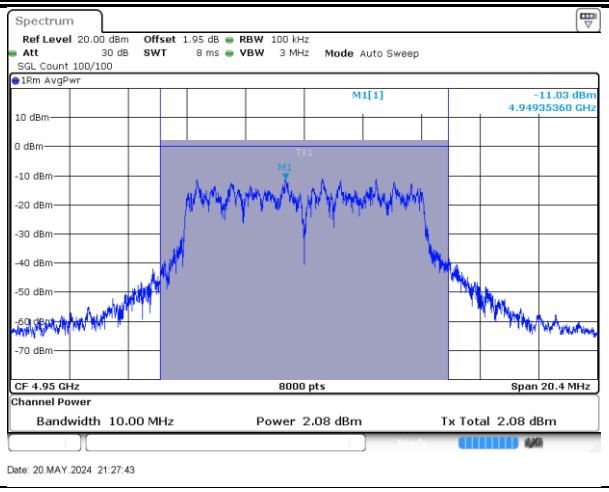
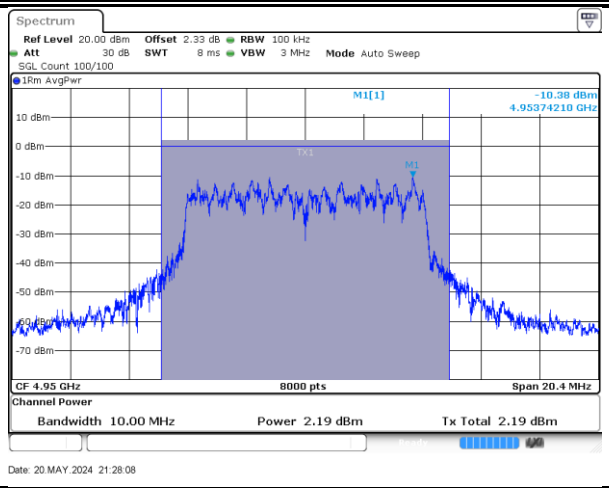
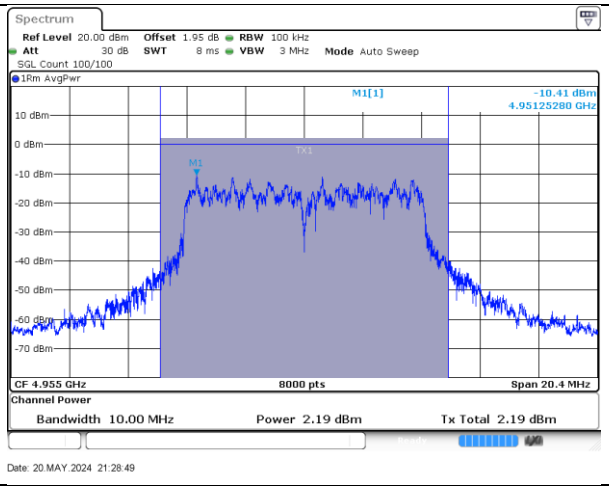


