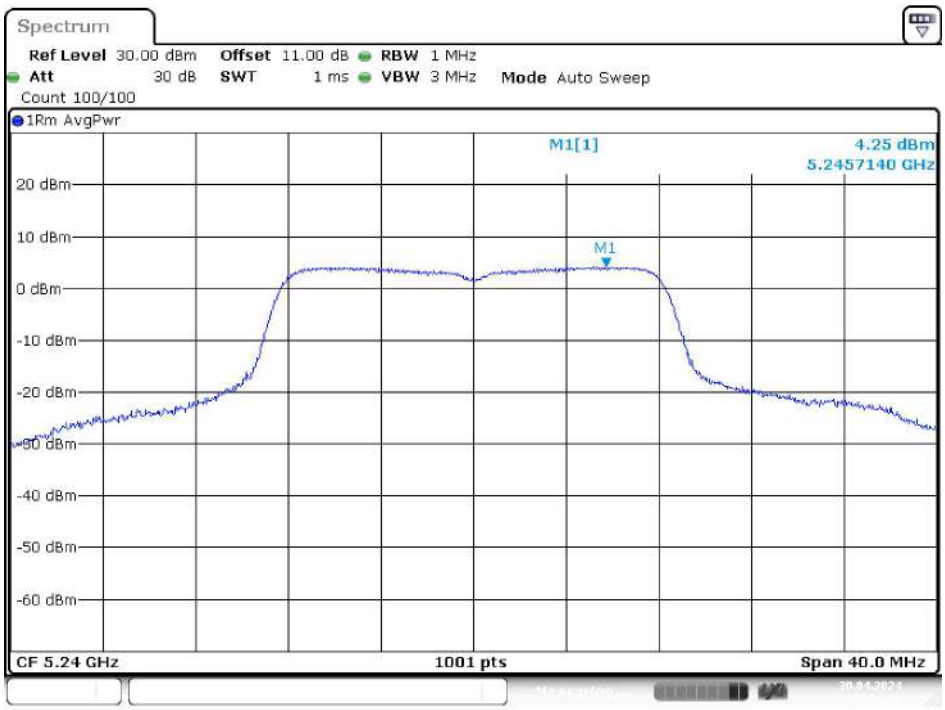
5240MHz



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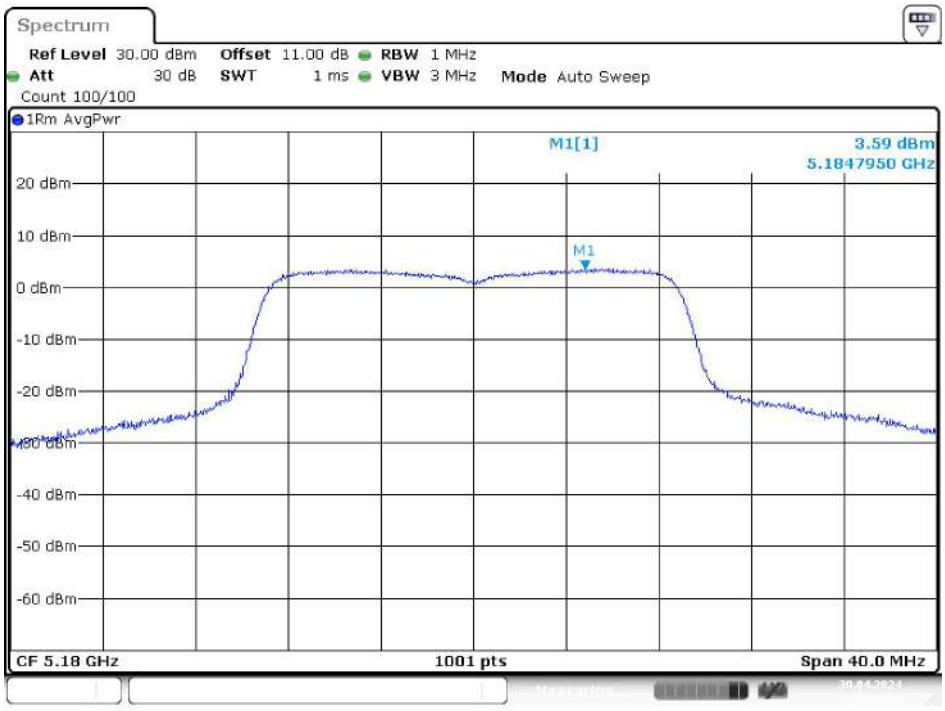
IEEE 802.11ac VHT20 Mode / 5150 ~ 5250MHz

