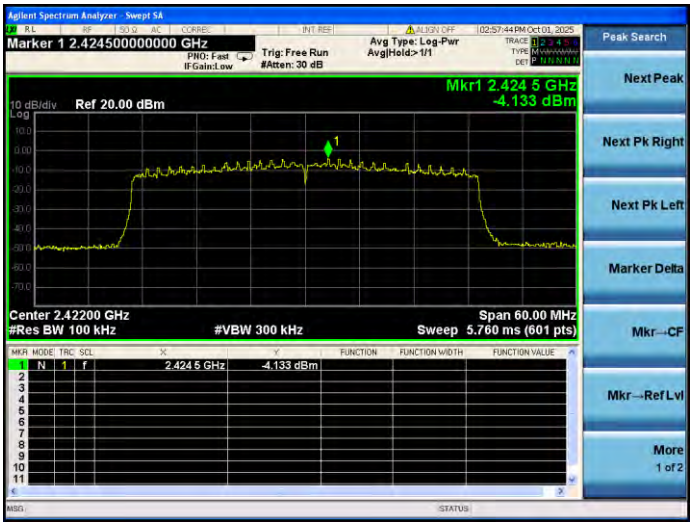
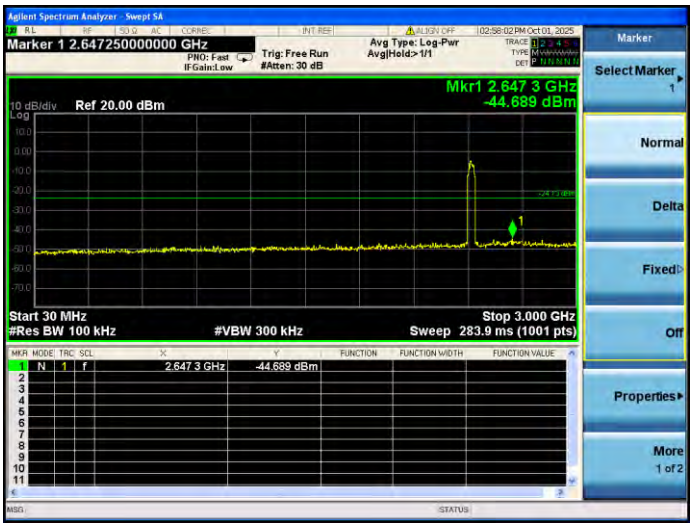
802.11ax-40 MHz(SU) LOW CHANNEL CARRIER LEVEL

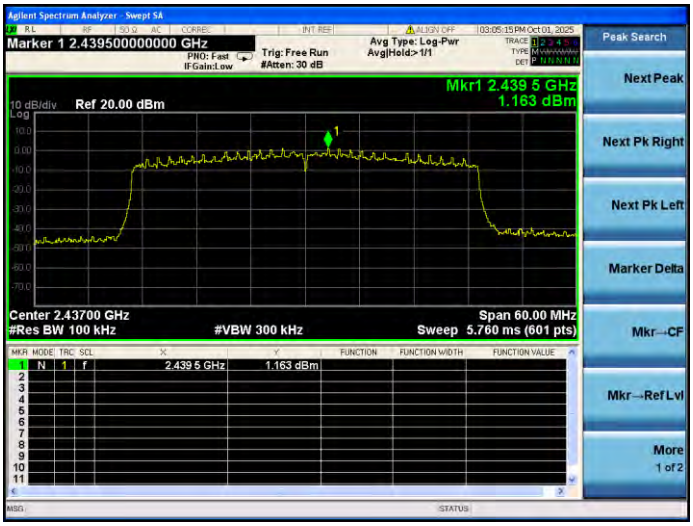


802.11ax-40 MHz(SU) LOW CHANNEL, SPURIOUS 30 MHz ~ 3 GHz

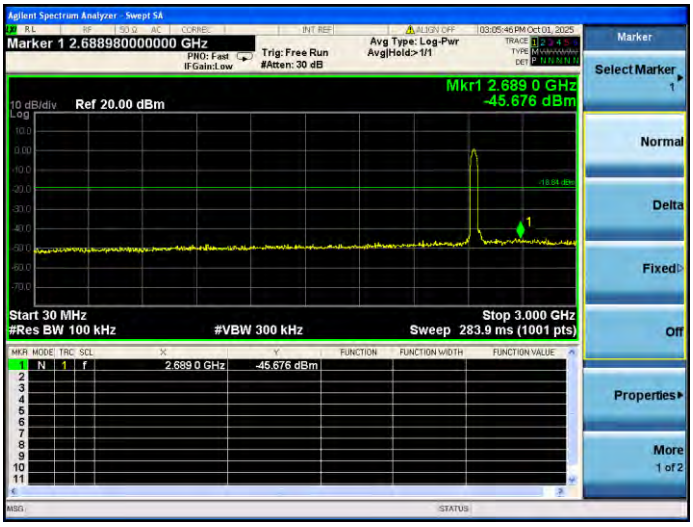


802.11ax-40 MHz(SU) LOW CHANNEL, SPURIOUS 2 GHz ~ 25 GHz

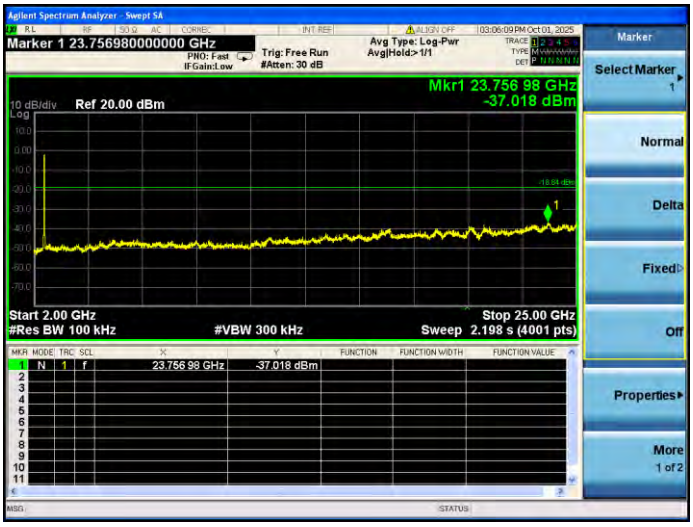
802.11ax-40 MHz(SU) MIDDLE CHANNEL CARRIER LEVEL



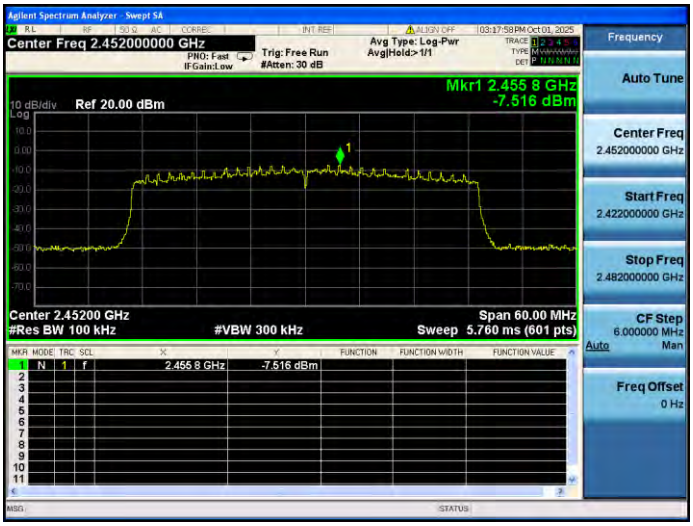
802.11ax-40 MHz(SU) MIDDLE CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



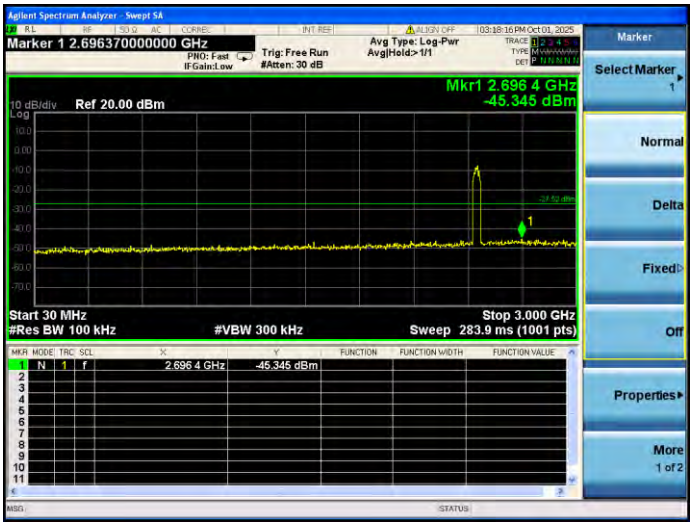
802.11ax-40 MHz(SU) MIDDLE CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



802.11ax-40 MHz(SU) HIGH CHANNEL CARRIER LEVEL



802.11ax-40 MHz(SU) HIGH CHANNEL, SPURIOUS 30 MHz ~ 3 GHz

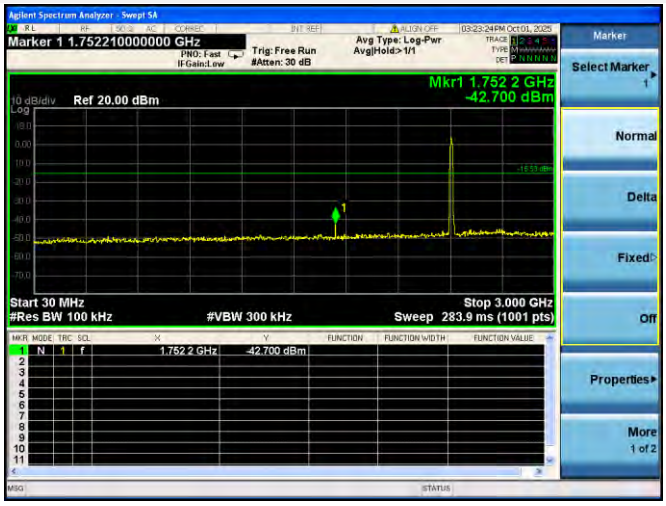


802.11ax-40 MHz(SU) HIGH CHANNEL, SPURIOUS 2 GHz ~ 25 GHz

SISO-Antenna 1

802.11b LOW CHANNEL CARRIER LEVEL

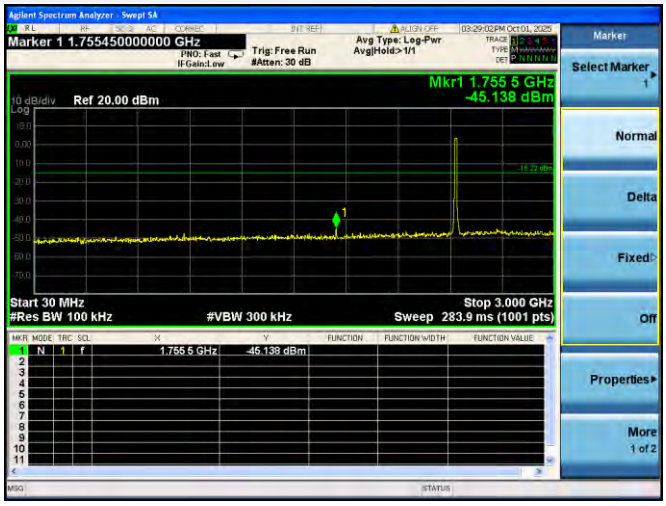
802.11b LOW CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