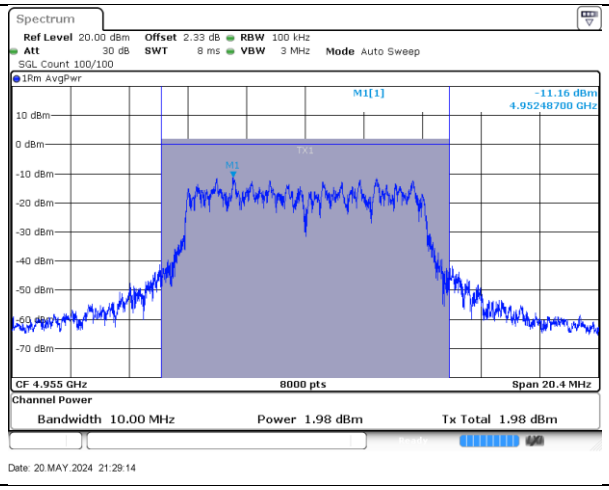
4950-10MHz-802.11a



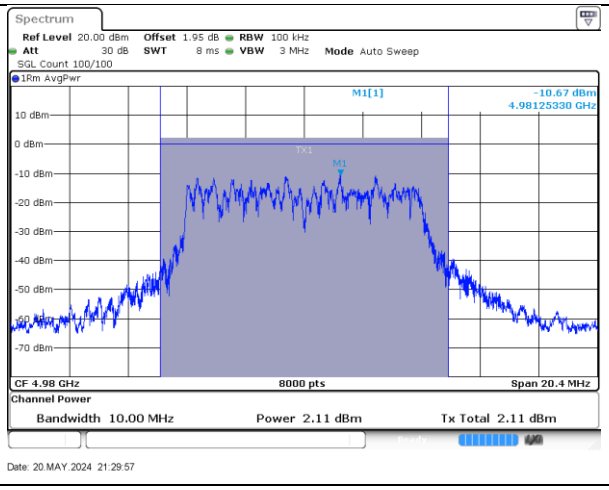
4950-10MHz-802.11a-2-b



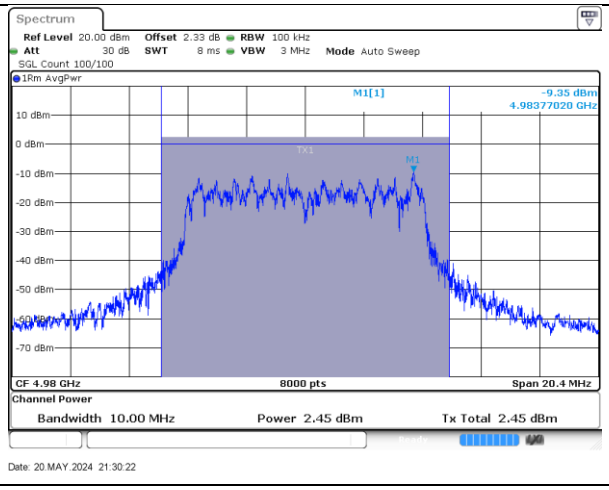
4955-10MHz-802.11a



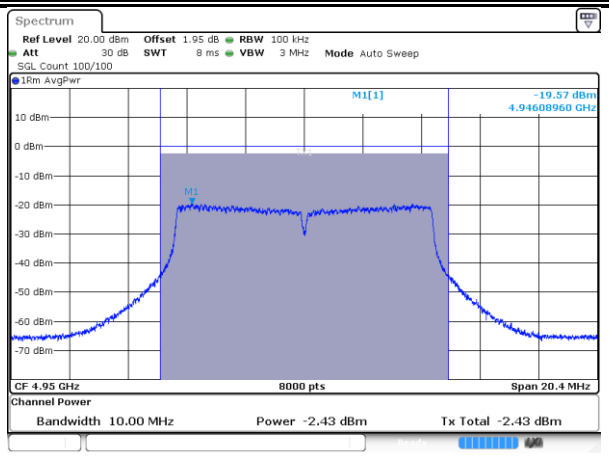
4955-10MHz-802.11a-2-b



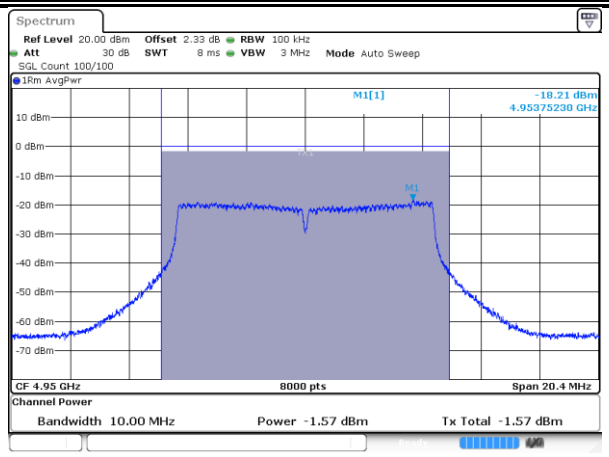
4980-10MHz-802.11a



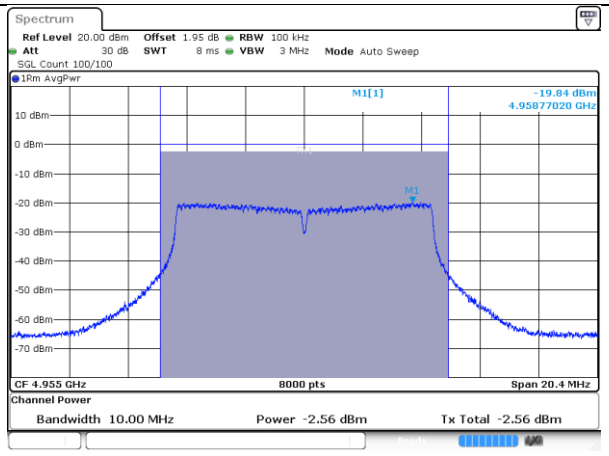
4980-10MHz-802.11a-2-b



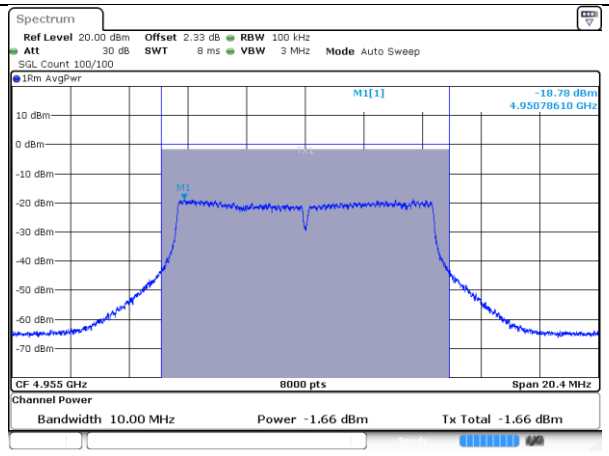
4950-10MHz-802.11n-2-a



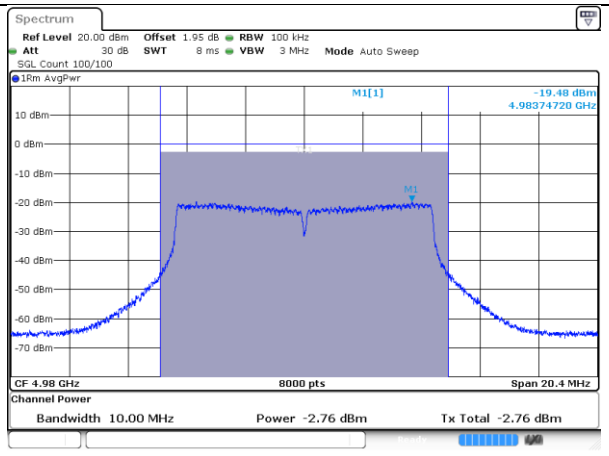
4950-10MHz-802.11n-2-b



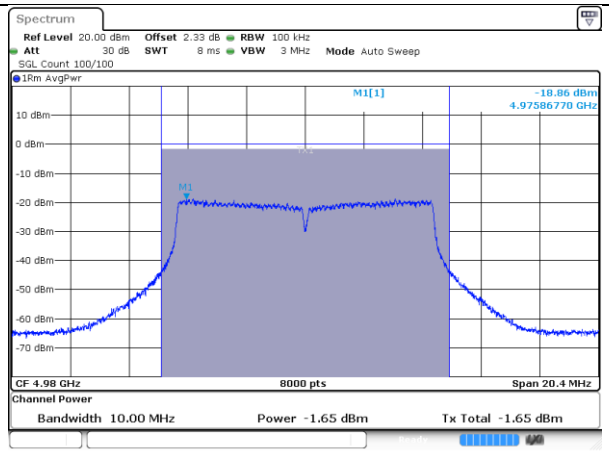
4955-10MHz-802.11n-2-a



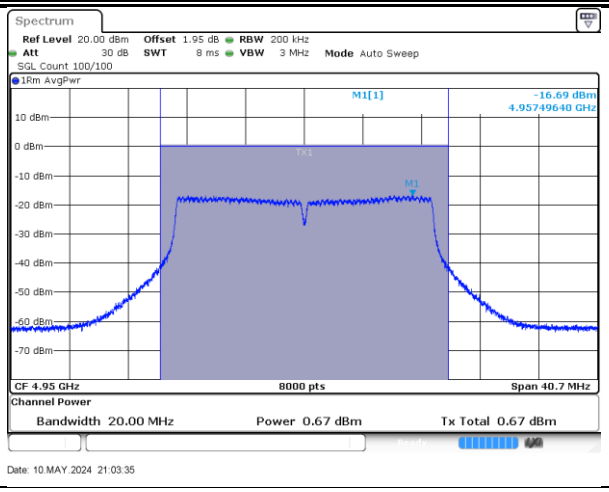
4955-10MHz-802.11n-2-b



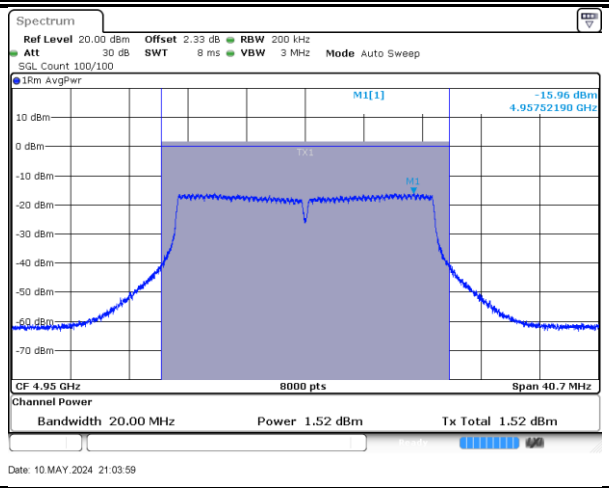
4980-10MHz-802.11n-2-a



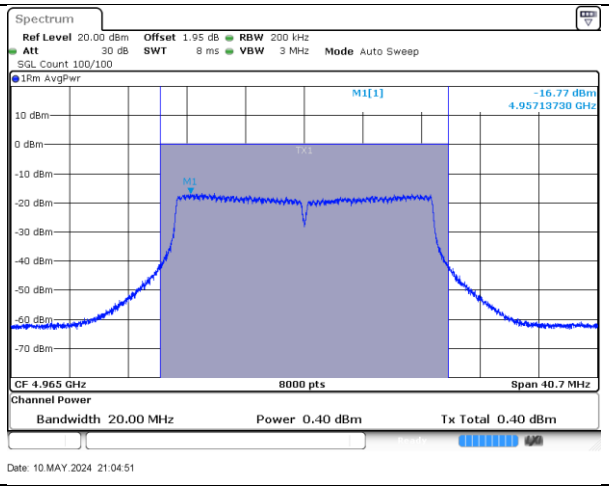
4980-10MHz-802.11n-2-b



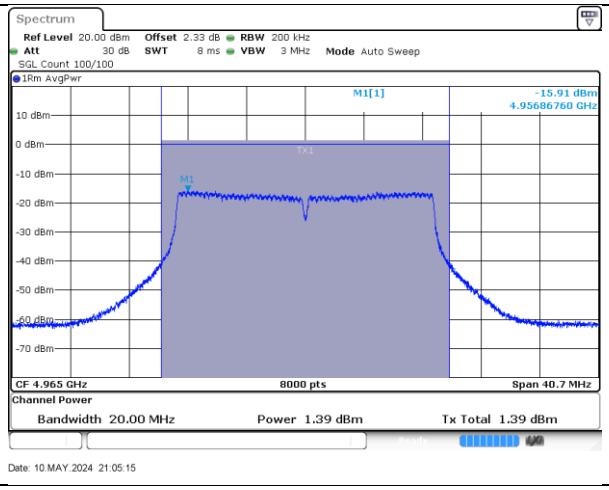
4950-20MHz-802.11n-2-a



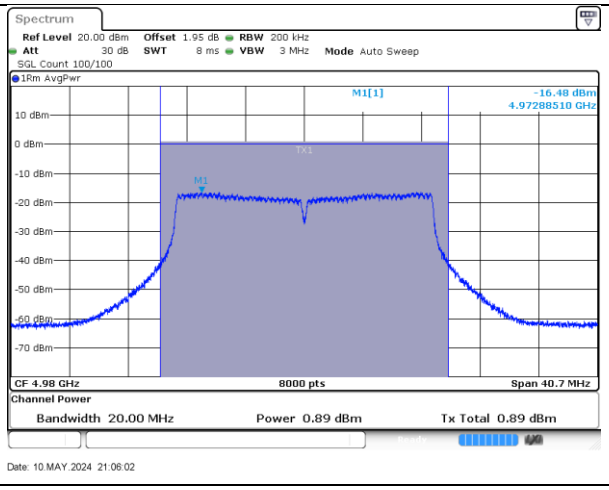
4950-20MHz-802.11n-2-b



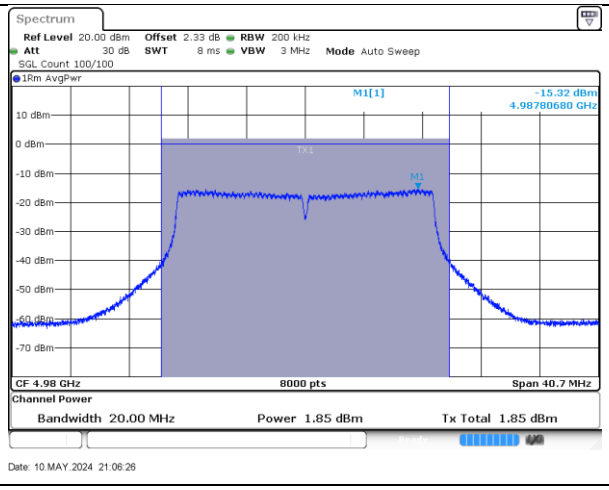
4965-20MHz-802.11n-2-a



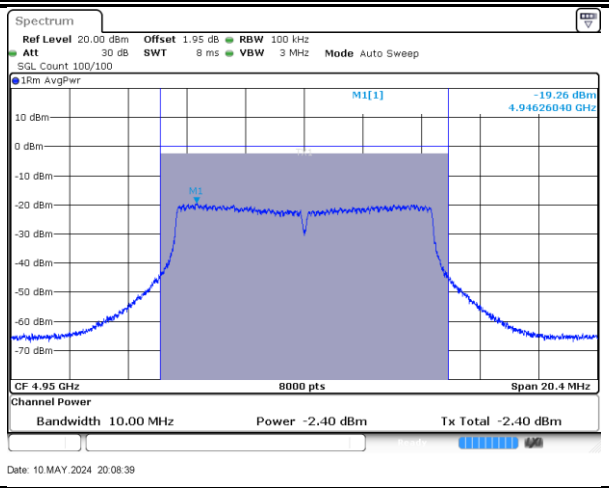
4965-20MHz-802.11n-2-b



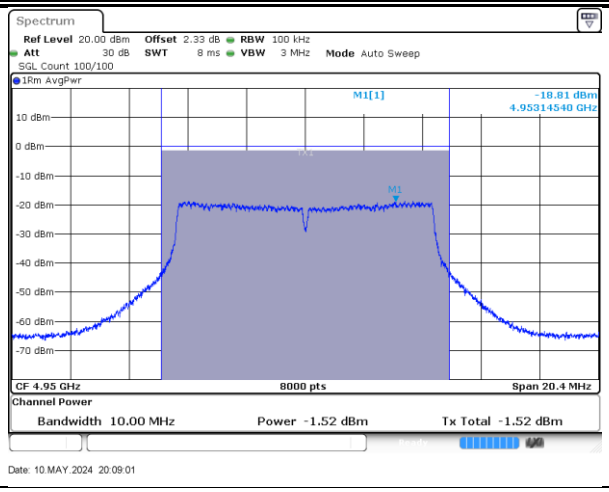
4980-20MHz-802.11n-2-a



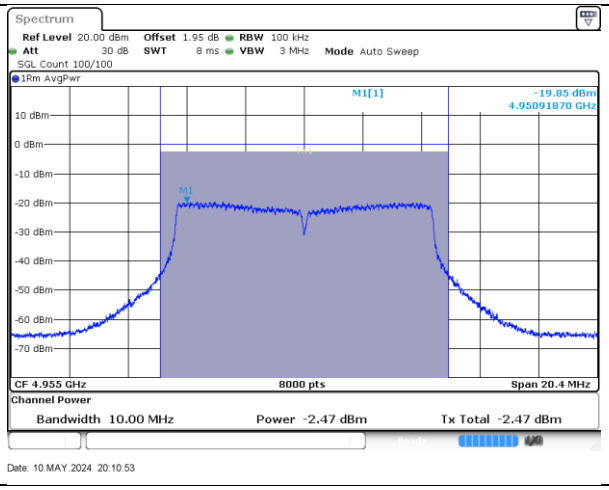
4980-20MHz-802.11n-2-b



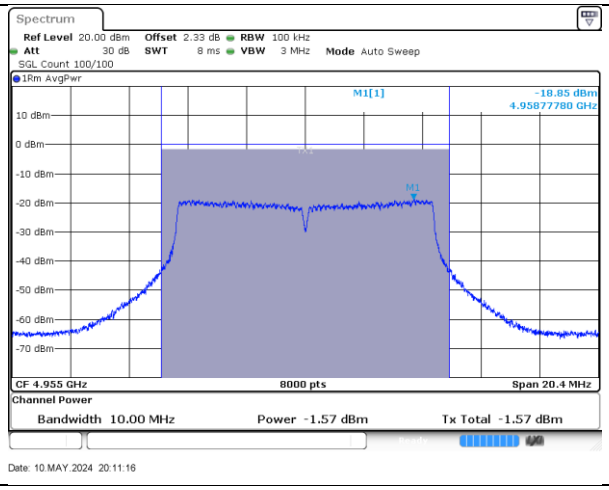
4950-10MHz-802.11ac-2-a



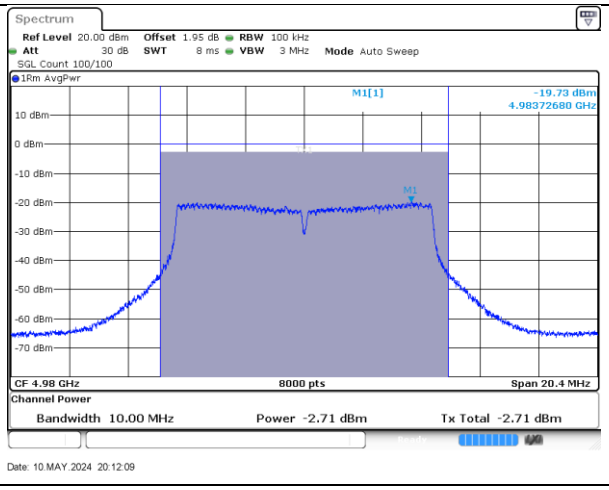
4950-10MHz-802.11ac-2-b



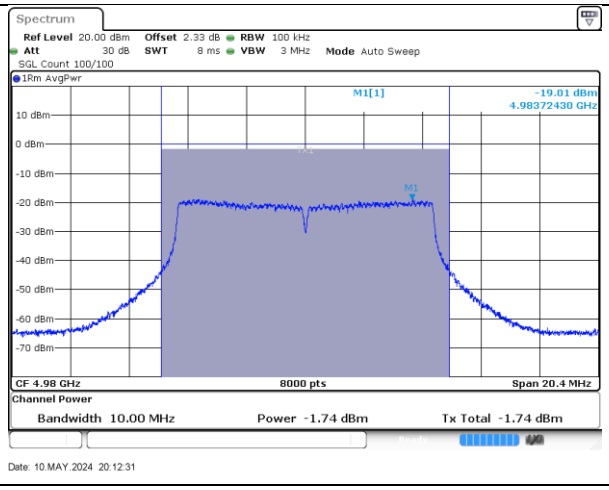
4955-10MHz-802.11ac-2-a



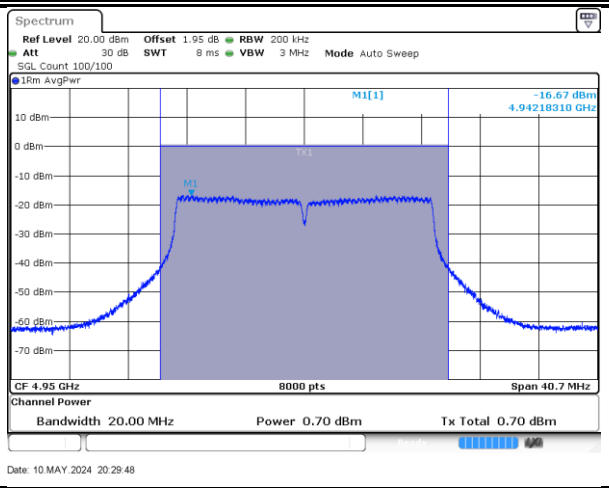
4955-10MHz-802.11ac-2-b



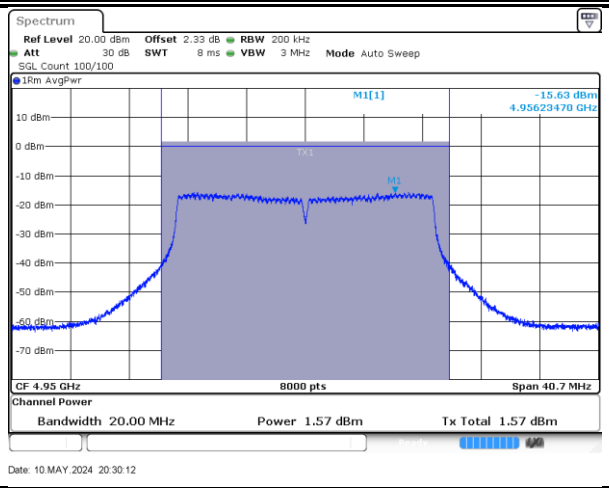
4980-10MHz-802.11ac-2-a



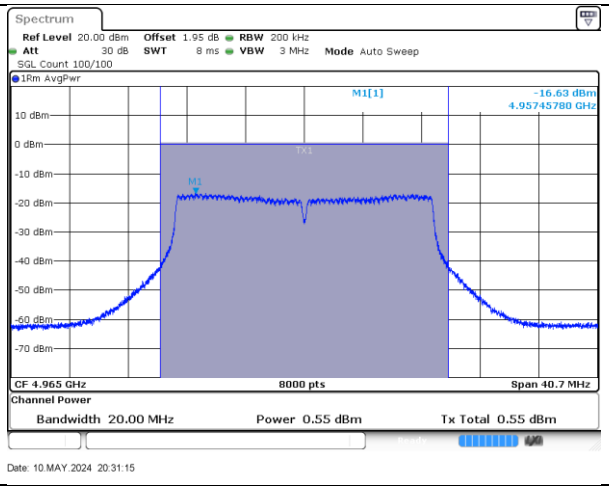
4980-10MHz-802.11ac-2-b



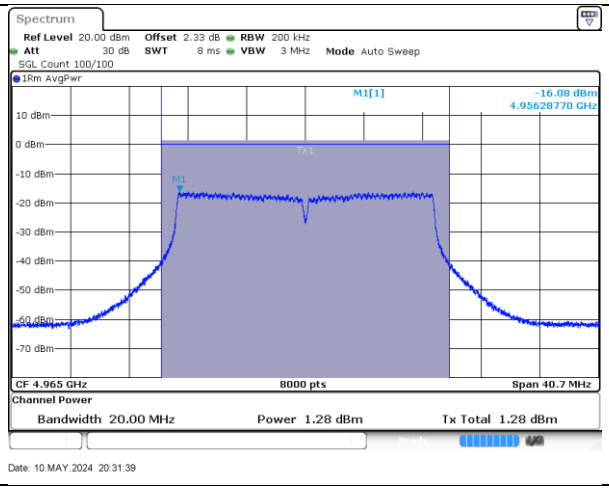
4950-20MHz-802.11ac-2-a



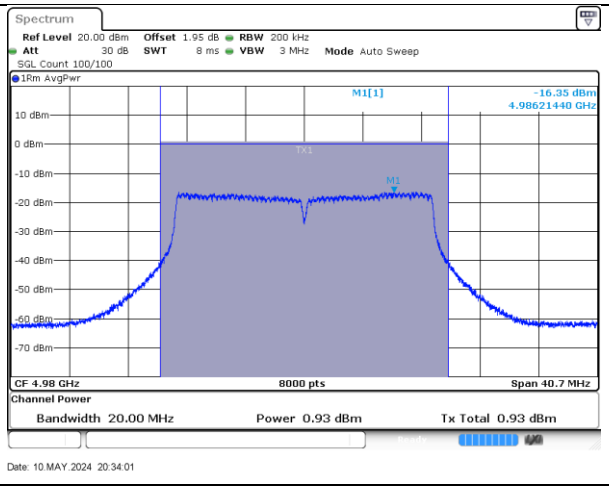
4950-20MHz-802.11ac-2-b



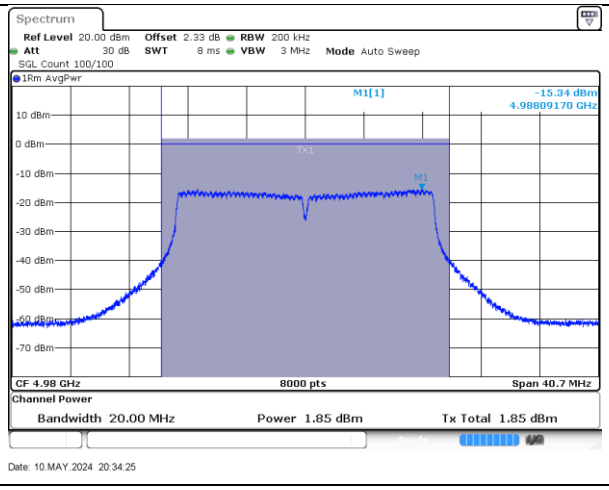
4965-20MHz-802.11ac-2-a



4965-20MHz-802.11ac-2-b

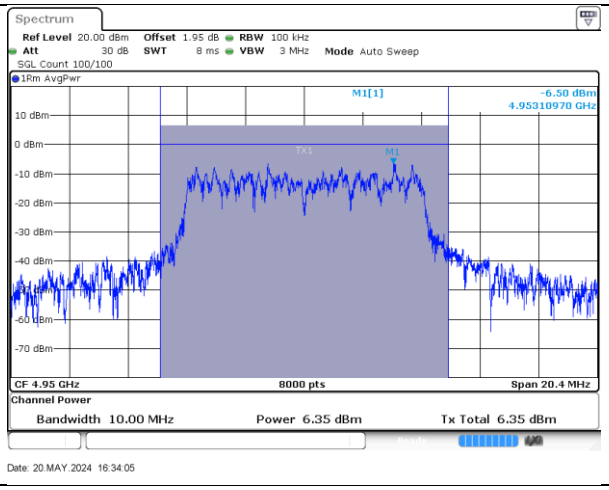


4980-20MHz-802.11ac-2-a

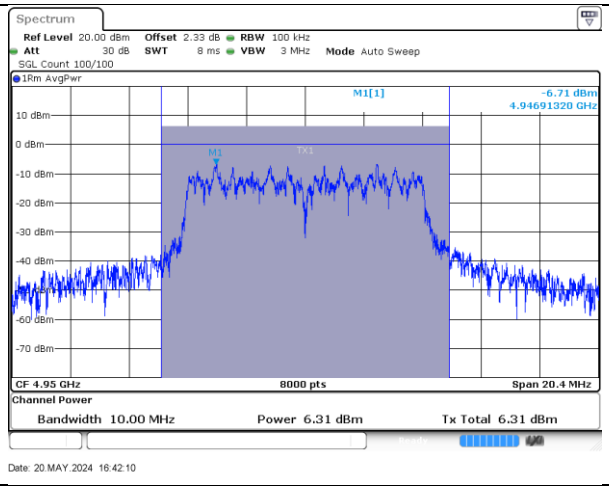


4980-20MHz-802.11ac-2-b

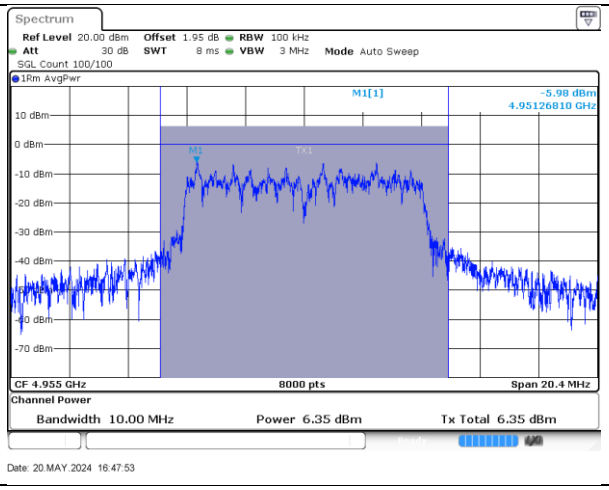
Radio 1 8dBi Antenna Gain



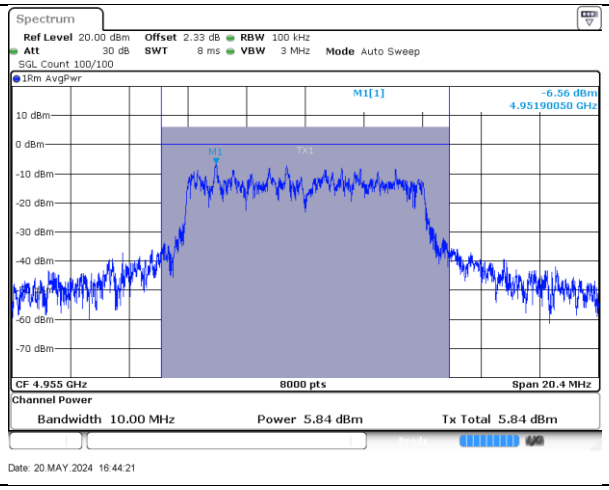
4950-10MHz-802.11a-1-a



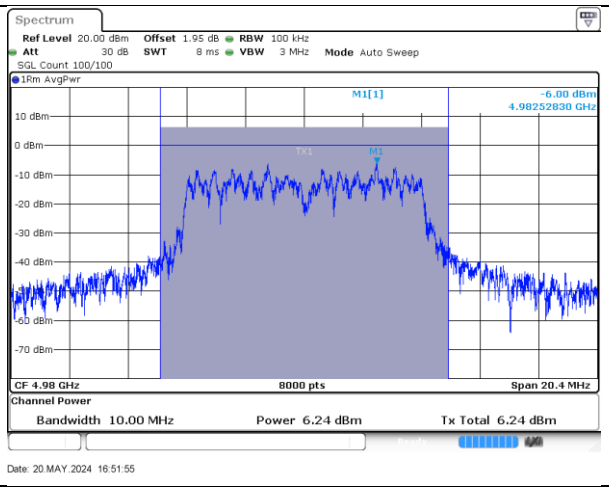
