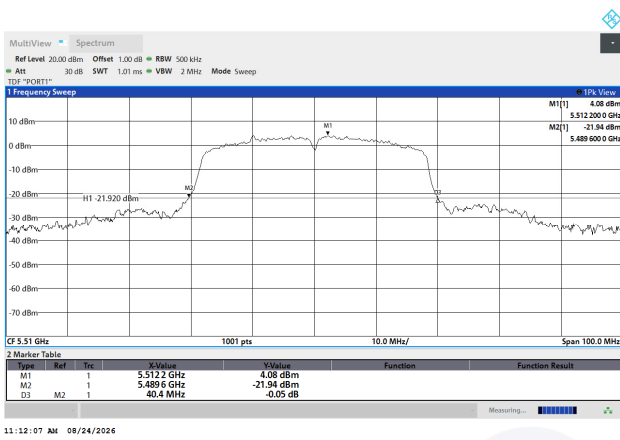
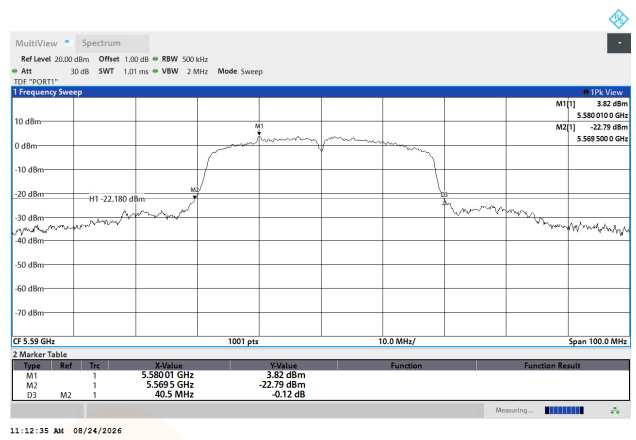


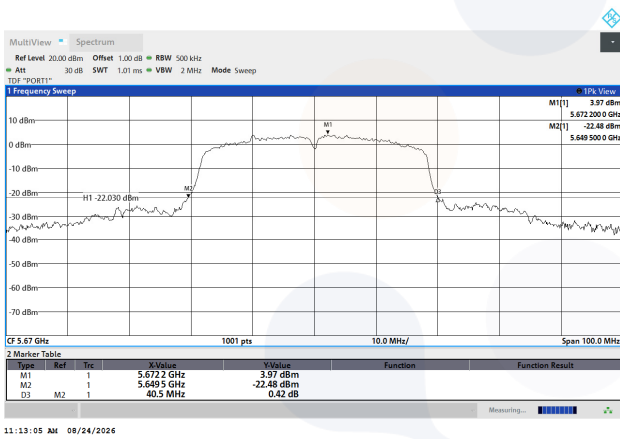
UNII 2C / 802.11n HT40 / Low ch.



UNII 2C / 802.11n HT40 / Mid ch.



UNII 2C / 802.11n HT40 / High ch.

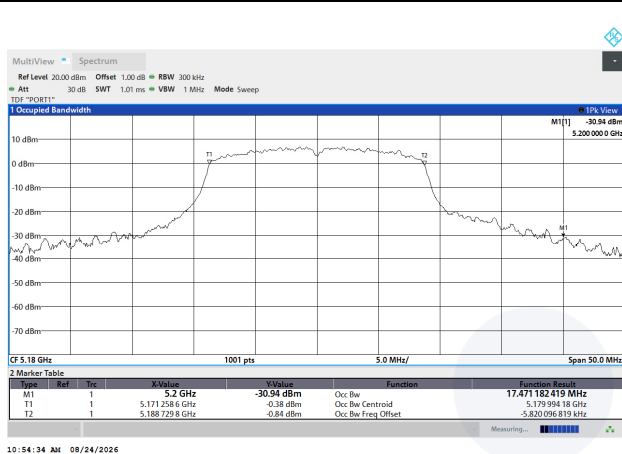


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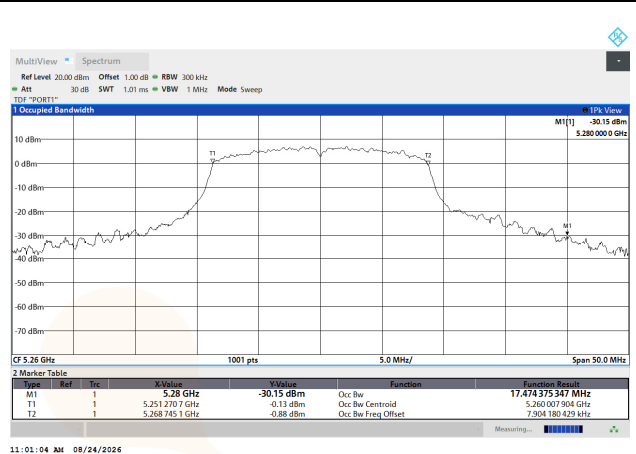
In order to simplify the report, only a mode test plots are attached.
[DC 12 V]