5180MHz



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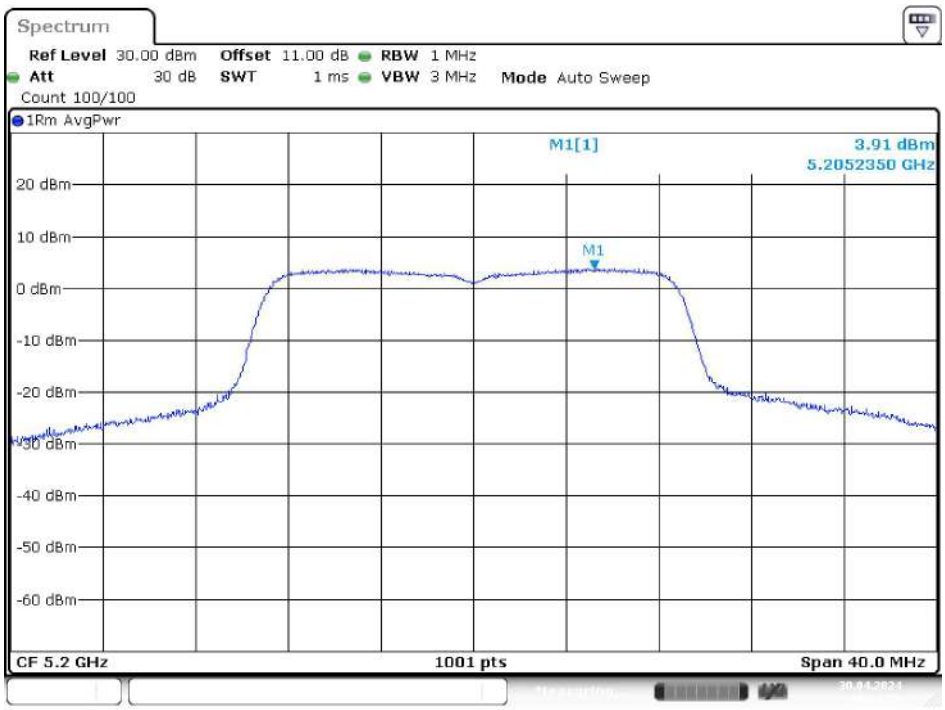
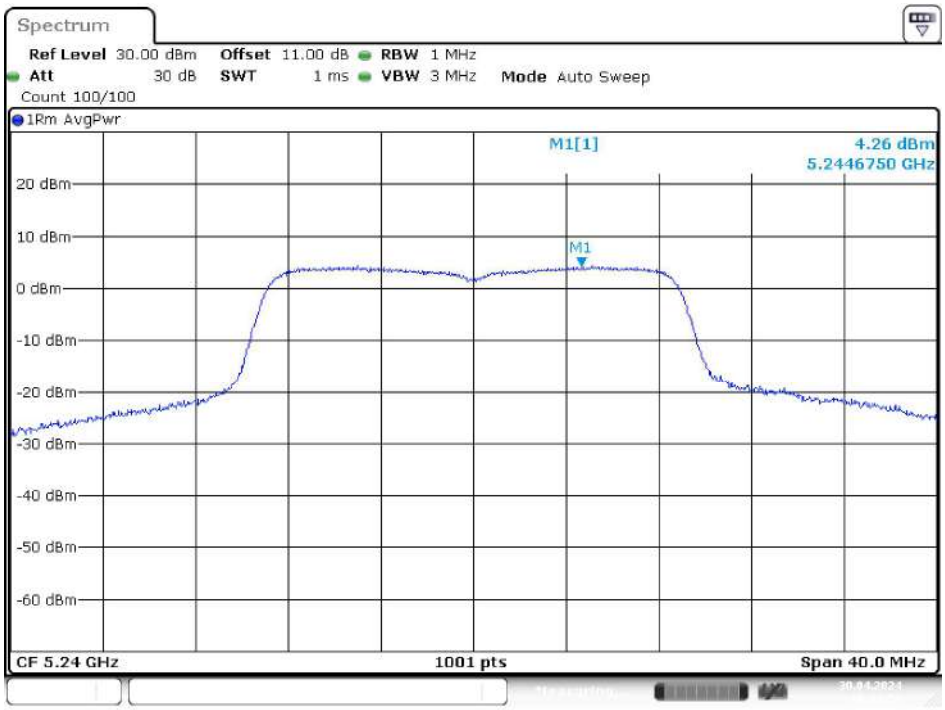
5200MHz