4950-10MHz-802.11a-1-b



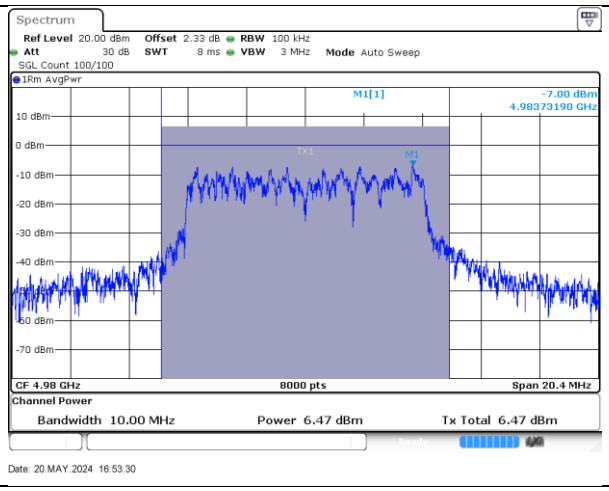
4955-10MHz-802.11a-1-a



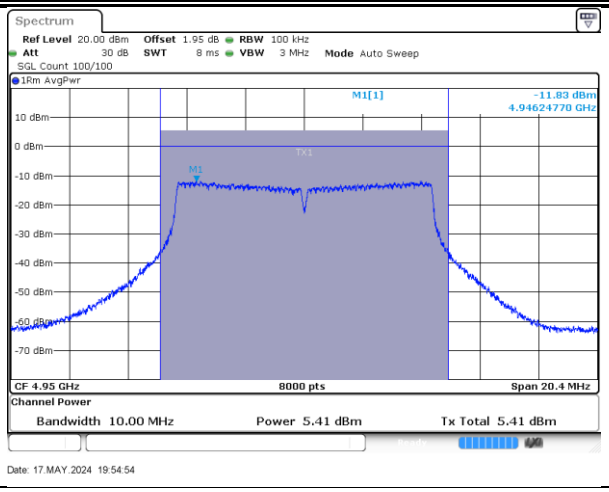
4955-10MHz-802.11a-1-b



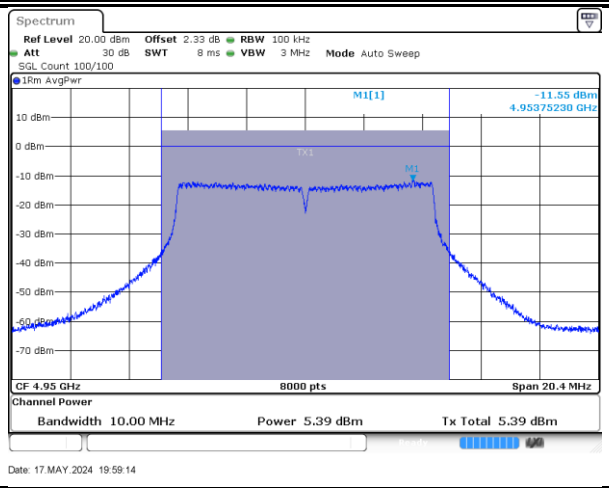
4980-10MHz-802.11a-1-a



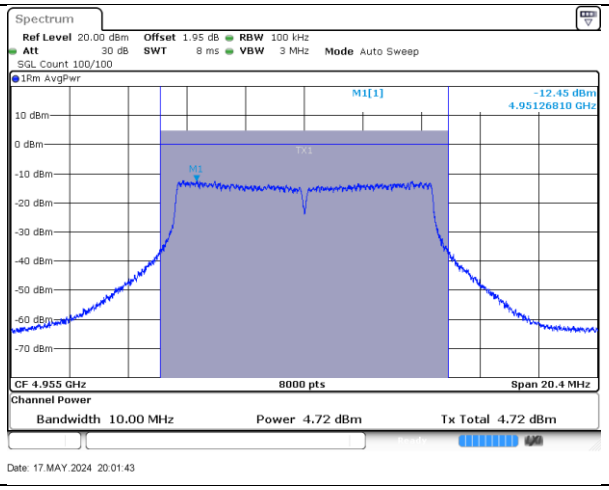
4980-10MHz-802.11a-1-b



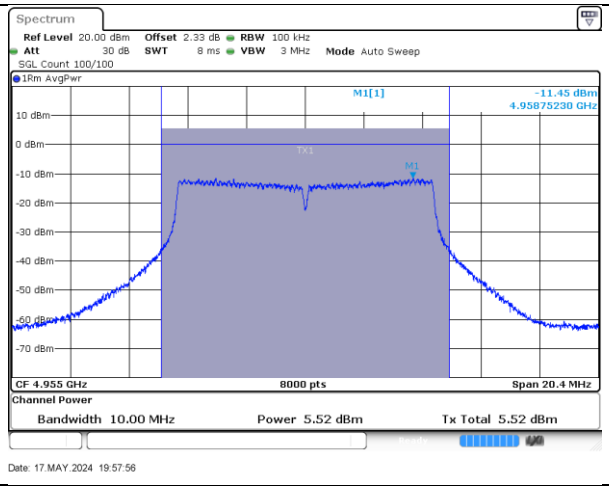
4950-10MHz-802.11n-1-a



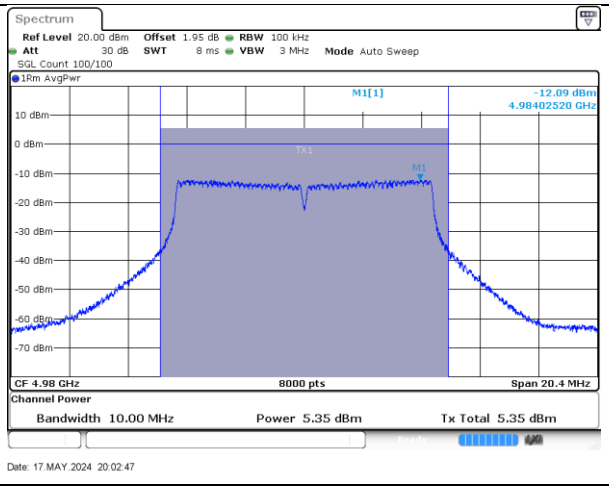
4950-10MHz-802.11n-1-b



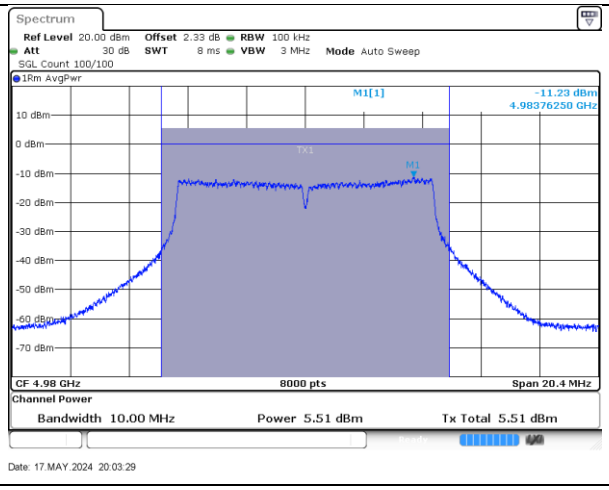
4955-10MHz-802.11n-1-a



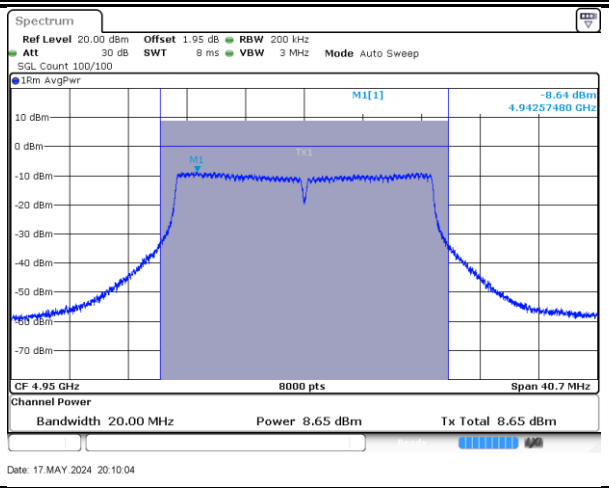
4955-10MHz-802.11n-1-b



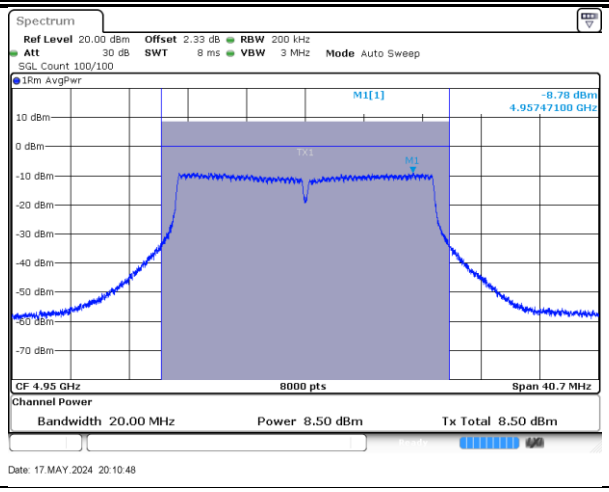
4980-10MHz-802.11n-1-a



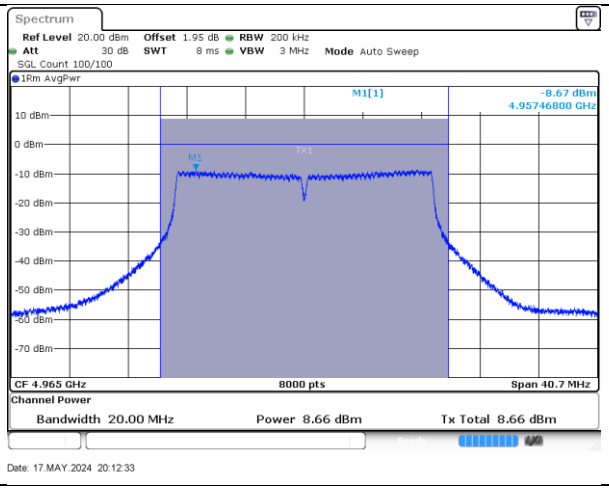
4980-10MHz-802.11n-1-b



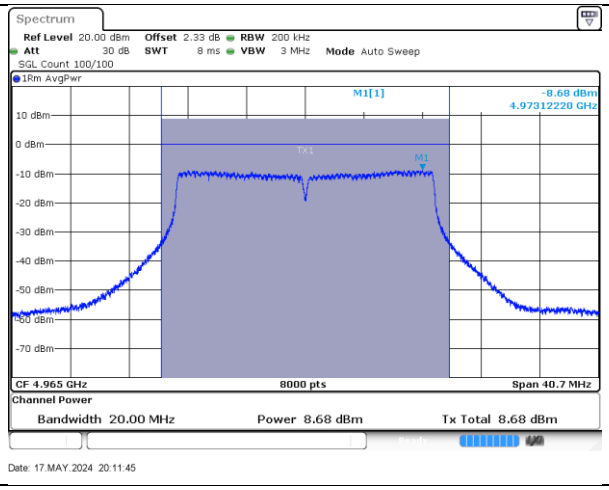
4950-20MHz-802.11n-1-a



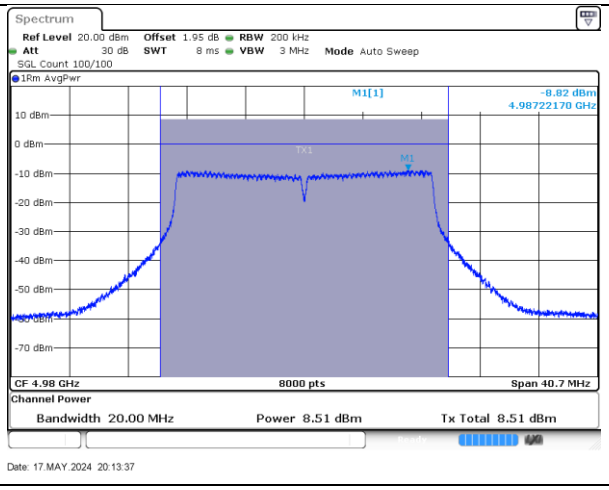
4950-20MHz-802.11n-1-b



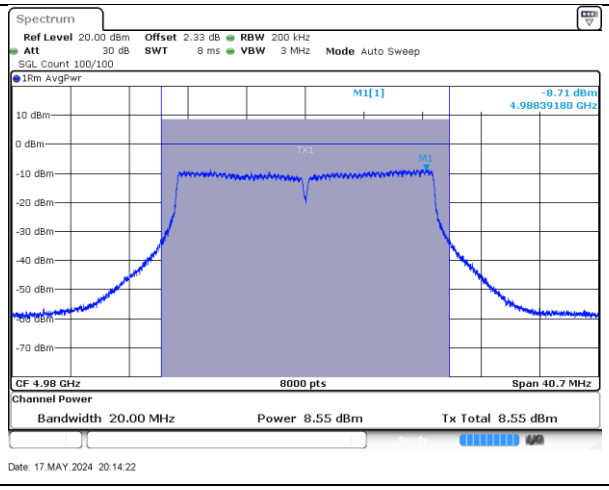
4965-20MHz-802.11n-1-a



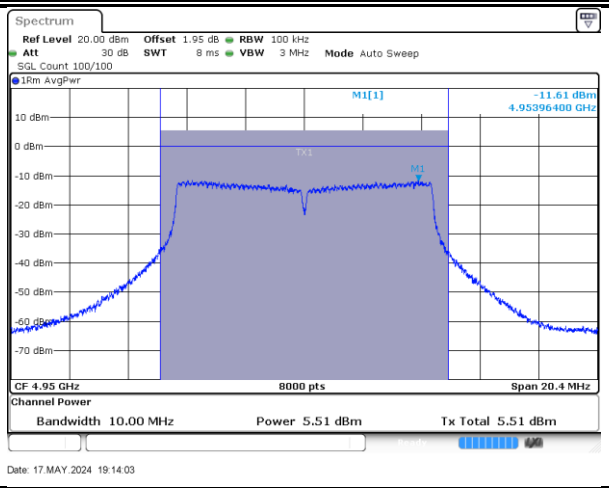
4965-20MHz-802.11n-1-b



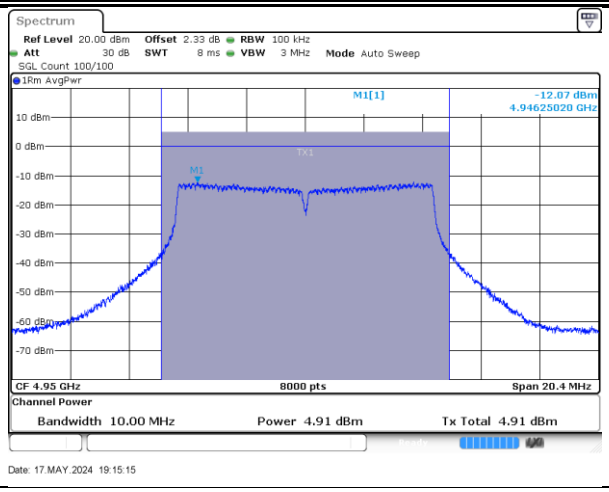
4980-20MHz-802.11n-1-a



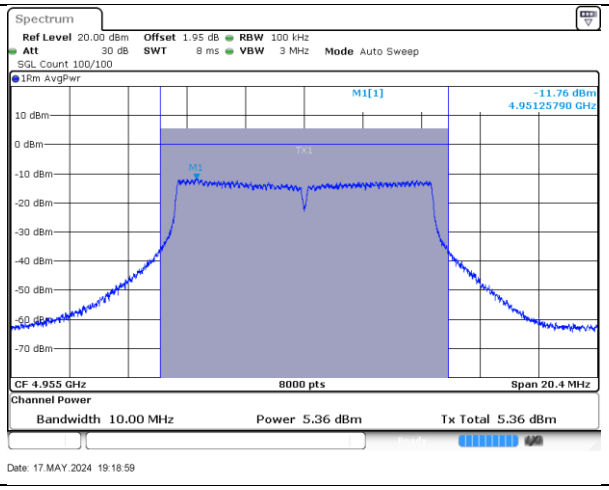
4980-20MHz-802.11n-1-b



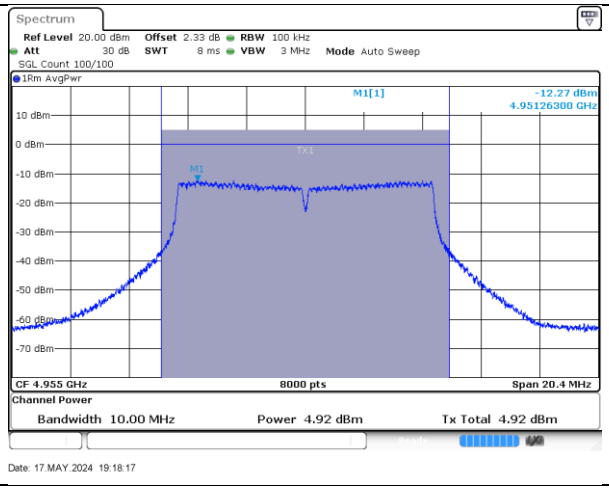
4950-10MHz-802.11ac-1-a



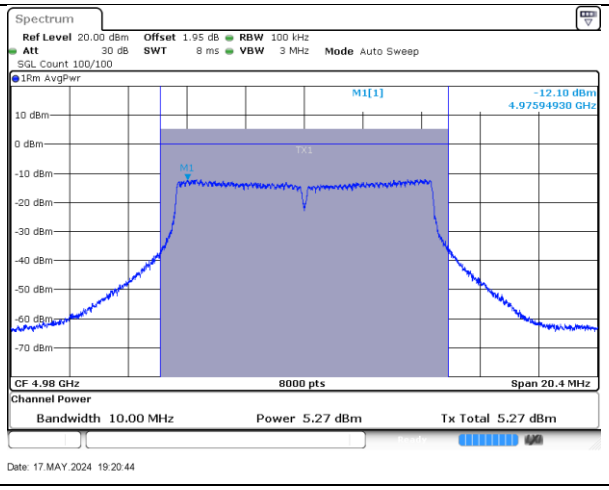
4950-10MHz-802.11ac-1-b



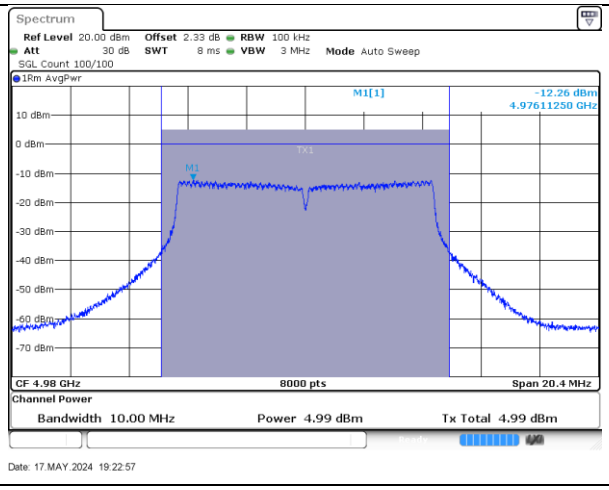
4955-10MHz-802.11ac-1-a



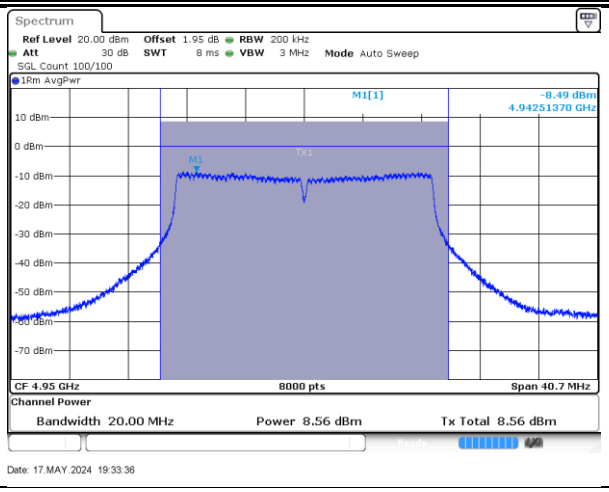
4955-10MHz-802.11ac-1-b



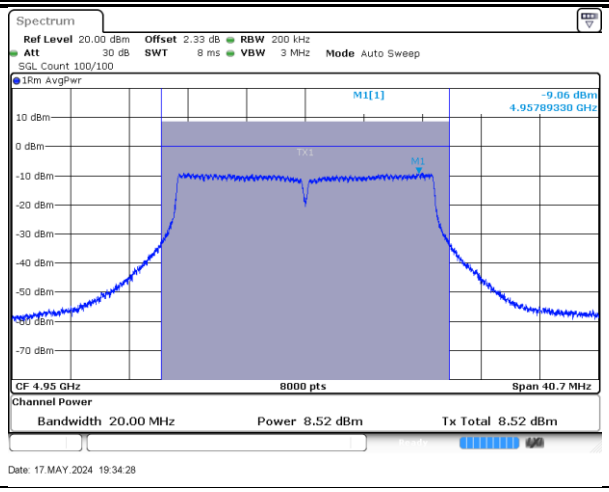
4980-10MHz-802.11ac-1-a



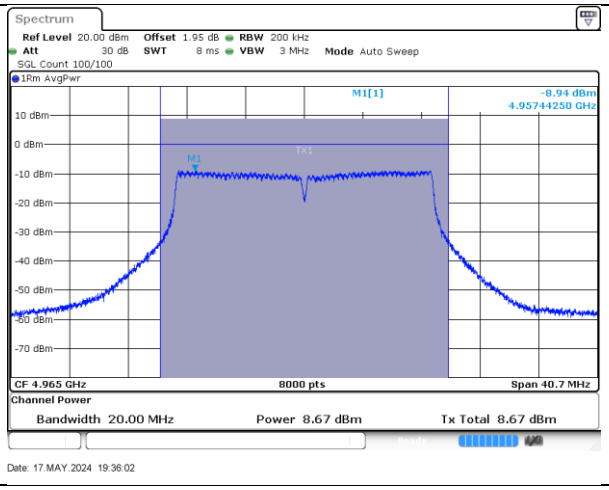
4980-10MHz-802.11ac-1-b



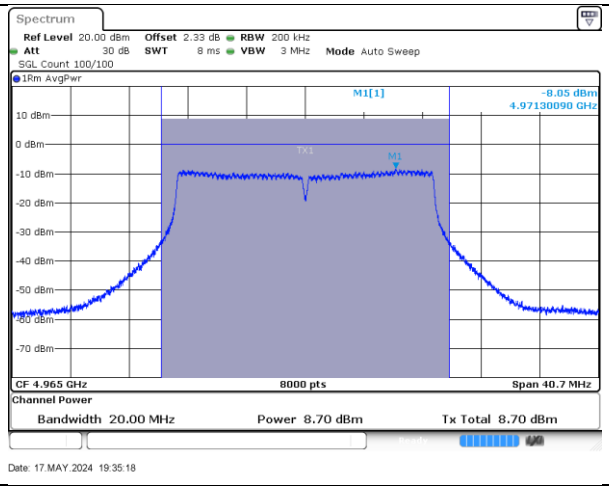
4950-20MHz-802.11ac-1-a



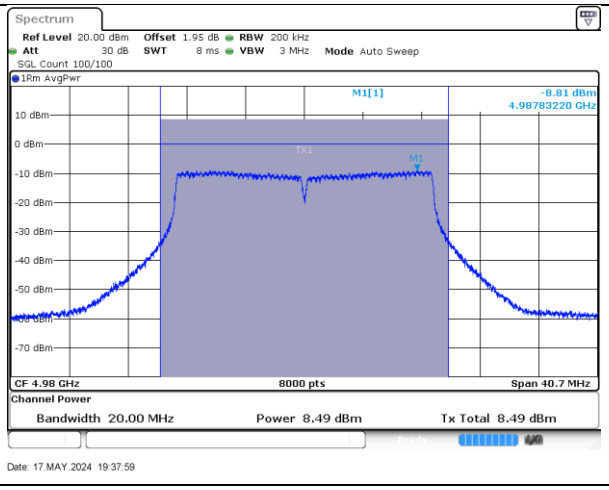
4950-20MHz-802.11ac-1-b



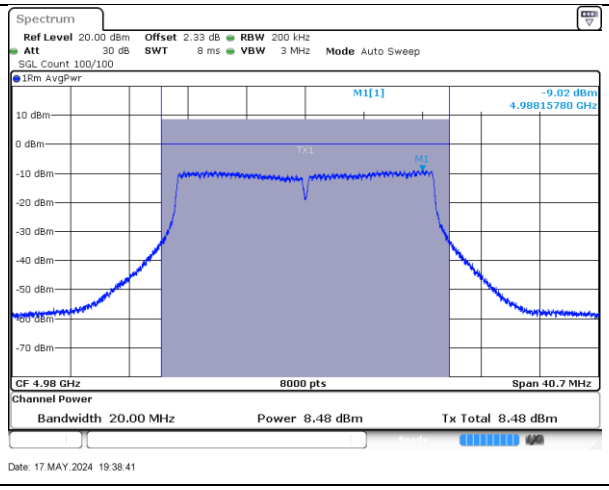
4965-20MHz-802.11ac-1-a



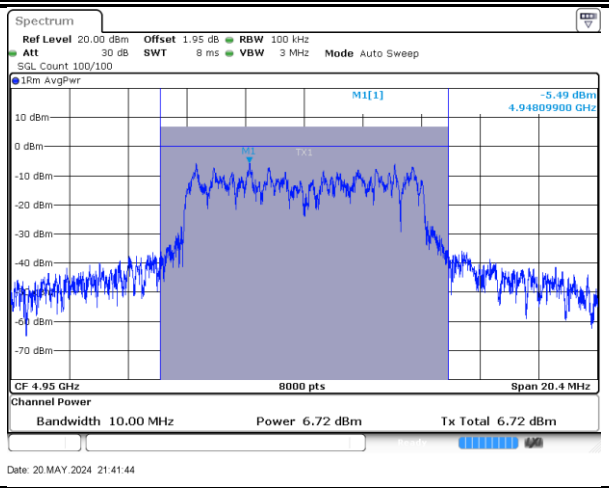
4965-20MHz-802.11ac-1-b



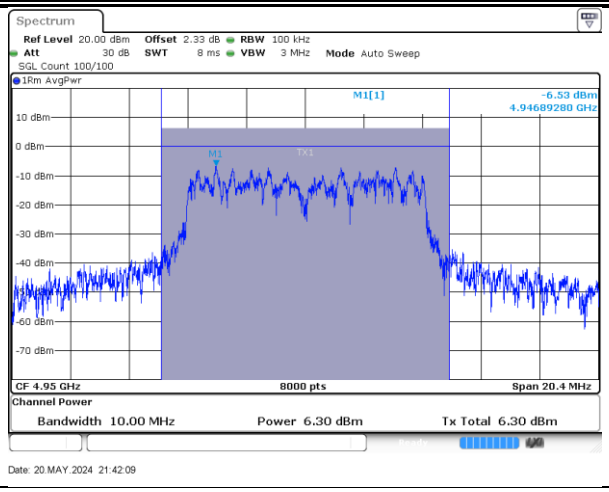
4980-20MHz-802.11ac-1-a



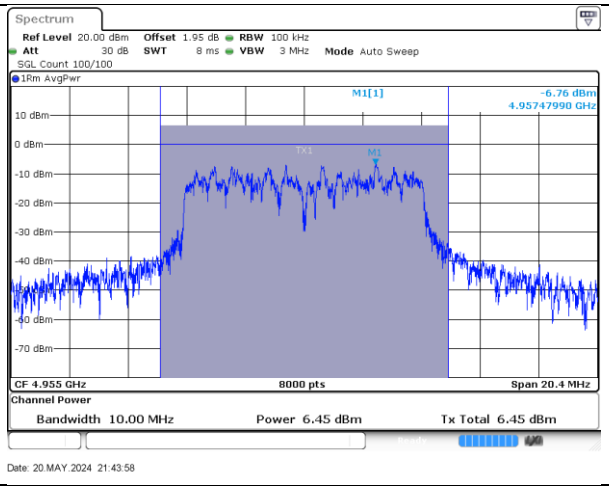
4980-20MHz-802.11ac-1-b



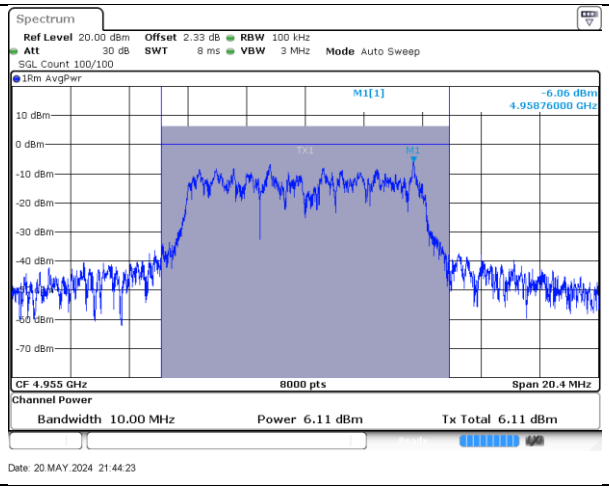
4950-10MHz-802.11a-2-a



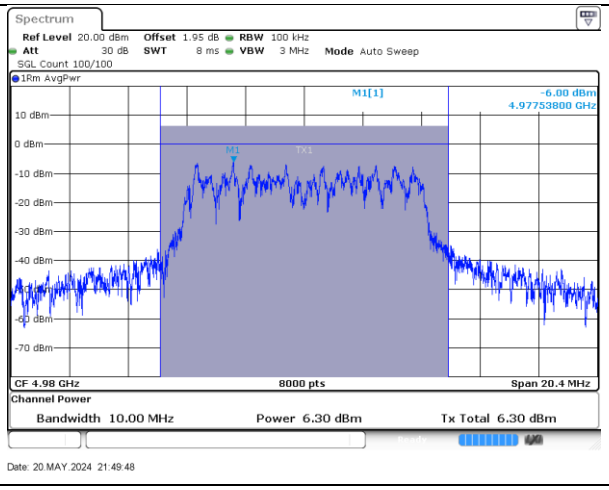
4950-10MHz-802.11a-2-b



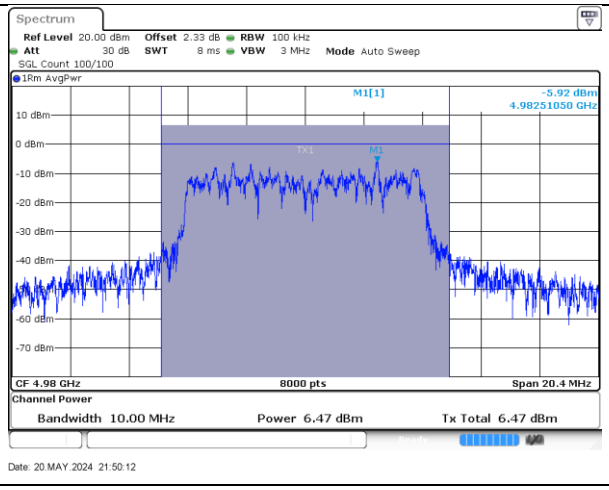
4955-10MHz-802.11a-2-a



