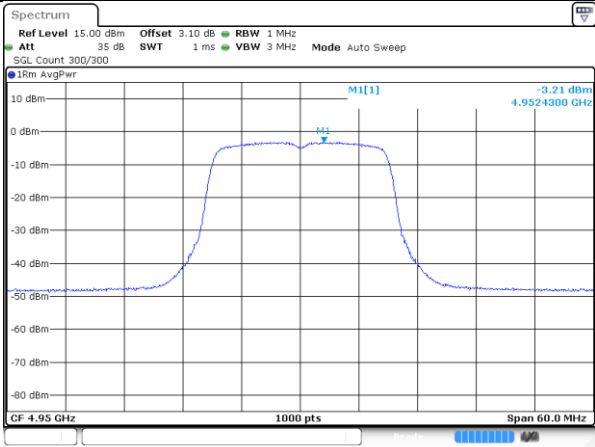
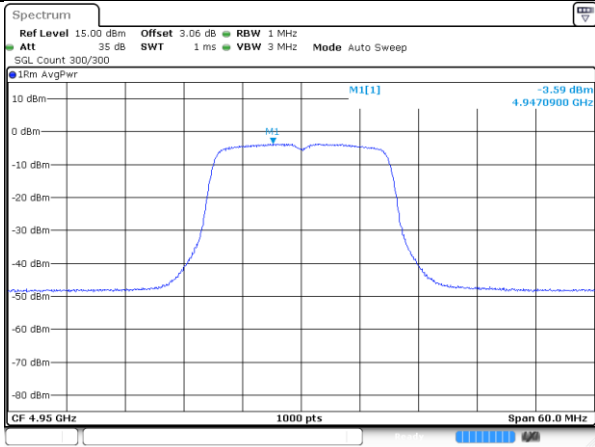




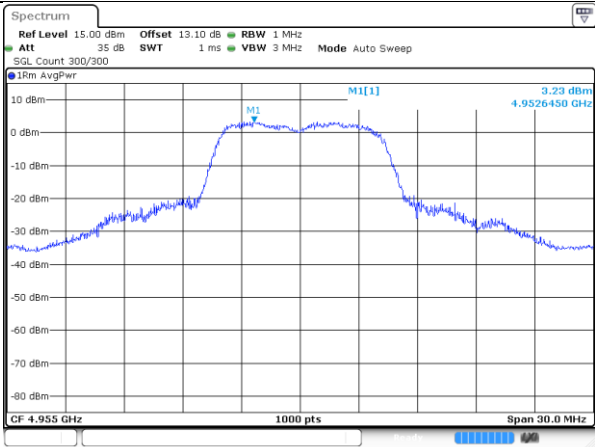
Date: 10 JUN 2024 15:09:40

4950-20MHz-802.11n-2-a



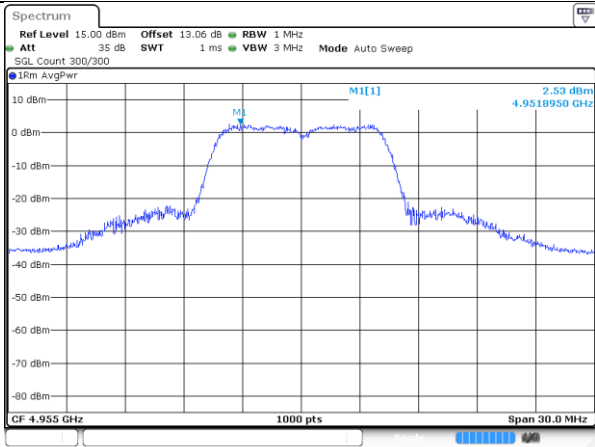
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4950-20MHz-802.11n-2-b



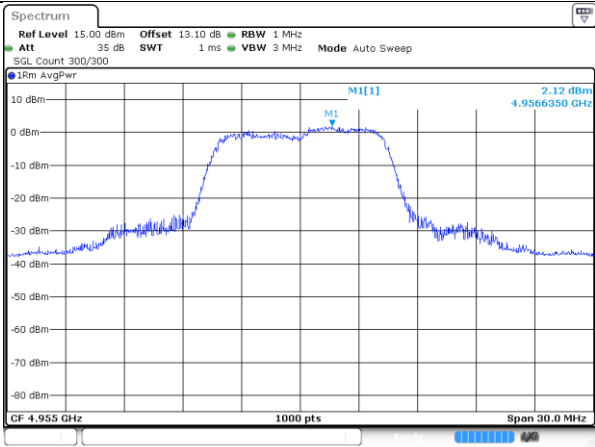
Date: 11 JUN 2024 16:13:02

4955-10MHz-802.11a-1-a



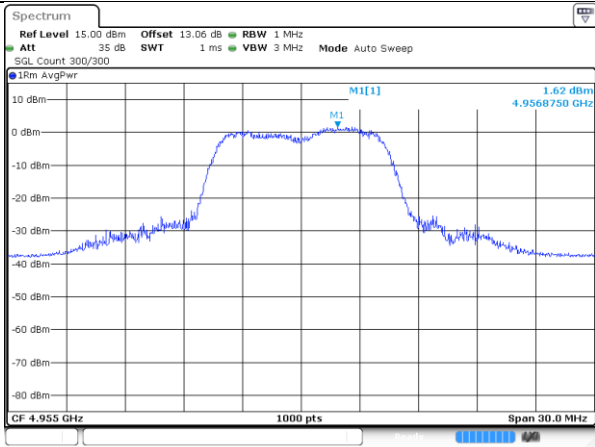
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4955-10MHz-802.11a-1-b



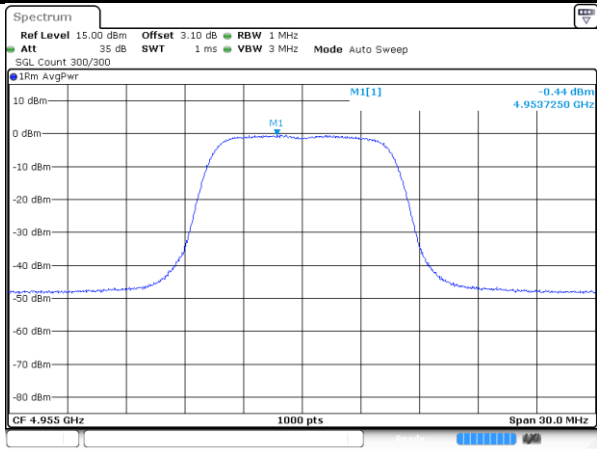
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4955-10MHz-802.11a-2-a



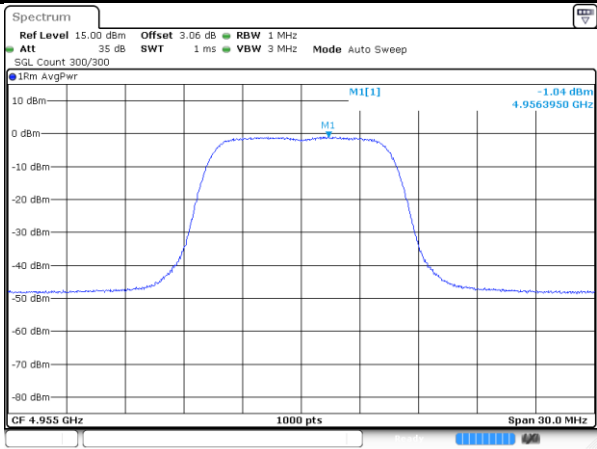
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4955-10MHz-802.11a-2-b



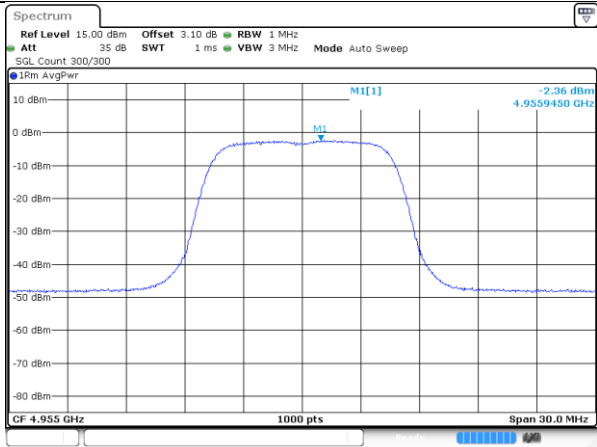
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4955-10MHz-802.11ac-1-a



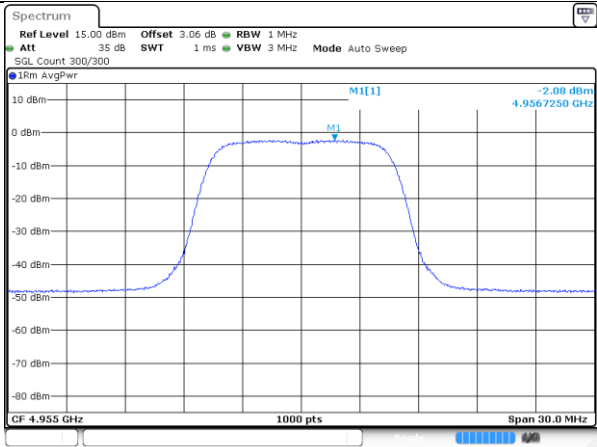
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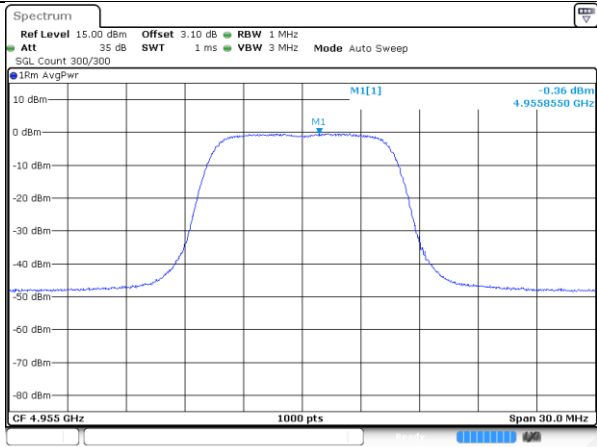
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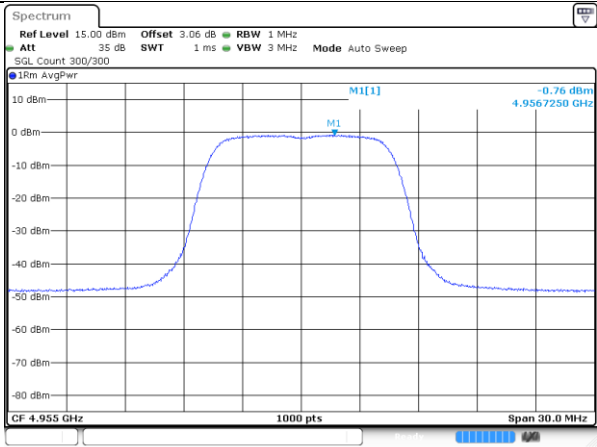
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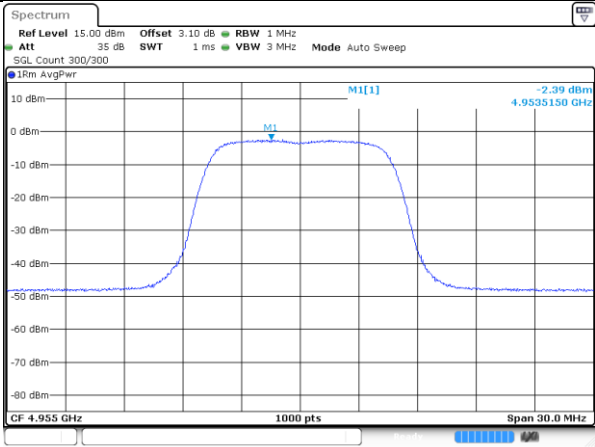
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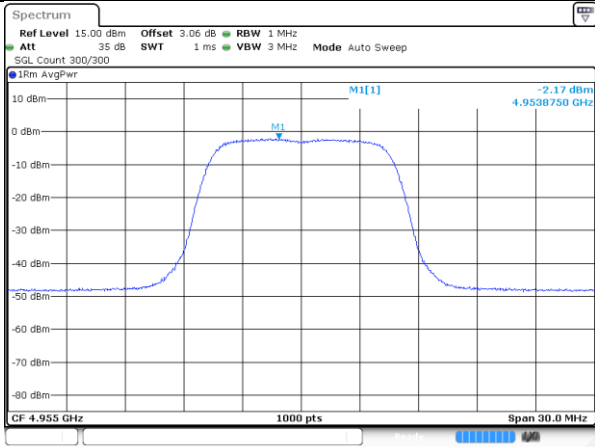


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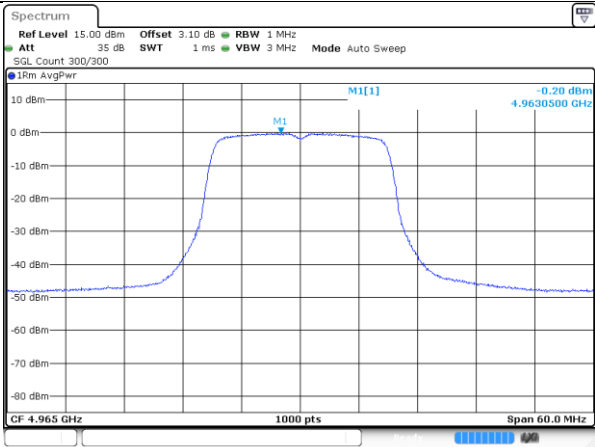
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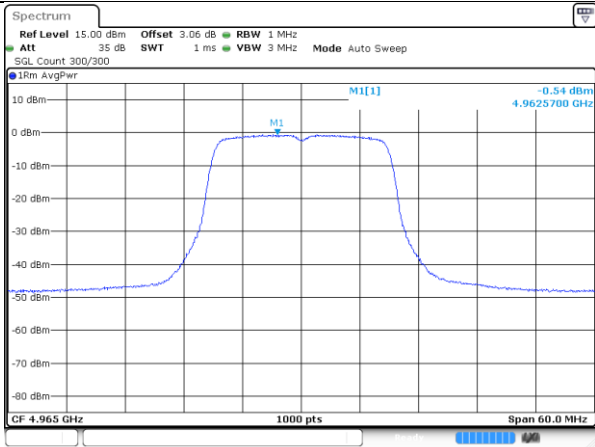
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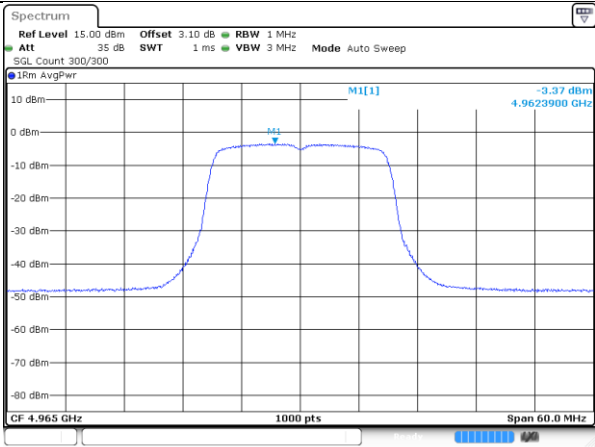
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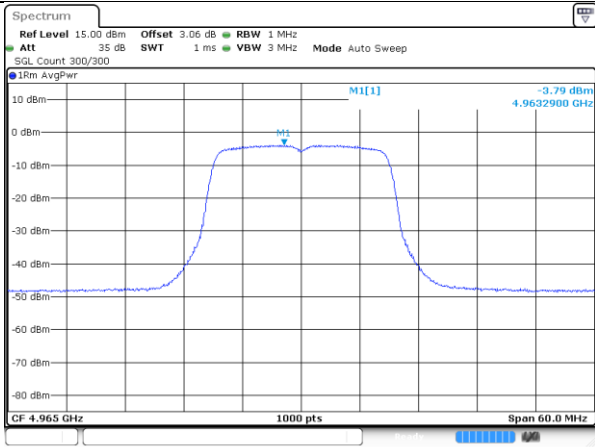
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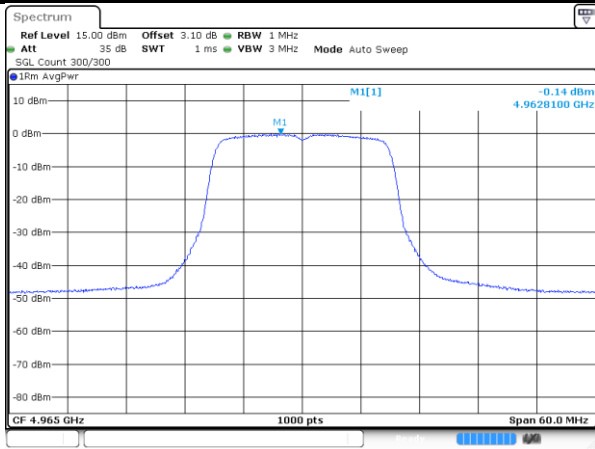
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4965-20MHz-802.11ac-2-a