Date: 30.APR.2024 10:28:59

5240MHz



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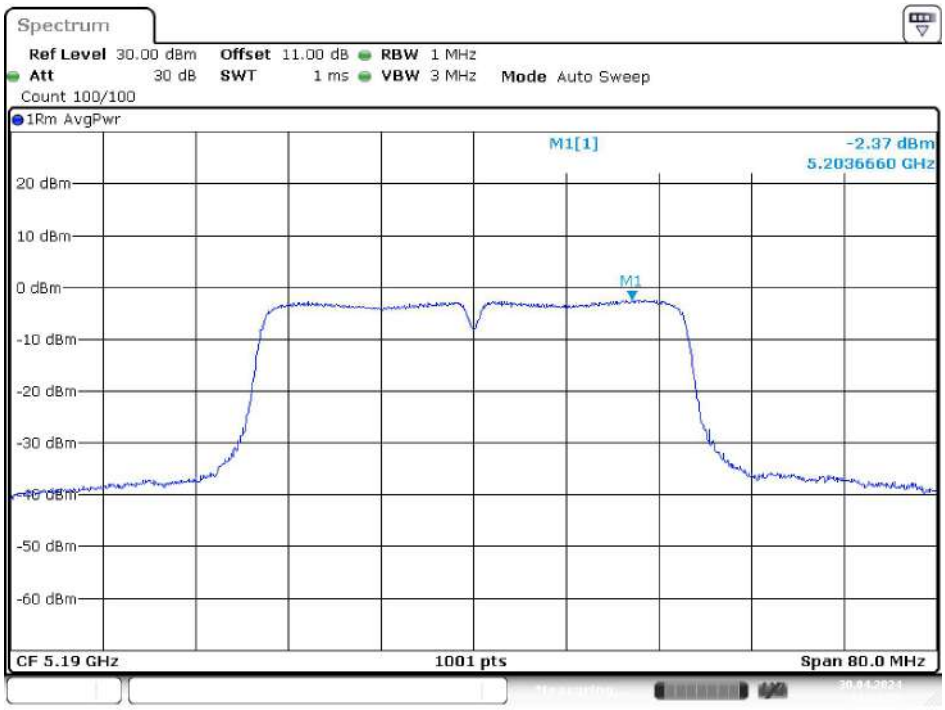
IEEE 802.11ac VHT40 Mode / 5150 ~ 5250MHz

5190MHz



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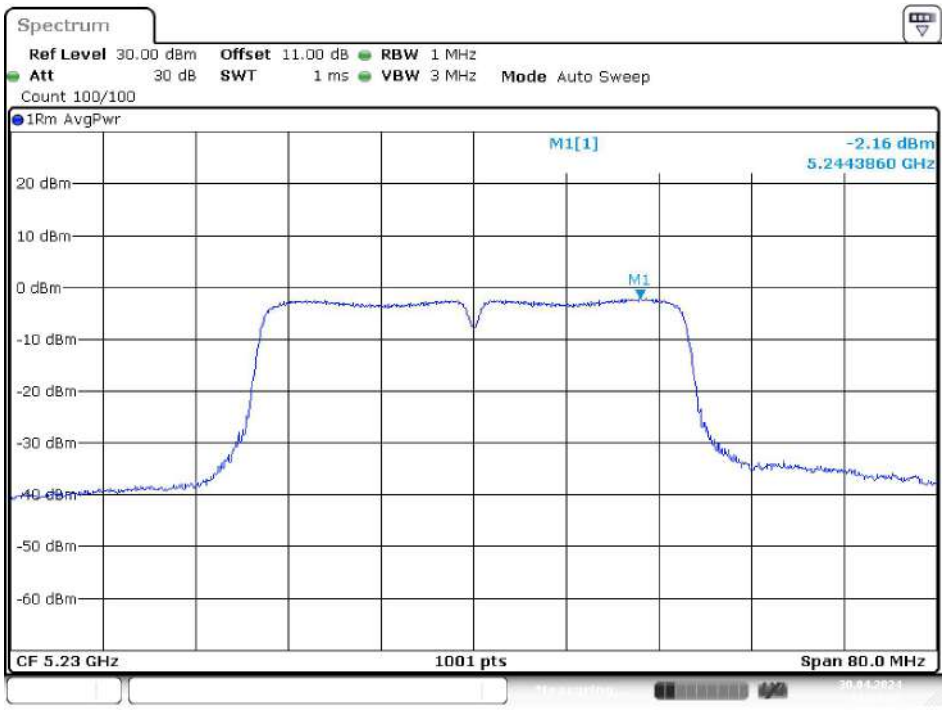
5230MHz