99% bandwidth

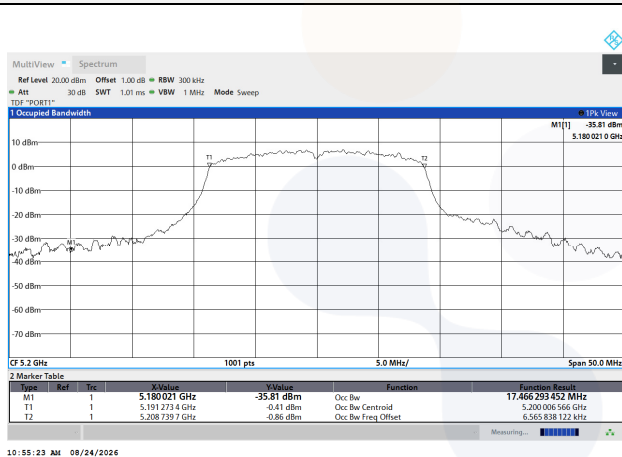
UNII 1 / 802.11n HT20 / Low ch.



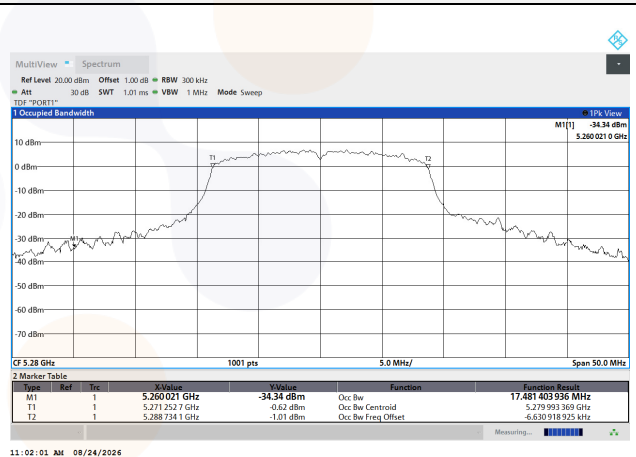
UNII 2A / 802.11n HT20 / Low ch.



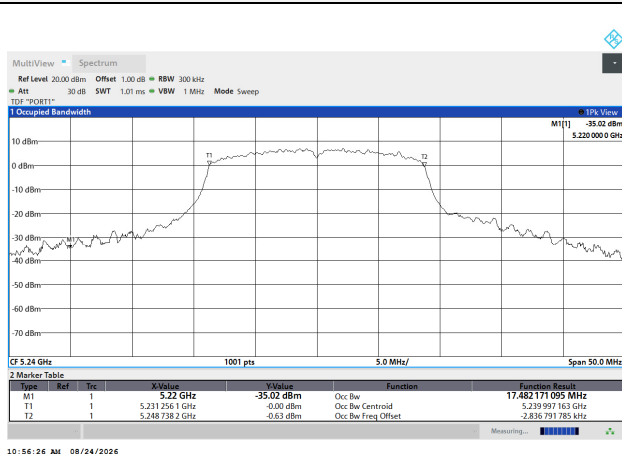
UNII 1 / 802.11n HT20 / Mid ch.



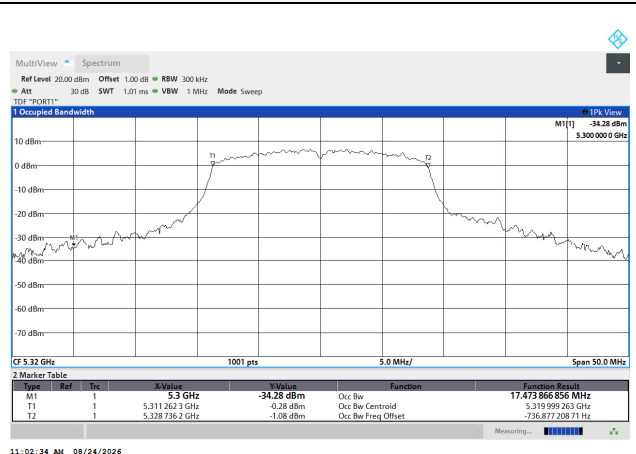
UNII 2A / 802.11n HT20 / Mid ch.



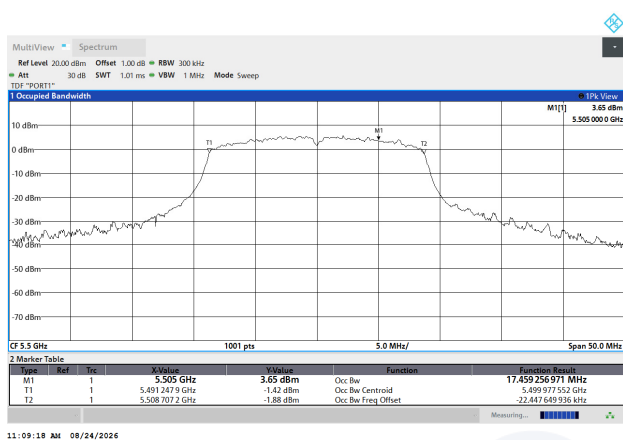
UNII 1 / 802.11n HT20 / High ch.