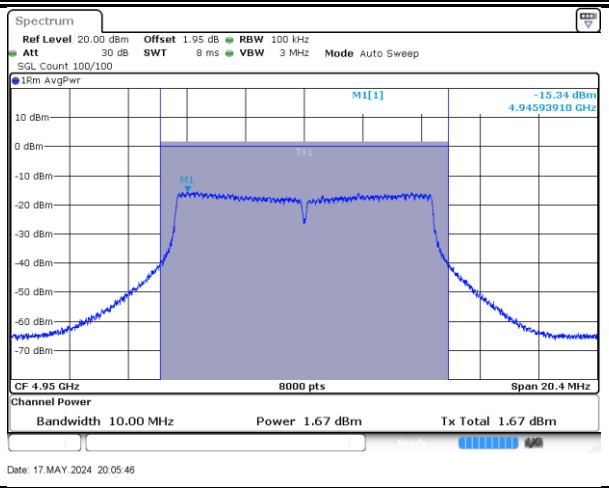
4955-10MHz-802.11a-2-b



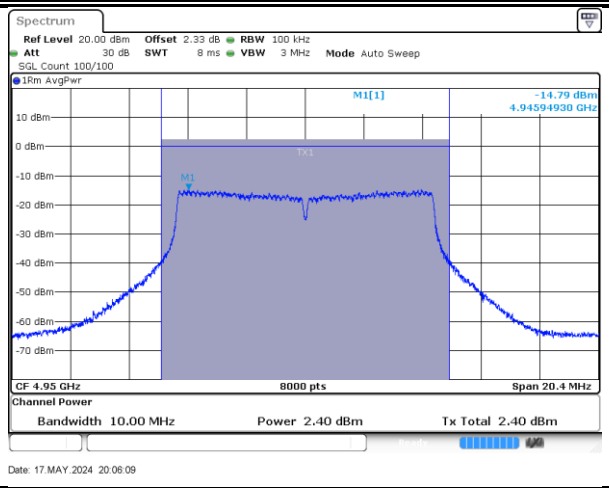
4980-10MHz-802.11a-2-a



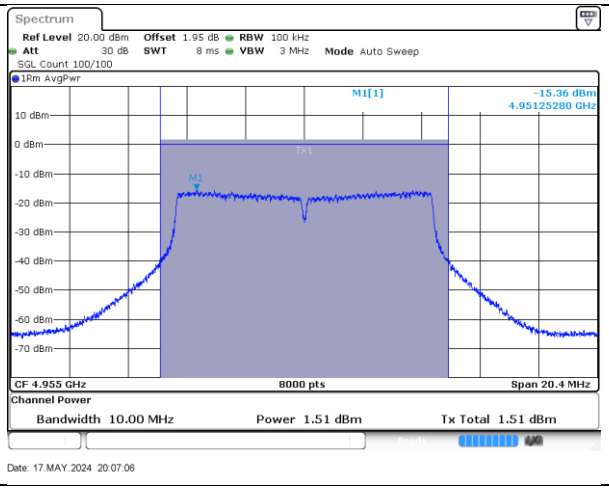
4980-10MHz-802.11a-2-b



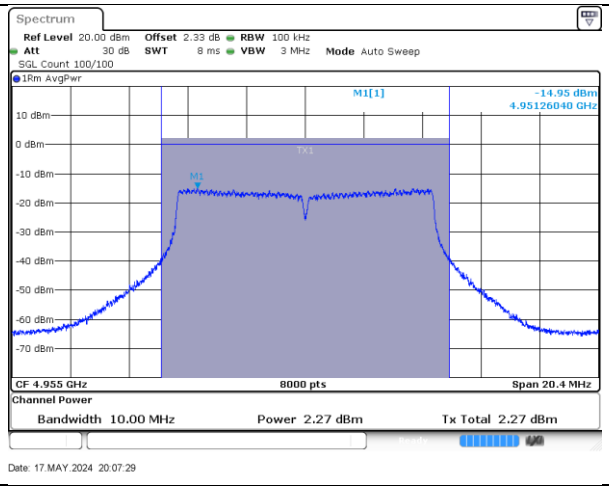
4950-10MHz-802.11n-2-a



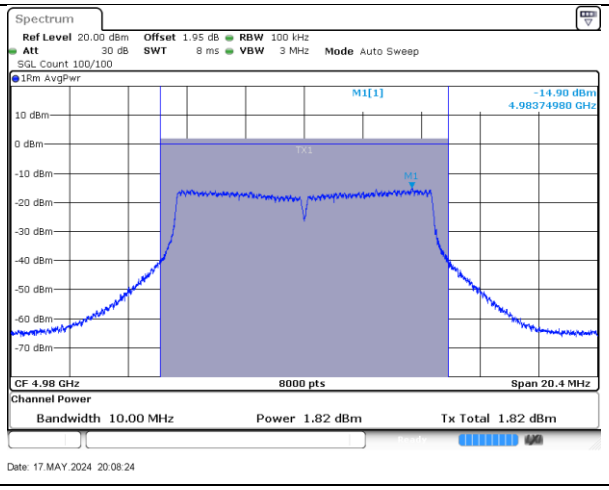
4950-10MHz-802.11n-2-b



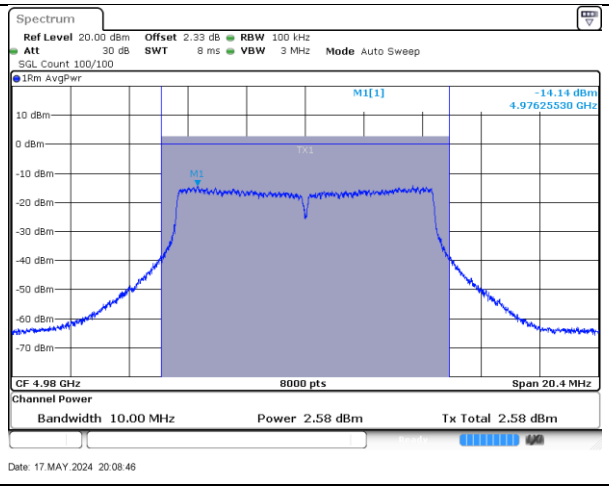
4955-10MHz-802.11n-2-a



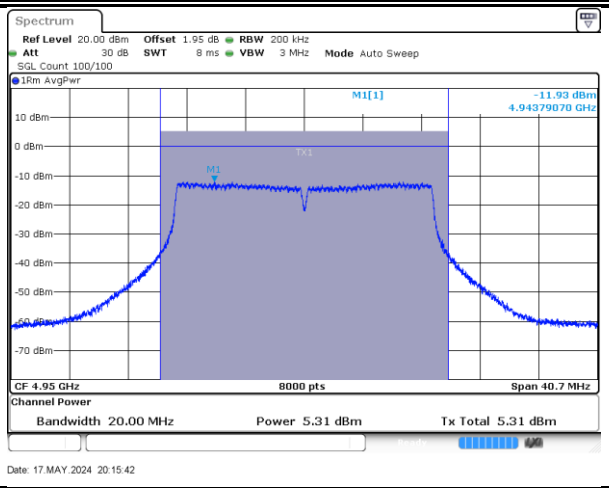
4955-10MHz-802.11n-2-b



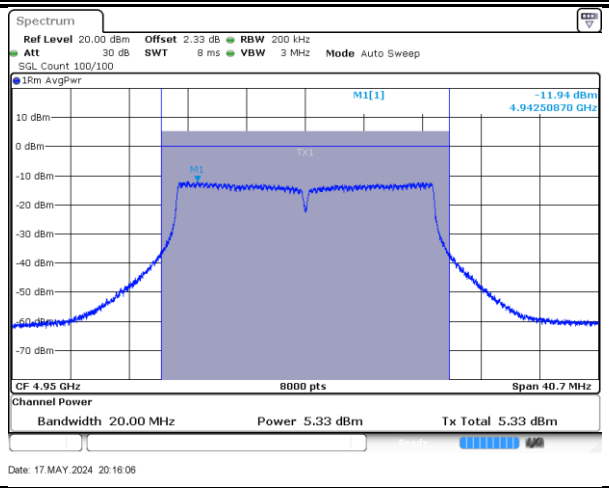
4980-10MHz-802.11n-2-a



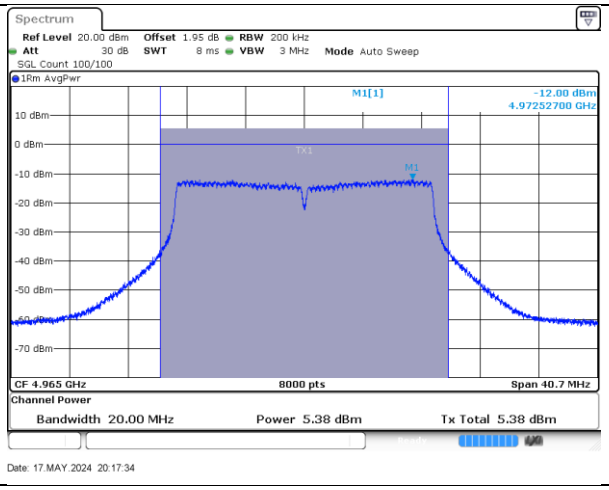
4980-10MHz-802.11n-2-b



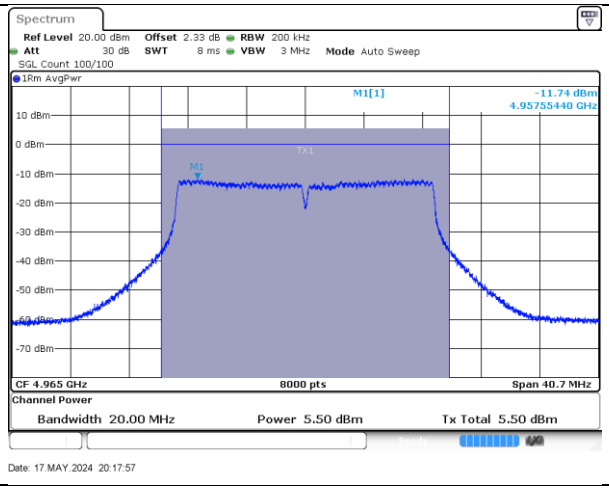
4950-20MHz-802.11n-2-a



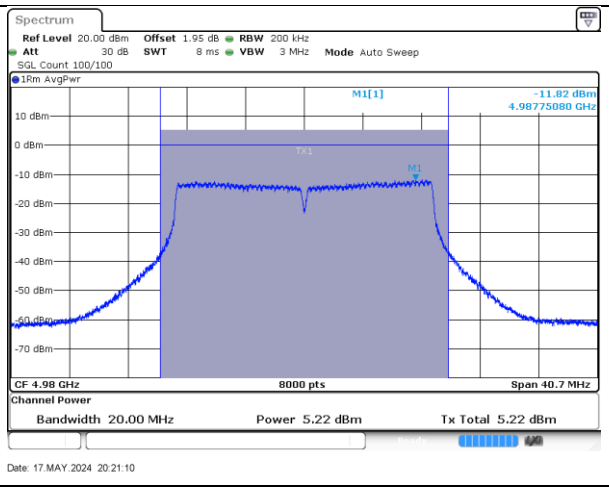
4950-20MHz-802.11n-2-b



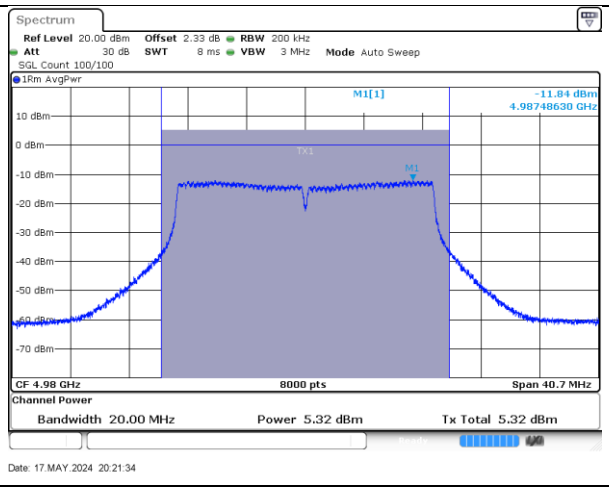
4965-20MHz-802.11n-2-a



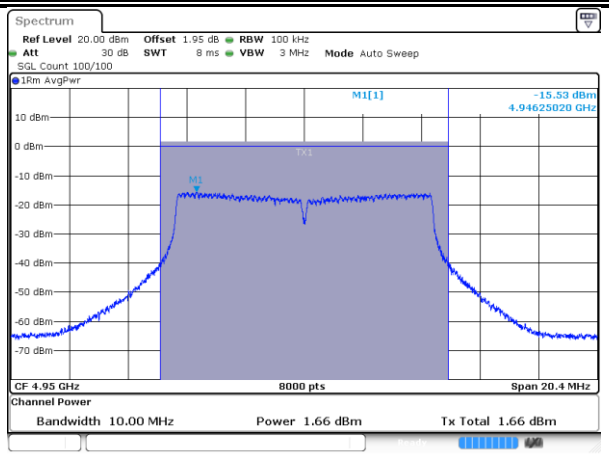
4965-20MHz-802.11n-2-b



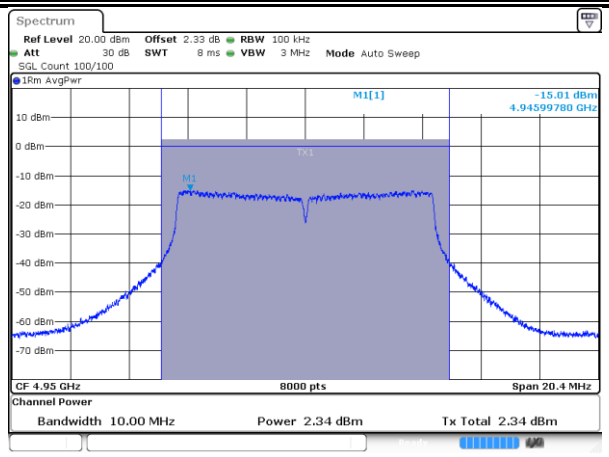
4980-20MHz-802.11n-2-a



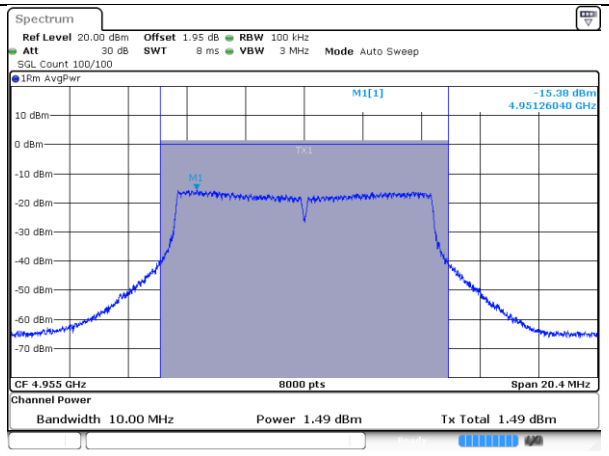
4980-20MHz-802.11n-2-b



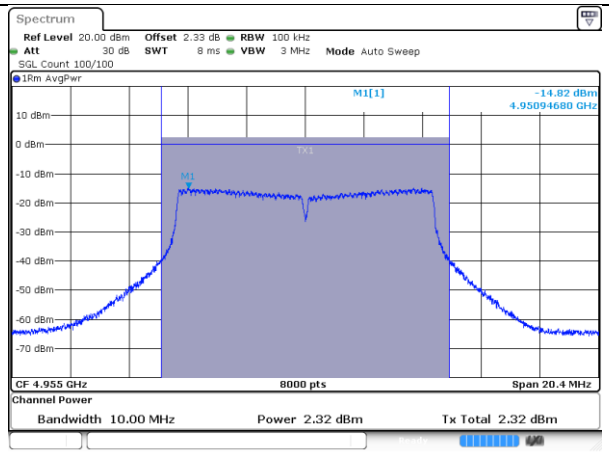
4950-10MHz-802.11ac-2-a



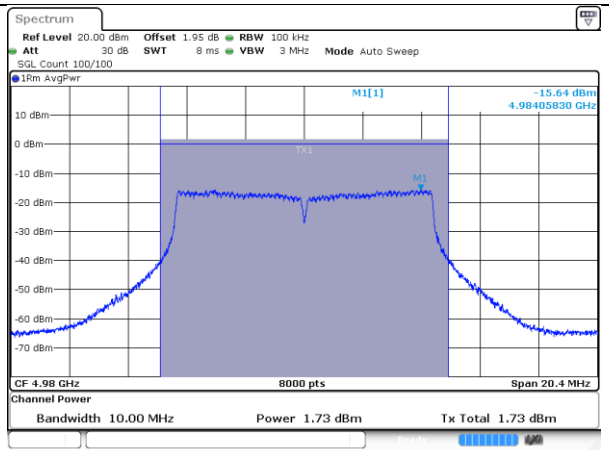
4950-10MHz-802.11ac-2-b



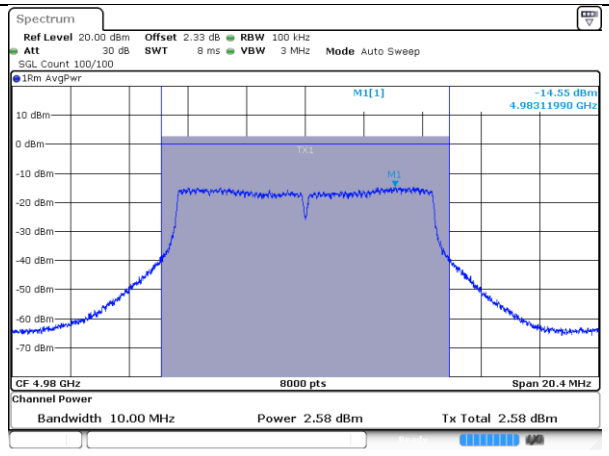
4955-10MHz-802.11ac-2-a



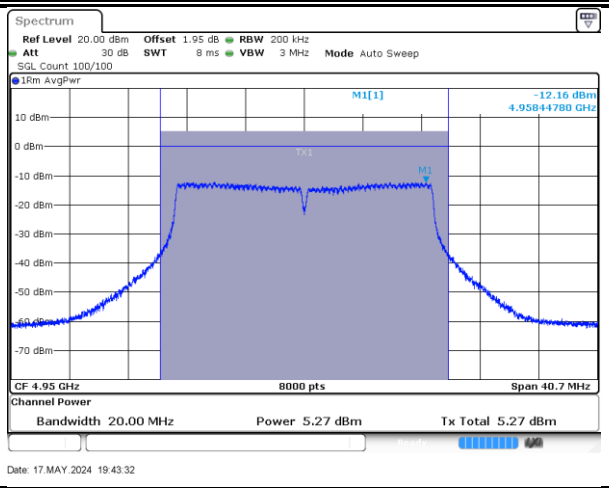
4955-10MHz-802.11ac-2-b



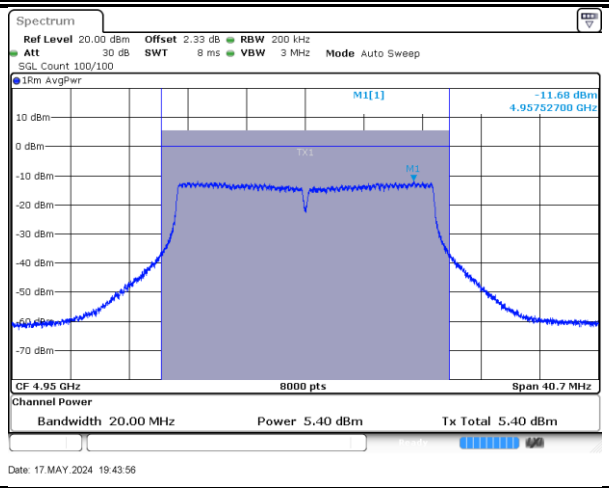
4980-10MHz-802.11ac-2-a



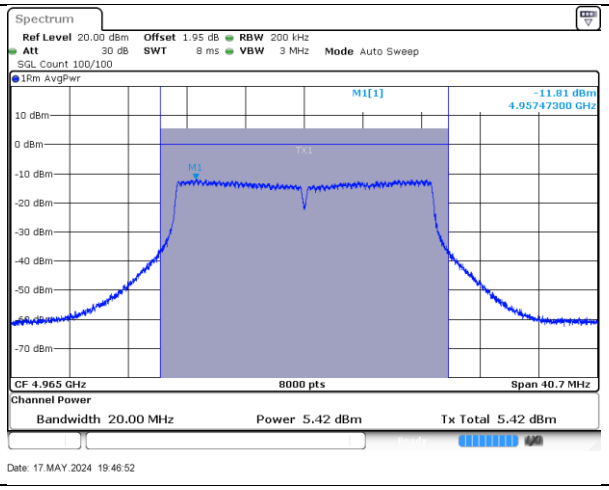
4980-10MHz-802.11ac-2-b



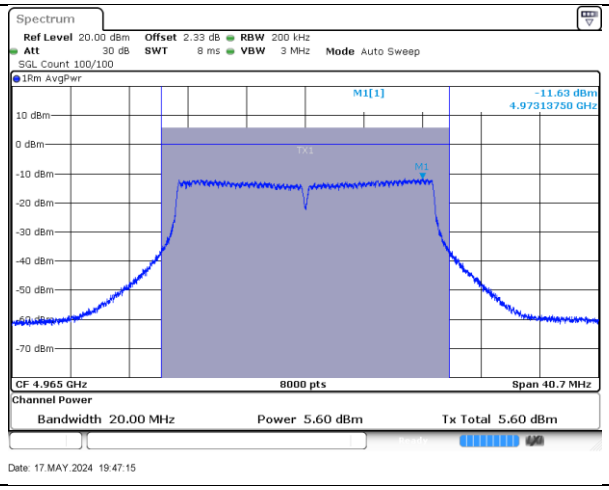
4950-20MHz-802.11ac-2-a



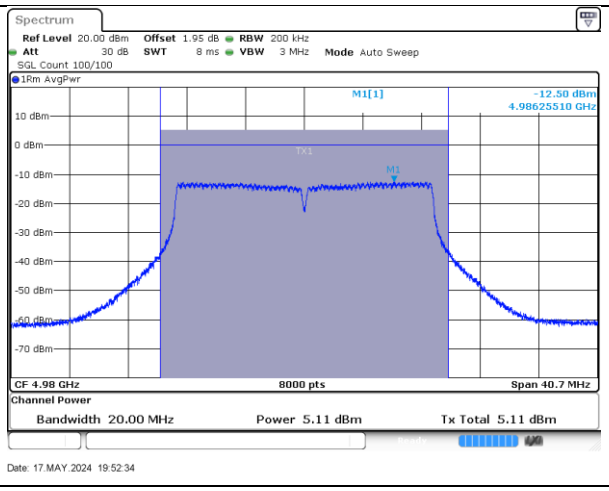
4950-20MHz-802.11ac-2-b



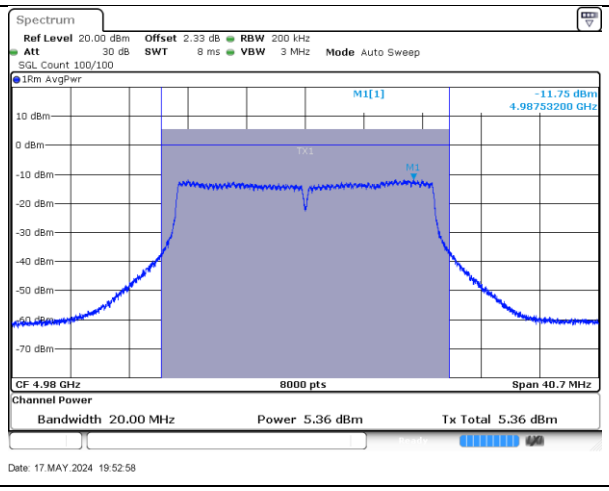
4965-20MHz-802.11ac-2-a



4965-20MHz-802.11ac-2-b



4980-20MHz-802.11ac-2-a



4980-20MHz-802.11ac-2-b

6 FCC §2.1046, §90.205(p), §90.1215, RSS-111 § 5.3 - Power Spectral Density

6.1 Applicable Standards

FCC §90.1215