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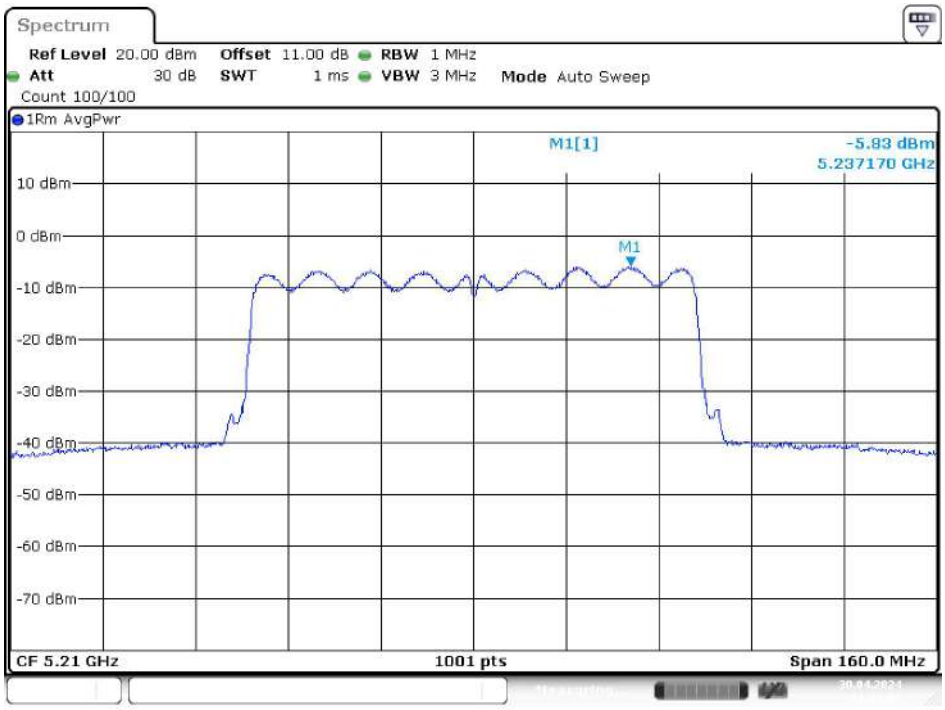
IEEE 802.11ac VHT80 Mode / 5150 ~ 5250MHz

5210MHz



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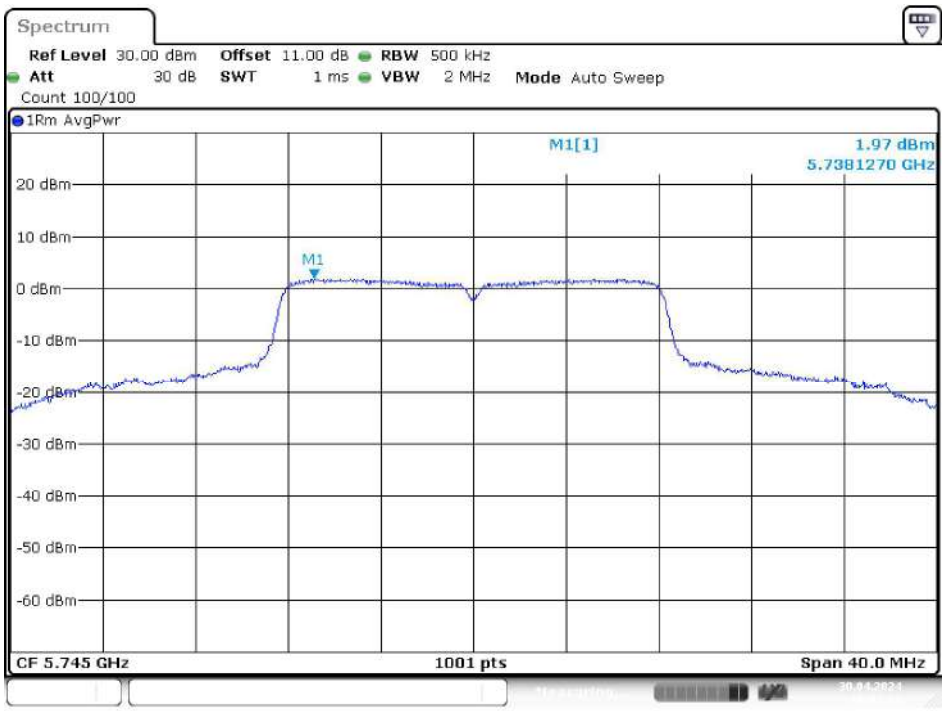
UNII-3 Band IV / PSD