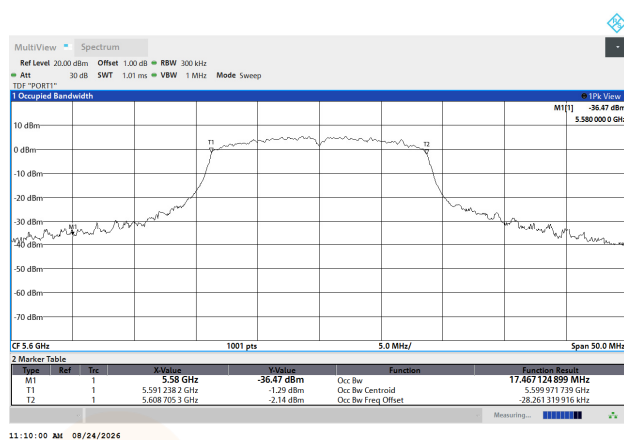
UNII 2A / 802.11n HT20 / High ch.



UNII 2C / 802.11n HT20 / Low ch.



UNII 2C / 802.11n HT20/ Mid ch.

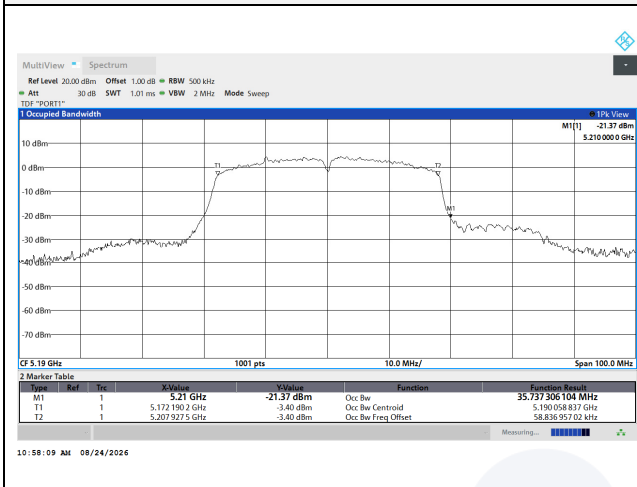


UNII 2C / 802.11n HT20/ High ch.

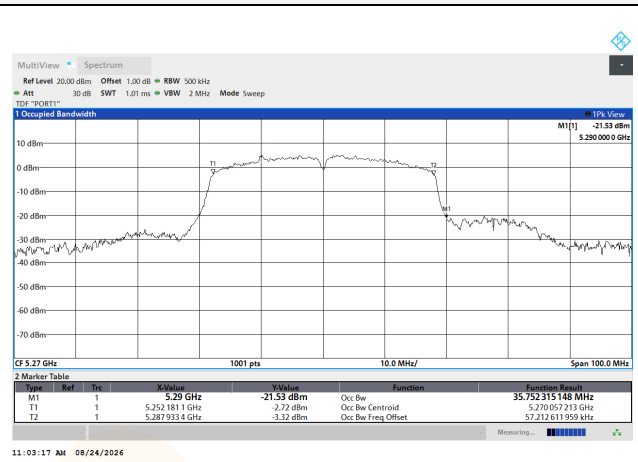


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UNII 1 / 802.11n HT40 / Low ch.



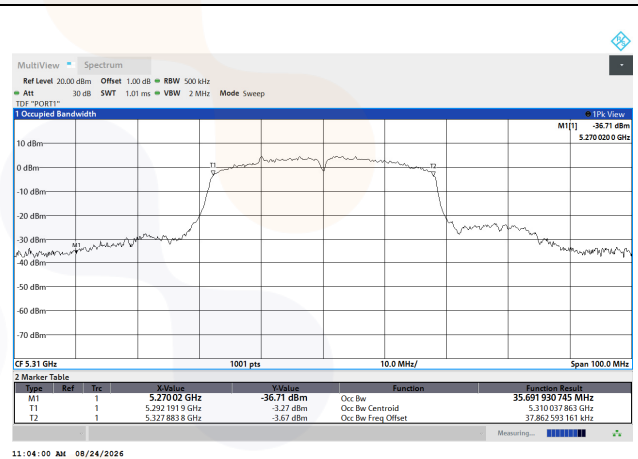
UNII 2A / 802.11n HT40 / Low ch.



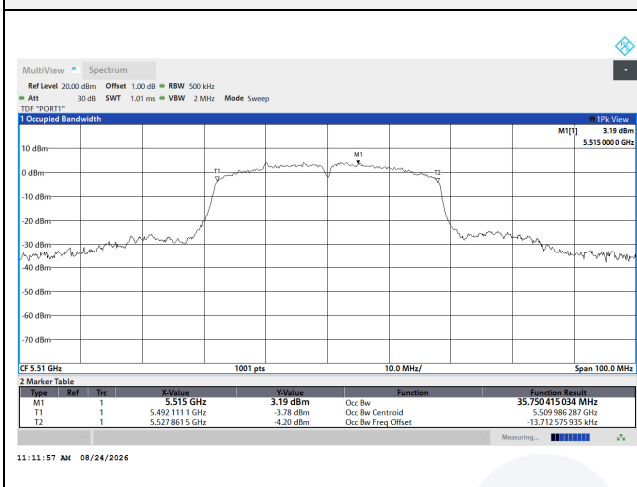
UNII 1 / 802.11n HT40 / High ch.