802.11b LOW CHANNEL, SPURIOUS 2 GHz ~ 25 GHz

802.11b MIDDLE CHANNEL CARRIER LEVEL

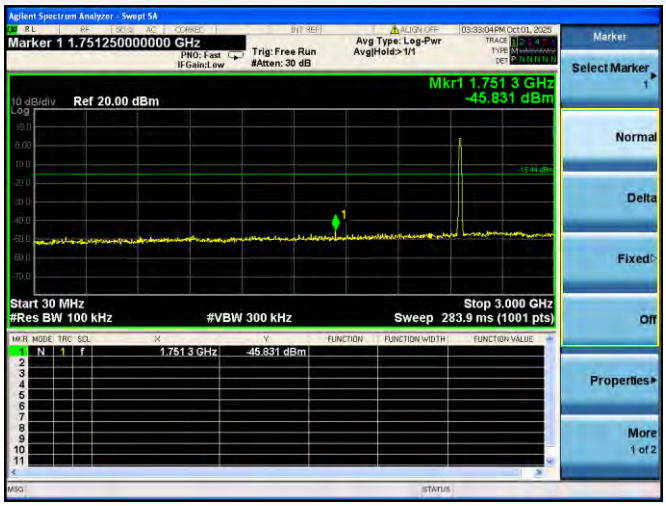
802.11b MIDDLE CHANNEL, SPURIOUS
30 MHz ~ 3 GHz



802.11b MIDDLE CHANNEL, SPURIOUS
2 GHz ~ 25 GHz

802.11b HIGH CHANNEL CARRIER LEVEL

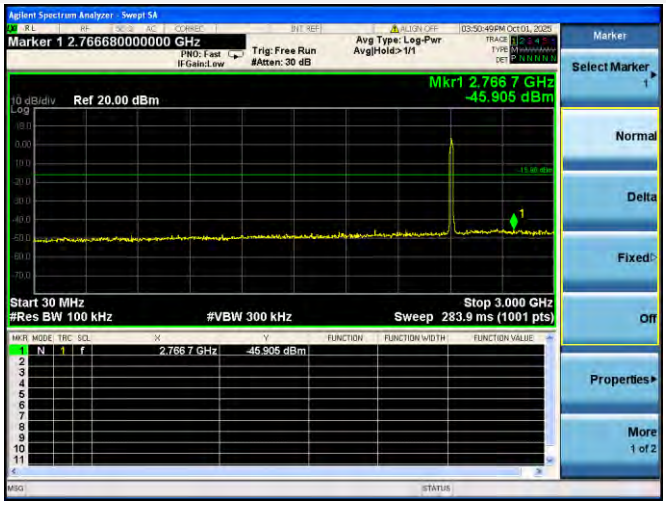
802.11b HIGH CHANNEL, SPURIOUS
30 MHz ~ 3 GHz



802.11b HIGH CHANNEL, SPURIOUS
2 GHz ~ 25 GHz

802.11g LOW CHANNEL CARRIER LEVEL

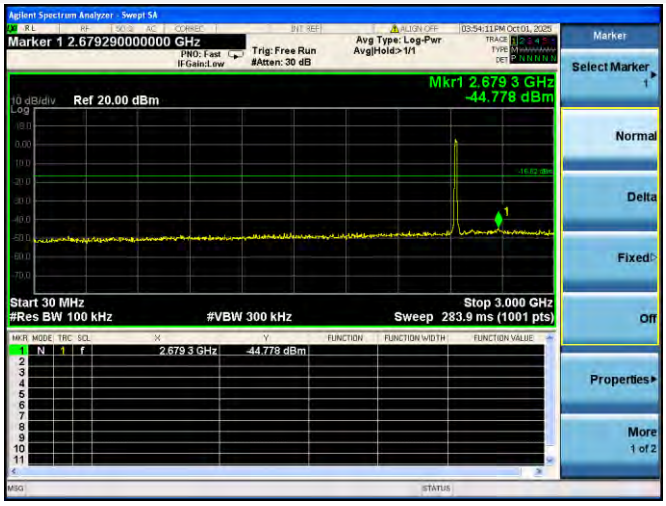
802.11g LOW CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



802.11g LOW CHANNEL, SPURIOUS 2 GHz ~ 25 GHz

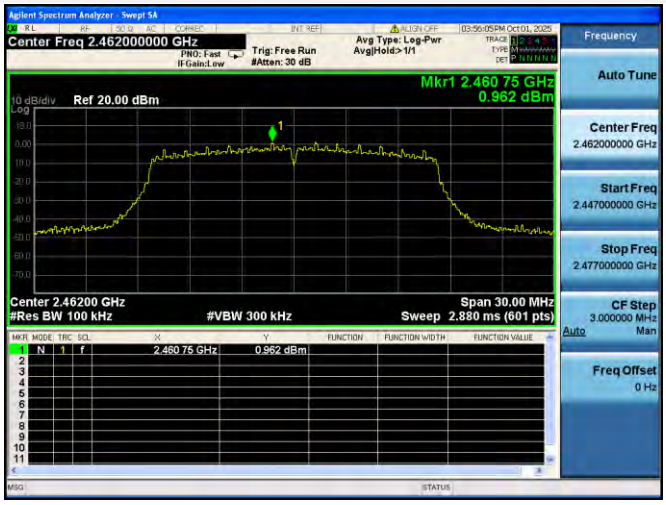
802.11g MIDDLE CHANNEL CARRIER LEVEL

802.11g MIDDLE CHANNEL, SPURIOUS
30 MHz ~ 3 GHz

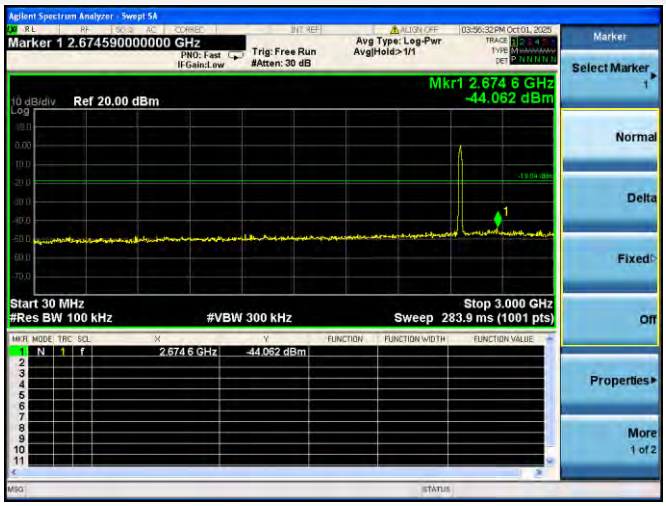


802.11g MIDDLE CHANNEL, SPURIOUS
2 GHz ~ 25 GHz

802.11g HIGH CHANNEL CARRIER LEVEL

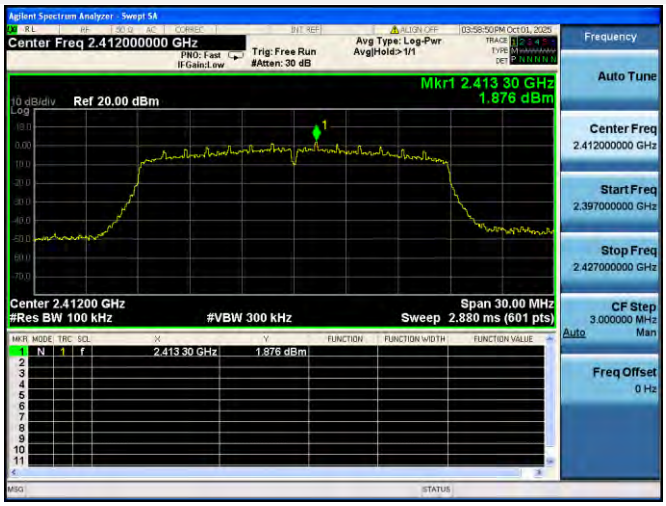


802.11g HIGH CHANNEL, SPURIOUS
30 MHz ~ 3 GHz

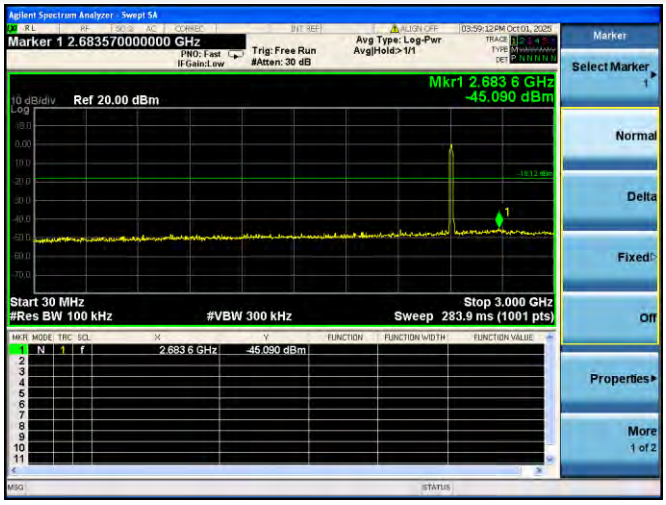


802.11g HIGH CHANNEL, SPURIOUS
2 GHz ~ 25 GHz

802.11n-20 MHz LOW CHANNEL CARRIER LEVEL



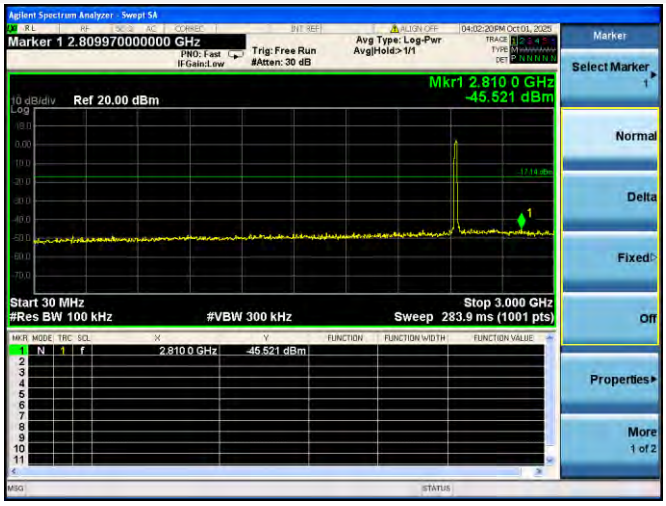
802.11n-20 MHz LOW CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



802.11n-20 MHz LOW CHANNEL, SPURIOUS 2 GHz ~ 25 GHz

802.11n-20 MHz MIDDLE CHANNEL CARRIER LEVEL

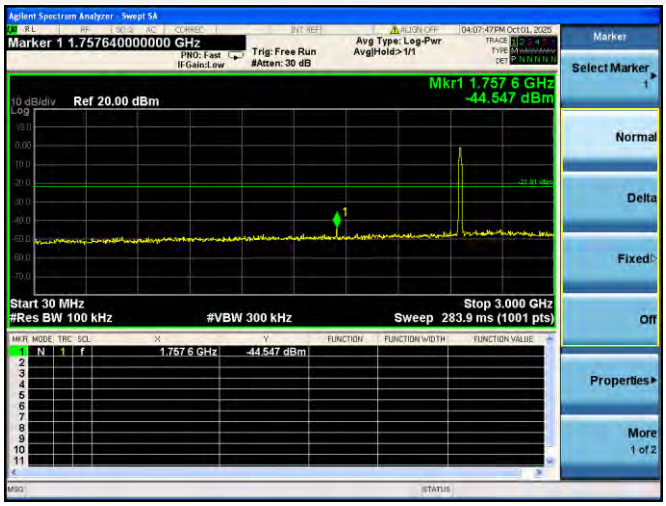
802.11n-20 MHz MIDDLE CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