IEEE 802.11a Mode / 5725 ~ 5850MHz

5745MHz



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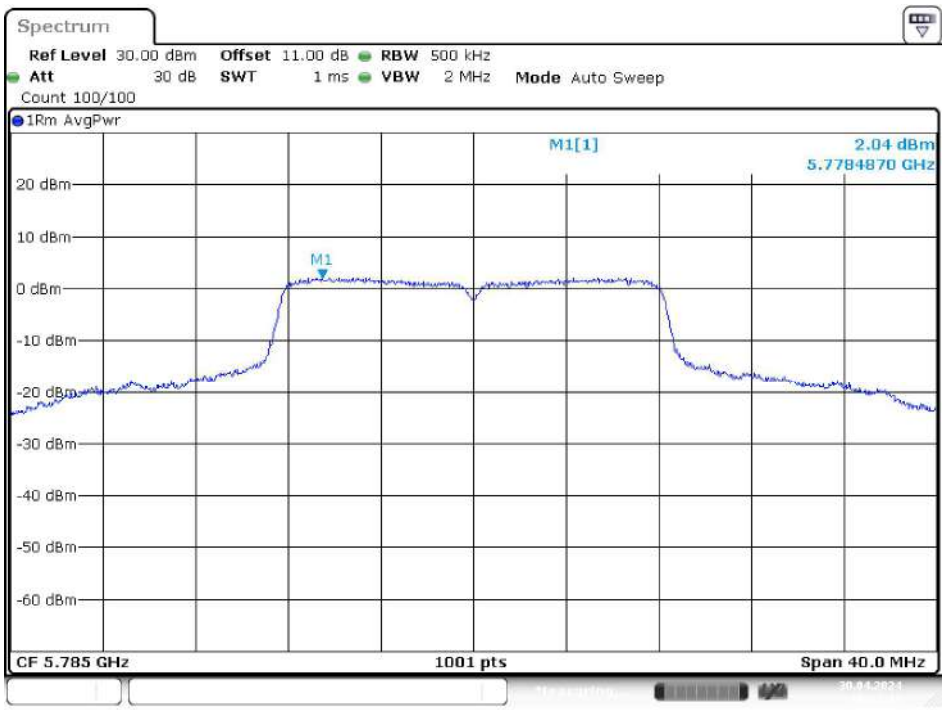
5785MHz



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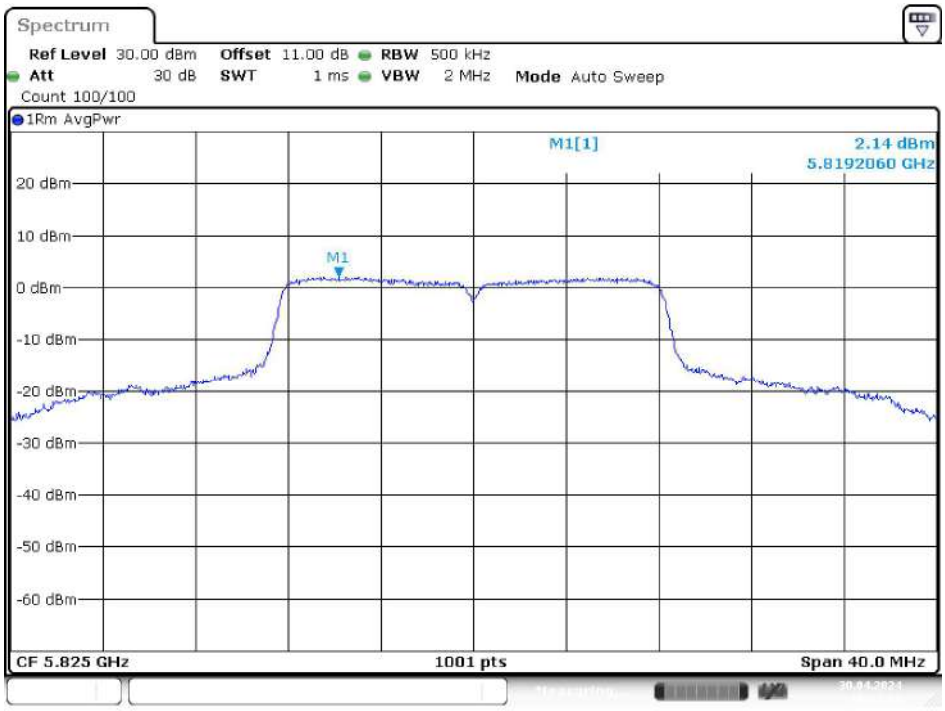
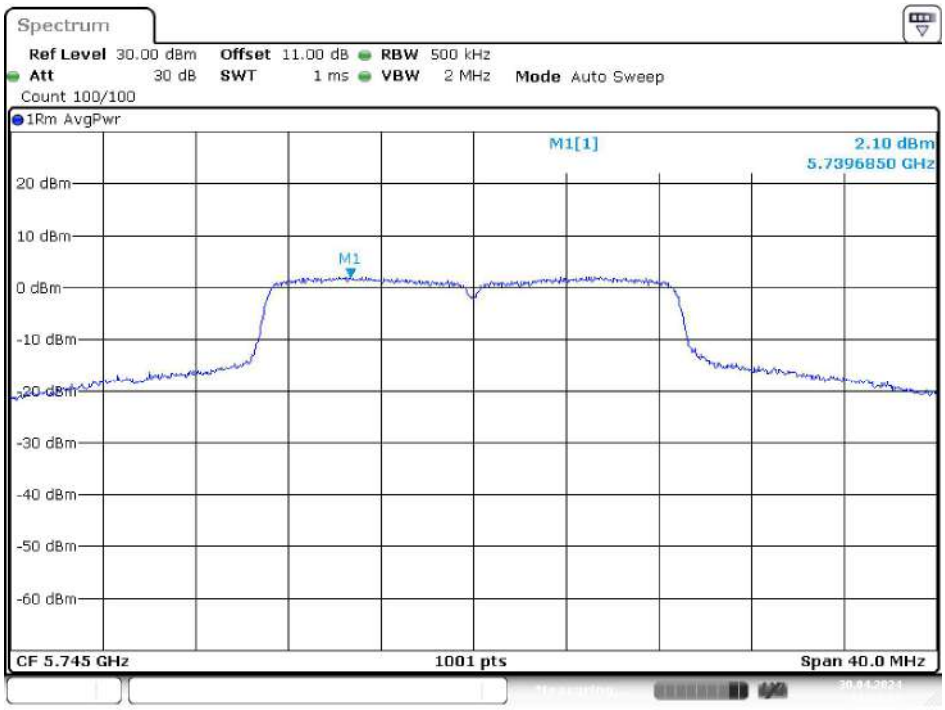
5825MHz