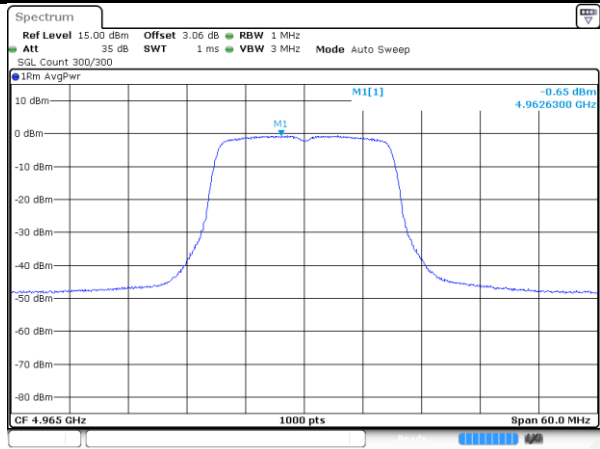


4965-20MHz-802.11ac-2-b



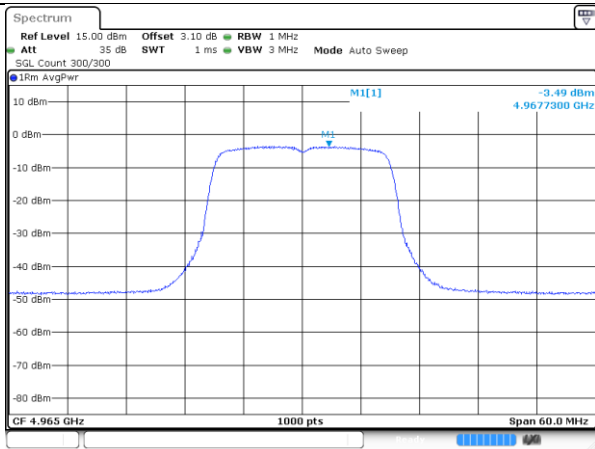
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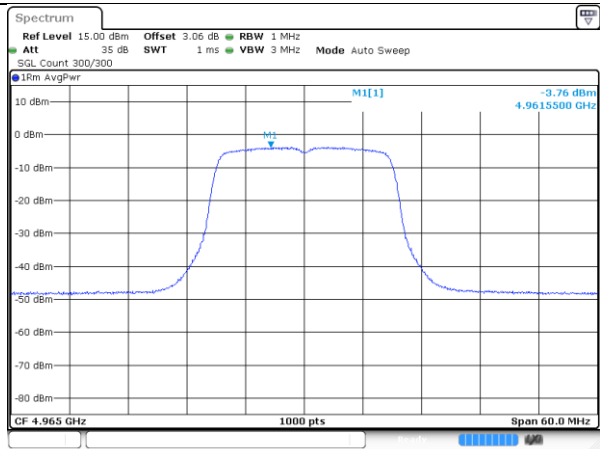
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4965-20MHz-802.11n-1-b



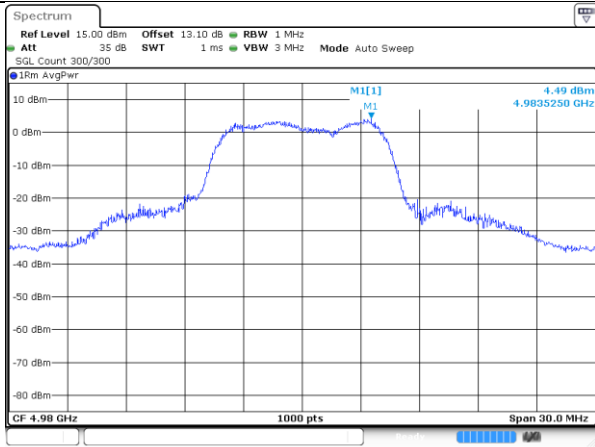
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4965-20MHz-802.11n-2-a



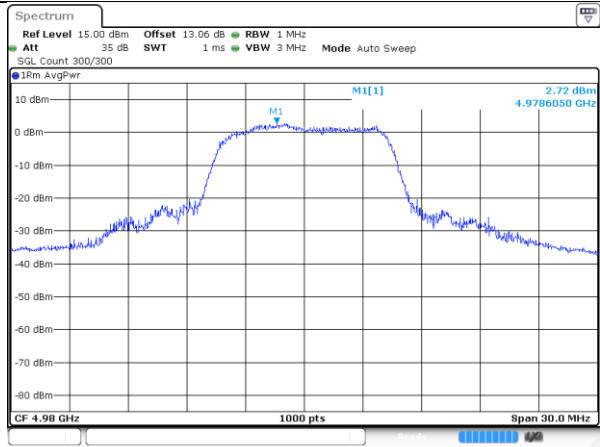
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4965-20MHz-802.11n-2-b



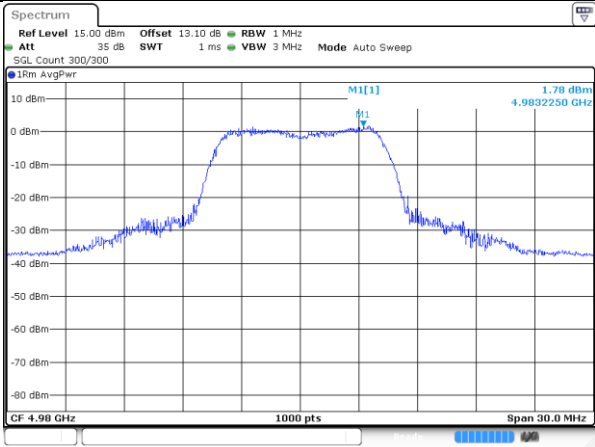
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4980-10MHz-802.11a-1-a

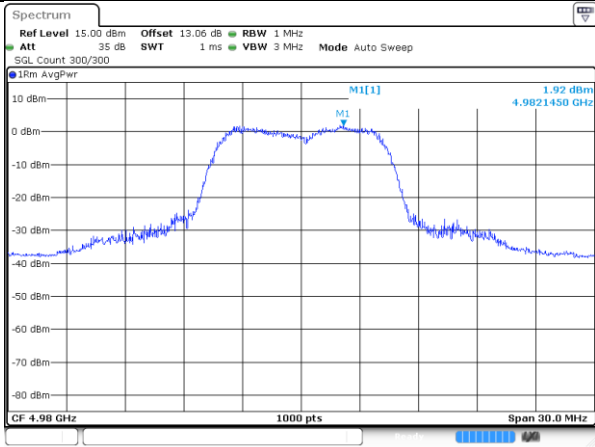


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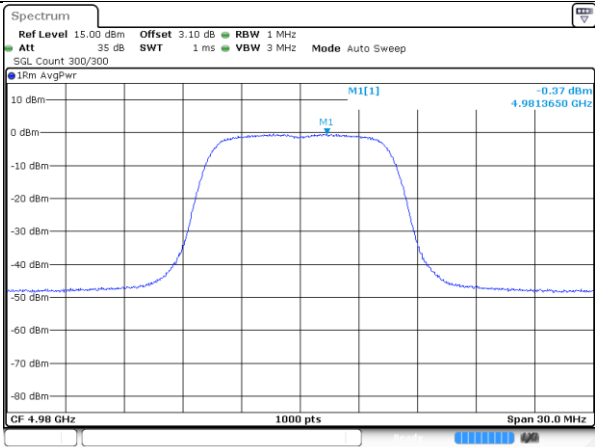
4980-10MHz-802.11a-1-b



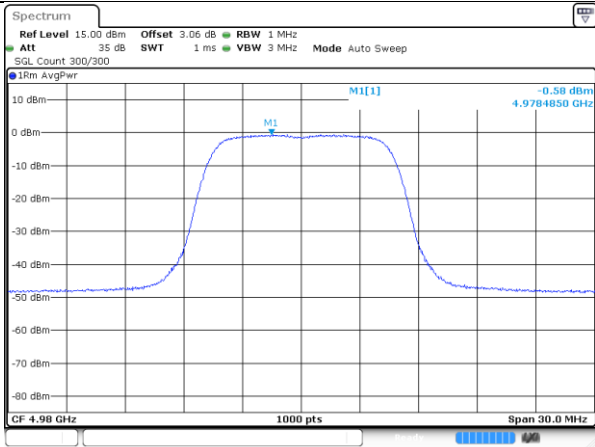
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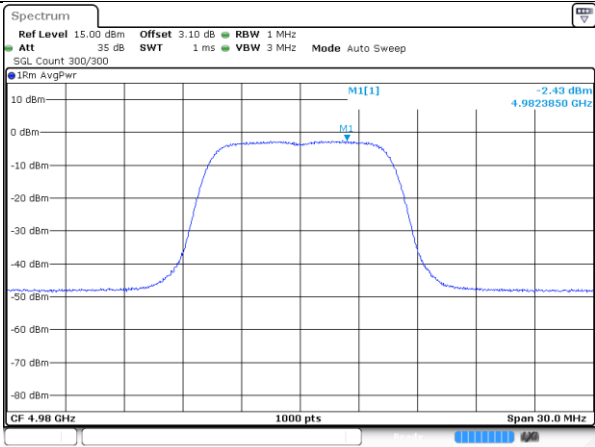
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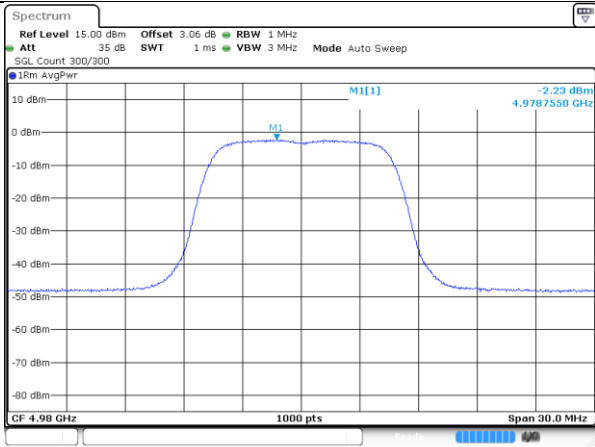
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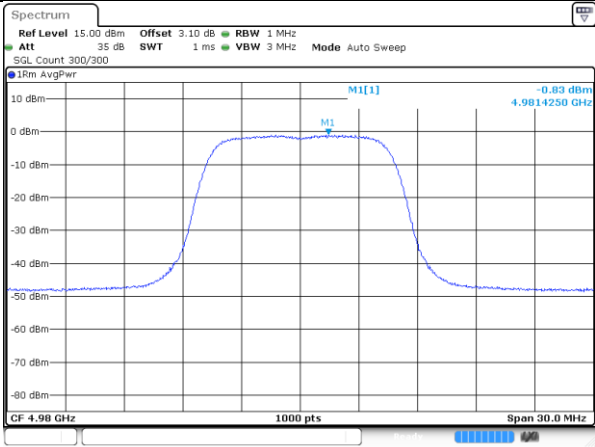
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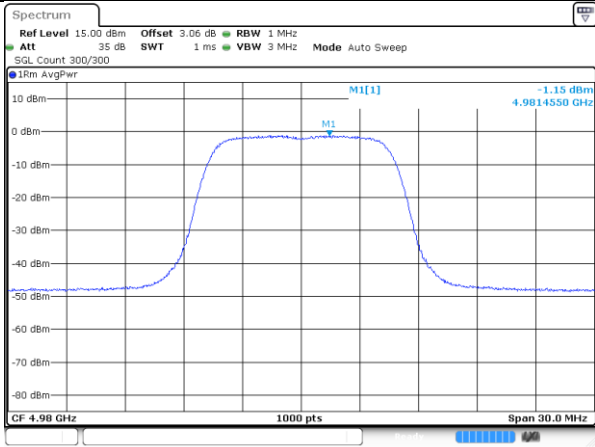
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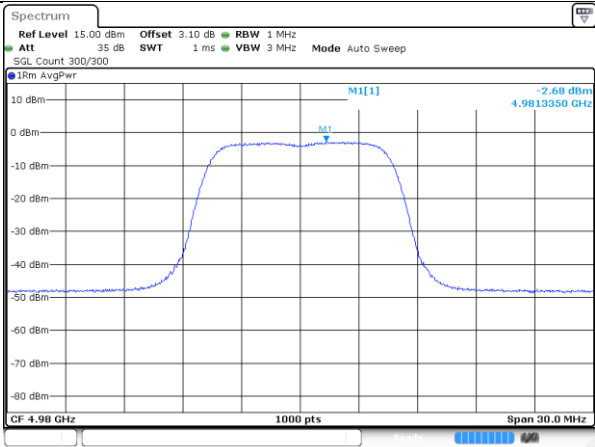
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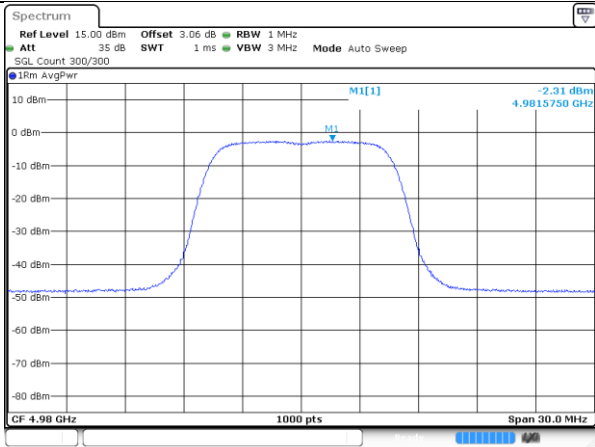
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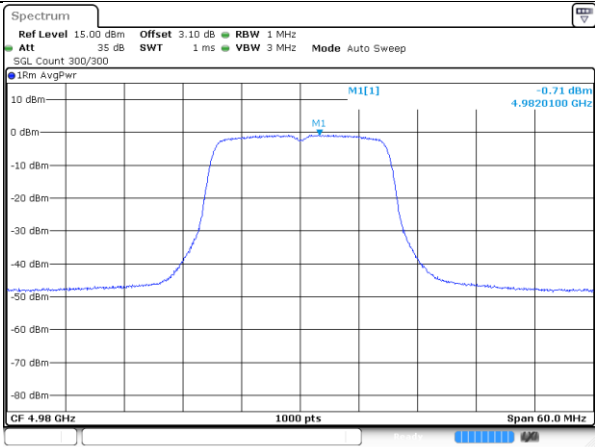
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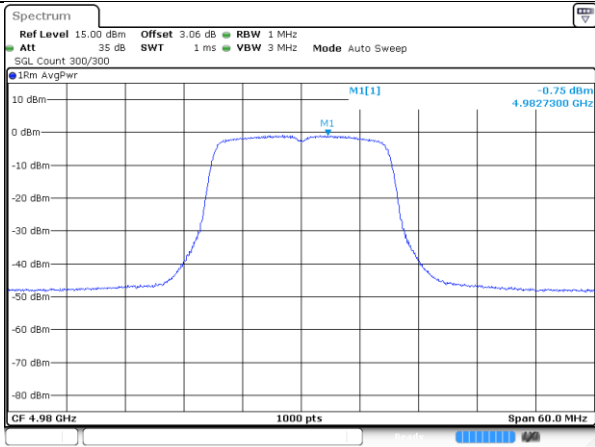
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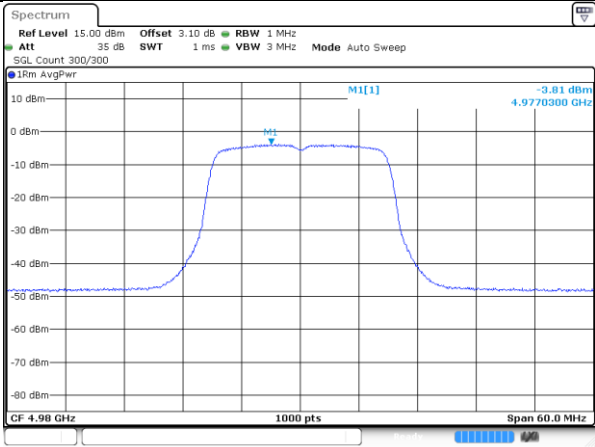
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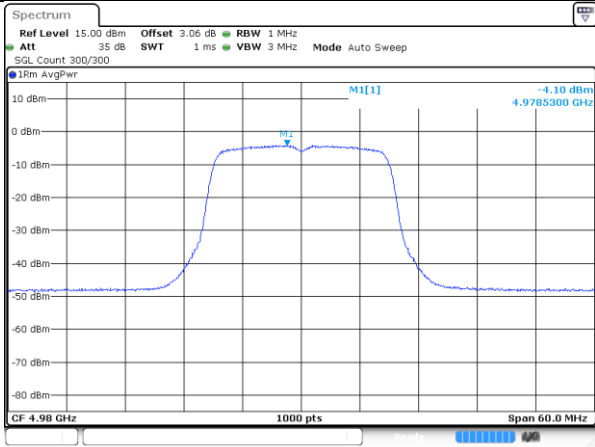