802.11n-20 MHz MIDDLE CHANNEL, SPURIOUS 2 GHz ~ 25 GHz

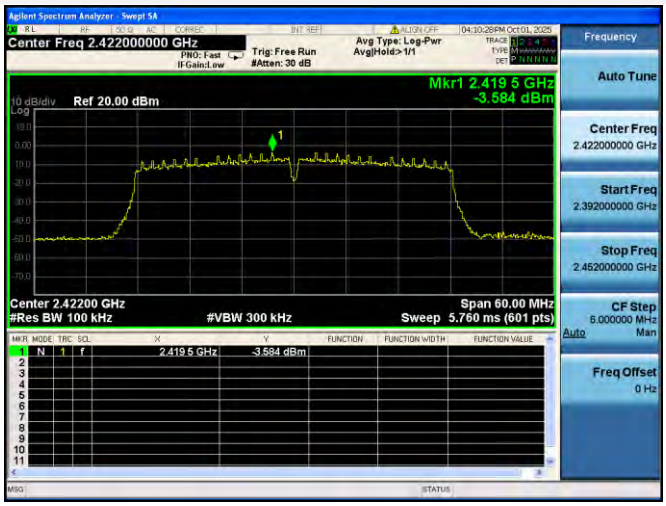
802.11n-20 MHz HIGH CHANNEL CARRIER LEVEL

802.11n-20 MHz HIGH CHANNEL, SPURIOUS 30 MHz ~ 3 GHz

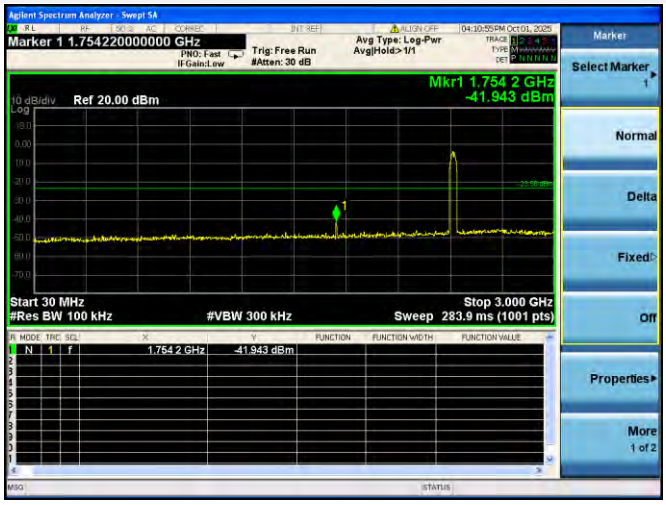


802.11n-20 MHz HIGH CHANNEL, SPURIOUS 2 GHz ~ 25 GHz

802.11n-40 MHz LOW CHANNEL CARRIER LEVEL



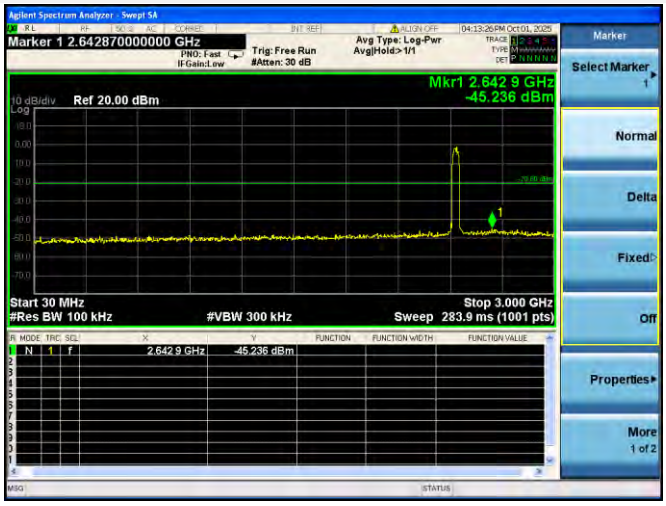
802.11n-40 MHz LOW CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



802.11n-40 MHz LOW CHANNEL, SPURIOUS 2 GHz ~ 25 GHz

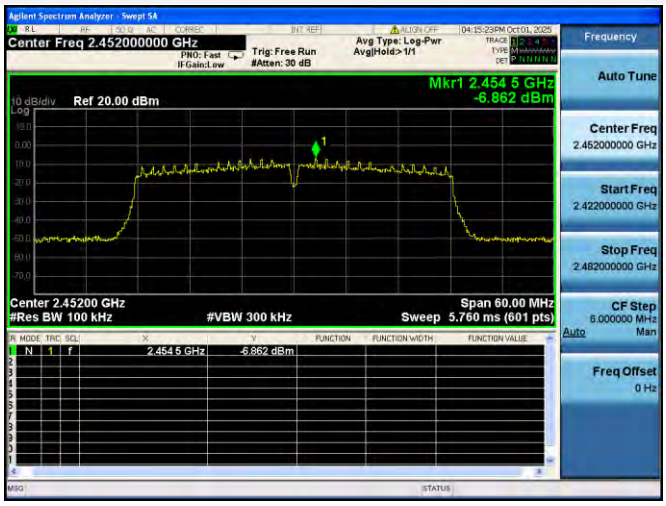
802.11n-40 MHz MIDDLE CHANNEL CARRIER LEVEL

802.11n-40 MHz MIDDLE CHANNEL, SPURIOUS 30 MHz ~ 3 GHz

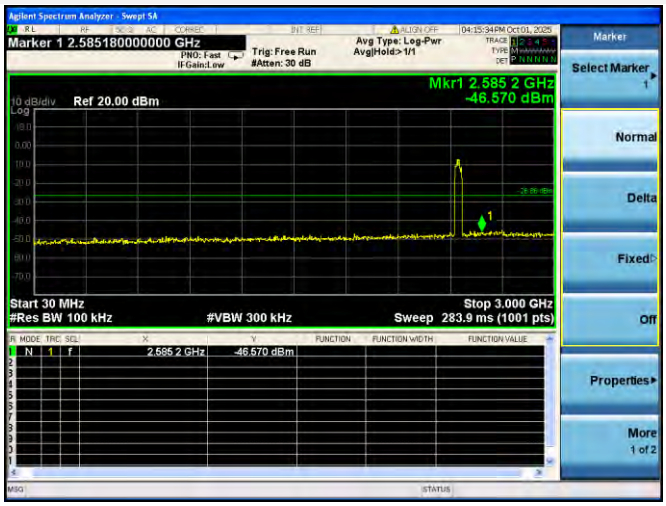


802.11n-40 MHz MIDDLE CHANNEL, SPURIOUS 2 GHz ~ 25 GHz

802.11n-40 MHz HIGH CHANNEL CARRIER LEVEL



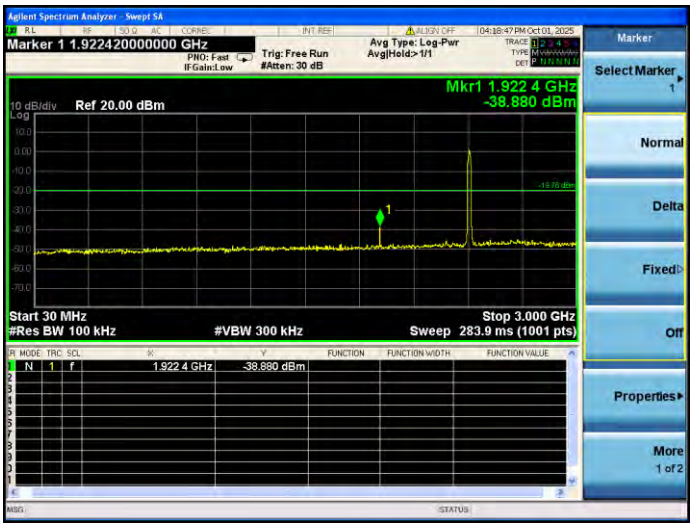
802.11n-40 MHz HIGH CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



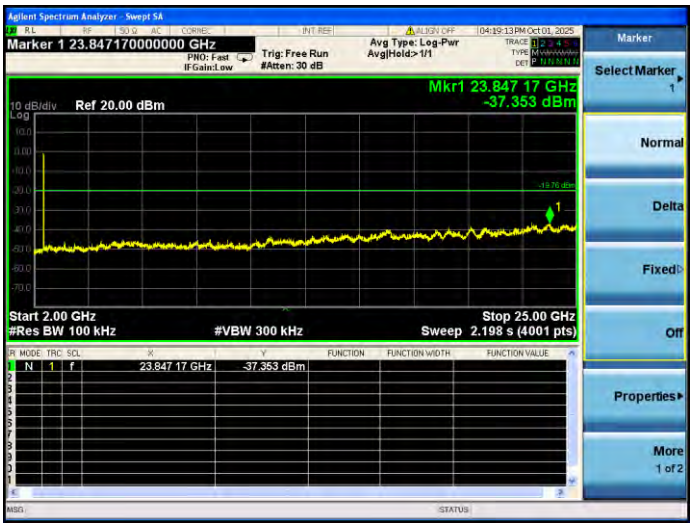
802.11n-40 MHz HIGH CHANNEL, SPURIOUS 2 GHz ~ 25 GHz

802.11ax-20 MHz(SU) LOW CHANNEL CARRIER LEVEL

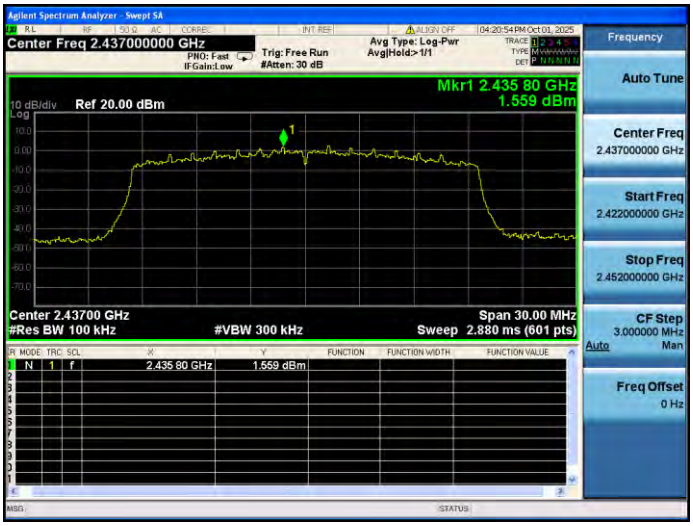
802.11ax-20 MHz(SU) LOW CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



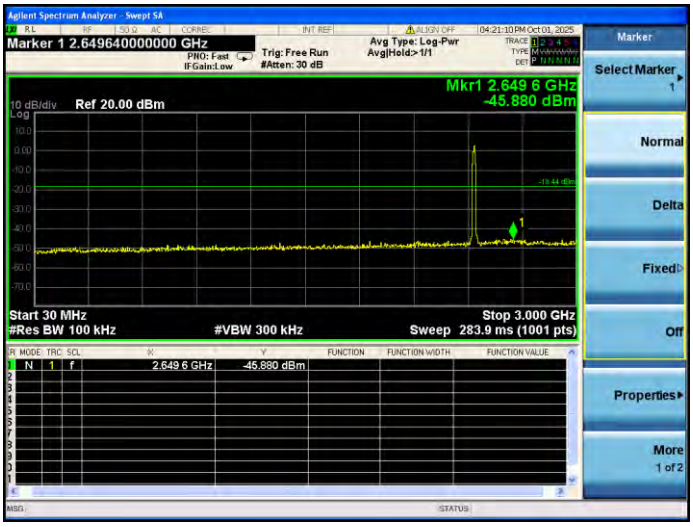
802.11ax-20 MHz(SU) LOW CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