High power devices are also limited to a peak power spectral density of 21 dBm per one MHz. High power devices using channel bandwidths other than those listed above are permitted; however, they are limited to peak power spectral density of 21 dBm/MHz. If transmitting antennas of directional gain greater than 9 dBi are used, both the maximum conducted output power and the peak power spectral density should be reduced by the amount in decibels that the directional gain of the antenna exceeds 9 dBi. However, high power point-to-point and point-to-multipoint operations (both fixed and temporary-fixed rapid deployment) may employ transmitting antennas with directional gain up to 26 dBi without any corresponding reduction in the maximum conducted output power or spectral density. Corresponding reduction in the maximum conducted output power and peak power spectral density should be the amount in decibels that the directional gain of the antenna exceeds 26 dBi.

RSS-111 § 5.3

High- and low-power devices are also limited to a maximum power spectral density of 21 dBm/MHz and 8 dBm/MHz respectively. Devices using channel bandwidths other than those listed in Table 1 are permitted; however, the channel bandwidth shall not exceed 20 MHz and the devices shall comply with the maximum power spectral density limits of 21 dBm/MHz for high-power transmitters and 8 dBm/MHz for low-power transmitters. See SP 4940 MHz for antenna gain limits and operational restrictions for the device.

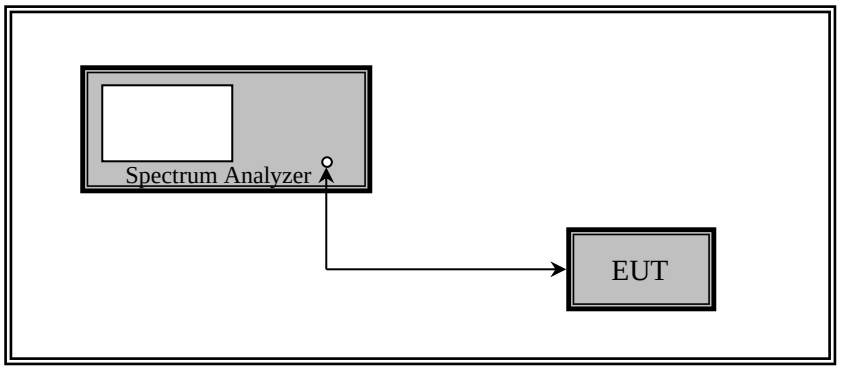
For low-power devices, if a directional antenna is used and its gain exceeds 9 dBi, the transmit power shall be reduced by the same amount that the antenna gain is exceeded.

For high-power fixed point-to-point and point-to-multipoint operations, if the directional antenna gain exceeds 26 dBi, the transmit power shall be reduced by same amount that the antenna gain is exceeded.

6.2 Test Procedure

ANSI C63.26-2015 section 5.2.3.5.

6.3 Test Setup Block Diagram



6.4 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 Cables	-	-	Each time[1]	N/A

Note[1]: 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".*

6.5 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.

6.6 Test Results

Radio 2 15dBi SISO

Mode	Radio	Freq. (MHz)	Conducted PSD Ant a (dBm/MHz)	Conducted PSD Ant b (dBm/MHz)	Limit (dBm/MHz)
a10	1	4950	14.38	13.66	≤ 15
		4955	14.38	14.06	≤ 15
		4980	14.22	13.73	≤ 15