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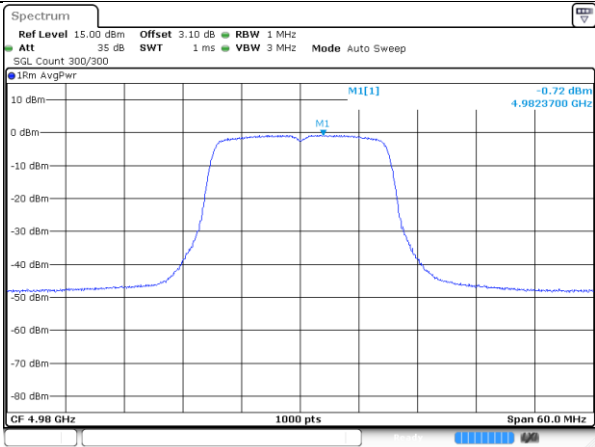
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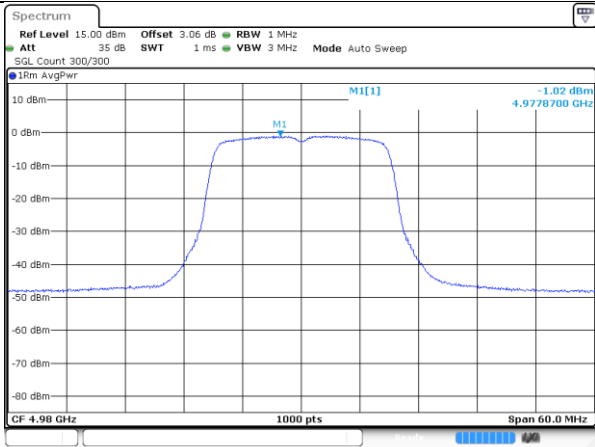
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4980-20MHz-802.11ac-2-b



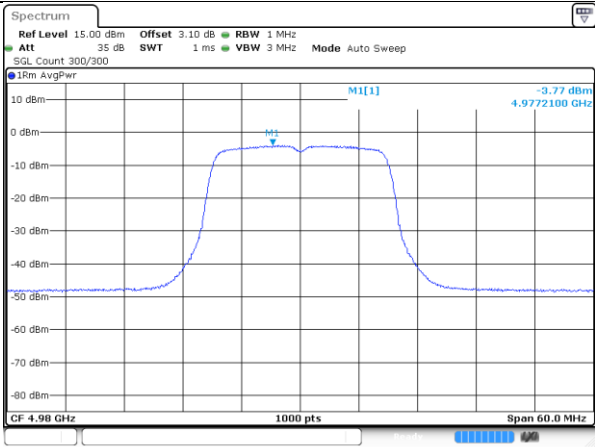
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4980-20MHz-802.11n-1-a



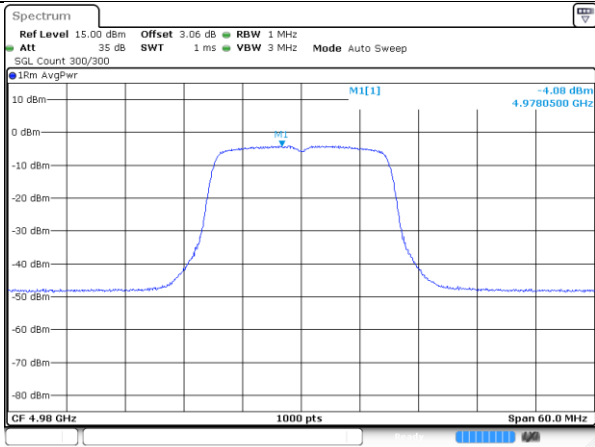
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4980-20MHz-802.11n-1-b



Date: 10 JUN 2024 15:10:37

4980-20MHz-802.11n-2-a



Date: 10 JUN 2024 15:10:44

4980-20MHz-802.11n-2-b

8 FCC §2.1049, §90.209, RSS-111 § 5.3 - Occupied Bandwidth

8.1 Applicable Standards

FCC §90.209, RSS-111 § 5.3

The equipment's occupied bandwidth shall not exceed its channel bandwidth.

8.2 Test Procedure

Span = approximately 2 to 5 times the occupied bandwidth, centered on the transmitting channel

RBW = 1% to 5 % of the occupied bandwidth

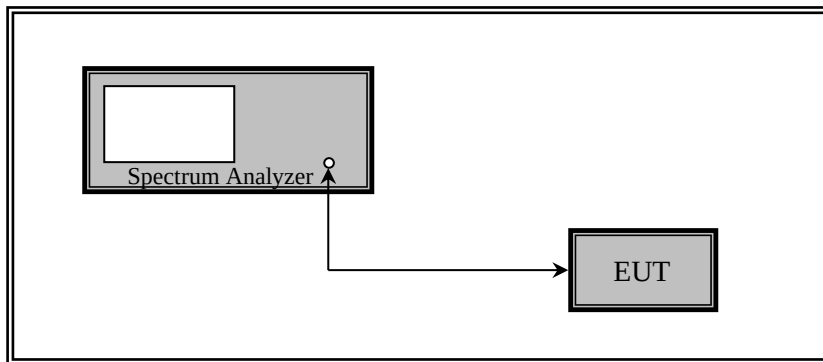
VBW = 3 * RBW

Sweep = auto

Detector function = peak

Trace = max hold

8.3 Test Setup Block Diagram



8.4 Test Equipment List and Details

BACL No.	Manufacturers	Descriptions	Models	Serial Numbers	Calibration Dates	Calibration Interval
912	Rhode & Schwarz	Signal Analyzer	FSV40	1321.3008k39-101203-UW	2023-06-02	13 months
1224	Radiall	USB COAXIAL SWITCHES	SPNT R574X11X 01 USB	-	Each time ¹	N/A
-	-	RF Cable	-	-	Each time ¹	N/A

Note¹: Equipment was calibrated for each test.

Statement of Traceability: **BACL Corp.** attests that all of the calibrations on the equipment items listed above were traceable to NIST or to another internationally recognized National Metrology Institute (NMI), and were compliant with the latest version of A2LA policy P102 "A2LA Policy on Metrological Traceability".

8.5 Test Environmental Conditions

Temperature:	22.4° C
Relative Humidity:	45.4 %
ATM Pressure:	101.8 kPa

The testing was performed by Kevin Chau from 2024-04-16 to 2024-05-29 in the RF Site.

8.6 Test Results

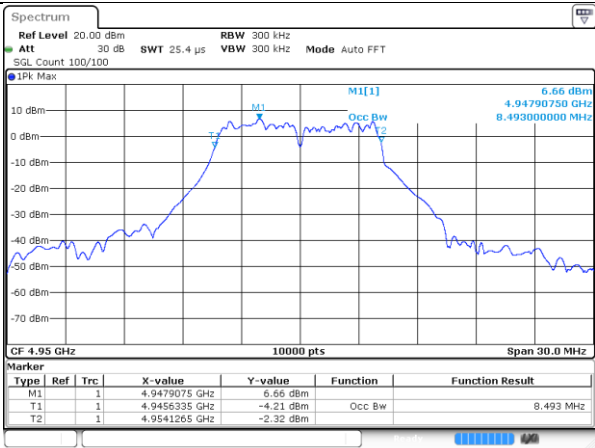
Mode	Radio	Freq. (MHz)	99% OBW (MHz)	Limit (MHz)
a10	Radio 2	4950	8.493	≤ 10
		4955	8.331	≤ 10
		4980	8.352	≤ 10
n10		4950	8.913	≤ 10
		4955	8.925	≤ 10
		4980	8.826	≤ 10
n20		4950	18.138	≤ 20
		4965	18.144	≤ 20
		4980	18.138	≤ 20
ac10		4950	8.919	≤ 10
		4955	8.895	≤ 10
		4980	8.877	≤ 10
ac20		4950	18.138	≤ 20
		4965	18.108	≤ 20
		4980	18.132	≤ 20

Radio 1

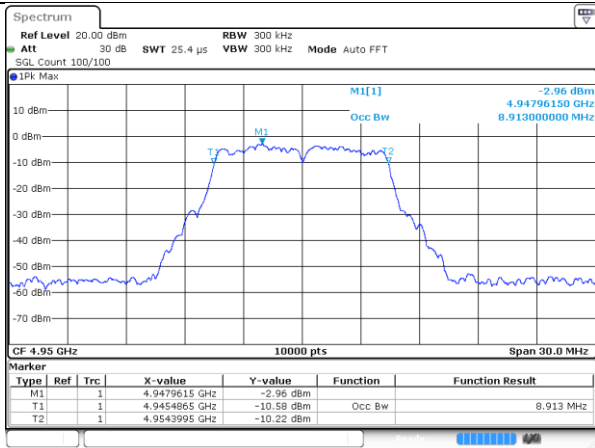
Mode	Radio	Freq. (MHz)	99% OBW (MHz)	Limit (MHz)
a10	Radio 1	4950	8.46	≤ 10
		4955	8.325	≤ 10
		4980	8.469	≤ 10
n10		4950	9.123	≤ 10
		4955	9.159	≤ 10
		4980	9.042	≤ 10
n20		4950	18.528	≤ 20
		4965	18.528	≤ 20
		4980	18.522	≤ 20
ac10		4950	9.075	≤ 10
		4955	9.096	≤ 10
		4980	9.012	≤ 10
ac20		4950	18.504	≤ 20
		4965	18.492	≤ 20
		4980	18.54	≤ 20

Note: testing was performed using the worst power port.

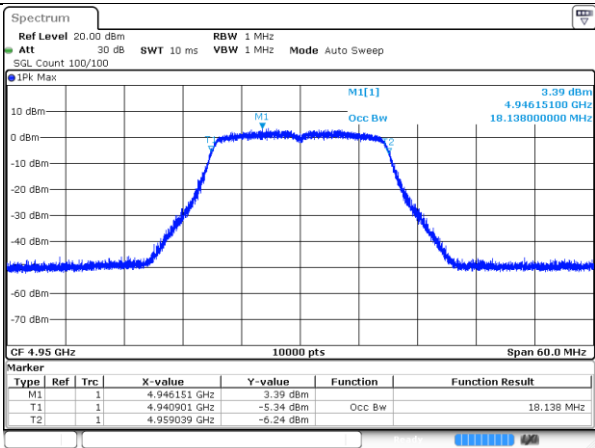
Please refer to below tables for the occupied bandwidth plots.