802.11ax-20 MHz(SU) MIDDLE CHANNEL CARRIER LEVEL

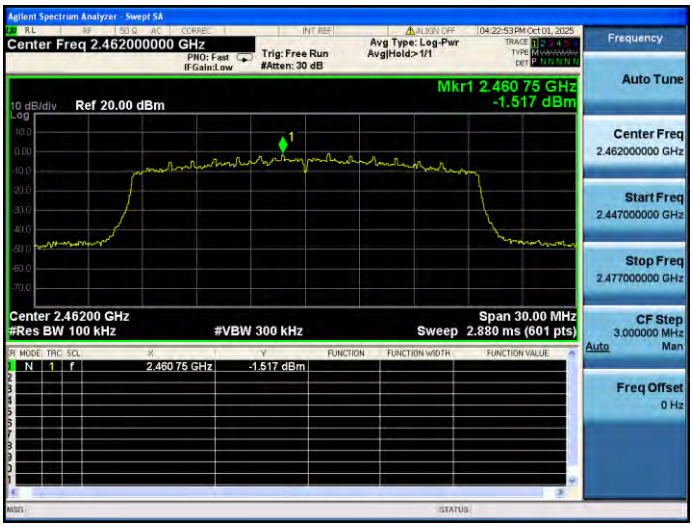


802.11ax-20 MHz(SU) MIDDLE CHANNEL, SPURIOUS 30 MHz ~ 3 GHz

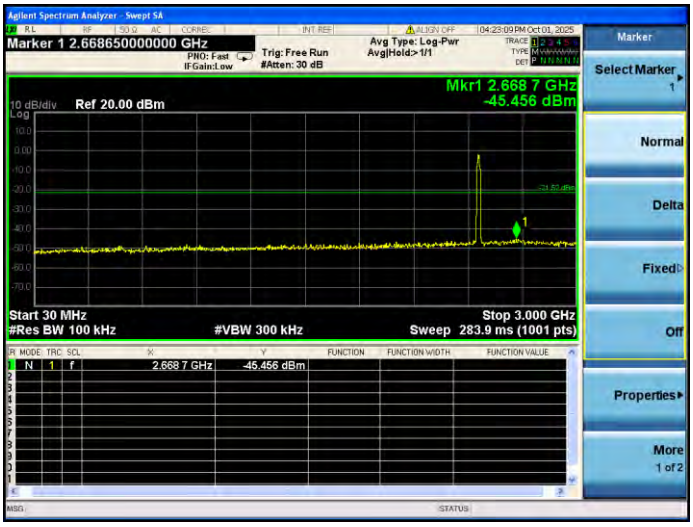


802.11ax-20 MHz(SU) MIDDLE CHANNEL, SPURIOUS 2 GHz ~ 25 GHz

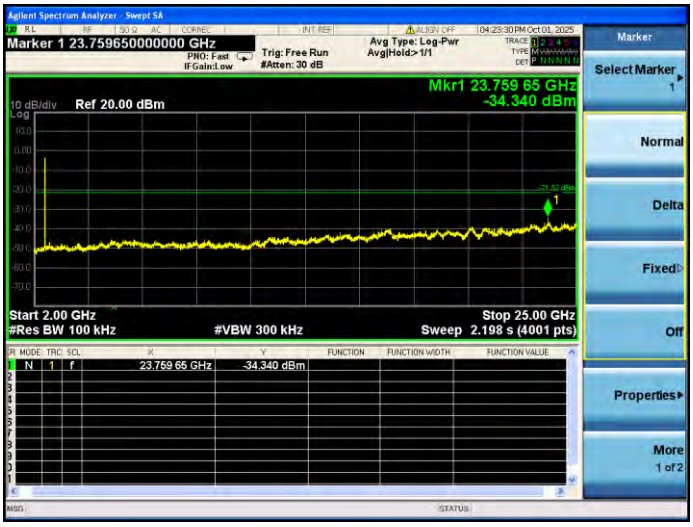
802.11ax-20 MHz(SU) HIGH CHANNEL CARRIER LEVEL



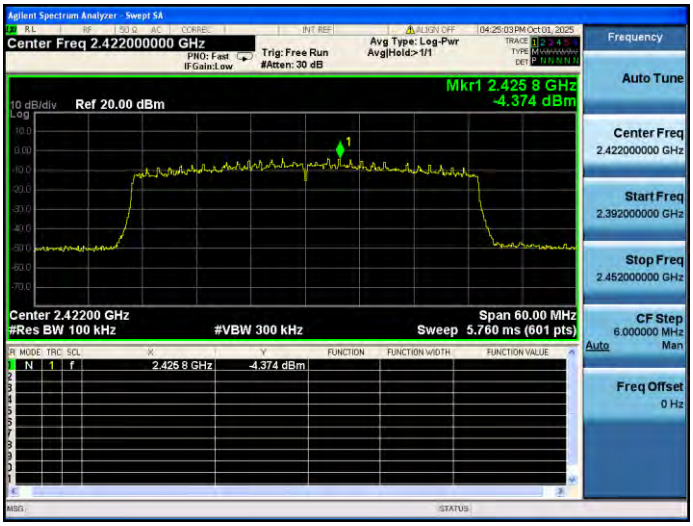
802.11ax-20 MHz(SU) HIGH CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



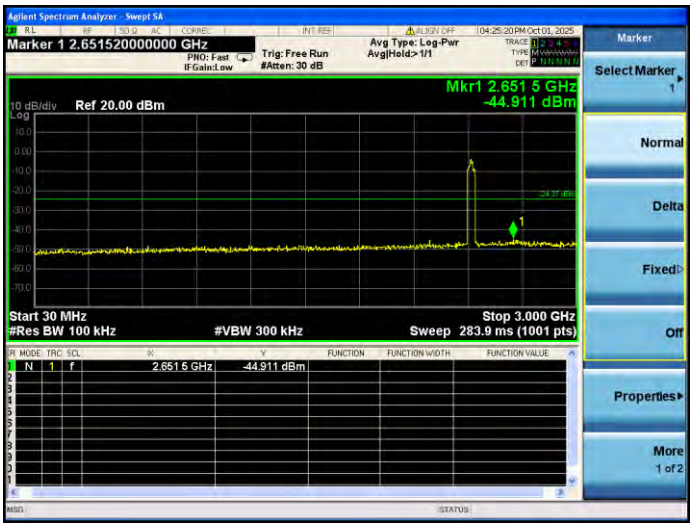
802.11ax-20 MHz(SU) HIGH CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



802.11ax-40 MHz(SU) LOW CHANNEL CARRIER LEVEL

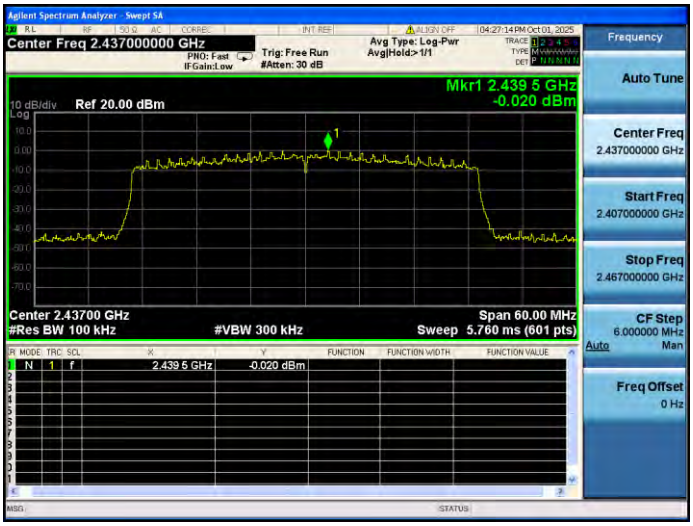


802.11ax-40 MHz(SU) LOW CHANNEL, SPURIOUS 30 MHz ~ 3 GHz

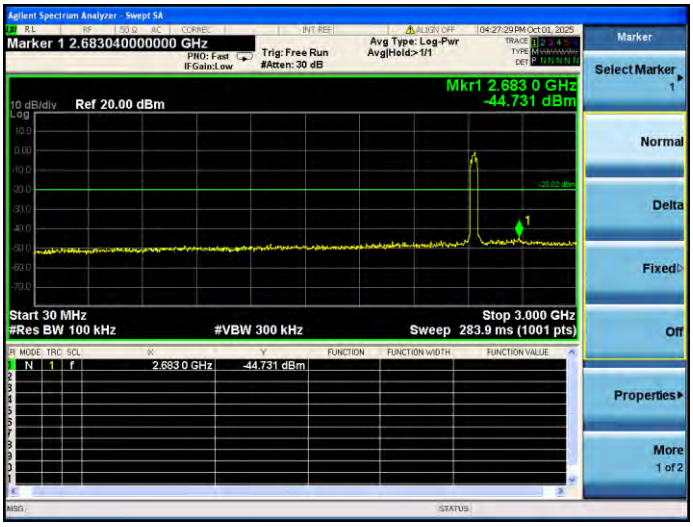


802.11ax-40 MHz(SU) LOW CHANNEL, SPURIOUS 2 GHz ~ 25 GHz

802.11ax-40 MHz(SU) MIDDLE CHANNEL CARRIER LEVEL

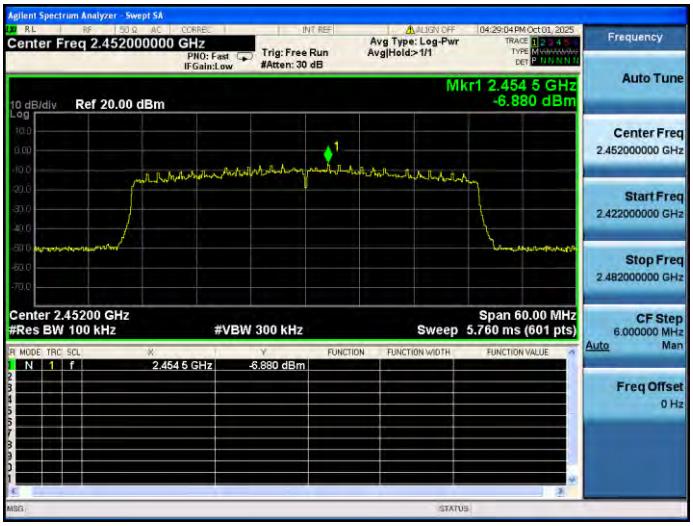


802.11ax-40 MHz(SU) MIDDLE CHANNEL, SPURIOUS 30 MHz ~ 3 GHz

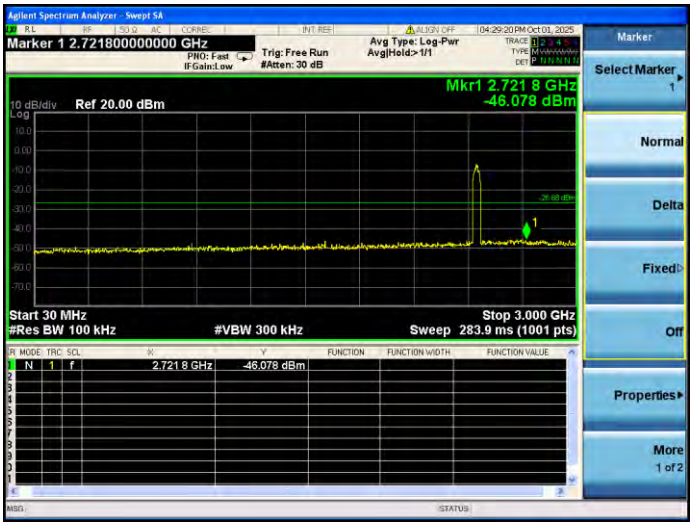


802.11ax-40 MHz(SU) MIDDLE CHANNEL, SPURIOUS 2 GHz ~ 25 GHz

802.11ax-40 MHz(SU) HIGH CHANNEL CARRIER LEVEL



802.11ax-40 MHz(SU) HIGH CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



802.11ax-40 MHz(SU) HIGH CHANNEL, SPURIOUS 2 GHz ~ 25 GHz

5.5 Band Edge (Authorized-band band-edge)

5.5.1 Limit

FCC §15.247(d)

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

5.5.2 Test Setup

See section 4.5.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX A.