n10		4950	1.70	1.56	≤ 2
		4955	1.88	1.83	≤ 2
		4980	1.91	1.94	≤ 2
n20		4950	1.83	1.16	≤ 2
		4965	1.40	1.04	≤ 2
		4980	1.63	1.58	≤ 2
ac10		4950	1.78	1.82	≤ 2
		4955	1.99	1.56	≤ 2
		4980	1.61	1.76	≤ 2
ac20		4950	1.78	1.67	≤ 2
		4965	1.21	1.04	≤ 2
		4980	1.92	1.47	≤ 2

Radio 1 15dBi SISO

Mode	Radio	Freq. (MHz)	Conducted PSD Ant a (dBm/MHz)	Conducted PSD Ant b (dBm/MHz)	Limit (dBm/MHz)
a10	2	4950	14.80	14.66	≤ 15
		4955	14.92	14.87	≤ 15
		4980	14.94	14.58	≤ 15
n10		4950	1.89	1.53	≤ 2
		4955	1.85	1.61	≤ 2
		4980	1.99	1.64	≤ 2
n20		4950	1.73	1.47	≤ 2
		4965	1.17	0.95	≤ 2
		4980	1.81	1.68	≤ 2
ac10		4950	1.46	1.61	≤ 2
		4955	1.68	1.91	≤ 2
		4980	1.65	1.73	≤ 2
ac20		4950	1.81	1.95	≤ 2
		4965	1.13	0.93	≤ 2
		4980	1.76	1.95	≤ 2

Radio 1 13dBi SISO

Mode	Radio	Freq. (MHz)	Conducted PSD Ant a (dBm/MHz)	Conducted PSD Ant b (dBm/MHz)	Limit (dBm/MHz)
a10	2	4950	16.76	16.43	≤ 17
		4955	16.48	16.38	≤ 17
		4980	16.31	16.69	≤ 17
n10		4950	3.92	3.70	≤ 4
		4955	3.95	3.64	≤ 4
		4980	3.50	3.43	≤ 4
n20		4950	3.49	3.50	≤ 4
		4965	3.34	3.32	≤ 4
		4980	3.18	3.13	≤ 4
ac10		4950	3.98	3.82	≤ 4
		4955	3.80	3.65	≤ 4
		4980	3.67	3.65	≤ 4
ac20		4950	3.69	3.42	≤ 4
		4965	3.40	3.28	≤ 4
		4980	3.21	3.19	≤ 4

Radio 1 8dBi SISO

Mode	Radio	Freq. (MHz)	Conducted PSD Ant a (dBm/MHz)	Conducted PSD Ant b (dBm/MHz)	Limit (dBm/MHz)
a10	s	4950	18.07	17.73	≤ 21
		4955	17.82	17.64	≤ 21
		4980	17.80	17.82	≤ 21
n10		4950	7.83	7.82	≤ 8
		4955	7.90	7.09	≤ 8
		4980	7.94	7.99	≤ 8
n20		4950	7.83	7.67	≤ 8
		4965	7.82	7.88	≤ 8
		4980	7.70	7.72	≤ 8
ac10		4950	7.97	7.45	≤ 8
		4955	7.35	7.88	≤ 8
		4980	7.80	7.59	≤ 8
ac20		4950	7.91	7.87	≤ 8
		4965	7.96	7.69	≤ 8
		4980	7.63	7.76	≤ 8

Note: The total maximum conducted PSD is calculated by converting logarithmic values to linear values, summing them, then converting the sum into logarithmic value like so: 10*LOG(10^(ant a/10) + 10^(ant b/10)).
Note: If transmitting antennas of directional gain greater than 9 dBi are used, both the maximum conducted output power and the peak power spectral density limits should be reduced by the amount in decibels that the directional gain of the antennas exceed 9 dBi.