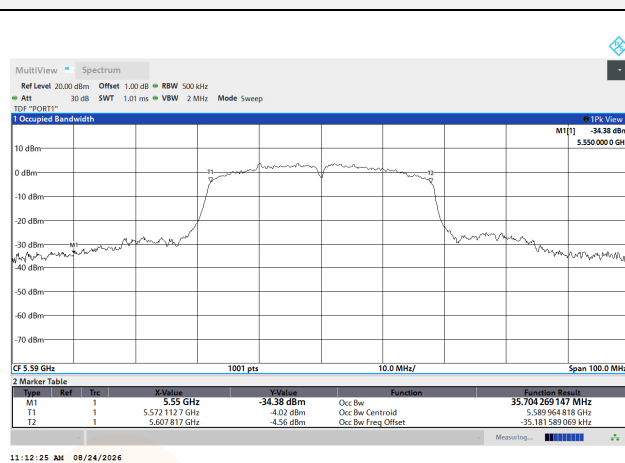
UNII 2A / 802.11n HT40 / High ch.



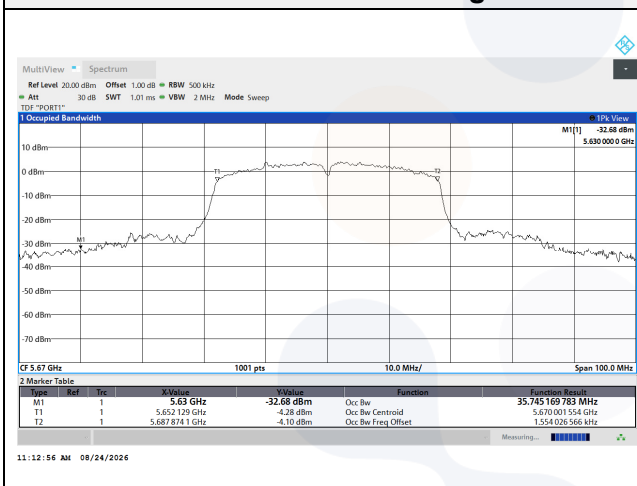
UNII 2C / 802.11n HT40 / Low ch.



UNII 2C / 802.11n HT40 / Mid ch.



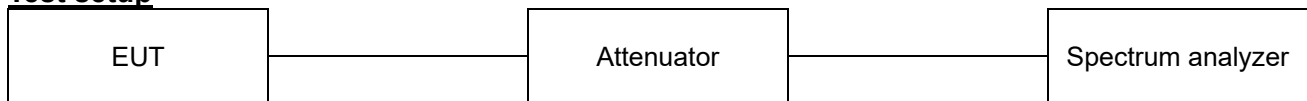
UNII 2C / 802.11n HT40 / High ch.



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7.4. 6 dB Bandwidth & 99% Bandwidth

Test setup



Limit

According to §15.407(e),

Within the 5.725-5.850 GHz and 5.850-5.895 GHz bands, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

According to RSS-247(7.3.4.2) and (7.3.5.2),

For equipment operating in the band 5 725-5 850 MHz, and 5 850-5 895 MHz, bands, the 6 dB bandwidth shall be at least 500 kHz

Test procedure

ANSI C63.10 - Section 12.5.1, 6.9.3

KDB 789033 D02 v02r01 - Section C.2(6dB bandwidth), Section D (99% bandwidth)

Test settings

Emission Bandwidth for the band 5.725 to 5.85 GHz and 5.850-5.895 GHz (or 6 dB Bandwidth)

- Set RBW = 100 kHz.
- Set the video bandwidth (VBW) ≥ 3 RBW.
- Detector = Peak.
- Trace mode = max hold.
- Sweep = No faster than coupled (auto) time.
- Allow the trace to stabilize.
- 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.

Occupied bandwidth (or 99% emission bandwidth)

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:

- 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.
- The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW, and VBW shall be at least three times the RBW, unless otherwise specified by the applicable requirement.
- 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 4.1.6.2.
- Step a) through step c) might require iteration to adjust within the specified range.
- 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.
- Use the 99% power bandwidth function of the instrument (if available) and report the measured bandwidth.
- 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 spectral 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).

Test results

[DC 5 V]

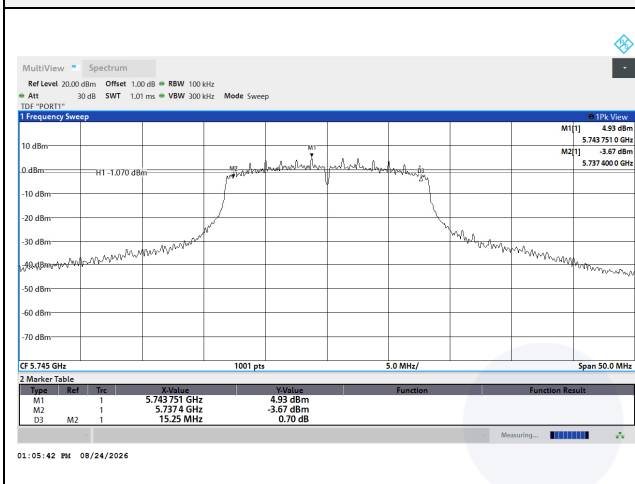
Test mode	Band	Frequency (MHz)	6dB bandwidth (MHz)	Limit (MHz)	99% bandwidth (MHz)
802.11a	UNII 3	5 745	15.250	0.50	16.434
		5 785	15.250		16.443
		5 825	15.250		16.450
802.11n HT20	UNII 3	5 745	15.250		17.457
		5 785	15.250		17.453
		5 825	15.250		17.472
802.11n HT40	UNII 3	5 755	32.800		35.771
		5 795	32.800		35.733