Date: 30.APR.2024 10:17:32

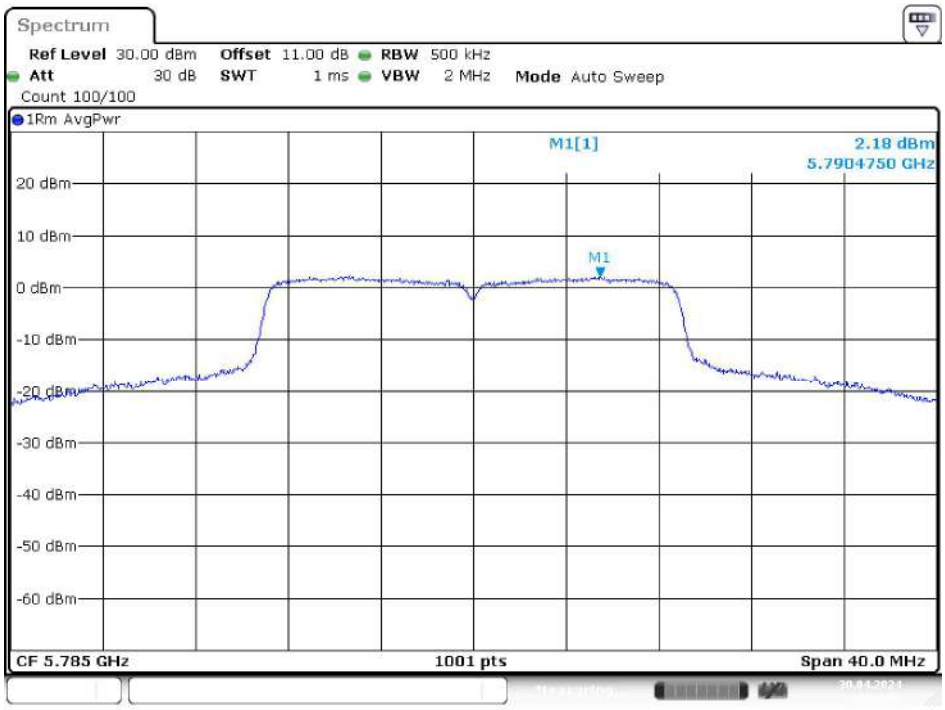
IEEE 802.11ac VHT20 Mode / 5725 ~ 5850MHz