5.5.3 Test Procedure

The following procedures may be used to determine the peak or average field strength or power of an unwanted emission that is within 2 MHz of the authorized band edge. If a peak detector is utilized, use the procedure described in 13.2.1. Use the procedure described in 13.2.2 when using an average detector and the EUT can be configured to transmit continuously (i.e., duty cycle $\geqslant$ 98%). Use the procedure described in 13.2.3 when using an average detector and the EUT cannot be configured to transmit continuously but the duty cycle is constant (i.e., duty cycle variations are less than ± 2 percent). Use the procedure described in 13.2.4 when using an average detector for those cases where the EUT cannot be configured to transmit continuously and the duty cycle is not constant (duty cycle variations equal or exceed 2 percent).

When using a peak detector to measure unwanted emissions at or near the band edge (within 2 MHz of the authorized band), the following integration procedure can be used.

Set instrument center frequency to the frequency of the emission to be measured (must be within 2 MHz of the authorized band edge).

Set span to 2 MHz

RBW = 100 kHz.

VBW $\geqslant$ 3 x RBW.

Detector = peak.

Sweep time = auto.

Trace mode = max hold.

Allow sweep to continue until the trace stabilizes (required measurement time may increase for low duty cycle applications)

Compute the power by integrating the spectrum over 1 MHz using the analyzer's band power measurement function with band limits set equal to the emission frequency (femission) ± 0.5 MHz. If the instrument does not have a band power function, then sum the amplitude levels (in power units) at 100 kHz intervals extending across the 1 MHz spectrum defined by femission ± 0.5 MHz.

Standard method(The 99% OBW of the fundamental emission is without 2 MHz of the authorized band):

Span: Wide enough to capture the peak level of the emission operating on the channel closest to the band edge, as well as any modulation products that fall outside of the authorized band of operation.

Reference level: As required to keep the signal from exceeding the maximum instrument 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.

Attenuation: Auto (at least 10 dB preferred).

Sweep time: Coupled.

Resolution bandwidth: 100 kHz.

Video bandwidth: 300 kHz.

Detector: Peak.

Trace: Max hold.

5.5.4 Test Result

Note 1: The 99% OBW of the fundamental emission is without 2 MHz of the authorized band.
Note 2: All antenna were pre tested, but only the worst case has been reported in this report.
Note 3: All the configurations were pre tested, only the worst configuration has been reported in this report.

Test Data

SISO-Antenna 0

802.11b Mode:

Channel	Measured Max. Band Edge Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low Channel	-38.30	4.66	-15.34	Pass
High Channel	-47.41	5.17	-14.83	Pass

802.11g Mode:

Channel	Measured Max. Band Edge Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low Channel	-44.38	4.26	-15.74	Pass
High Channel	-47.71	1.97	-18.03	Pass

802.11n-20 MHz Mode:

Channel	Measured Max. Band Edge Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low Channel	-45.18	1.76	-18.24	Pass
High Channel	-49.64	0.20	-19.80	Pass

802.11n-40 MHz Mode:

Channel	Measured Max. Band Edge Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low Channel	-48.29	-3.05	-23.05	Pass
High Channel	-48.28	-7.43	-27.43	Pass

802.11ax-20 MHz(SU) Mode:

Channel	Measured Max. Band Edge Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low Channel	-44.94	1.72	-18.29	Pass
High Channel	-48.36	-1.34	-21.34	Pass

802.11ax-40 MHz(SU) Mode:

Channel	Measured Max. Band Edge Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low Channel	-47.90	-4.13	-24.13	Pass
High Channel	-49.03	-7.52	-27.52	Pass

SISO-Antenna 1

802.11b Mode:

Channel	Measured Max. Band Edge Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low Channel	-39.81	4.47	-15.53	Pass
High Channel	-48.32	4.56	-15.44	Pass

802.11g Mode:

Channel	Measured Max. Band Edge Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low Channel	-45.86	4.02	-15.98	Pass
High Channel	-48.67	0.96	-19.04	Pass

802.11n-20 MHz Mode:

Channel	Measured Max. Band Edge Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low Channel	-47.95	1.88	-18.12	Pass
High Channel	-48.40	-1.91	-21.91	Pass

802.11n-40 MHz Mode:

Channel	Measured Max. Band Edge Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low Channel	-48.32	-3.58	-23.58	Pass
High Channel	-48.56	-6.86	-26.86	Pass

802.11ax-20 MHz(SU) Mode:

Channel	Measured Max. Band Edge Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low Channel	-47.65	0.24	-19.77	Pass
High Channel	-47.74	-1.52	-21.52	Pass

802.11ax-40 MHz(SU) Mode:

Channel	Measured Max. Band Edge Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low Channel	-49.00	-4.37	-24.37	Pass
High Channel	-48.77	-6.88	-26.88	Pass