Radio 2 15dBi MIMO

Mode	Radio	Freq. (MHz)	Conducted PSD Ant a (dBm/MHz)	Conducted PSD Ant b (dBm/MHz)	Total PSD (dBm/MHz)	Limit (dBm/MHz)
a10	1	4950	10.91	10.75	13.841	≤ 15
		4955	11.31	10.77	14.059	≤ 15
		4980	11.12	10.66	13.906	≤ 15
n10		4950	-0.33	-1.83	1.995	≤ 2
		4955	-0.60	-1.94	1.792	≤ 2
		4980	-0.60	-1.90	1.809	≤ 2
n20		4950	-1.04	-2.00	1.517	≤ 2
		4965	-1.46	-2.46	1.079	≤ 2
		4980	-0.69	-2.08	1.681	≤ 2
ac10		4950	-0.15	-2.11	1.990	≤ 2
		4955	-0.55	-2.43	1.621	≤ 2
		4980	-0.36	-2.38	1.757	≤ 2
ac20		4950	-0.60	-1.67	1.908	≤ 2
		4965	-1.53	-2.81	0.887	≤ 2
		4980	-0.92	-1.94	1.610	≤ 2

Radio 1 15dBi MIMO

Mode	Radio	Freq. (MHz)	Conducted PSD Ant a (dBm/MHz)	Conducted PSD Ant b (dBm/MHz)	Total PSD (dBm/MHz)	Limit (dBm/MHz)
a10	2	4950	11.68	11.43	14.567	≤ 15
		4955	11.74	10.97	14.382	≤ 15
		4980	11.45	11.57	14.521	≤ 15
n10		4950	-2.53	-1.14	1.231	≤ 2
		4955	-2.46	-0.34	1.738	≤ 2
		4980	-2.55	-0.33	1.711	≤ 2
n20		4950	-1.69	-0.77	1.805	≤ 2
		4965	-2.10	-1.29	1.334	≤ 2
		4980	-1.65	-0.57	1.934	≤ 2
ac10		4950	-2.62	-0.79	1.401	≤ 2
		4955	-2.43	-0.64	1.567	≤ 2
		4980	-2.53	-0.20	1.800	≤ 2
ac20		4950	-1.66	-0.81	1.796	≤ 2
		4965	-2.18	-1.42	1.227	≤ 2
		4980	-1.55	-0.86	1.819	≤ 2

Radio 1 13dBi MIMO

Mode	Radio	Freq. (MHz)	Conducted PSD Ant a (dBm/MHz)	Conducted PSD Ant b (dBm/MHz)	Total PSD (dBm/MHz)	Limit (dBm/MHz)
a10	2	4950	12.95	13.12	16.046	≤ 17
		4955	12.91	13.60	16.279	≤ 17
		4980	12.99	13.20	16.107	≤ 17
n10		4950	-0.06	1.73	3.937	≤ 4
		4955	-0.23	1.03	3.456	≤ 4
		4980	-0.33	0.88	3.327	≤ 4
n20		4950	0.00	0.99	3.533	≤ 4
		4965	-0.18	0.85	3.376	≤ 4
		4980	0.13	1.20	3.708	≤ 4
ac10		4950	0.14	0.96	3.580	≤ 4
		4955	-0.01	0.94	3.501	≤ 4
		4980	-0.03	0.80	3.415	≤ 4
ac20		4950	0.14	0.87	3.531	≤ 4
		4965	-0.10	0.63	3.291	≤ 4
		4980	0.18	1.30	3.786	≤ 4

Radio 1 8dBi MIMO

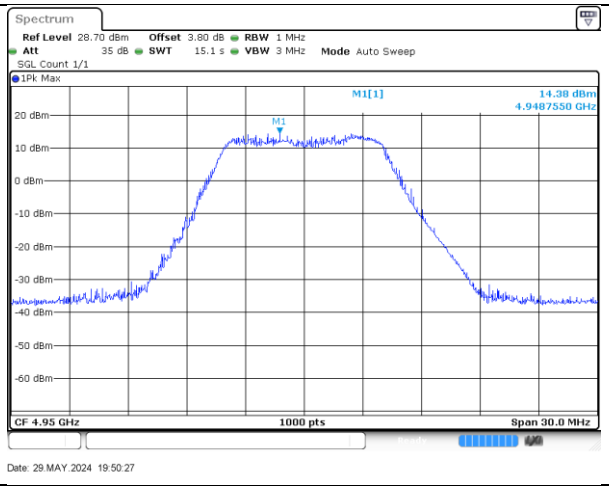
Mode	Radio	Freq. (MHz)	Conducted PSD Ant a (dBm/MHz)	Conducted PSD Ant b (dBm/MHz)	Total PSD (dBm/MHz)	Limit (dBm/MHz)
a10	2	4950	17.62	17.25	20.449	≤ 21
		4955	17.79	17.18	20.506	≤ 21
		4980	17.53	17.51	20.530	≤ 21
n10		4950	4.01	5.37	7.753	≤ 8
		4955	3.90	4.91	7.445	≤ 8
		4980	4.33	5.13	7.759	≤ 8
n20		4950	4.84	4.87	7.865	≤ 8
		4965	4.73	4.93	7.841	≤ 8
		4980	4.50	4.88	7.704	≤ 8
ac10		4950	4.20	4.77	7.505	≤ 8
		4955	4.01	4.98	7.532	≤ 8
		4980	4.25	5.36	7.851	≤ 8
ac20		4950	4.73	4.74	7.745	≤ 8
		4965	4.74	5.05	7.908	≤ 8
		4980	4.15	4.89	7.546	≤ 8

Note: The total maximum conducted PSD is calculated by converting logarithmic values to linear values, summing them, then converting the sum into logarithmic value like so: 10*LOG(10^(ant a/10) + 10^(ant b/10)).
Note: If transmitting antennas of directional gain greater than 9 dBi are used, both the maximum conducted output power and the peak power spectral density limits should be reduced by the amount in decibels that the directional gain of the antennas exceed 9 dBi.

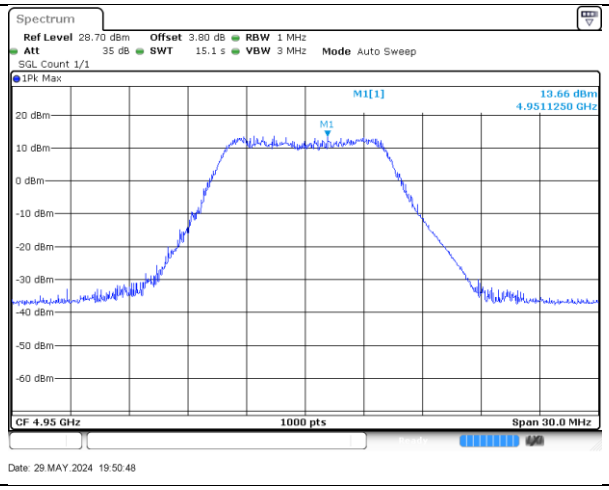
Please refer to below tables for plots.