[DC 12 V]

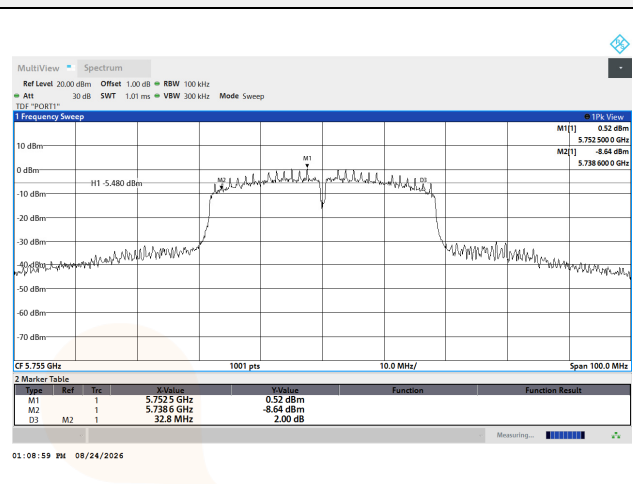
Test mode	Band	Frequency (MHz)	6dB bandwidth (MHz)	Limit (MHz)	99% bandwidth (MHz)
802.11a	UNII 3	5 745	15.200	0.50	16.423
		5 785	15.200		16.440
		5 825	15.250		16.466
802.11n HT20	UNII 3	5 745	15.250		17.461
		5 785	15.250		17.460
		5 825	15.250		17.472
802.11n HT40	UNII 3	5 755	32.800		35.776
		5 795	32.800		35.713

In order to simplify the report, attached plots were the worst case per bandwidth
6 dB bandwidth
[DC 5 V]

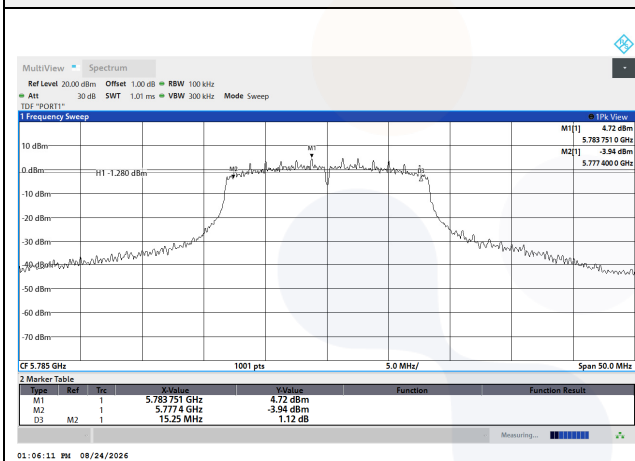
UNII-3 / 802.11a / Low ch.



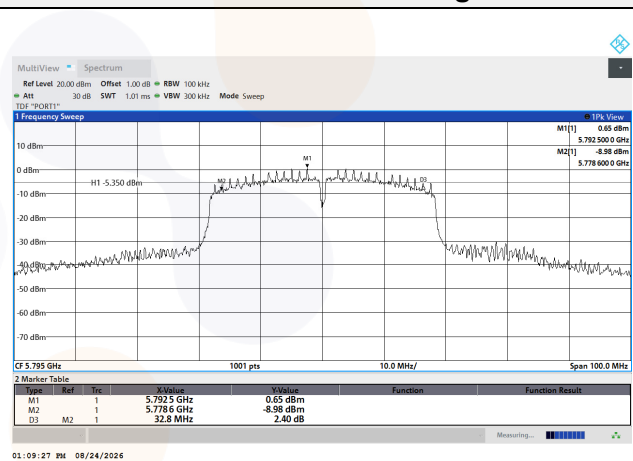
UNII 3 / 802.11n HT 40 / Low ch.



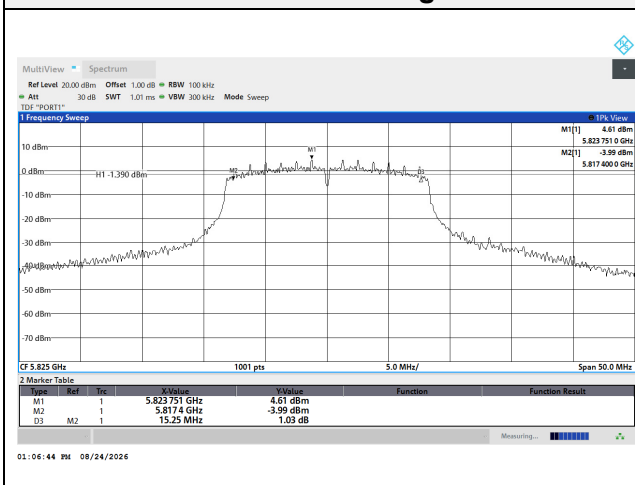
UNII-3 / 802.11a / Mid ch.



UNII 3 / 802.11n HT 40 / High ch..



UNII-3 / 802.11a / High ch.