Test Plots

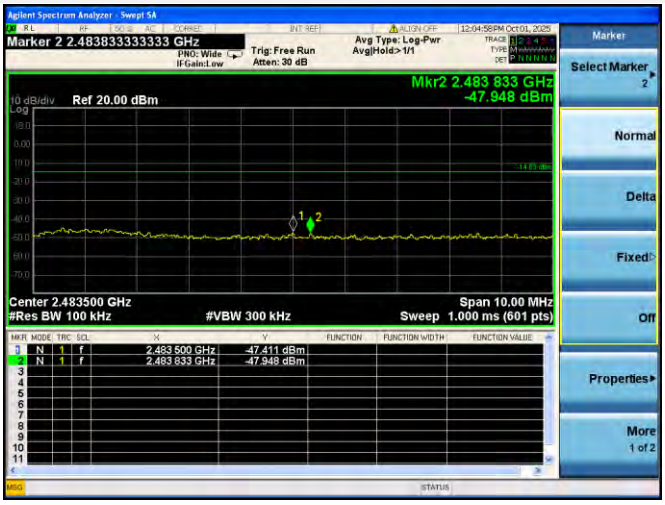
SISO-Antenna 0

802.11b LOW CHANNEL, CARRIER LEVEL

802.11b LOW CHANNEL, BAND EDGE

802.11b HIGH CHANNEL, CARRIER LEVEL

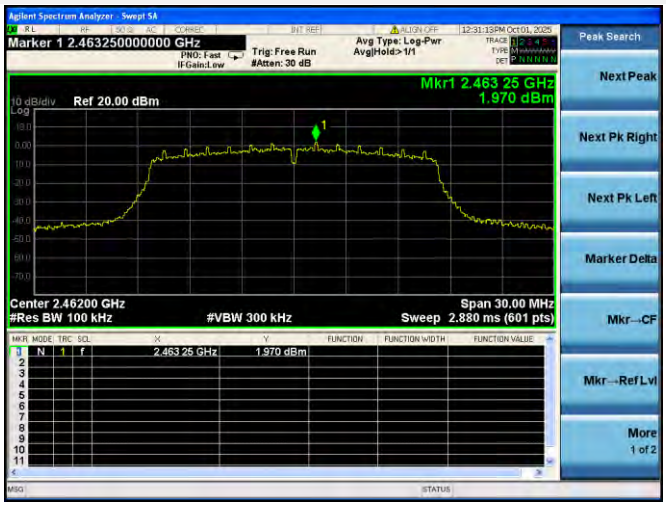
802.11b HIGH CHANNEL, BAND EDGE



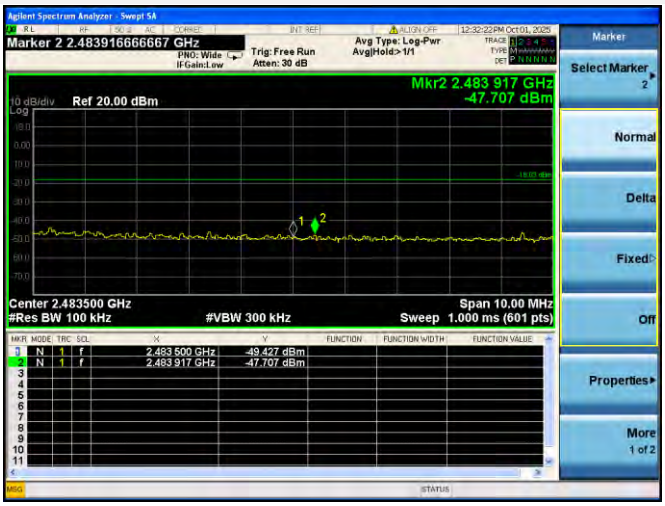
802.11g LOW CHANNEL, CARRIER LEVEL

802.11g LOW CHANNEL, BAND EDGE

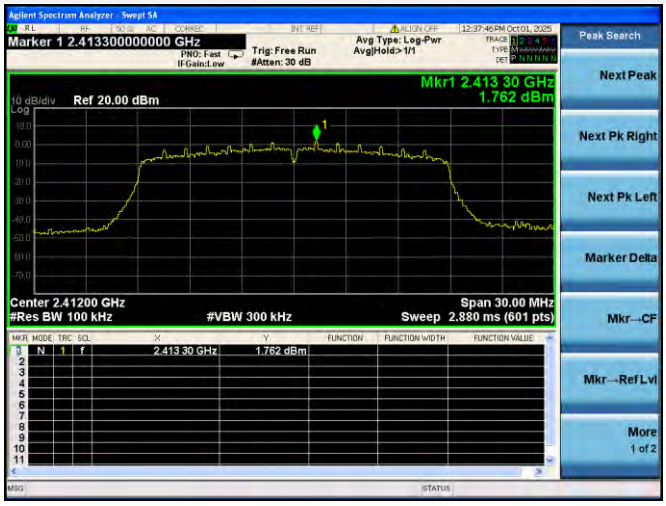
802.11g HIGH CHANNEL, CARRIER LEVEL



802.11g HIGH CHANNEL, BAND EDGE

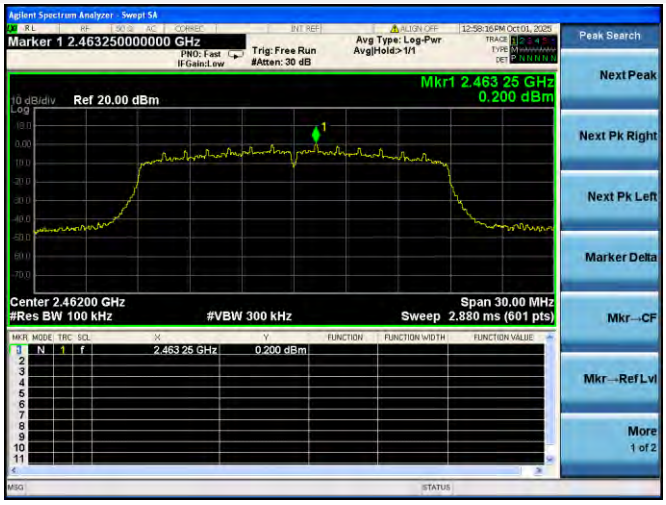


802.11n-20 MHz LOW CHANNEL, CARRIER LEVEL

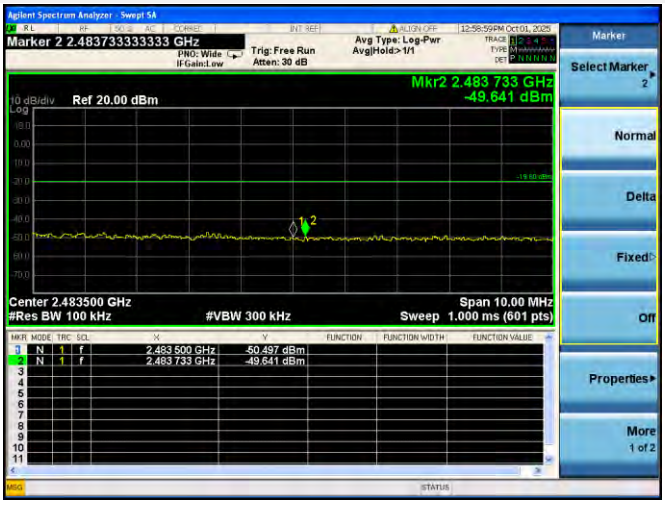


802.11n-20 MHz LOW CHANNEL, BAND EDGE

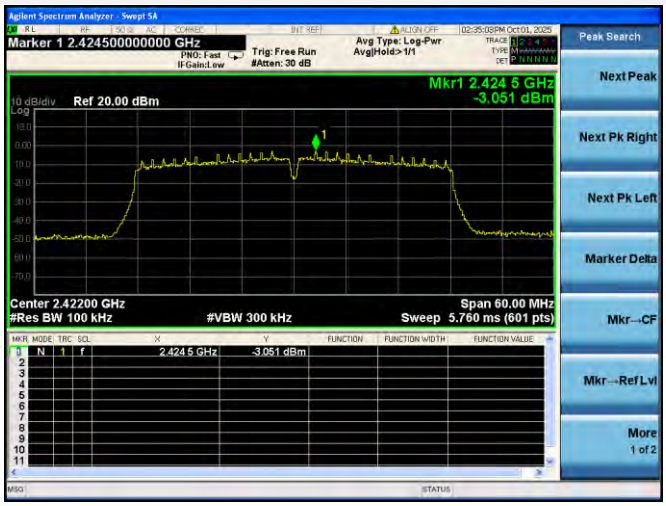
802.11n-20 MHz HIGH CHANNEL, CARRIER LEVEL



802.11n-20 MHz HIGH CHANNEL, BAND EDGE

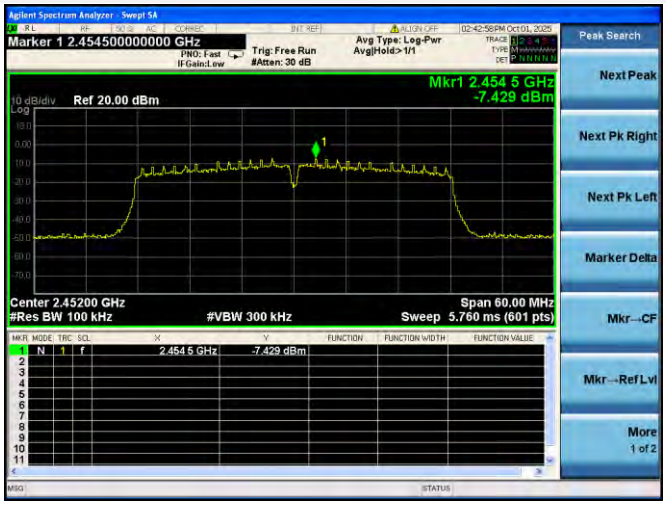


802.11n-40 MHz LOW CHANNEL, CARRIER LEVEL

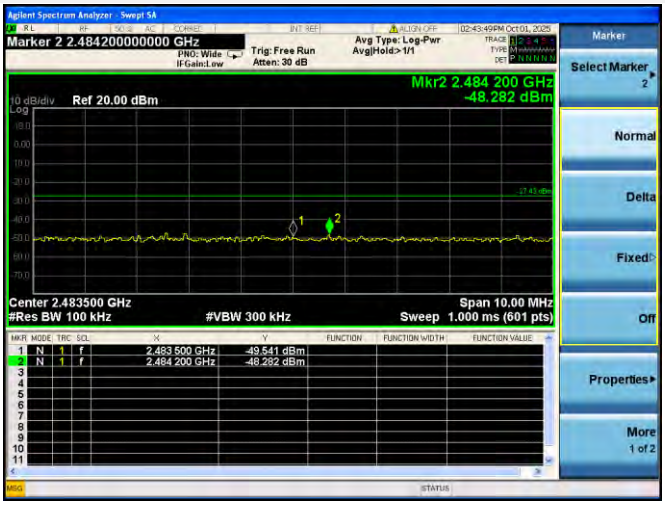


802.11n-40 MHz LOW CHANNEL, BAND EDGE

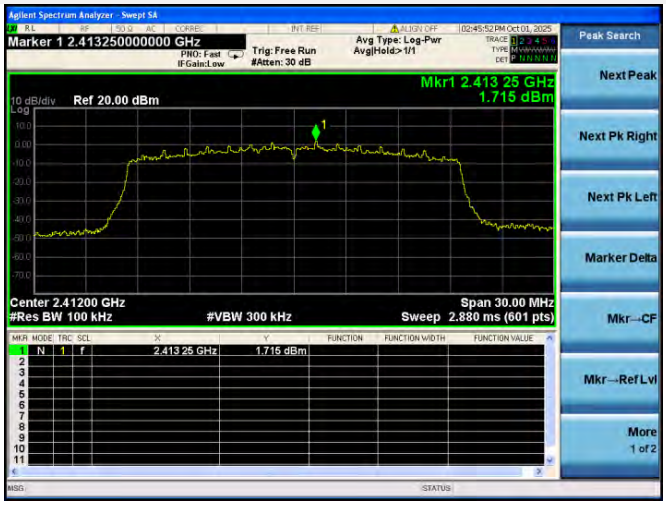
802.11n-40 MHz HIGH CHANNEL, CARRIER LEVEL



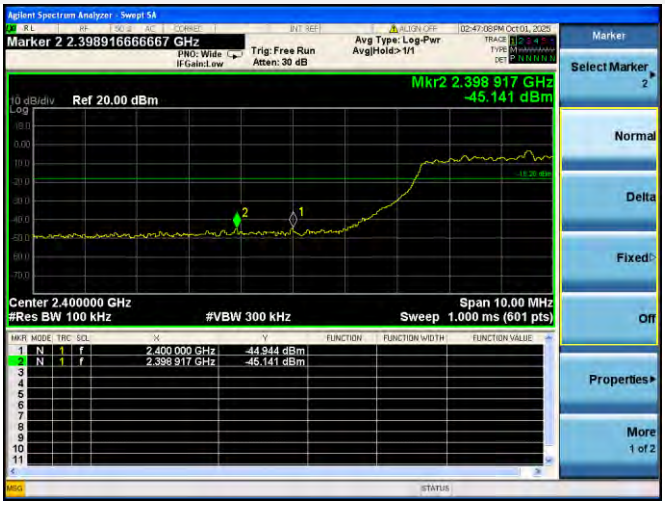
802.11n-40 MHz HIGH CHANNEL, BAND EDGE



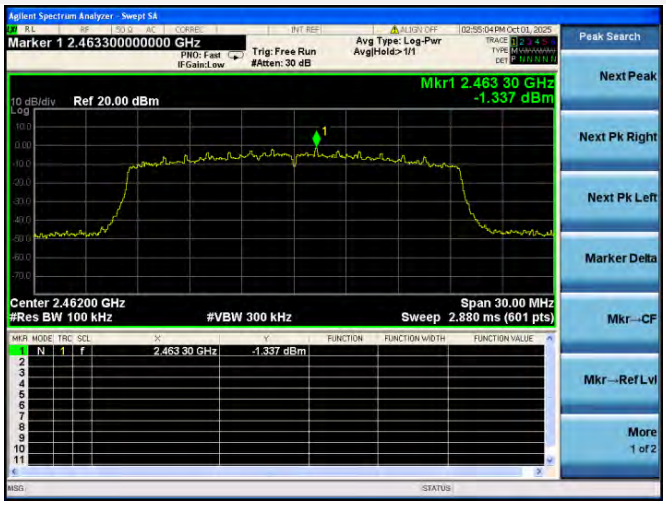
802.11ax-20 MHz(SU) LOW CHANNEL, CARRIER LEVEL



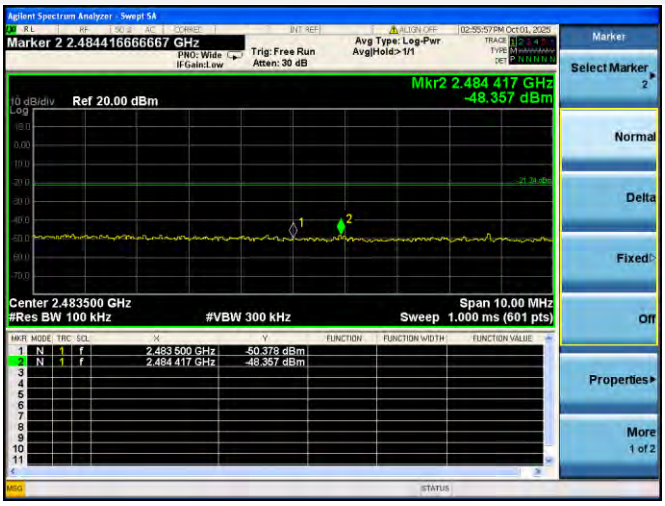
802.11ax-20 MHz(SU) LOW CHANNEL, BAND EDGE



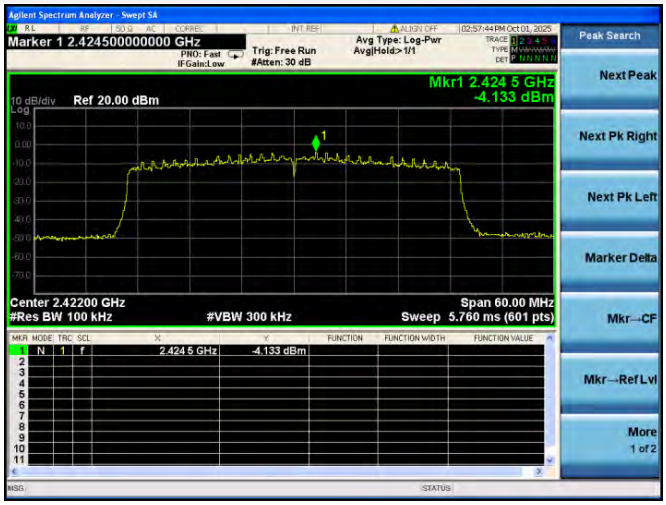
802.11ax-20 MHz(SU) HIGH CHANNEL, CARRIER LEVEL