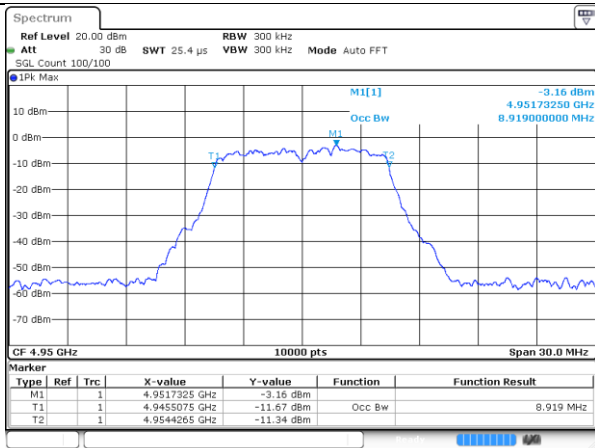
4950MHz-10MHz-802.11a-Radio_1



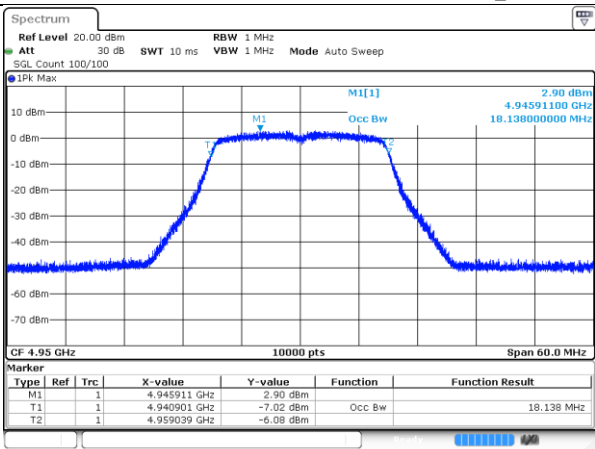
4950MHz-10MHz-802.11n-Radio_1



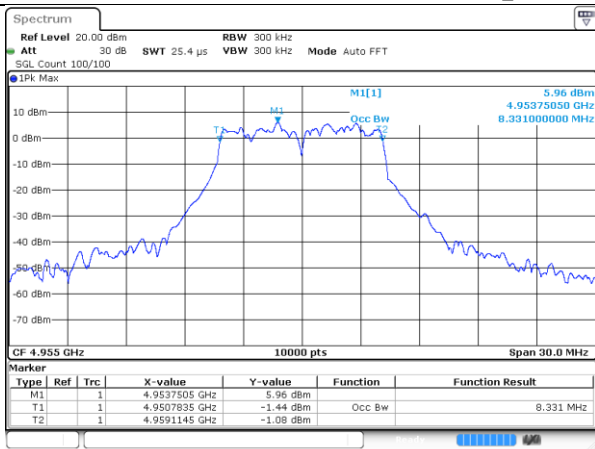
4950MHz-20MHz-802.11n-Radio_1



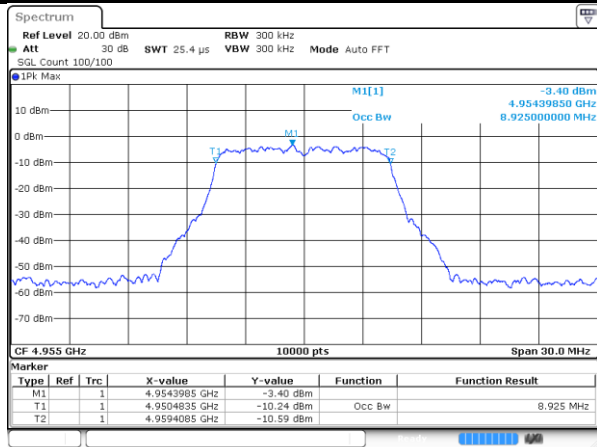
4950MHz-10MHz-802.11ac-Radio_1



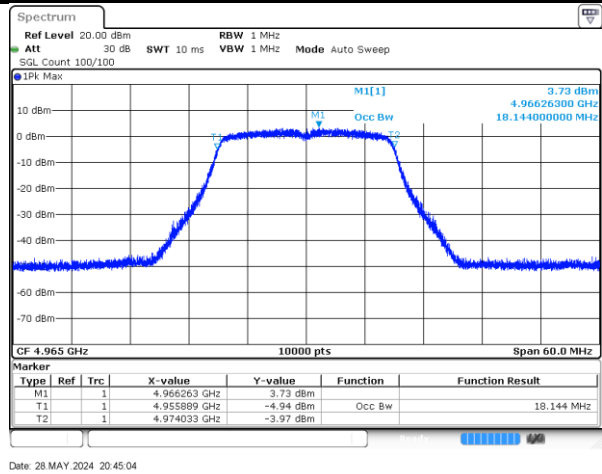
4950MHz-20MHz-802.11ac-Radio_1



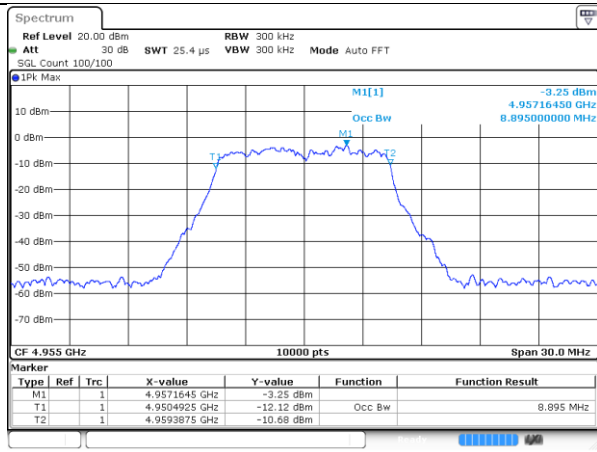
4955MHz-10MHz-802.11a-Radio_1



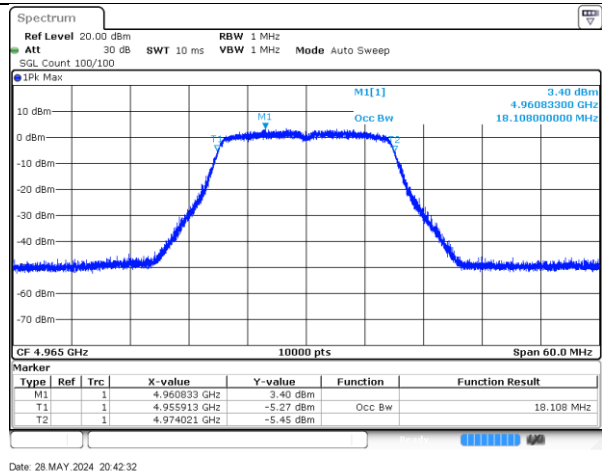
4955MHz-10MHz-802.11n-Radio_1



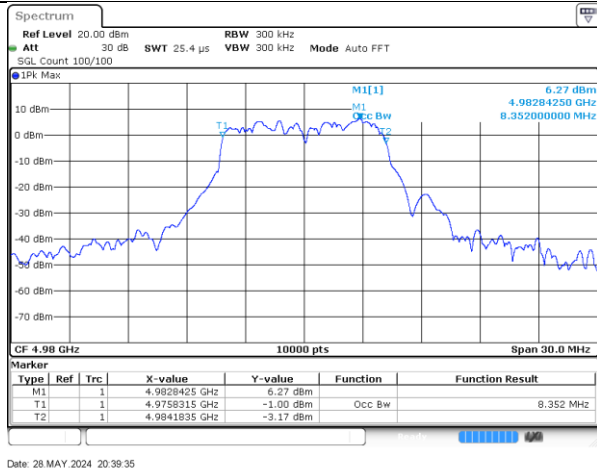
4965MHz-20MHz-802.11n-Radio_1



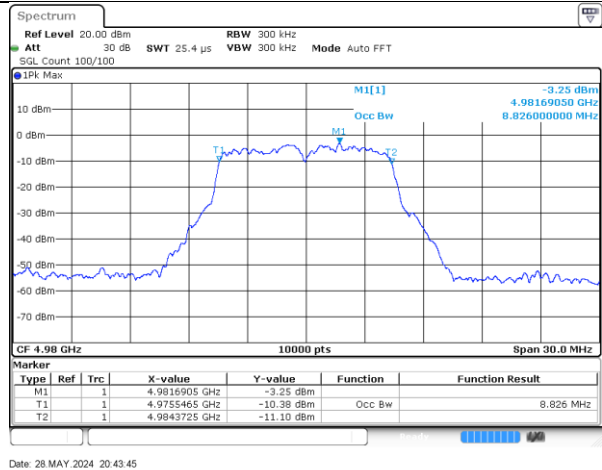
4955MHz-10MHz-802.11ac-Radio_1



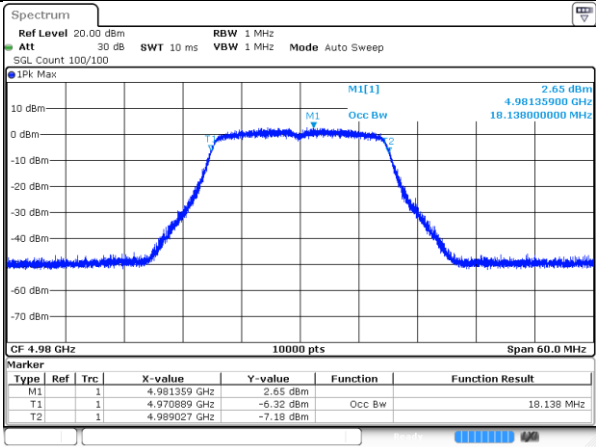
4965MHz-20MHz-802.11ac-Radio_1



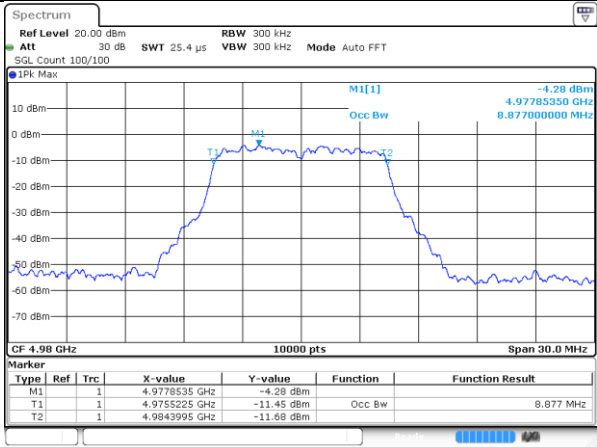
4980-10MHz-802.11a-Radio_1



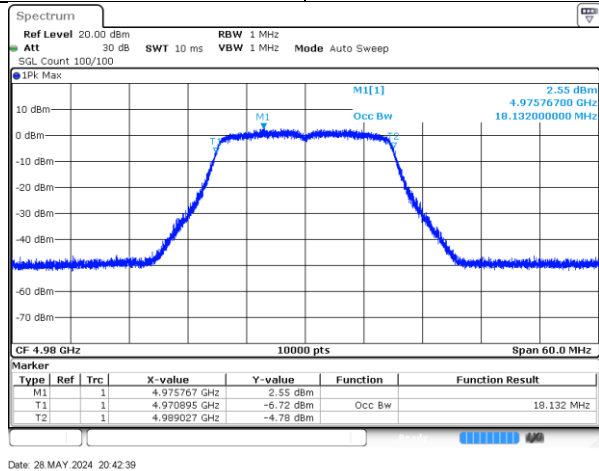
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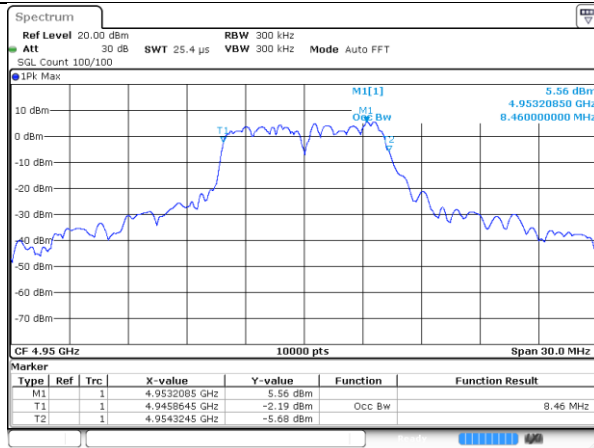
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4980-10MHz-802.11ac-Radio_1

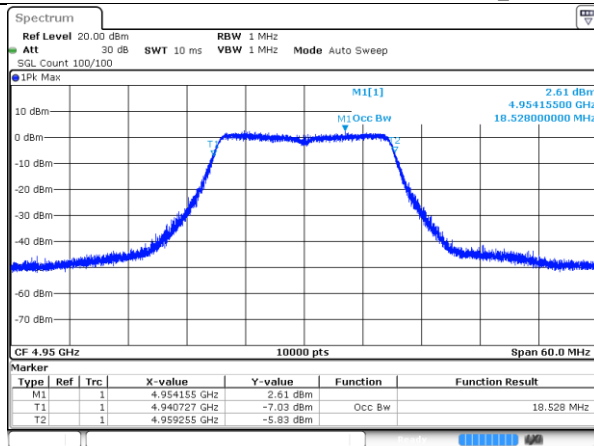


4980-20MHz-802.11ac-Radio_1



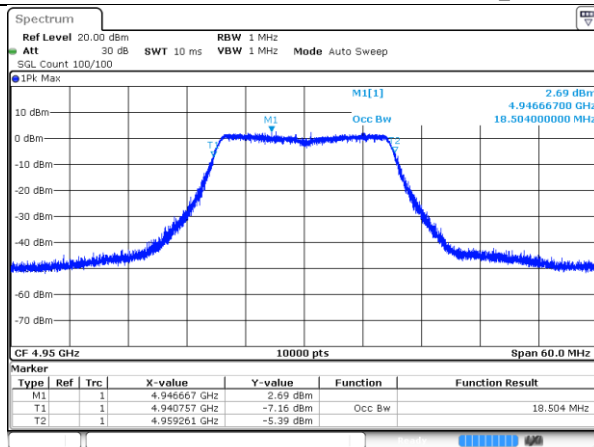
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4950MHz-10MHz-802.11a-Radio_2



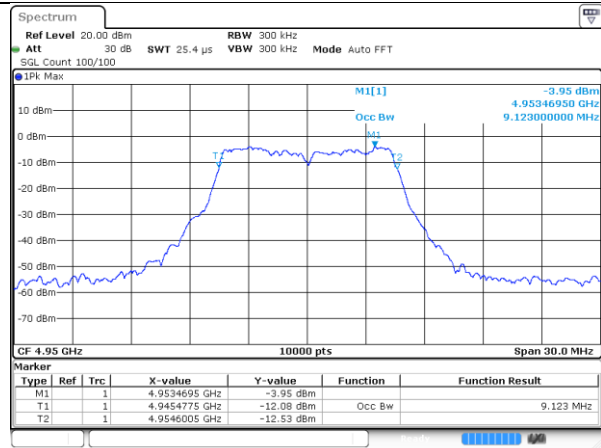
Date: 28 MAY 2024 20:54:46

4950MHz-20MHz-802.11n-Radio_2



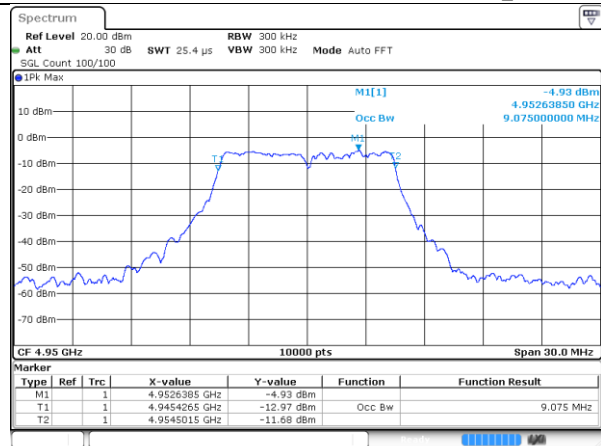
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4950MHz-20MHz-802.11ac-Radio_2



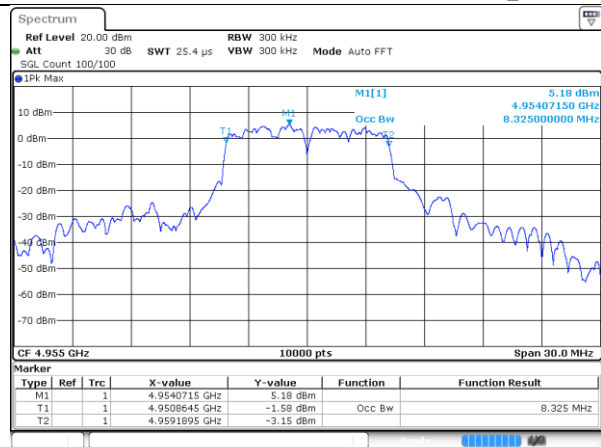
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4950MHz-10MHz-802.11n-Radio_2



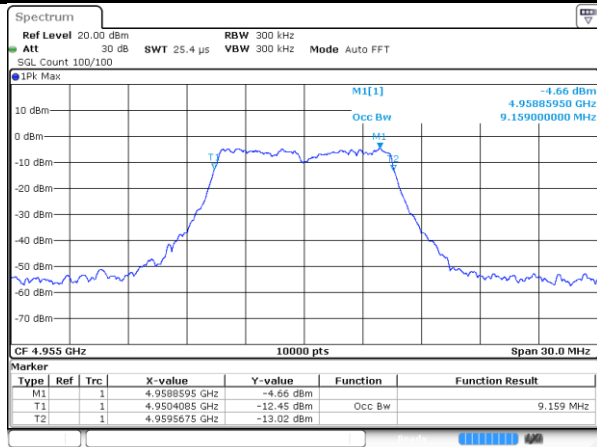
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4950MHz-10MHz-802.11ac-Radio_2

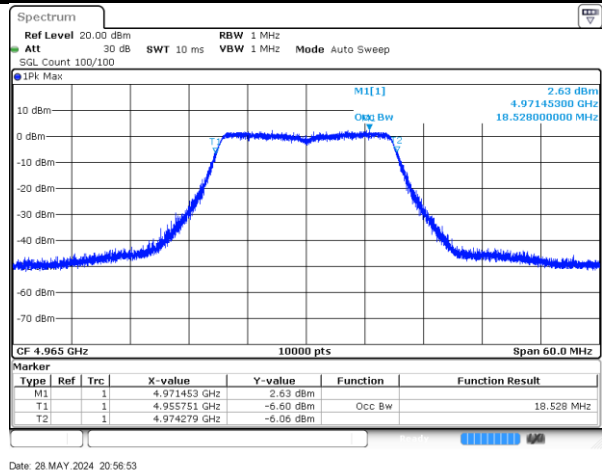


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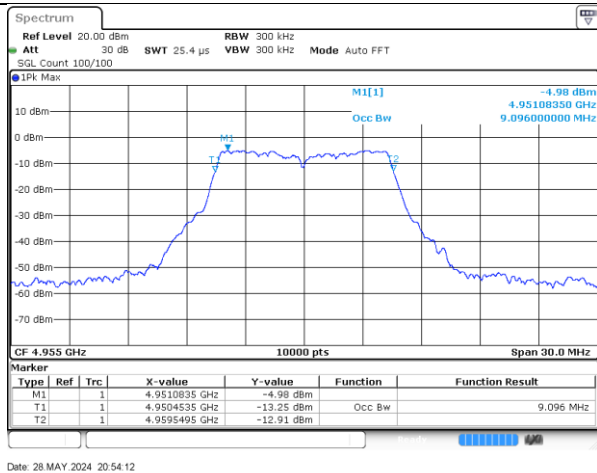
4955MHz-10MHz-802.11a-Radio_2