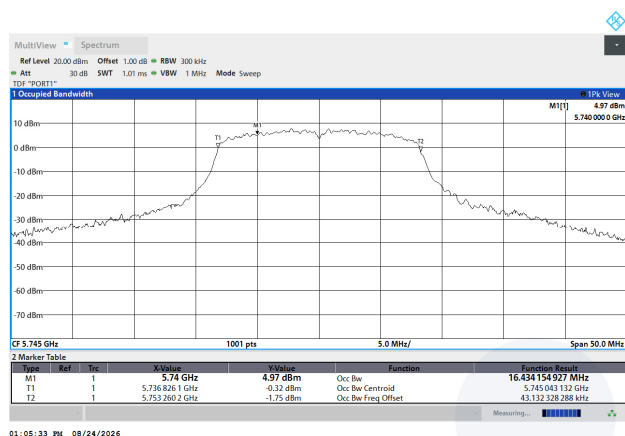
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In order to simplify the report, attached plots were the worst case per bandwidth

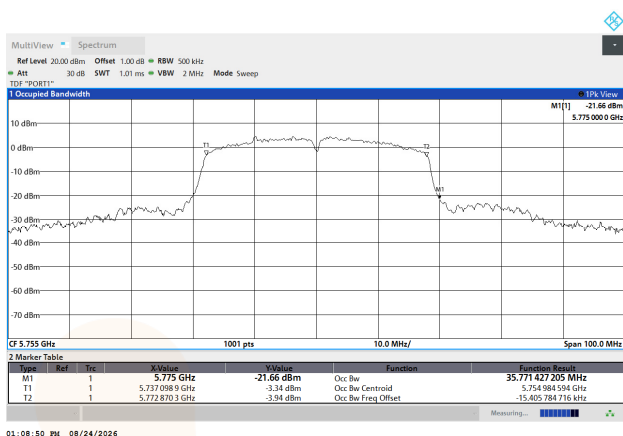
99% bandwidth

[DC 5 V]

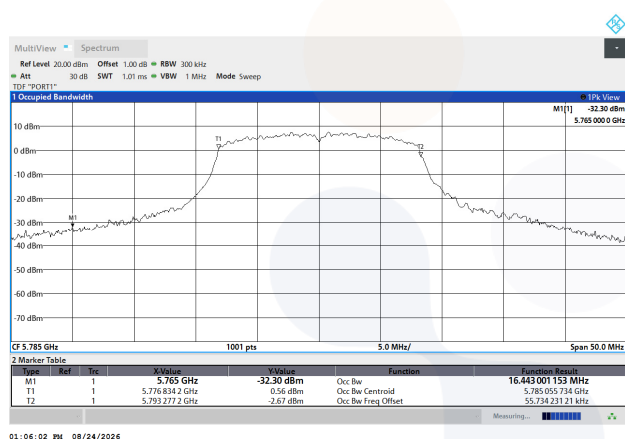
UNII-3 / 802.11a / Low ch.



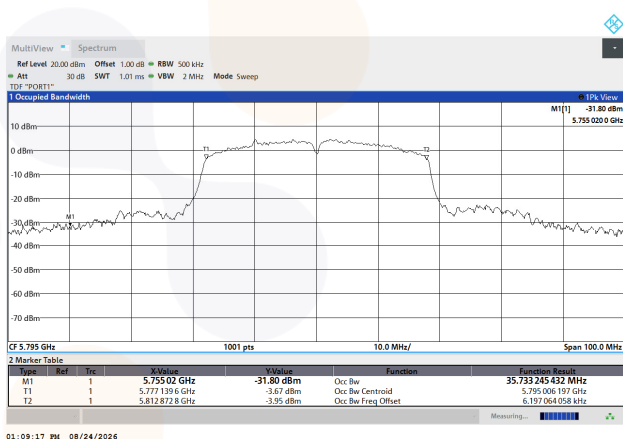
UNII 3 / 802.11n HT 40 / Low ch.



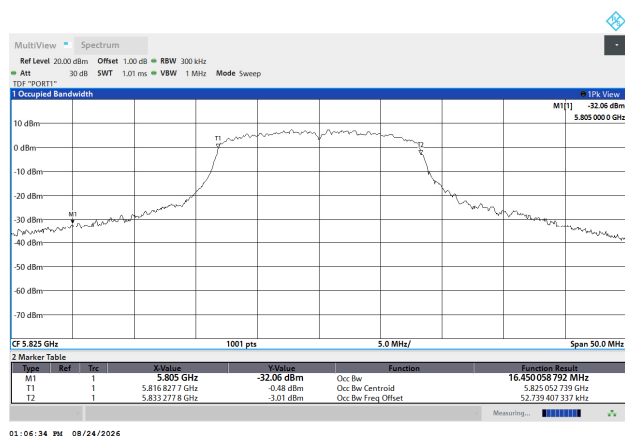
UNII-3 / 802.11a / Mid ch.



UNII 3 / 802.11n HT 40 / High ch..



UNII-3 / 802.11a / High ch.