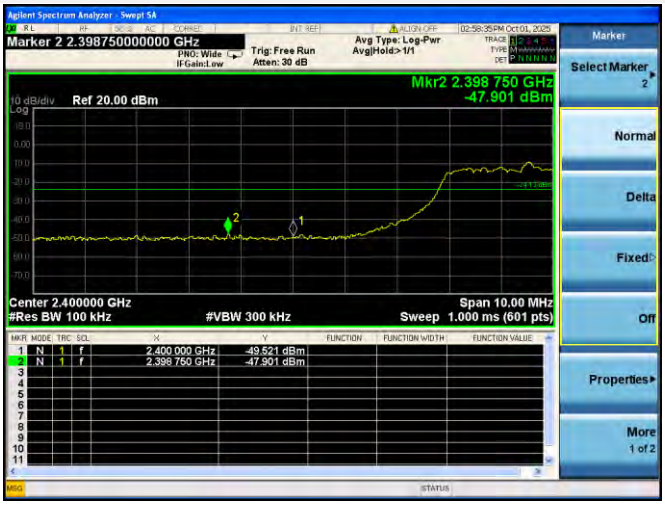
802.11ax-20 MHz(SU) HIGH CHANNEL, BAND EDGE



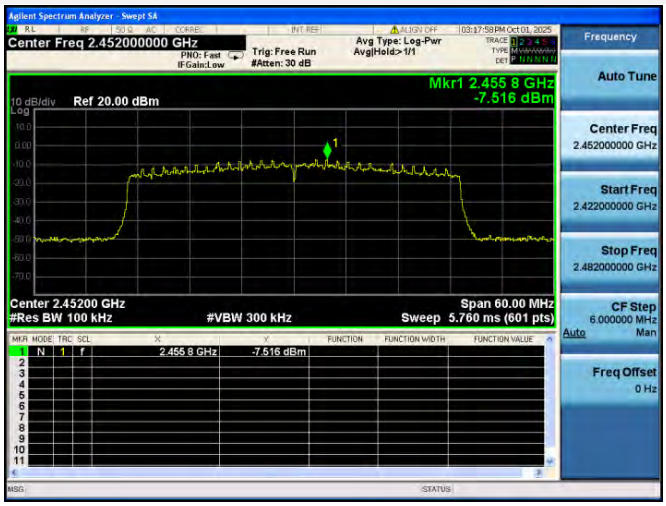
802.11ax-40 MHz(SU) LOW CHANNEL, CARRIER LEVEL



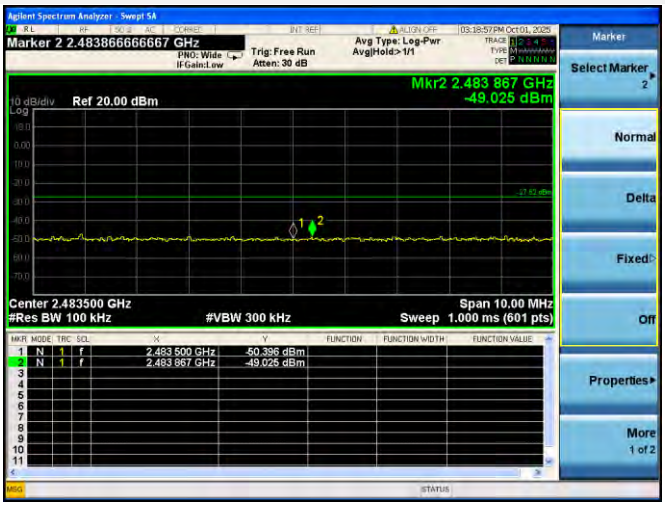
802.11ax-40 MHz(SU) LOW CHANNEL, BAND EDGE



802.11ax-40 MHz(SU) HIGH CHANNEL, CARRIER LEVEL



802.11ax-40 MHz(SU) HIGH CHANNEL, BAND EDGE



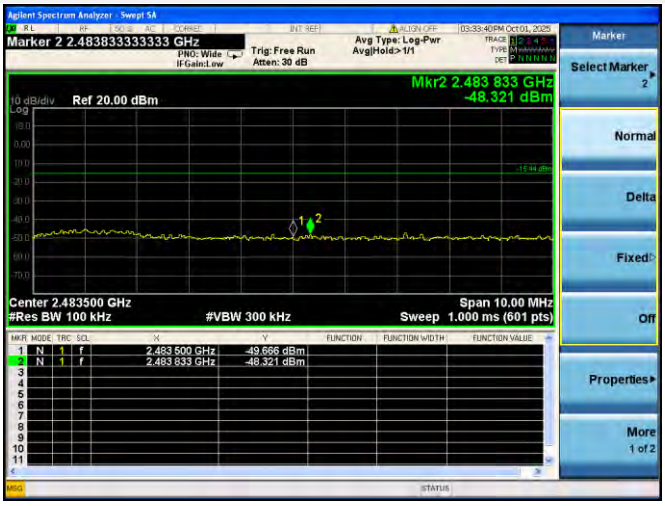
SISO-Antenna 1

802.11b LOW CHANNEL, CARRIER LEVEL

802.11b LOW CHANNEL, BAND EDGE

802.11b HIGH CHANNEL, CARRIER LEVEL

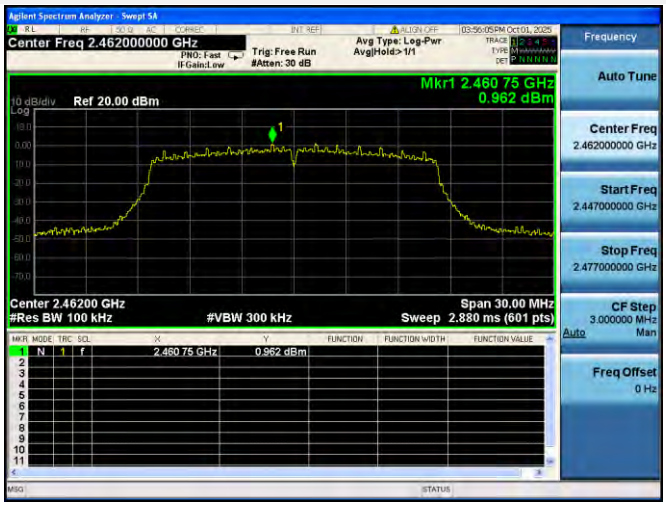
802.11b HIGH CHANNEL, BAND EDGE



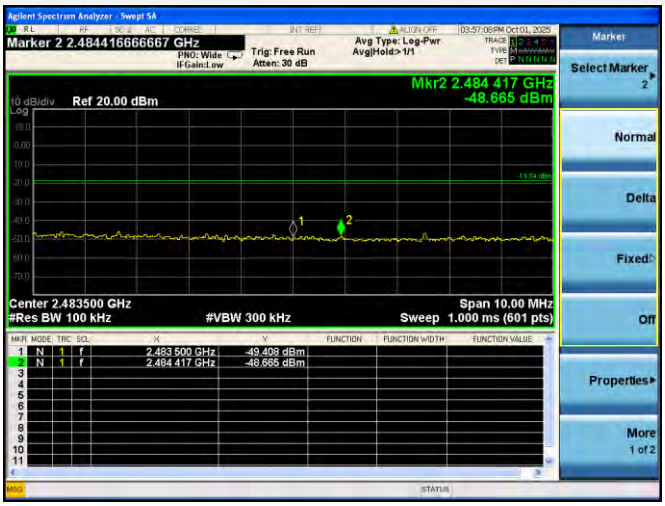
802.11g LOW CHANNEL, CARRIER LEVEL

802.11g LOW CHANNEL, BAND EDGE

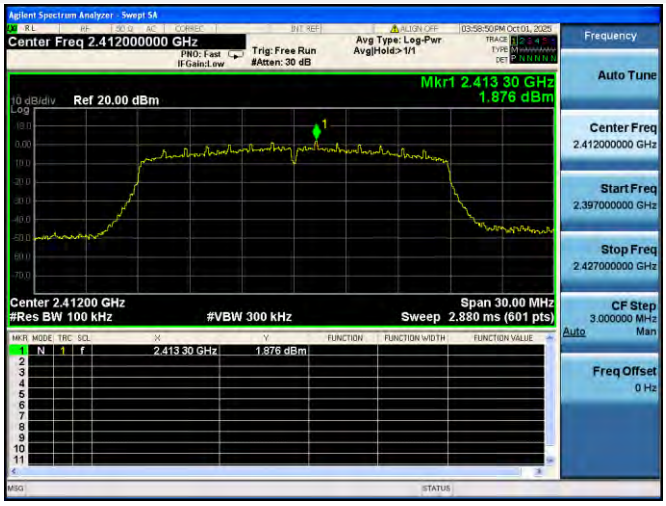
802.11g HIGH CHANNEL, CARRIER LEVEL



802.11g HIGH CHANNEL, BAND EDGE



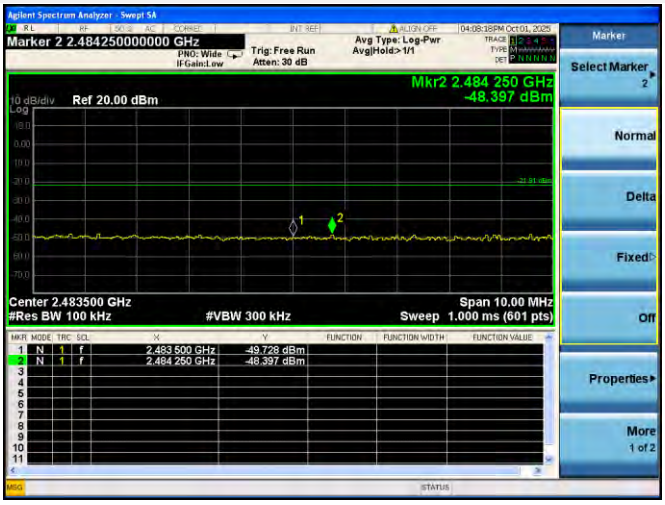
802.11n-20 MHz LOW CHANNEL, CARRIER LEVEL