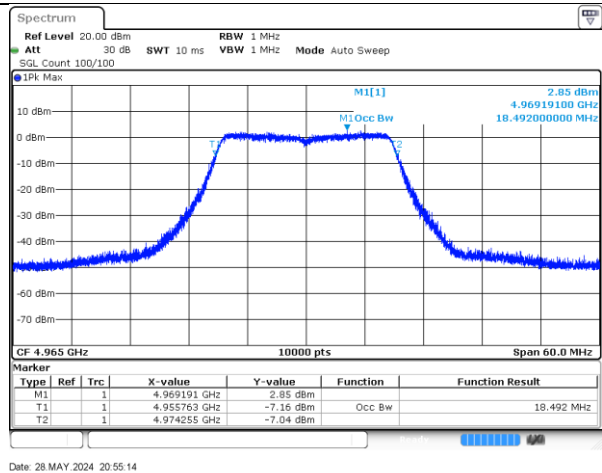
4955MHz-10MHz-802.11n-Radio_2



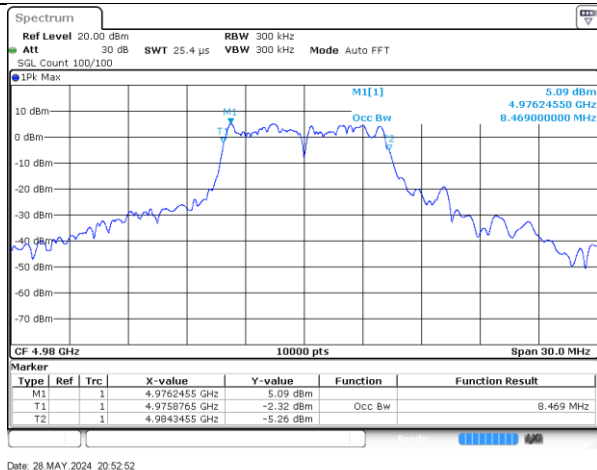
4965MHz-20MHz-802.11n-Radio_2



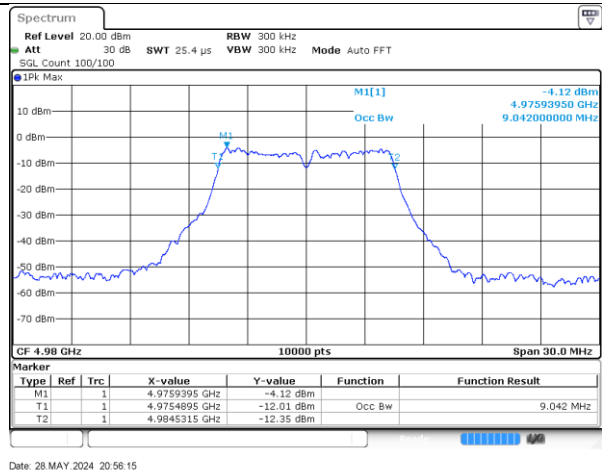
4955MHz-10MHz-802.11ac-Radio_2



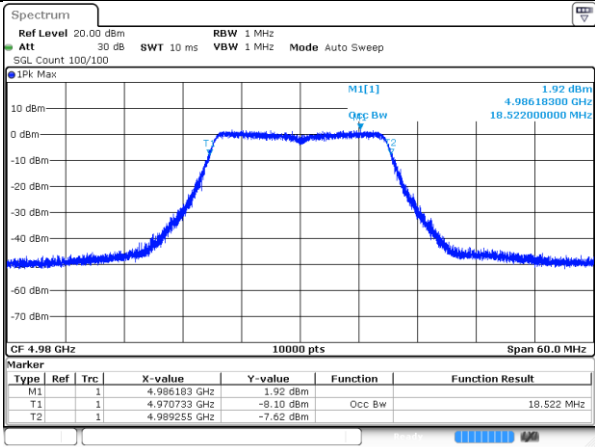
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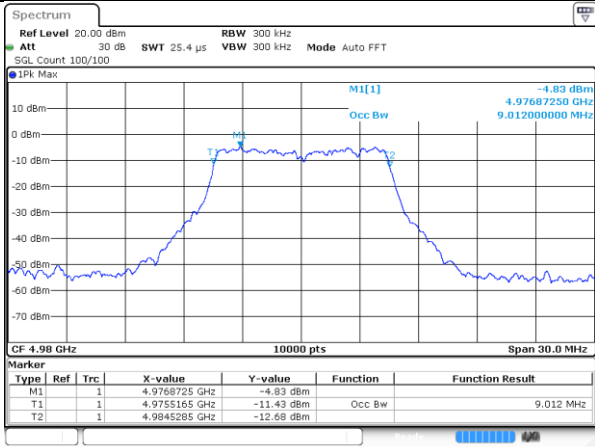
4980MHz-10MHz-802.11a-Radio_2



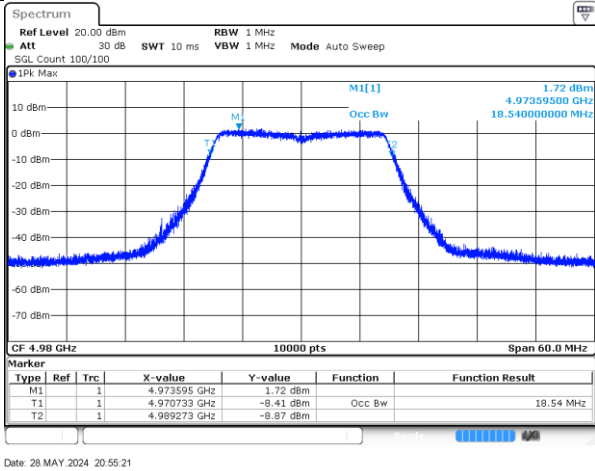
4980MHz-10MHz-802.11n-Radio_2



4980MHz-20MHz-802.11n-Radio_2



4980MHz-10MHz-802.11ac-Radio_2



4980MHz-20MHz-802.11ac-Radio_2

9 FCC §2.1051, §90.210 & RSS-111 § 5.5 - Spurious Emissions at Antenna Terminals

9.1 Applicable Standards

According to FCC §90.210

TABLE 1 TO §90.210—APPLICABLE EMISSION MASKS

Frequency band (MHz)	Mask for equipment with audio low pass filter	Mask for equipment without audio low pass filter
Below 25 ¹	A or B	A or C
25-50	B	C
72-76	B	C
150-174 ²	B, D, or E	C, D or E
150 paging only	B	C
220-222	F	F
421-512 ^{2 5}	B, D, or E	C, D, or E
450 paging only	B	G
806-809/851-854 ⁶	B	H
809-824/854-869 ³⁵	B, D	D, G.
896-901/935-940	I	J
902-928	K	K
929-930	B	G
4940-4990 MHz	L or M	L or M
5850-5925 ⁴		
All other bands	B	C

(j) *Emission Mask J.* For transmitters that are not equipped with an audio low-pass filter, the power of any emission must be attenuated below the unmodulated carrier power of the transmitter (P) as follows:

(1) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 2.5 kHz, but no more than 6.25 kHz: At least $53 \log(f_d/2.5)$ dB;

(2) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 6.25 kHz, but no more than 9.5 kHz: At least $103 \log(f_d/3.9)$ dB;

(3) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 9.5 kHz: At least $157 \log(f_d/5.3)$ dB, or $50 + 10 \log(P)$ dB or 70 dB, whichever is the lesser attenuation.

According to ISEDC RSS-111 §5.5

5.5 Transmitter Unwanted Emissions

Transmitter unwanted emissions shall be measured according to the method described in [Section 4.3](#).

On any frequency f , offset from the channel centre frequency f_c by a separation f_d (expressed as a percentage of the channel bandwidth), the power spectral density of the unwanted emissions for low- and high-power transmitters shall comply with the limits specified below in [Table 2](#). [Figure 1](#) shows the emission mask for low- and high-power transmitters. For equipment with multiple transmitters, the unwanted emissions of each transmitter shall comply with the emission limits based on the output power of the transmitter regardless of the total output power of the equipment (i.e. total output power from all the transmitters).

Table 2 — Emission Mask for Low- and High-power Transmitters		
Offset Frequency f_d (% of the Equipment's Channel Bandwidth)	Minimum Attenuation (dB)	
	Low-power Transmitter	High-power Transmitter
$0 < f_d \leq 45$	0	0
$45 < f_d \leq 50$	$219 \log (f_d/45)$	$568 \log (f_d/45)$
$50 < f_d \leq 55$	$10 + 242 \log (f_d/50)$	$26 + 145 \log (f_d/50)$
$55 < f_d \leq 100$	$20 + 31 \log (f_d/55)$	$32 + 31 \log (f_d/55)$
$100 < f_d \leq 150$	$28 + 68 \log (f_d/100)$	$40 + 57 \log (f_d/100)$
$f_d > 150$	40	whichever is less stringent 50 or $55 + 10 \log p$

Where: f_d (%) = $((f - f_c)/\text{channel bandwidth}) \times 100$
 p : transmitter's output power (in watts), measured as per [Section 4.1](#)

9.2 Test Procedure

Conducted spurious emissions:

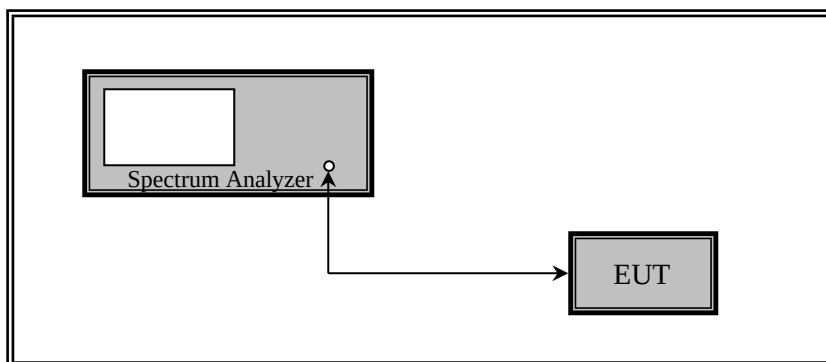
The RF output of the EUT was connected to a spectrum analyzer through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set at 100 kHz for measurements up to 1GHz and set to 1 MHz for measurements up to the 10th harmonic.

Band-edge emissions:

According to ANSI C63.26-2015 section 5.7 Unwanted (out-of-band and spurious) conducted emissions measurement procedures (conducted test at antenna port):

A RBW narrower than the specified reference bandwidth can be used (generally limited to no less than 1% of the OBW).

9.3 Test Setup Block Diagram



9.4 Test Equipment List and Details

BACL No.	Manufacturers	Descriptions	Models	Serial Numbers	Calibration Dates	Calibration Interval
912	Rhode & Schwarz	Signal Analyzer	FSV40	1321.3008k39-101203-UW	2023-06-02	13 months
1224	Radiall	USB COAXIAL SWITCHES	SPNT R574X11X 01 USB	-	Each time ¹	N/A
-	-	RF Cable	-	-	Each time ¹	N/A

Note¹: Equipment was calibrated for each test.

Statement of Traceability: **BACL Corp.** attests that all of the calibrations on the equipment items listed above were traceable to NIST or to another internationally recognized National Metrology Institute (NMI), and were compliant with the latest version of A2LA policy P102 “A2LA Policy on Metrological Traceability”.

9.5 Test Environmental Conditions

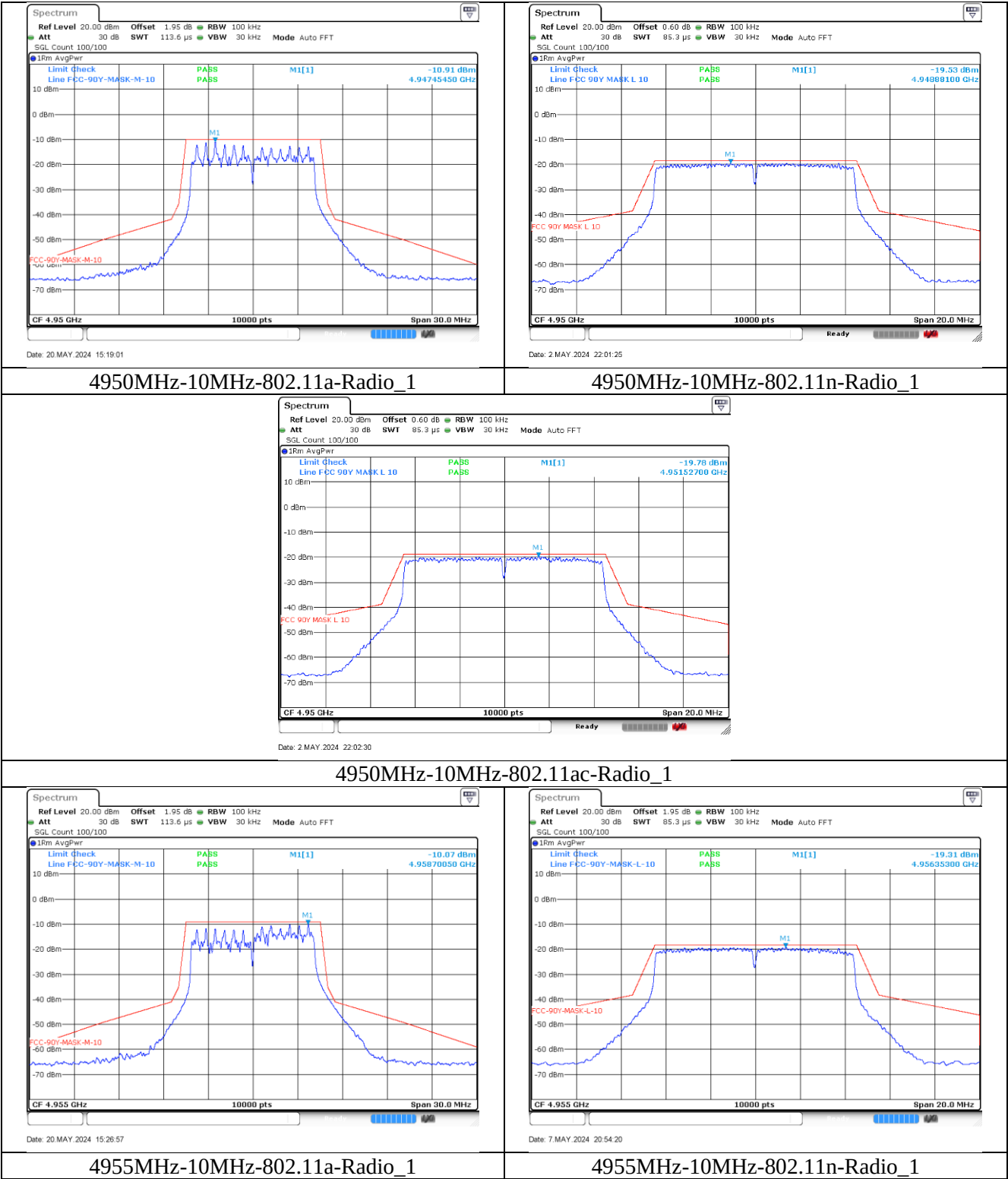
Temperature:	22.4° C
Relative Humidity:	45.4 %
ATM Pressure:	101.8 kPa

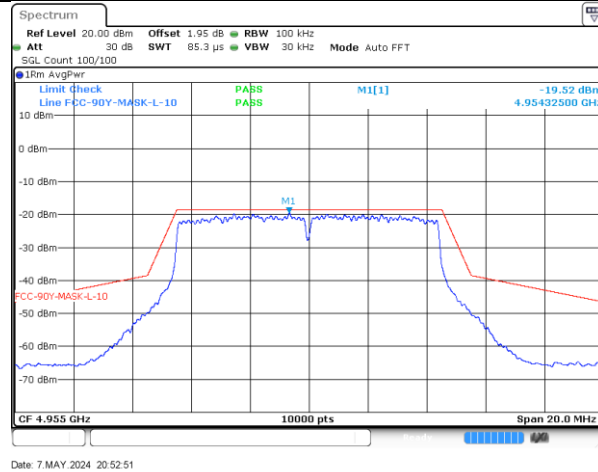
The testing was performed by Kevin Chau from 2024-04-16 to 2024-05-29, and 2024-06-11 in the RF Site.