5745MHz



Date: 30.APR.2024 11:11:30

5785MHz



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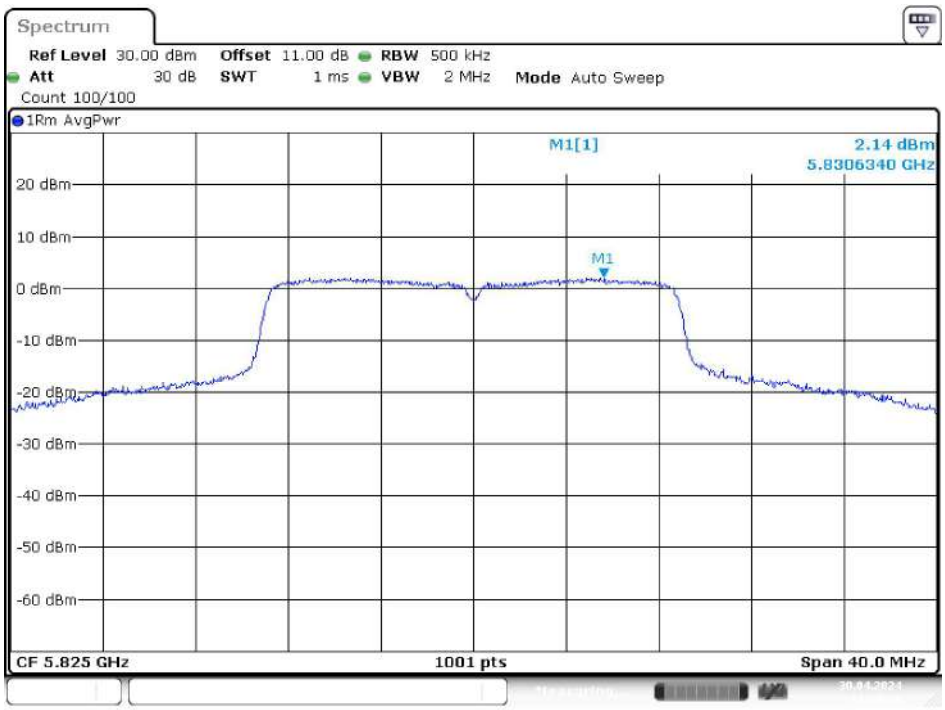
5825MHz



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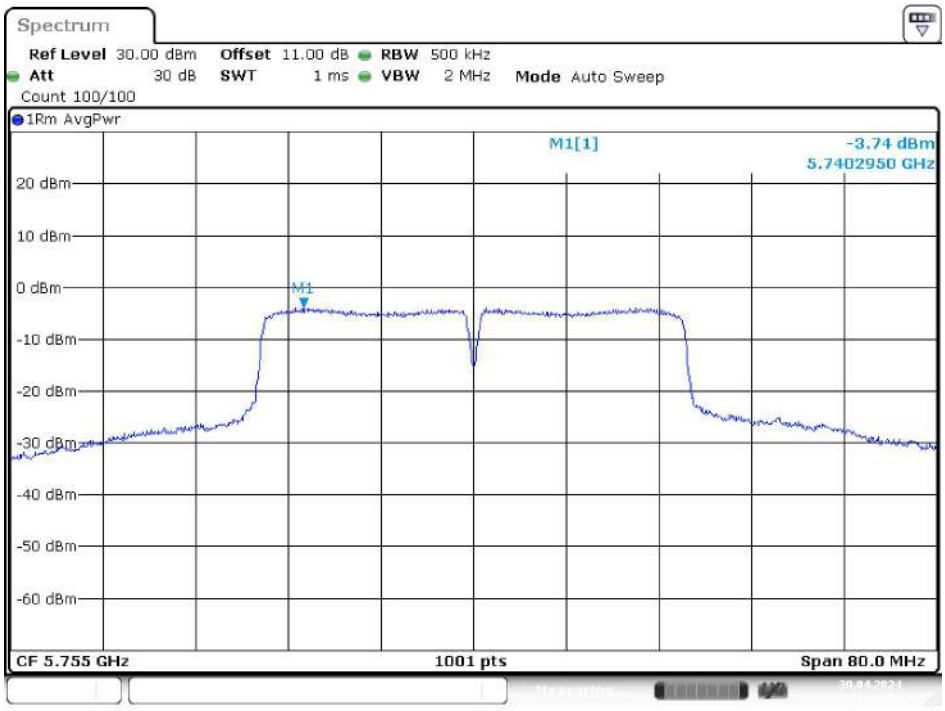
IEEE 802.11ac VHT40 Mode / 5725 ~ 5850MHz