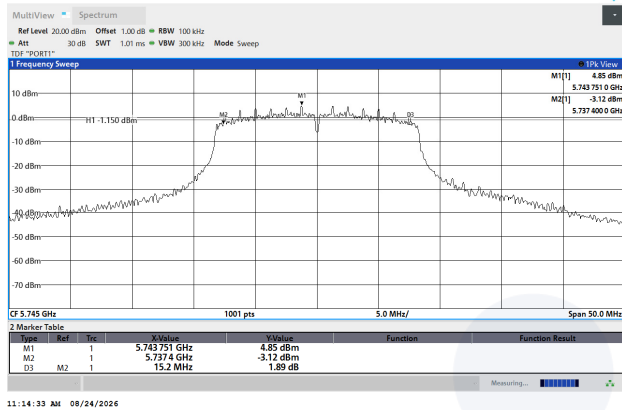
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In order to simplify the report, attached plots were the worst case per bandwidth

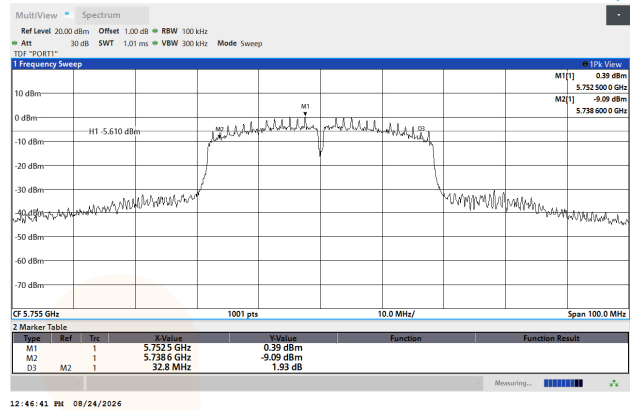
6 dB bandwidth

[DC 12 V]

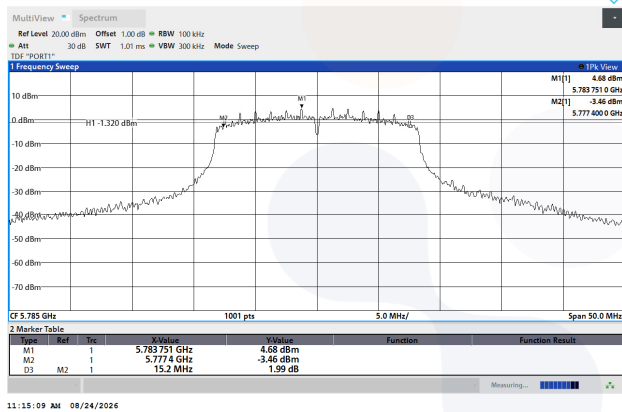
UNII-3 / 802.11a / Low ch.



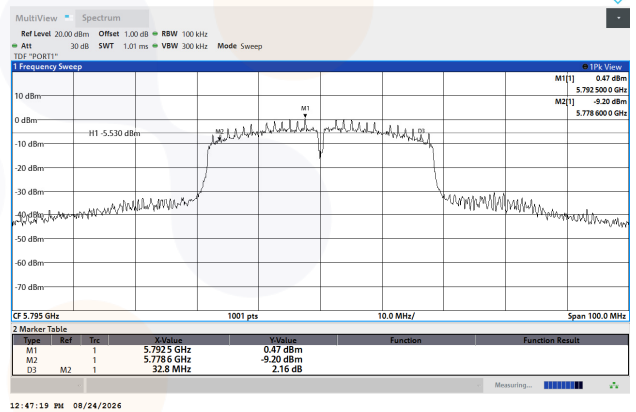
UNII 3 / 802.11n HT 40 / Low ch.



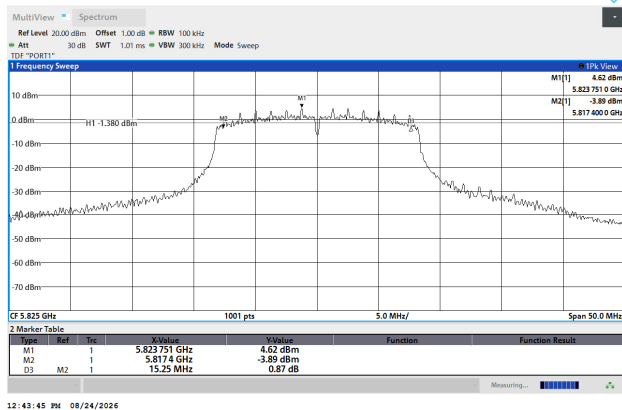
UNII-3 / 802.11a / Mid ch.



UNII 3 / 802.11n HT 40 / High ch..



UNII-3 / 802.11a / High ch.