9.6 Test Results

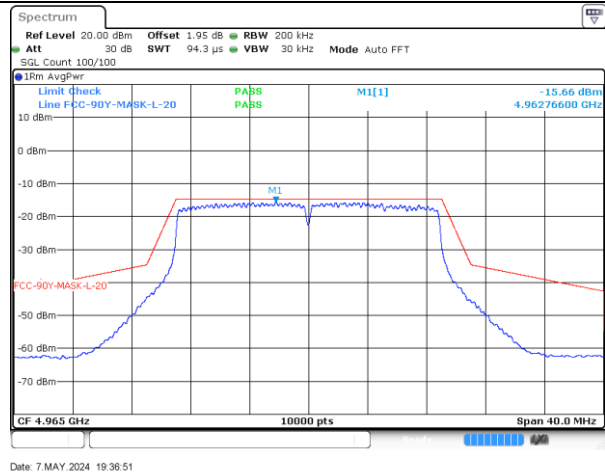
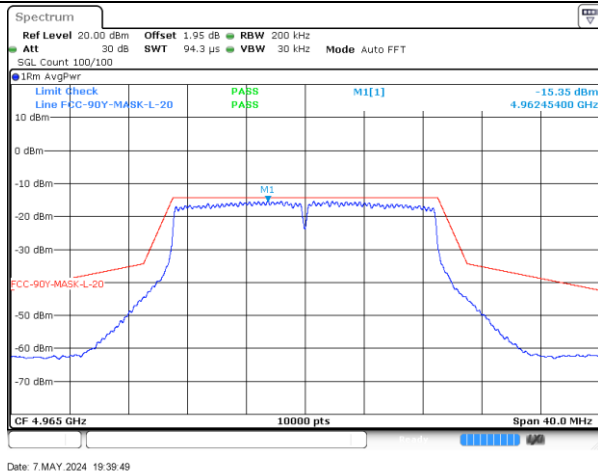
Please refer to below tables for Spurious Emissions and Emissions Mask plots.

Radio 2 15dBi Antenna Gain Emission Mask

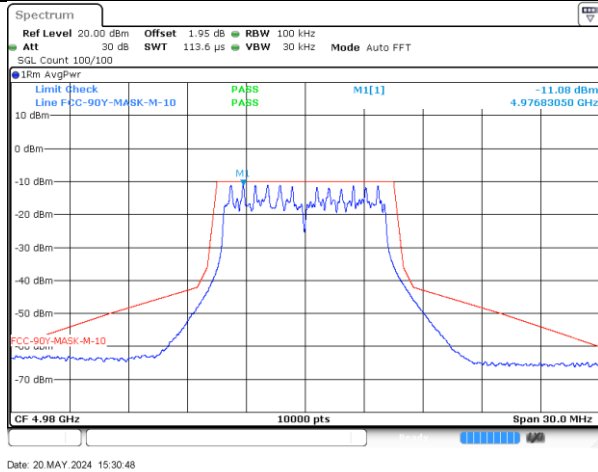




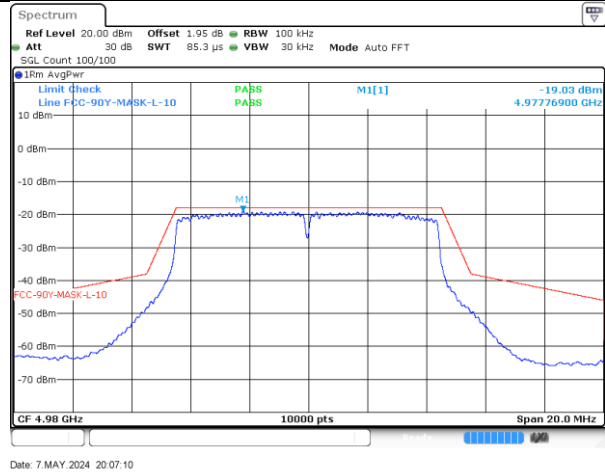
4955MHz-10MHz-802.11ac-Radio_1



4965MHz-20MHz-802.11n-Radio_1

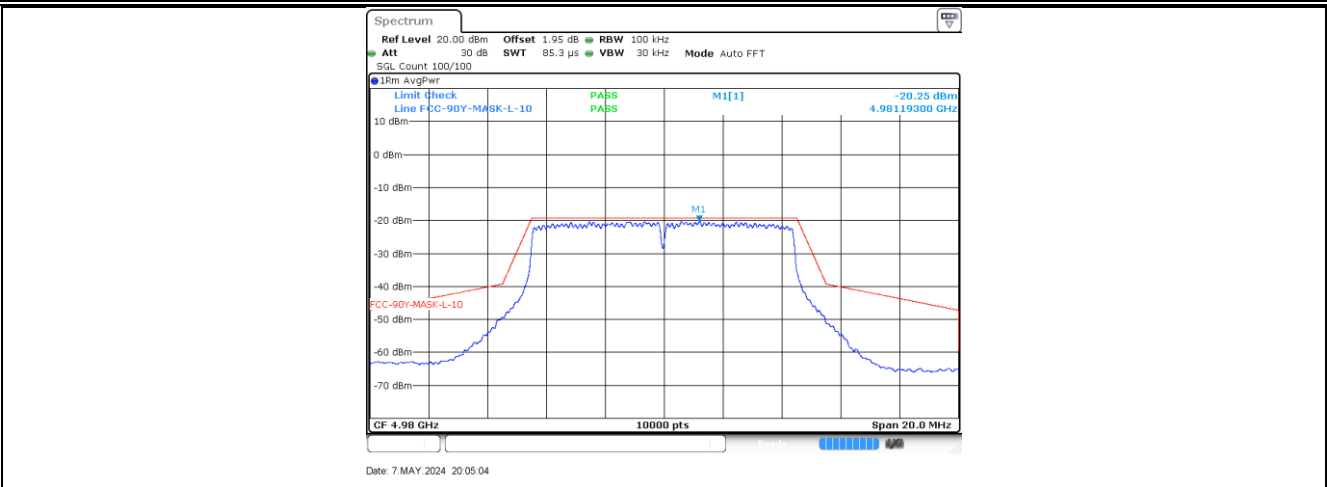


4965MHz-20MHz-802.11ac-Radio_1

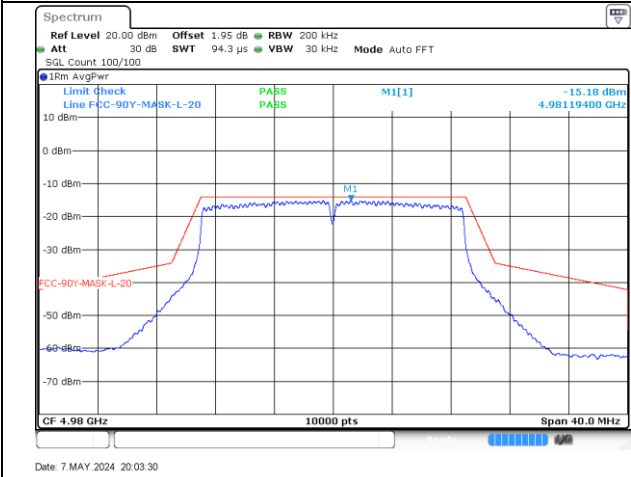


4980MHz-10MHz-802.11a-Radio_1

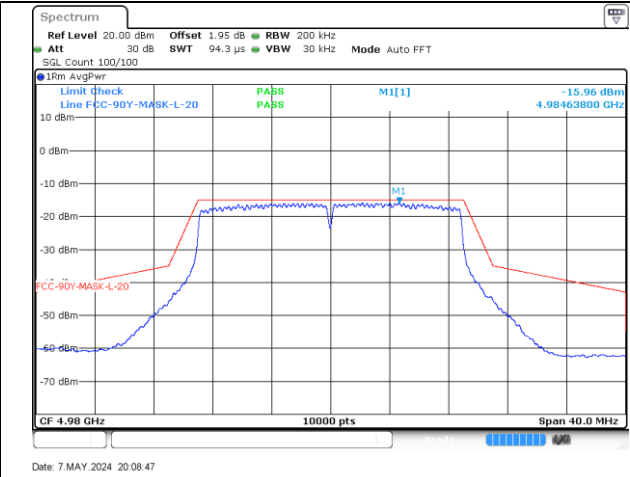
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4980MHz-10MHz-802.11ac-Radio_1

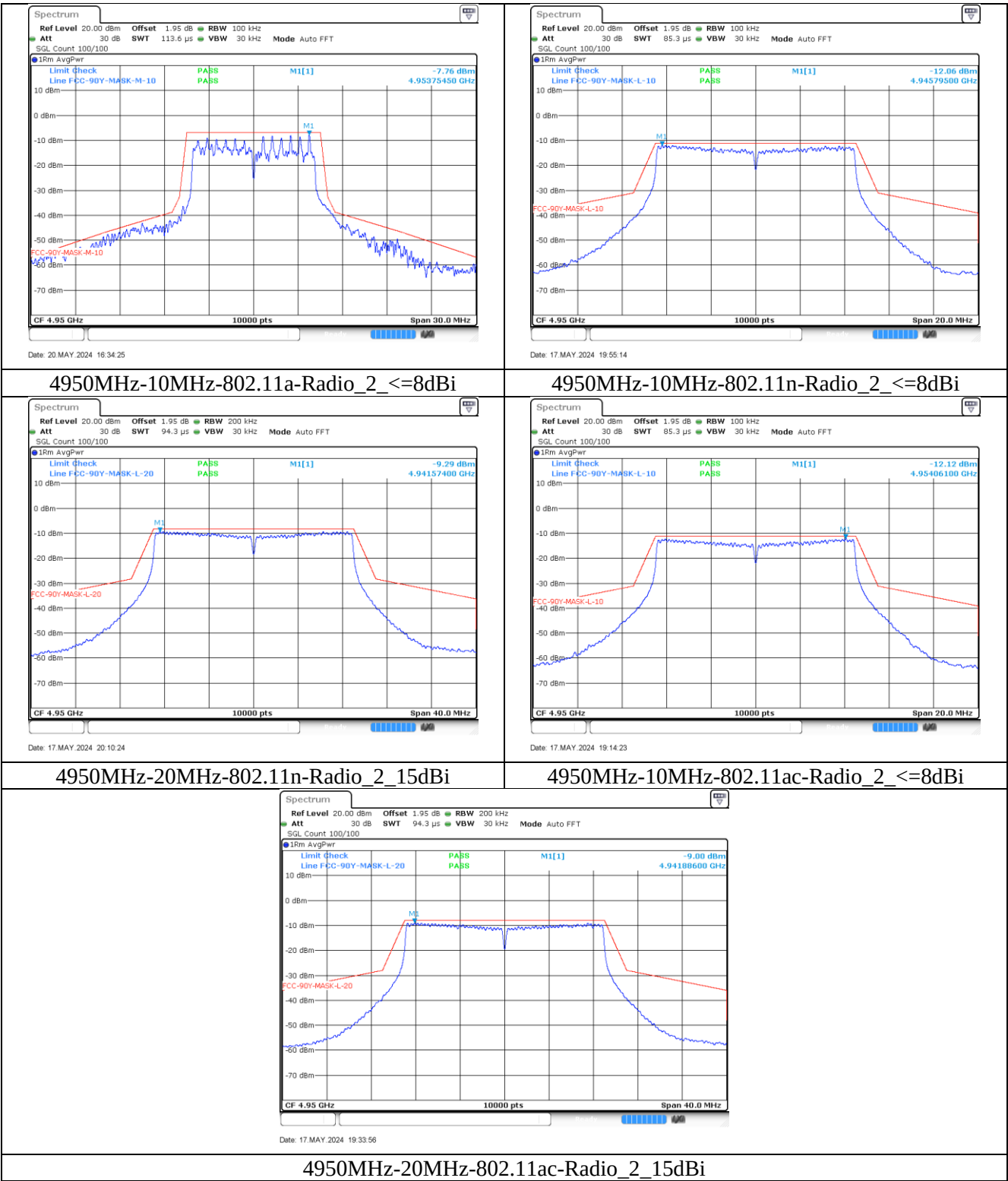


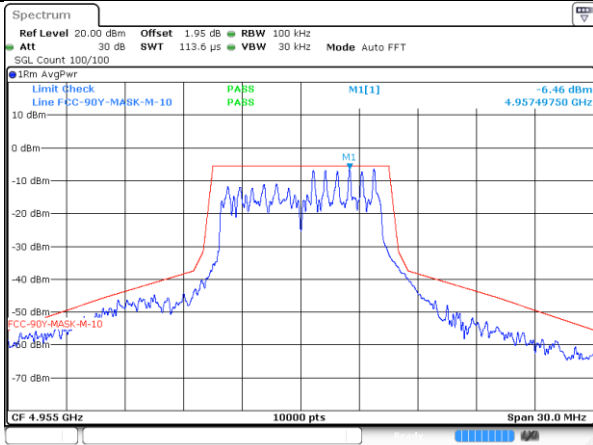
4980MHz-20MHz-802.11ac-Radio_1



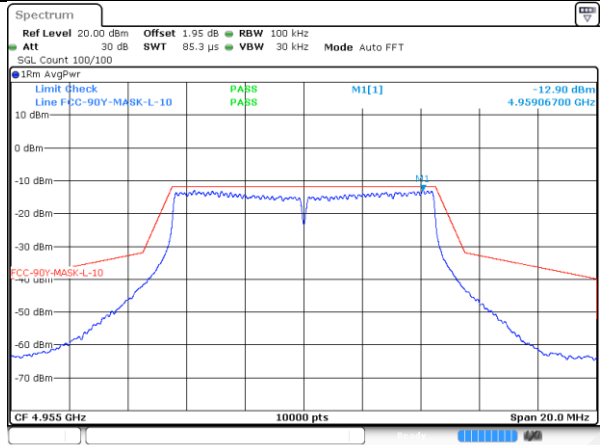
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Radio 1 <=8dBi and 15dBi Antenna Gain Emission Mask



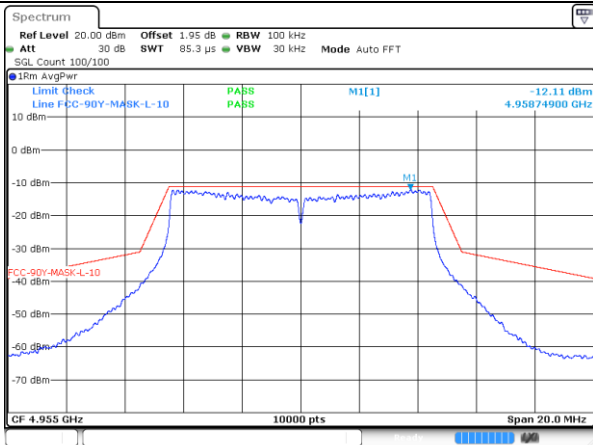


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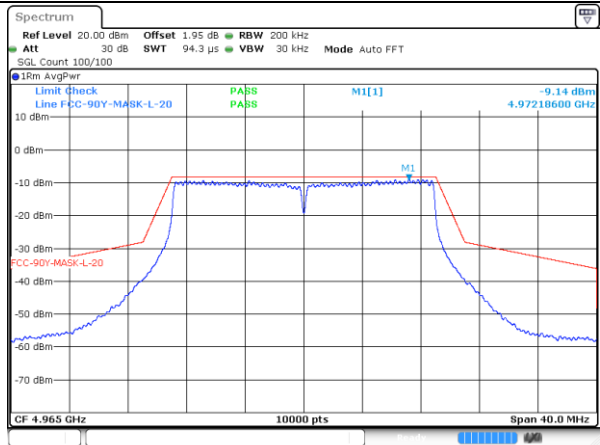


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4955MHz-10MHz-802.11a-Radio_2_<=8dBi