5755MHz



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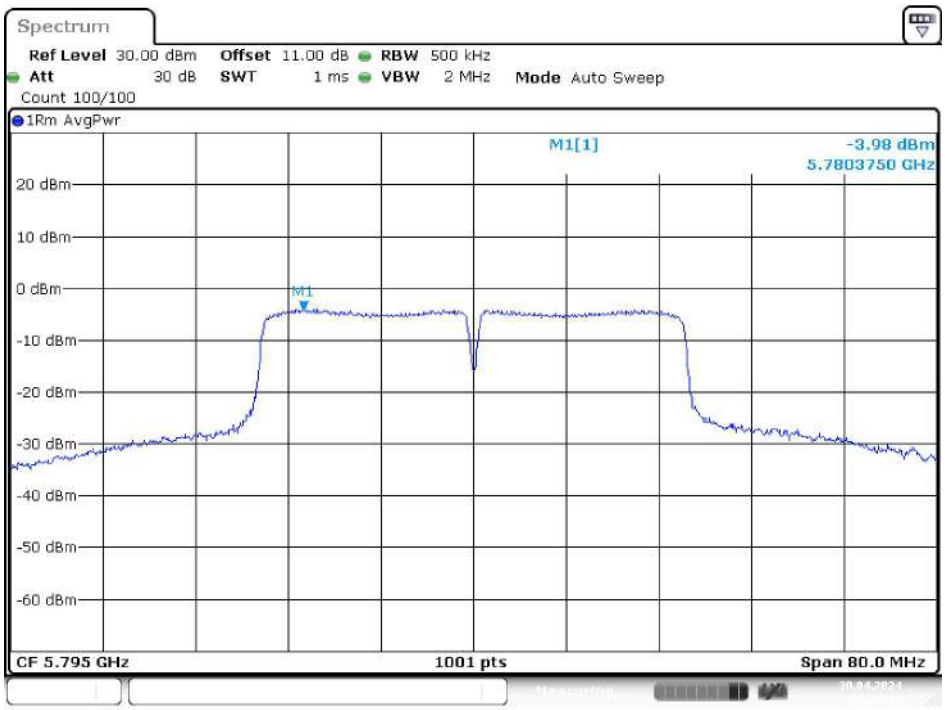
5795MHz



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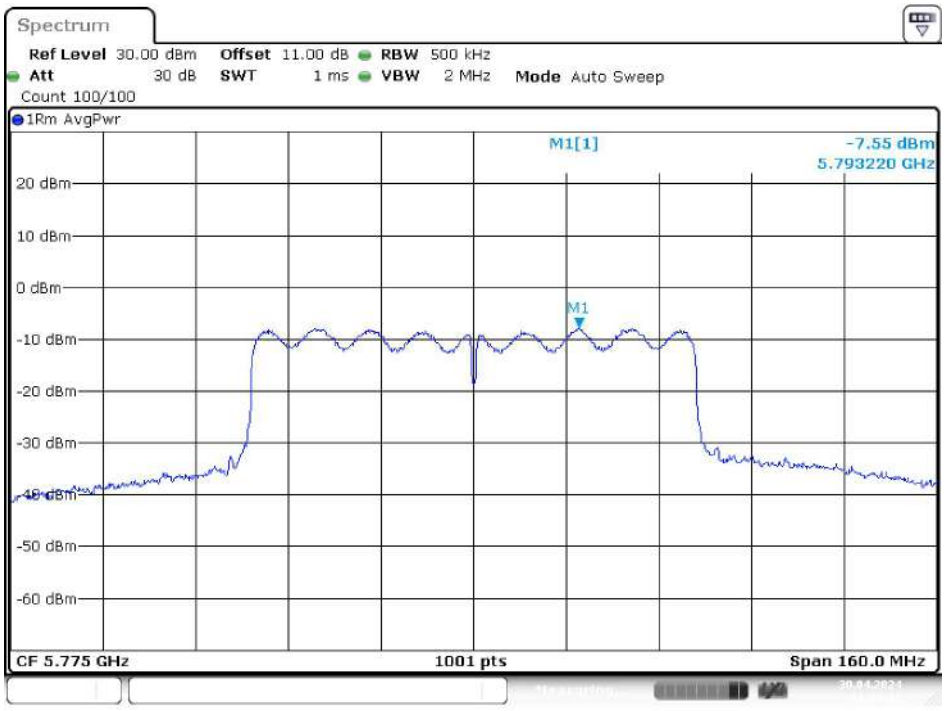
IEEE 802.11ac VHT80 Mode / 5725 ~ 5850MHz

5775MHz



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14 RSS-247 §6.4 – Additional requirements

14.1 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;Footnote4
   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.

14.2 Judgment

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):

i). The device operates on 5150-5250MHz is only for indoor use.

ii). The device operates on 5150-5250MHz/5725-5850MHz.

iii). The device operates on 5725-5850MHz, the detachable antenna meets EIRP limits.

iv). Not Applicable.

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