Title convention: Frequency(MHz)-Bandwidth(MHz)-Data Rate-Tx Path-Antenna

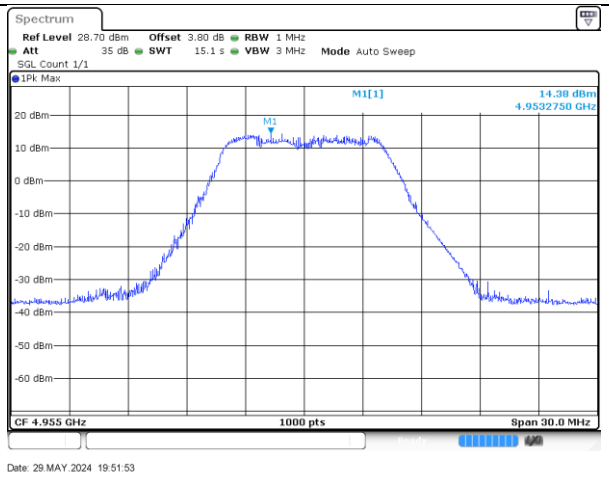
Radio 2 15dBi Antenna Gain



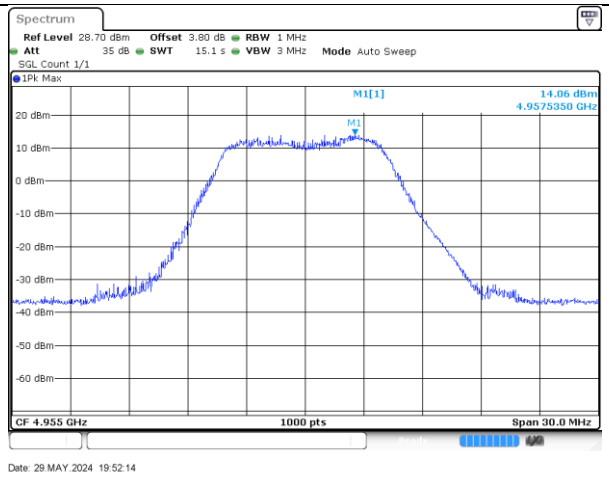
4950-10MHz-802.11a-1-a



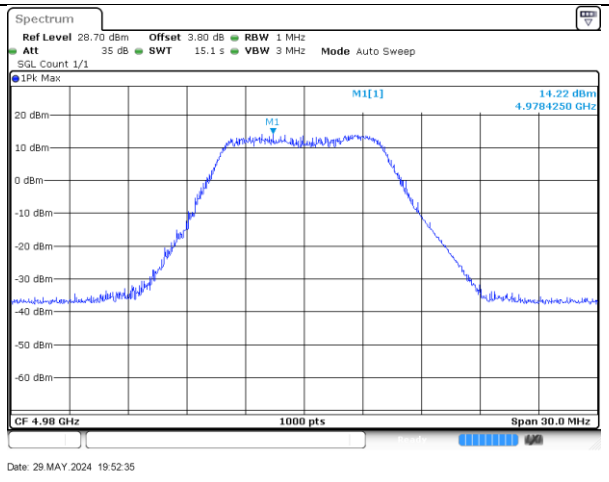
4950-10MHz-802.11a-1-b



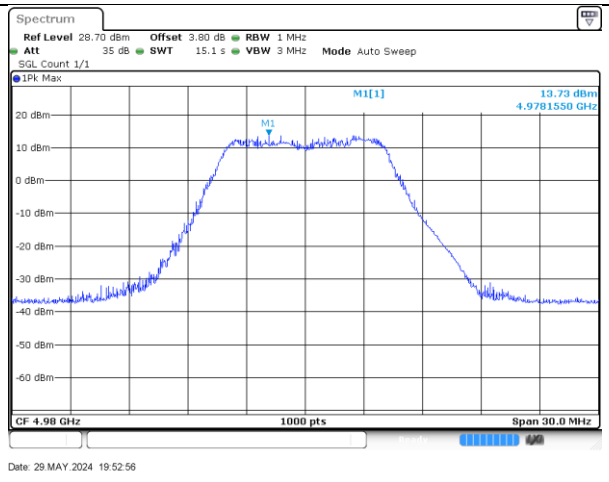
4955-10MHz-802.11a-1-a



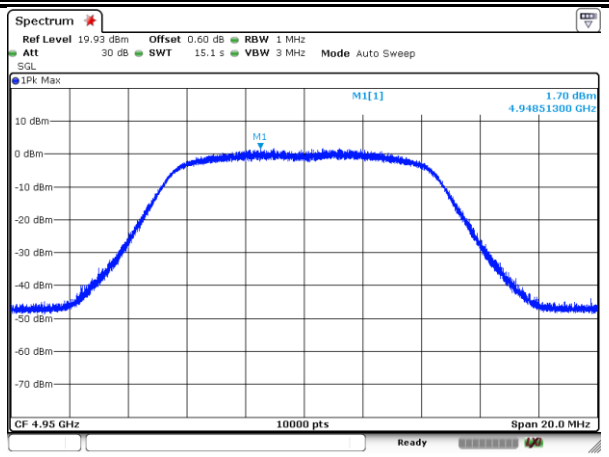
4955-10MHz-802.11a-1-b



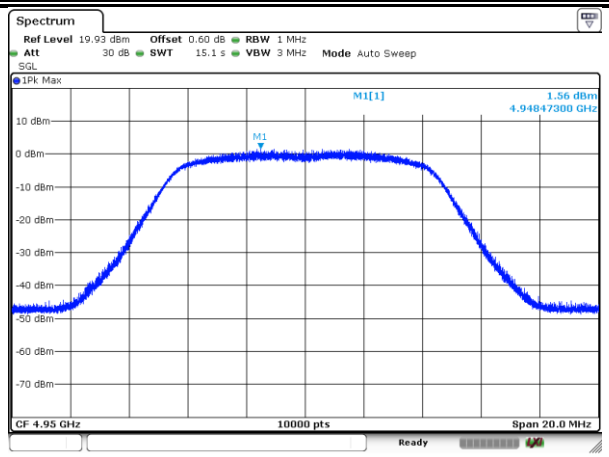
4980-10MHz-802.11a-1-a



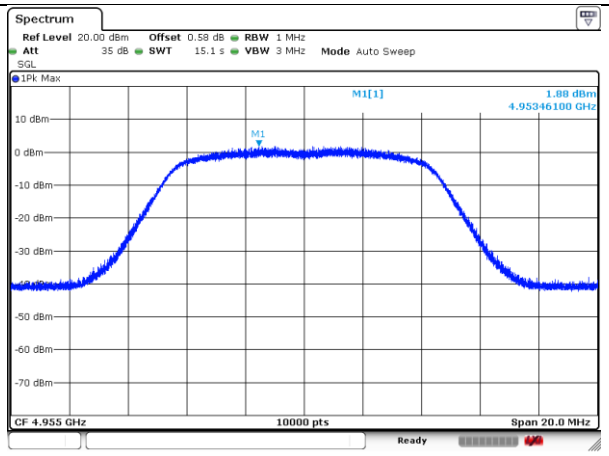
4980-10MHz-802.11a-1-b



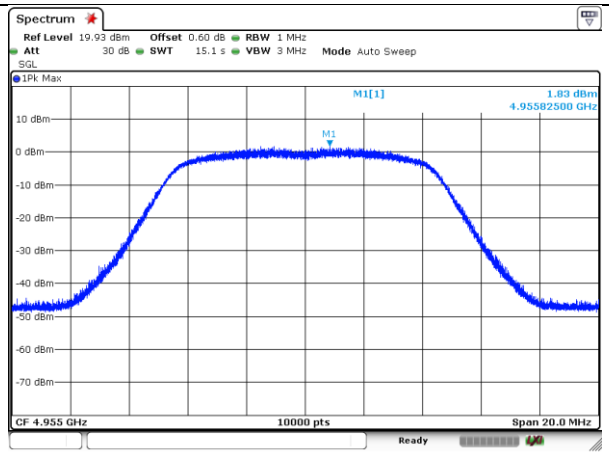
4950-10MHz-802.11n-1-a



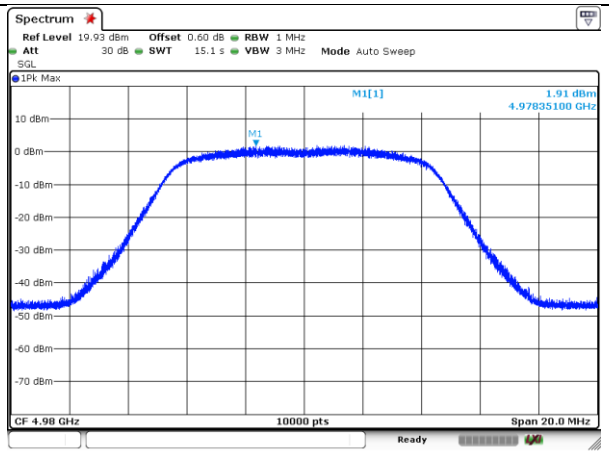
4950-10MHz-802.11n-1-b



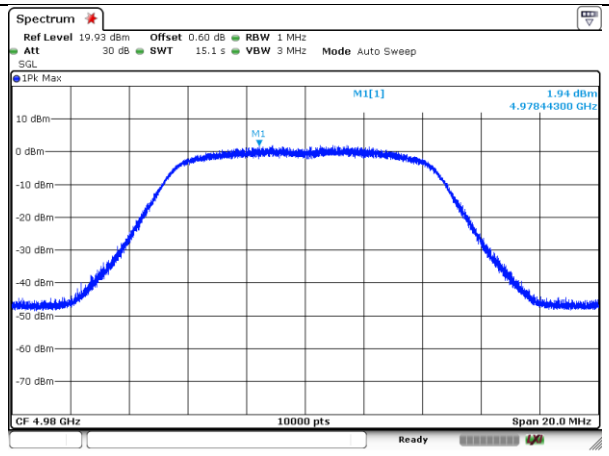
4955-10MHz-802.11n-1-a



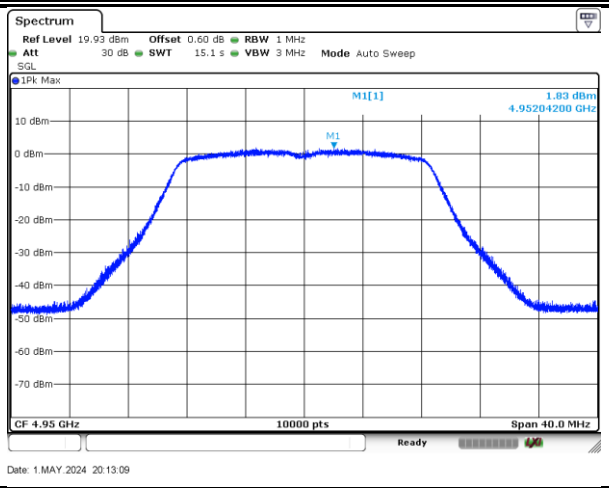
4955-10MHz-802.11n-1-b



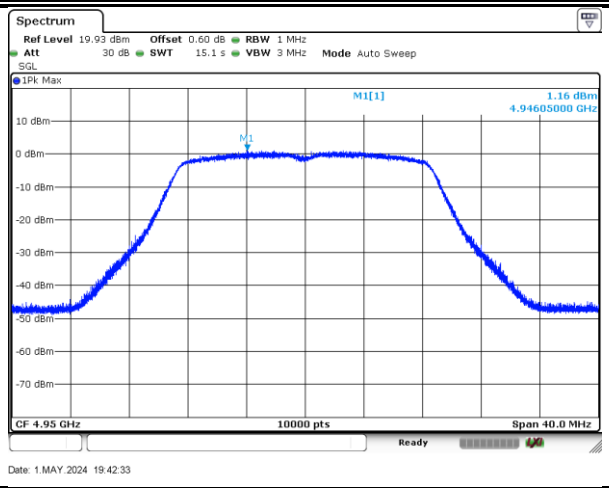
4980-10MHz-802.11n-1-a



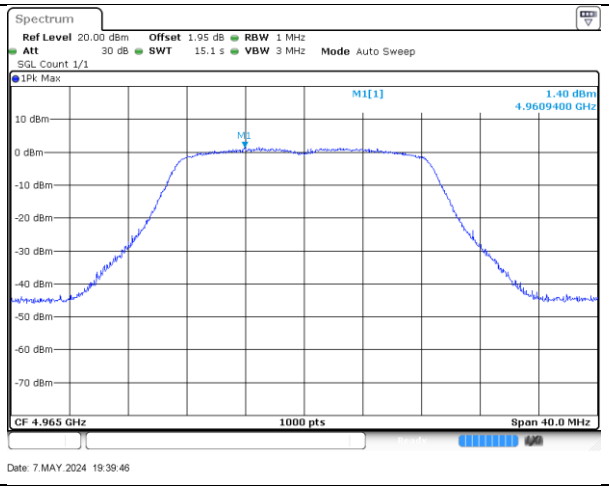
4980-10MHz-802.11n-1-b



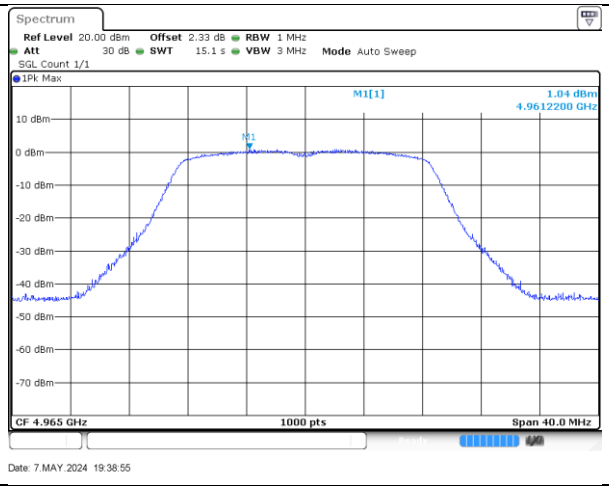
4950-20MHz-802.11n-1-a



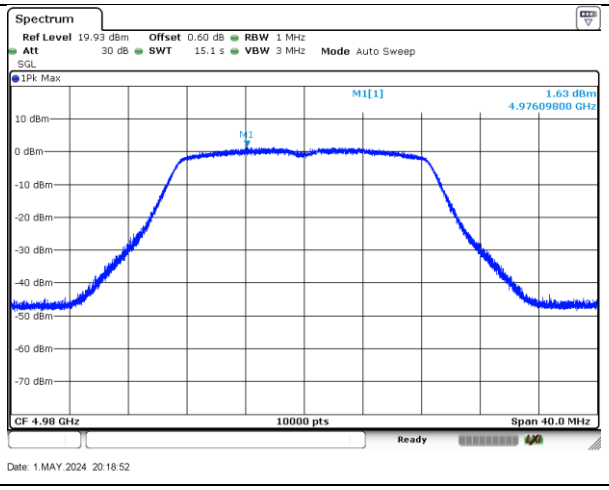
4950-20MHz-802.11n-1-b



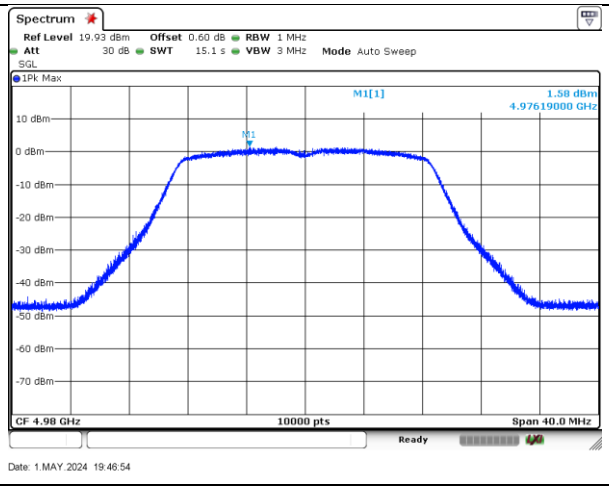
4965-20MHz-802.11n-1-a



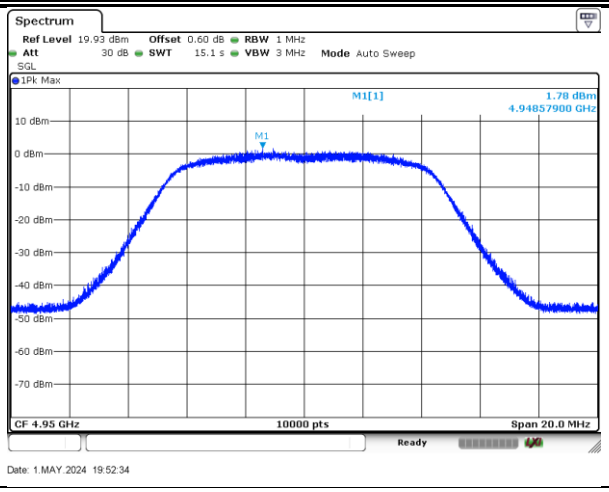
4965-20MHz-802.11n-1-b



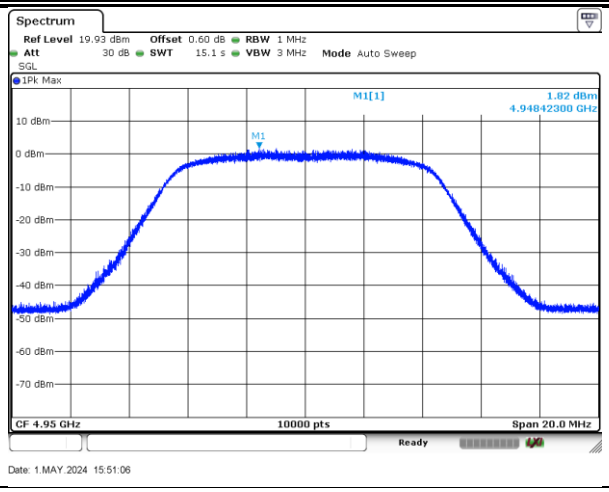
4980-20MHz-802.11n-1-a



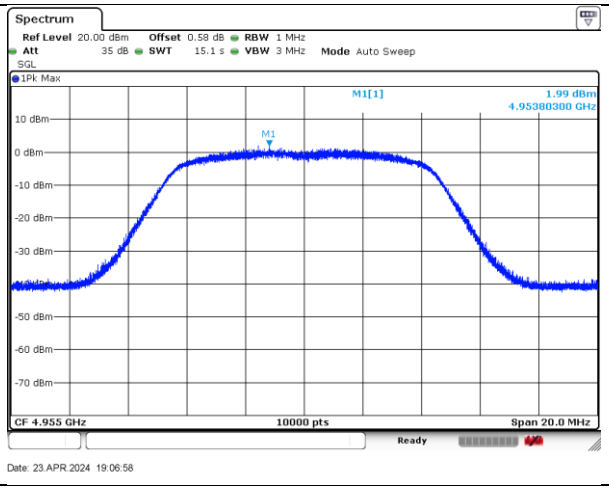
4980-20MHz-802.11n-1-b



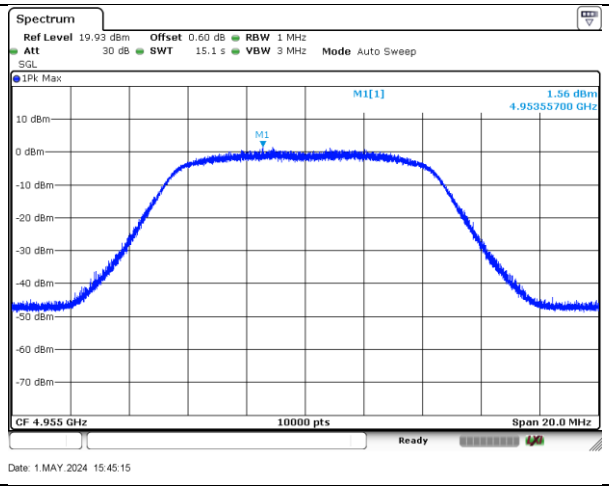
4950-10MHz-802.11ac-1-a



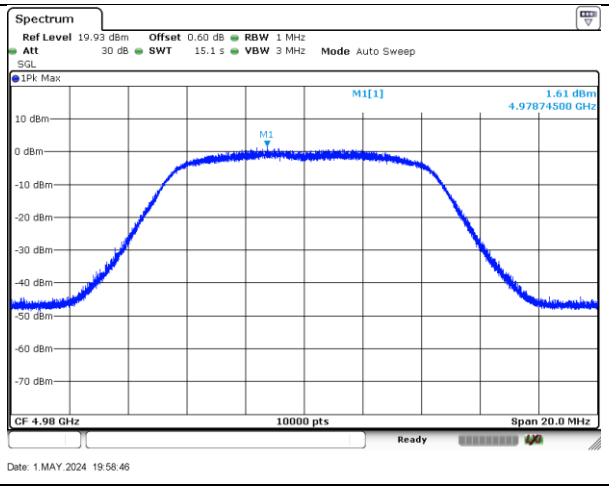
4950-10MHz-802.11ac-1-b



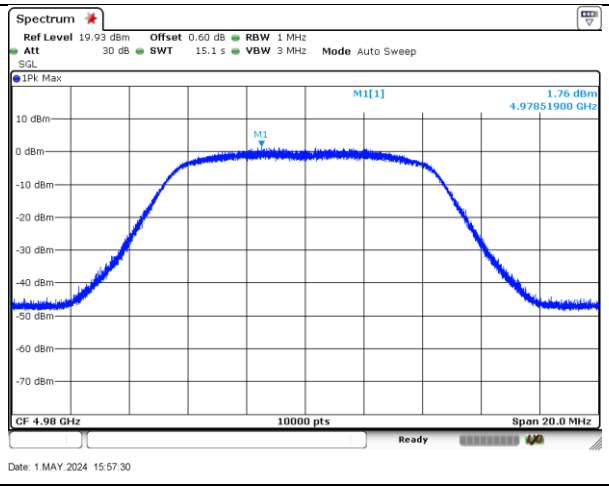
4955-10MHz-802.11ac-1-a



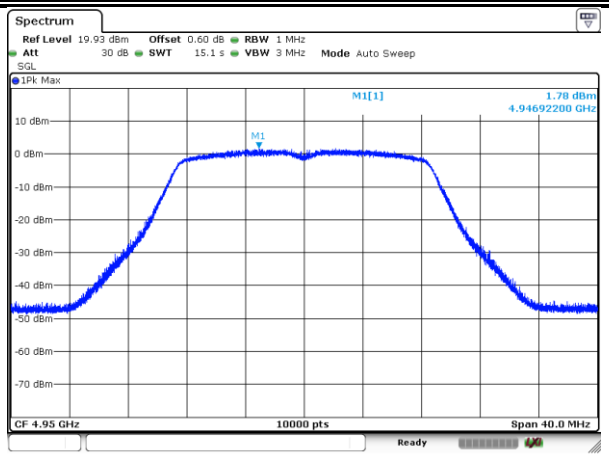
4955-10MHz-802.11ac-1-b



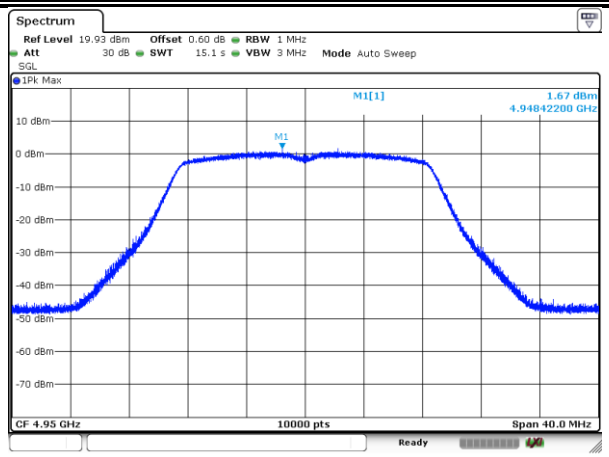
4980-10MHz-802.11ac-1-a



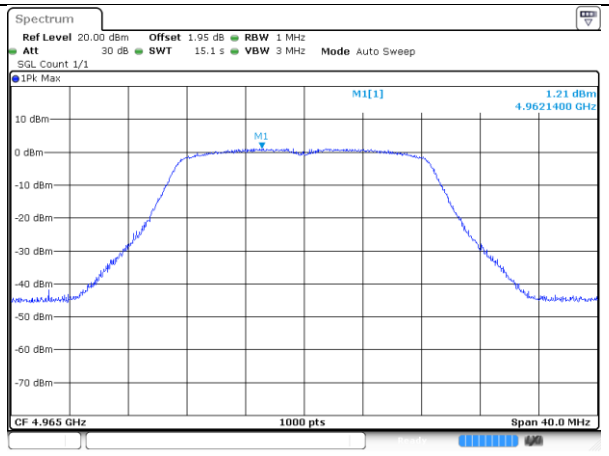
4980-10MHz-802.11ac-1-b



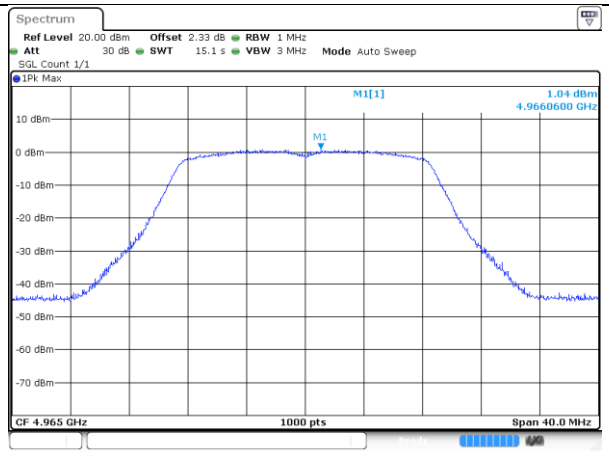
4950-20MHz-802.11ac-1-a



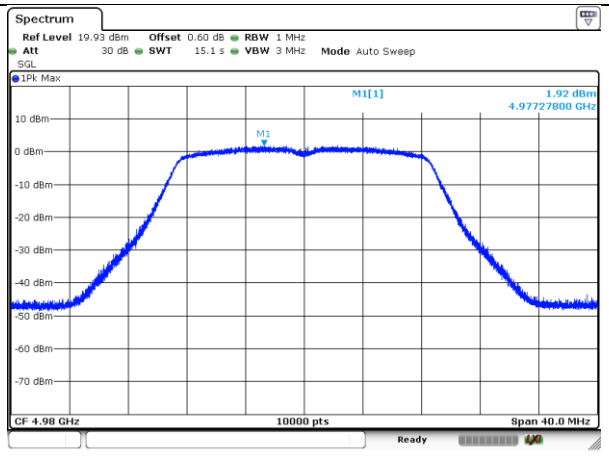
4950-20MHz-802.11ac-1-b



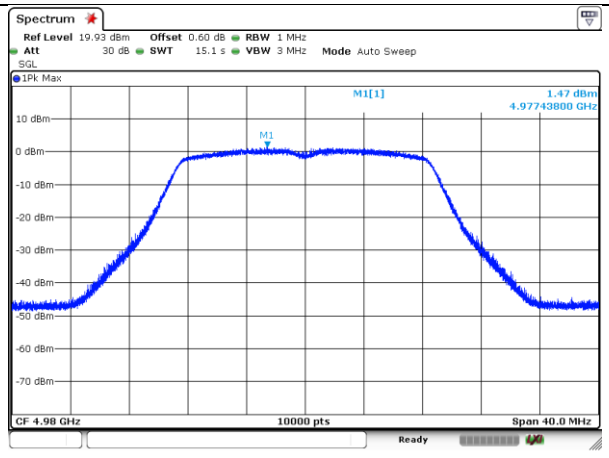
4965-20MHz-802.11ac-1-a



4965-20MHz-802.11ac-1-b



4980-20MHz-802.11ac-1-a



4980-20MHz-802.11ac-1-b