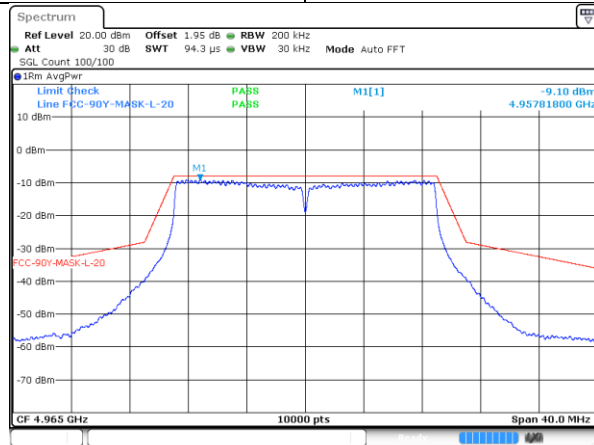


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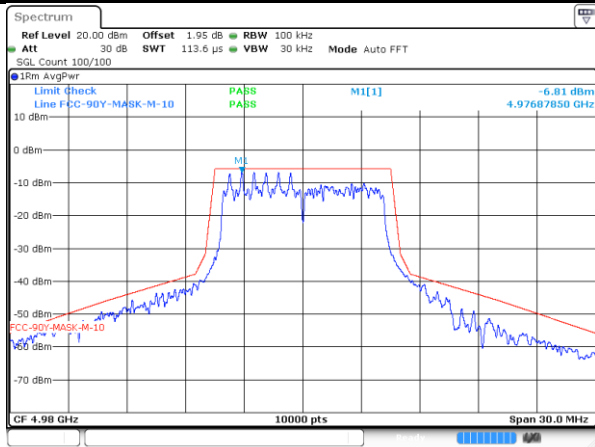
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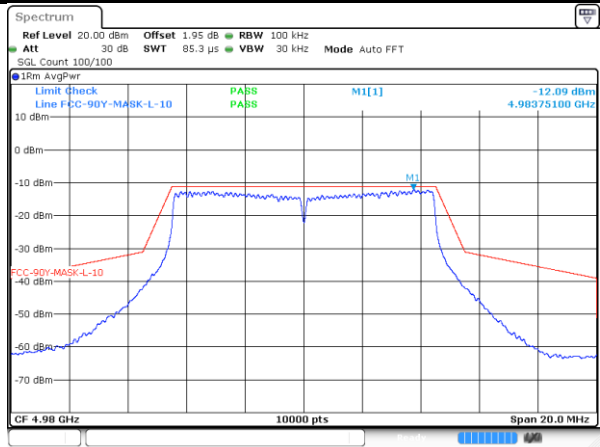
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4965MHz-20MHz-802.11ac-Radio_2_15dBi



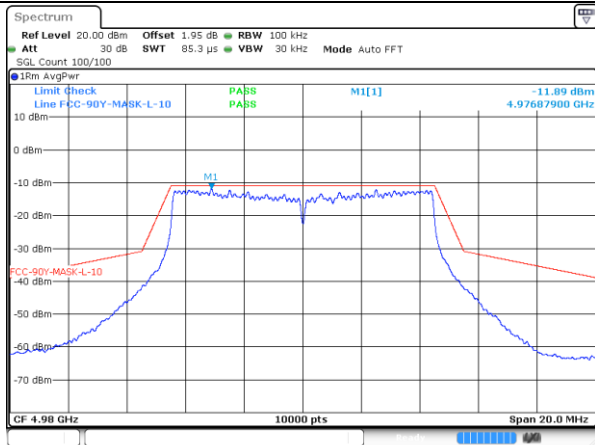
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4980MHz-10MHz-802.11a-Radio_2_<=8dBi



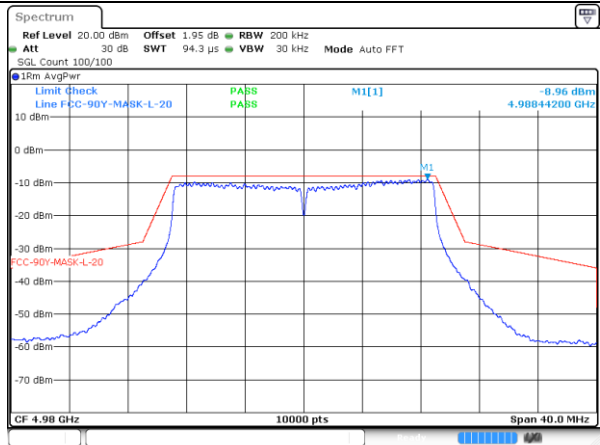
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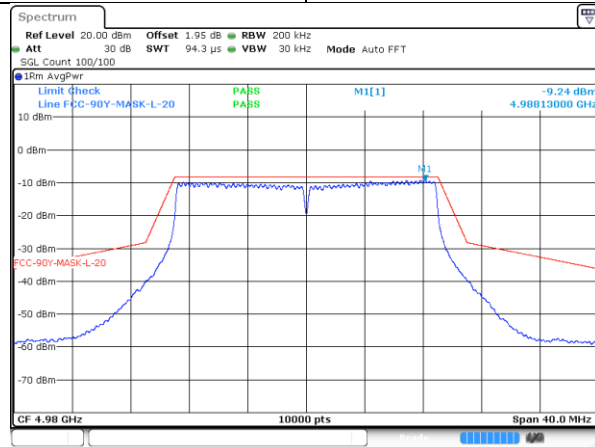
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4980MHz-10MHz-802.11ac-Radio_2_<=8dBi



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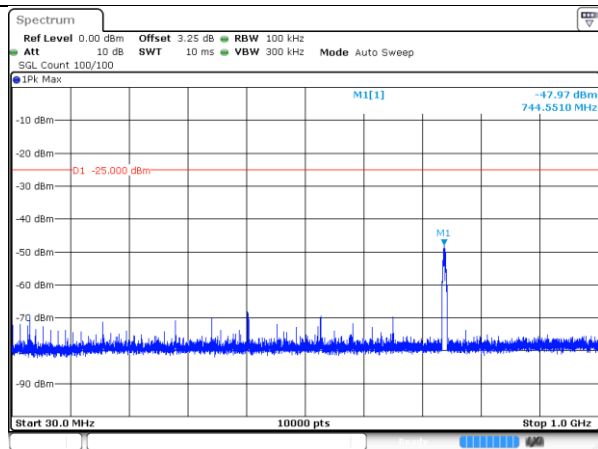
4980MHz-20MHz-802.11n-Radio_2_15dBi



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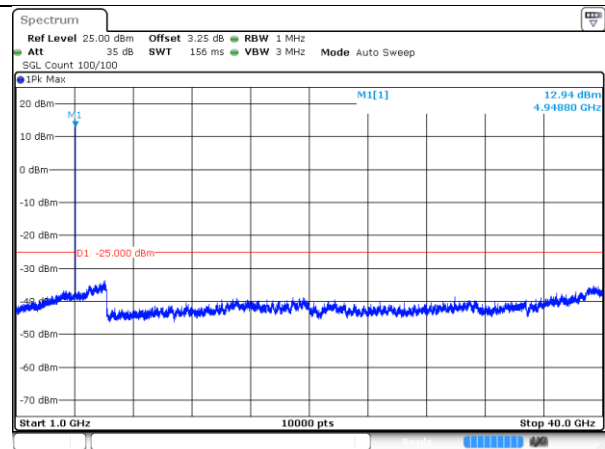
4980MHz-20MHz-802.11ac-Radio_2_15dBi

Radio 2 15dBi Antenna Gain Spurious Emissions



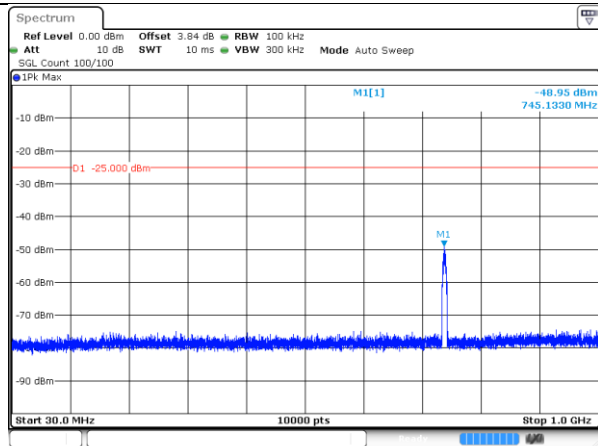
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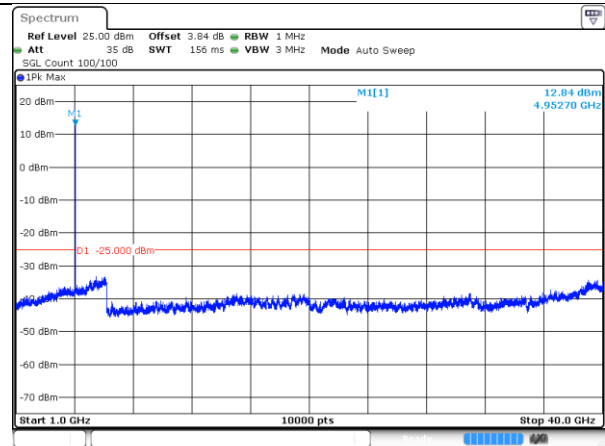
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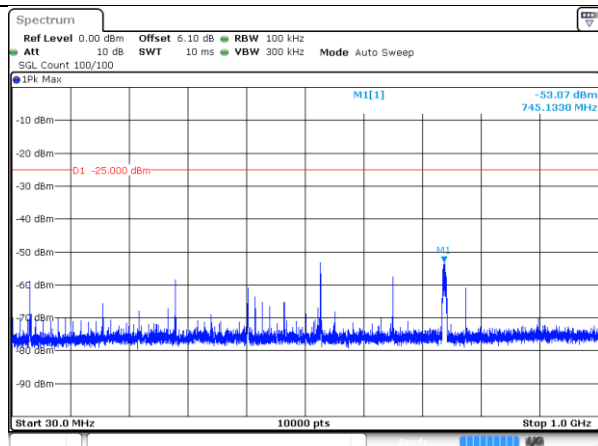
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4950-10MHz-802.11a-1-b



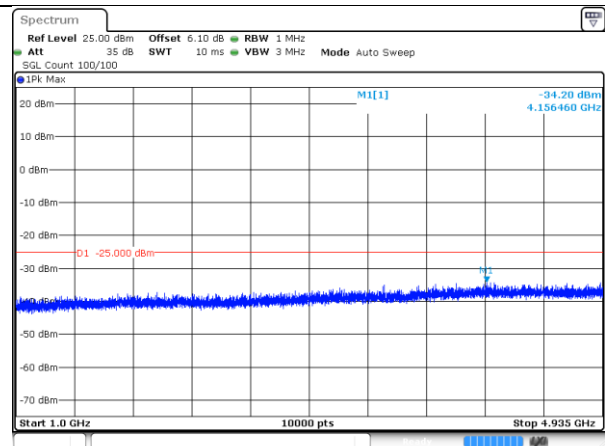
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4950-10MHz-802.11a-1-b



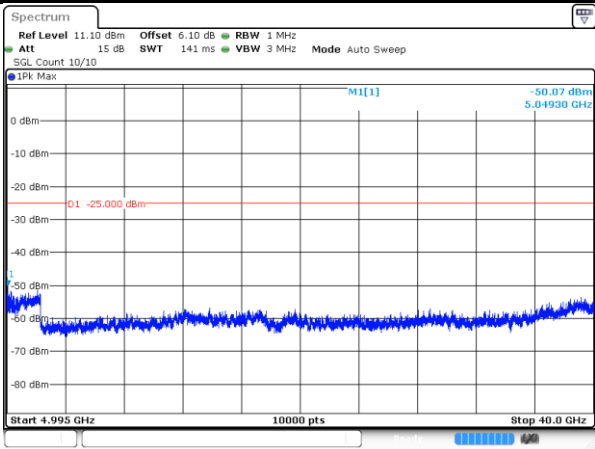
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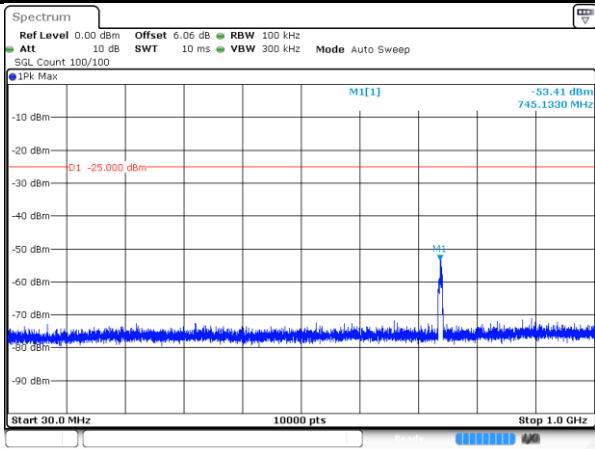
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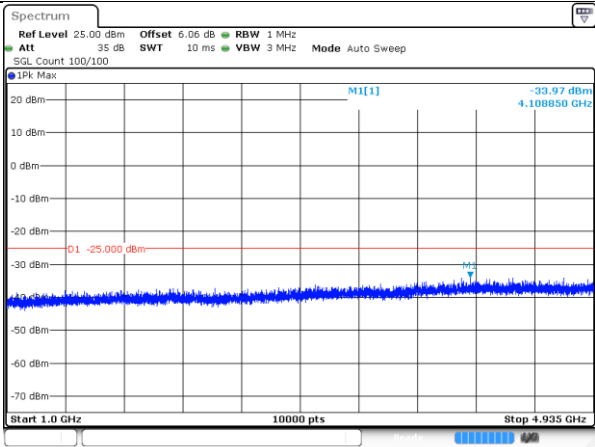
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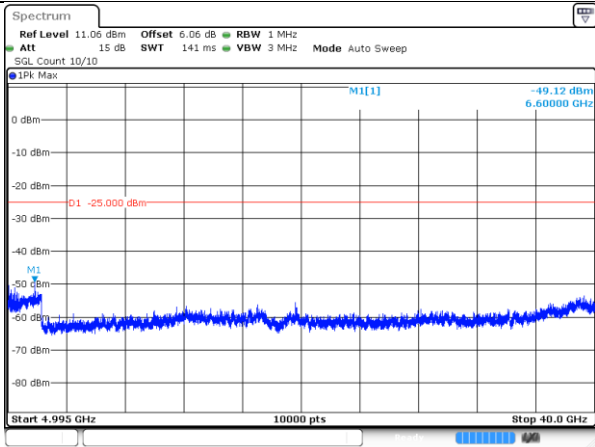
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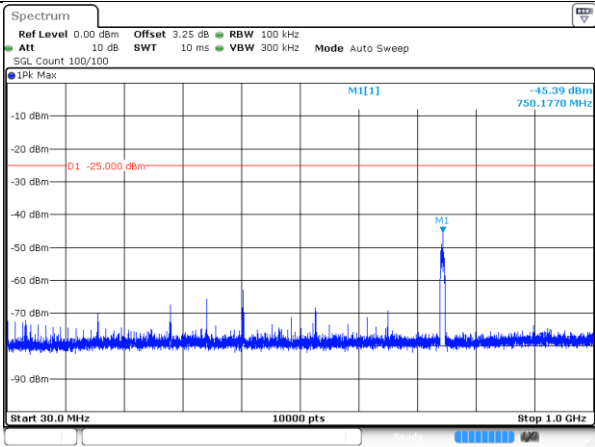
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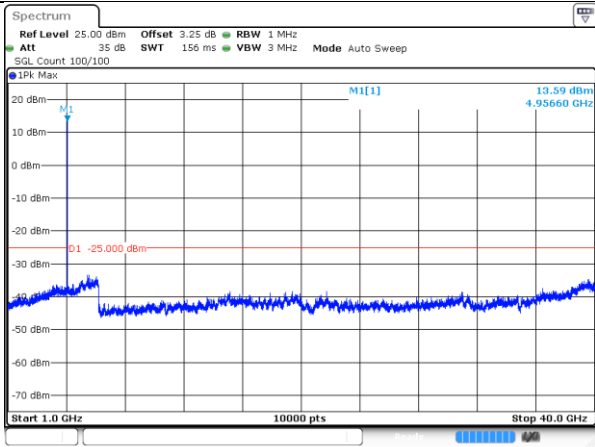
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4950-10MHz-802.11a-2-b