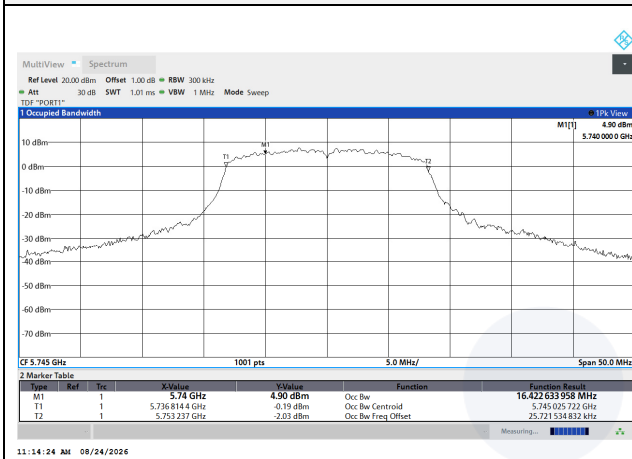


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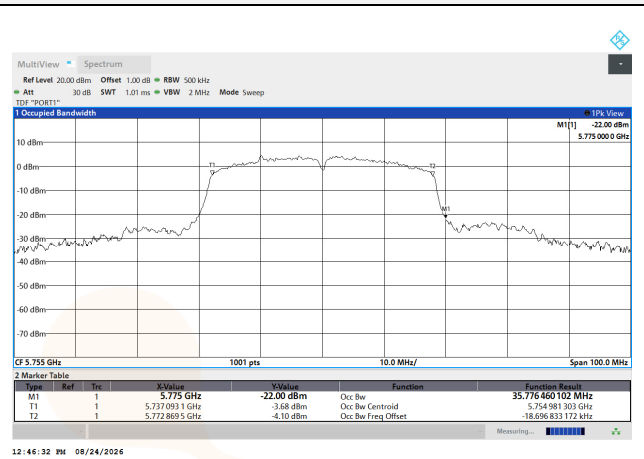
**In order to simplify the report, attached plots were the worst case per bandwidth
99% bandwidth**

[DC 12 V]

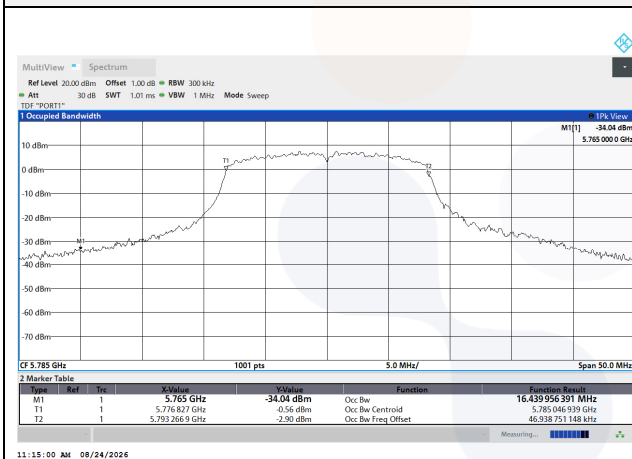
UNII-3 / 802.11a / Low ch.



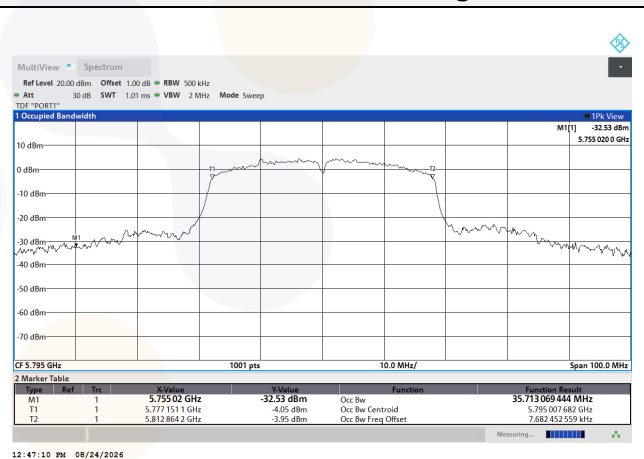
UNII 3 / 802.11n HT 40 / Low ch.



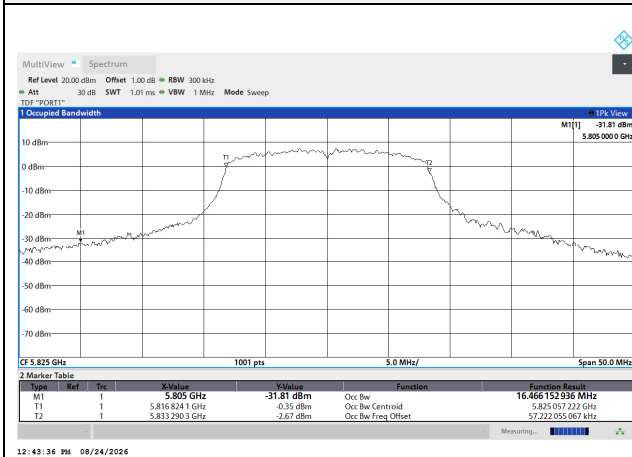
UNII-3 / 802.11a / Mid ch.



UNII 3 / 802.11n HT 40 / High ch..



UNII-3 / 802.11a / High ch.



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7.5. Straddle channel

26 dB bandwidth & 99% Bandwidth

[DC 5 V]

Test mode	Band	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
802.11a	UNII 2C	5 720	15.000	13.175
802.11n HT20			15.450	13.737
802.11n HT40		5 710	35.500	32.921
802.11a	UNII 3	5 720	5.650	3.274
802.11n HT20			5.300	3.738
802.11n HT40		5 710	5.100	2.903

Note:

- For 99% Bandwidth, measured 99% occupied bandwidth is separated as below.
 - For UNII band 2C = 5 725 MHz – T1 (Measured frequency on the marker table)
 - For UNII band 3 = T2 (Measured frequency on the marker table) – 5 725 MHz