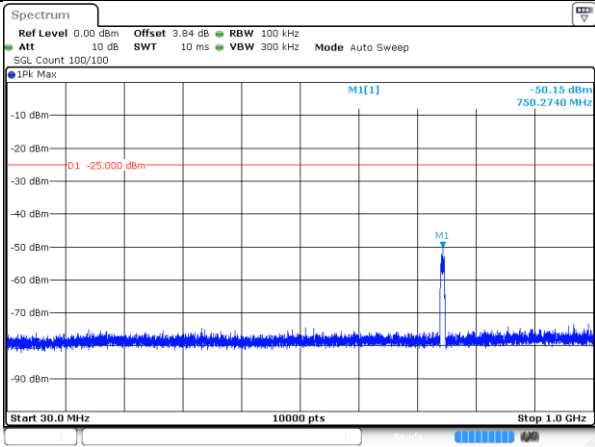
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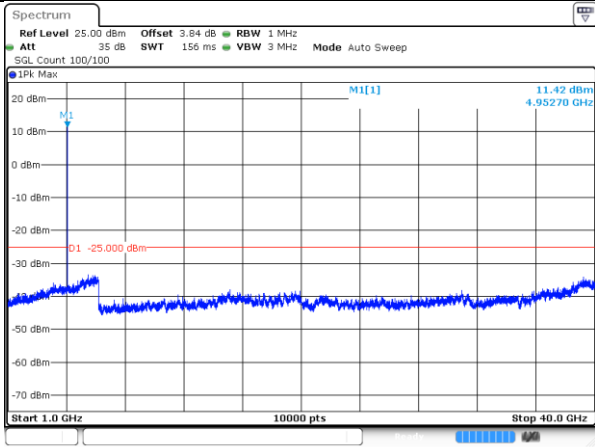
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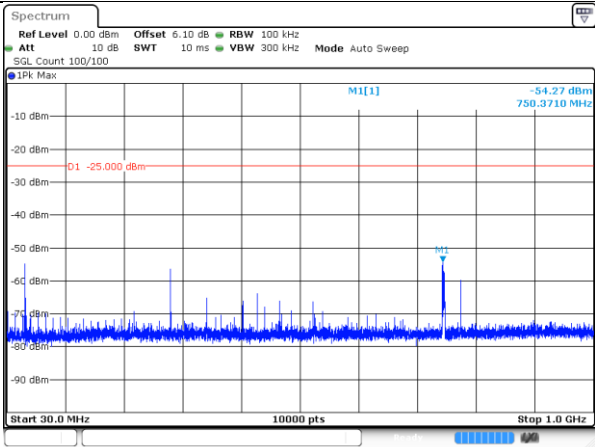
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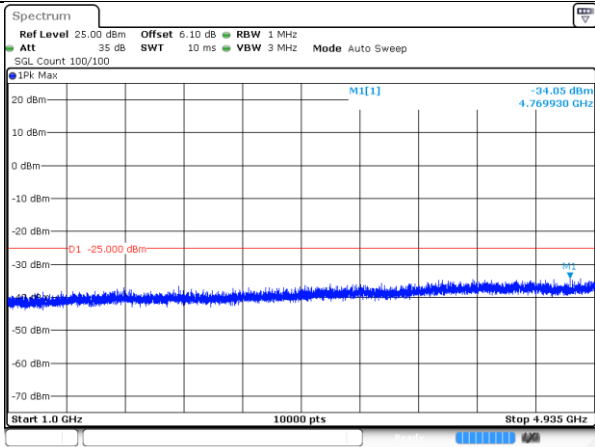
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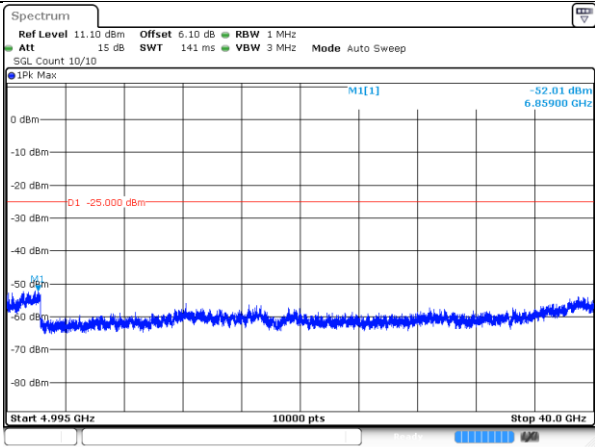
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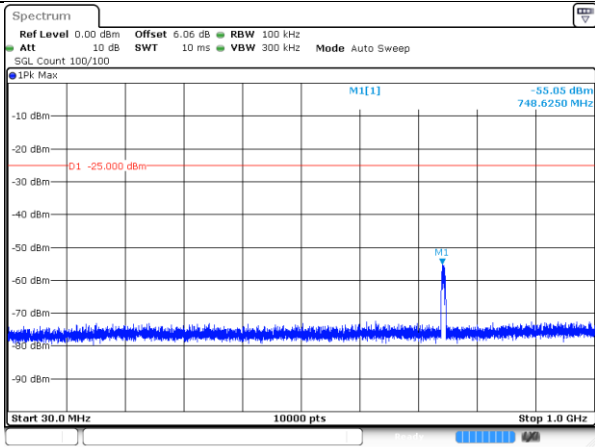
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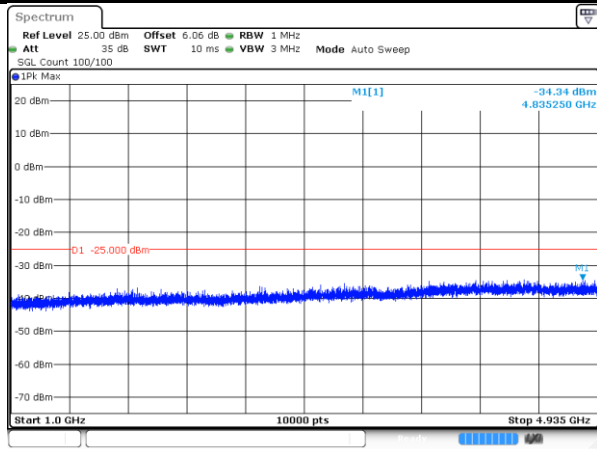
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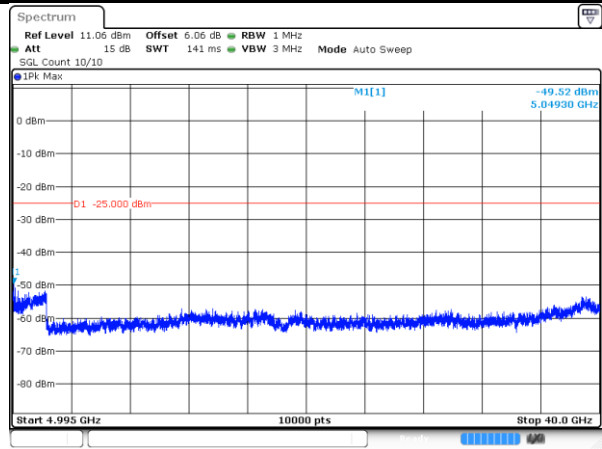


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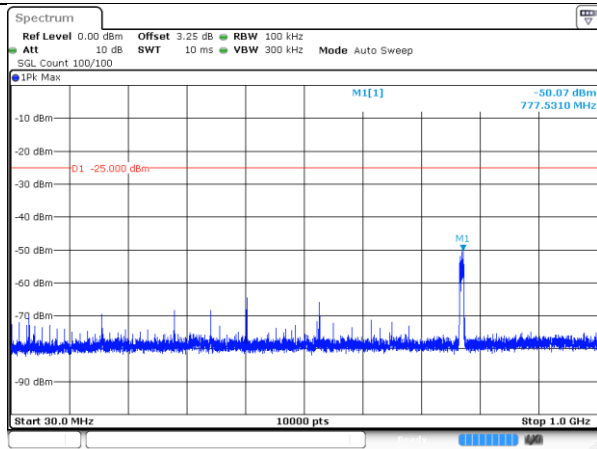
4955-10MHz-802.11a-2-b



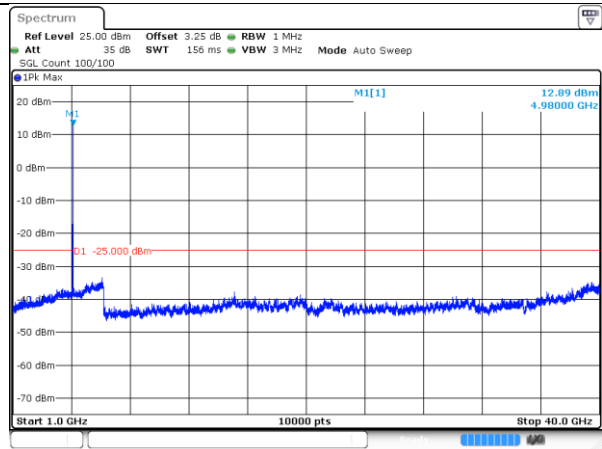
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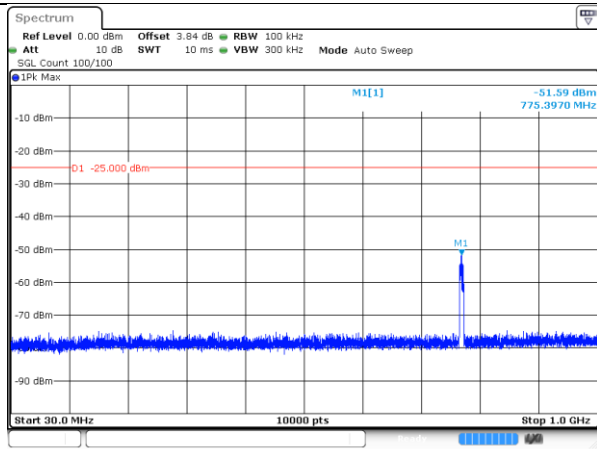
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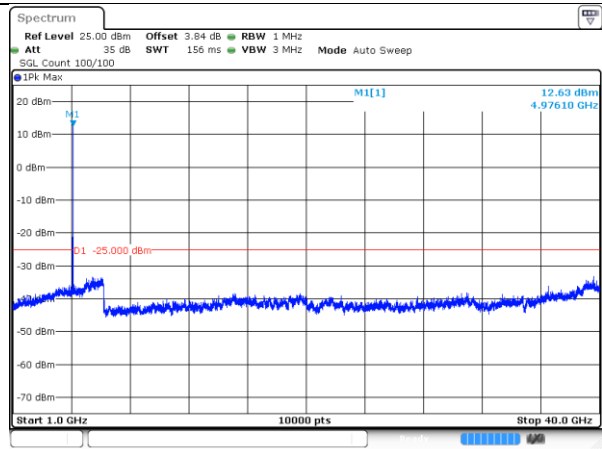
4980-10MHz-802.11a-1-a



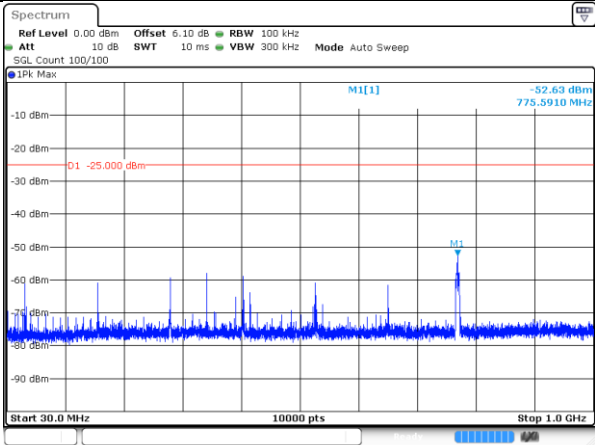
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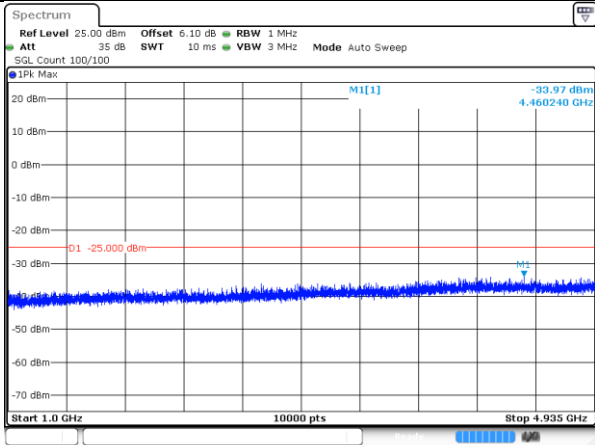
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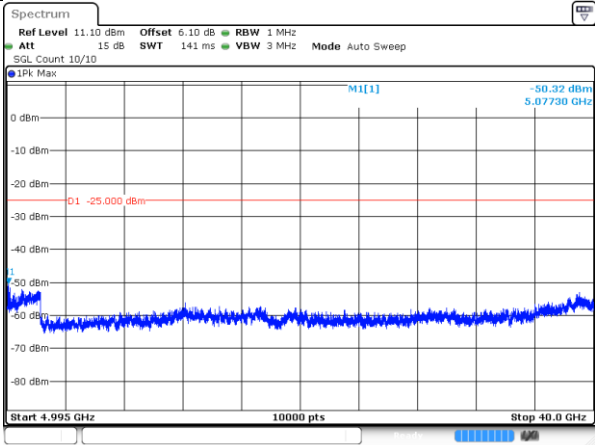
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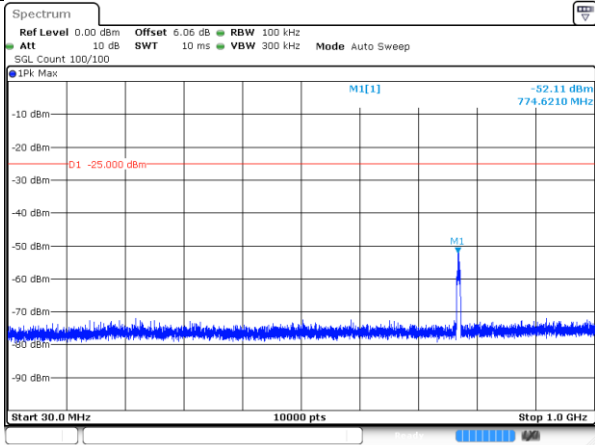
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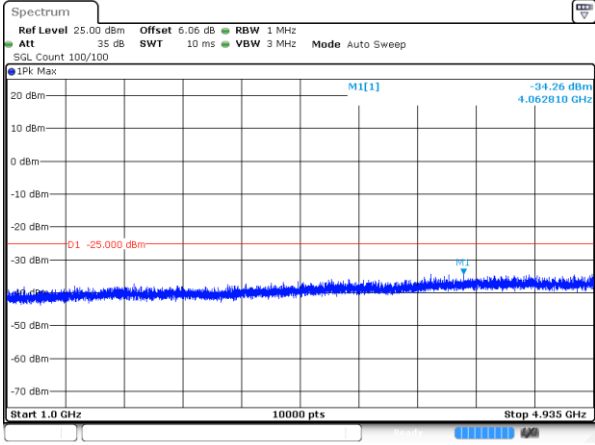
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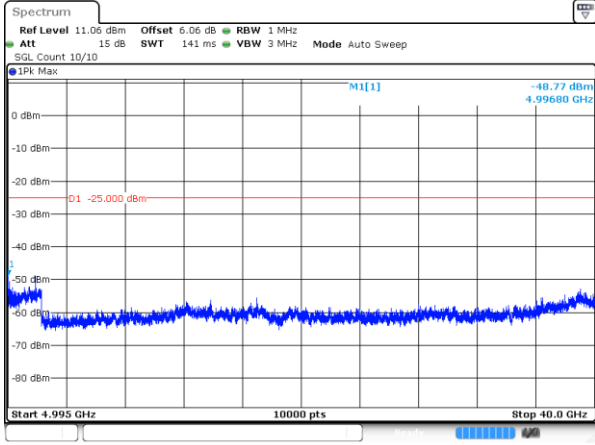
4980-10MHz-802.11a-2-a



4980-10MHz-802.11a-2-b



4980-10MHz-802.11a-2-b



4980-10MHz-802.11a-2-b