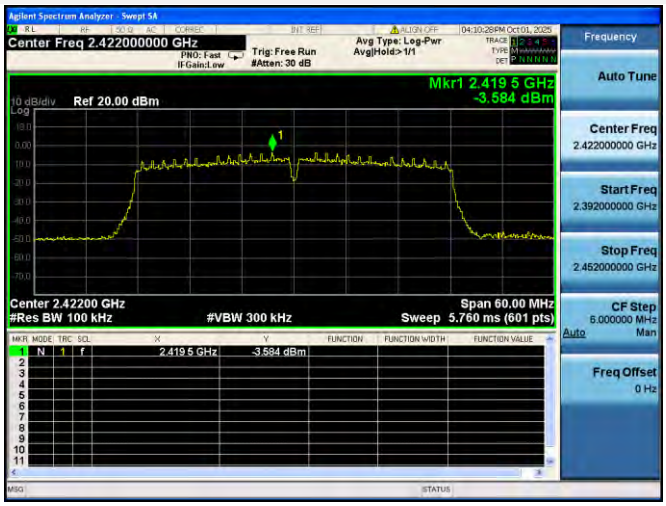
802.11n-20 MHz LOW CHANNEL, BAND EDGE

802.11n-20 MHz HIGH CHANNEL, CARRIER LEVEL

802.11n-20 MHz HIGH CHANNEL, BAND EDGE

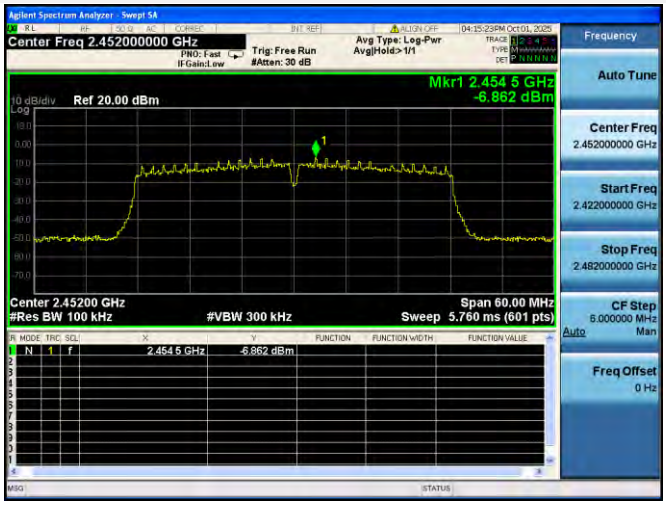


802.11n-40 MHz LOW CHANNEL, CARRIER LEVEL

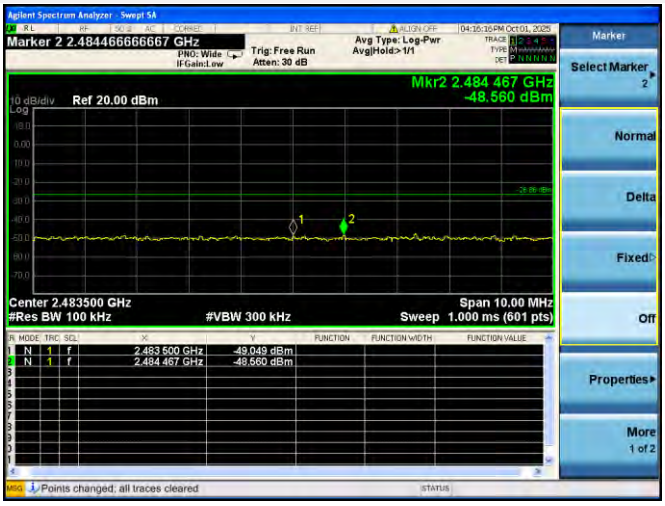


802.11n-40 MHz LOW CHANNEL, BAND EDGE

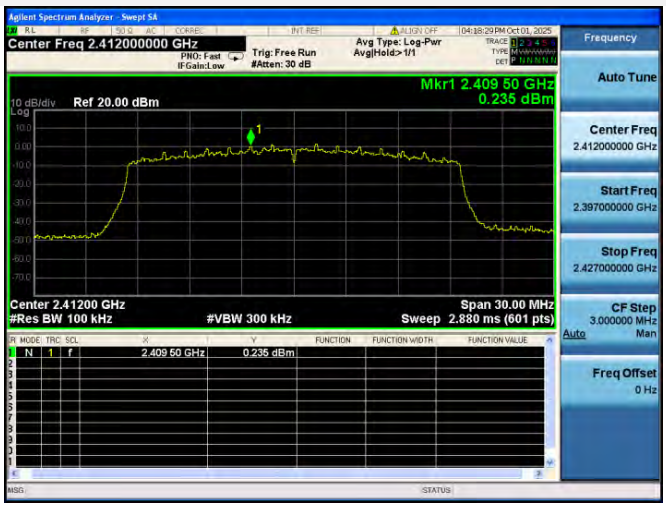
802.11n-40 MHz HIGH CHANNEL, CARRIER LEVEL



802.11n-40 MHz HIGH CHANNEL, BAND EDGE

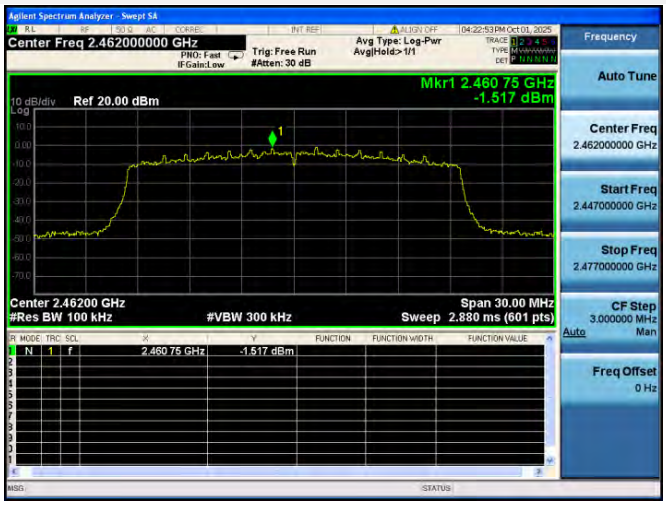


802.11ax-20 MHz(SU) LOW CHANNEL, CARRIER LEVEL

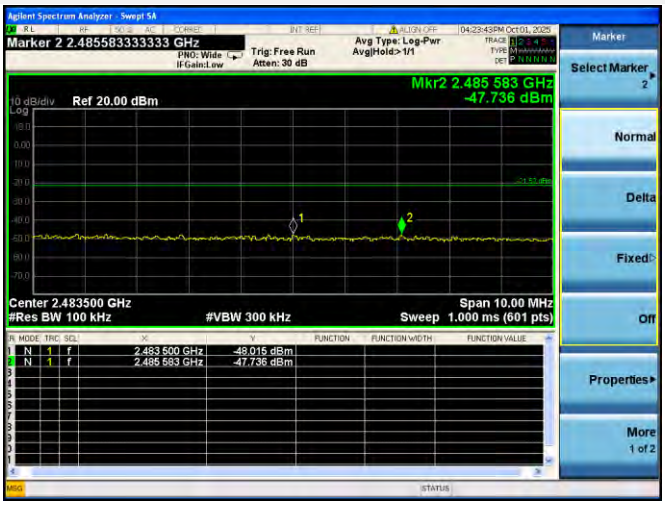


802.11ax-20 MHz(SU) LOW CHANNEL, BAND EDGE

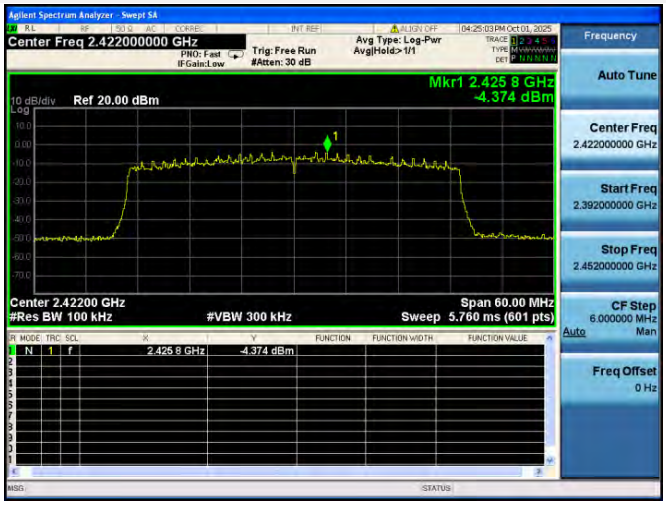
802.11ax-20 MHz(SU) HIGH CHANNEL, CARRIER LEVEL



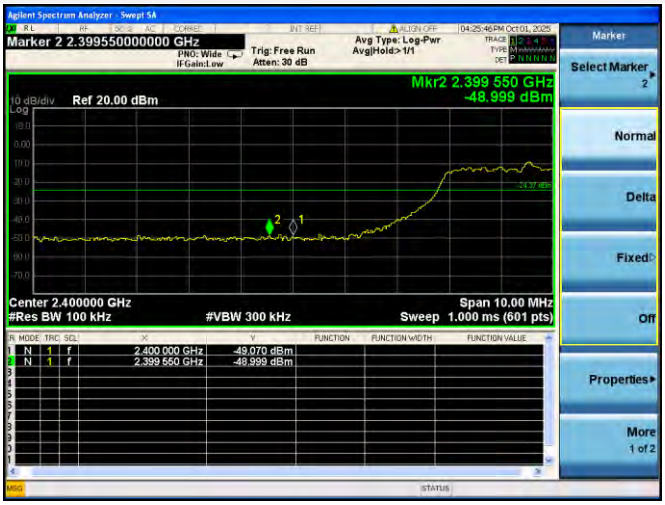
802.11ax-20 MHz(SU) HIGH CHANNEL, BAND EDGE



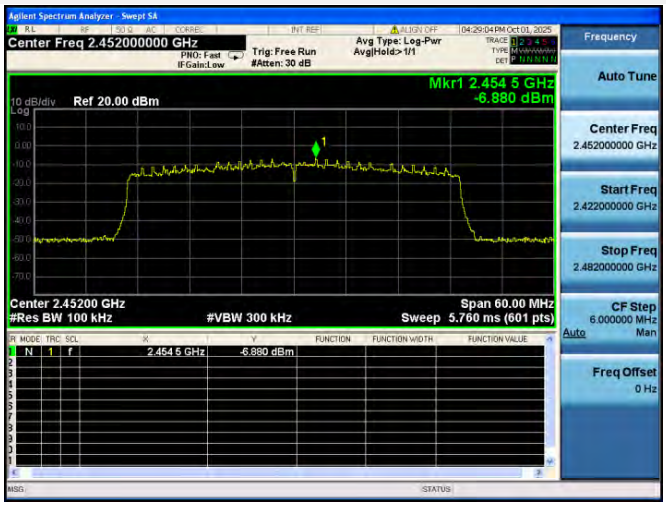
802.11ax-40 MHz(SU) LOW CHANNEL, CARRIER LEVEL



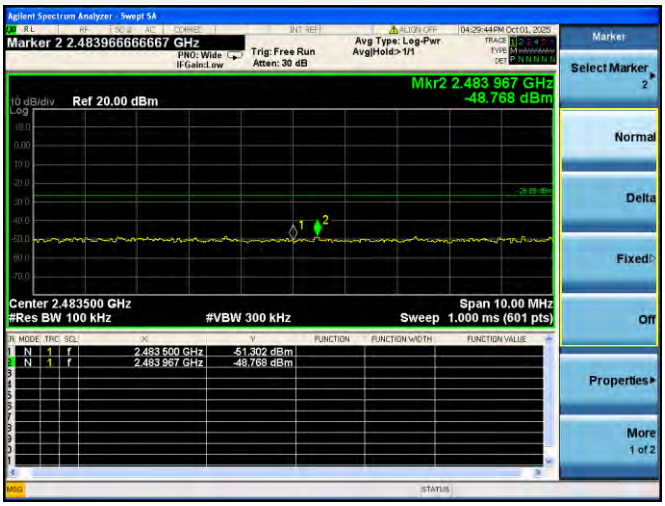
802.11ax-40 MHz(SU) LOW CHANNEL, BAND EDGE



802.11ax-40 MHz(SU) HIGH CHANNEL, CARRIER LEVEL



802.11ax-40 MHz(SU) HIGH CHANNEL, BAND EDGE



5.6 Conducted Emission

5.6.1 Limit

FCC §15.207

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50μH/50Ω line impedance stabilization network (LISN).

Frequency range (MHz)	Conducted Limit (dBμV)	
	Quai-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
0.50 - 30	60	50

5.6.2 Test Setup

See section 4.5.2 for test setup description for the AC power supply port. The photo of test setup please refer to ANNEX A.

5.6.3 Test Procedure

The maximum conducted interference is searched using Peak (PK), if the emission levels more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines of the power mains connected to the EUT are performed. Refer to recorded points and plots below.
Devices subject to Part 15 must be tested for all available U.S. voltages and frequencies (such as a nominal 120 VAC, 50/60 Hz and 240 VAC, 50/60 Hz) for which the device is capable of operation. A device rated for 50/60 Hz operation need not be tested at both frequencies provided the radiated and line conducted emissions are the same at both frequencies.

5.6.4 Test Result

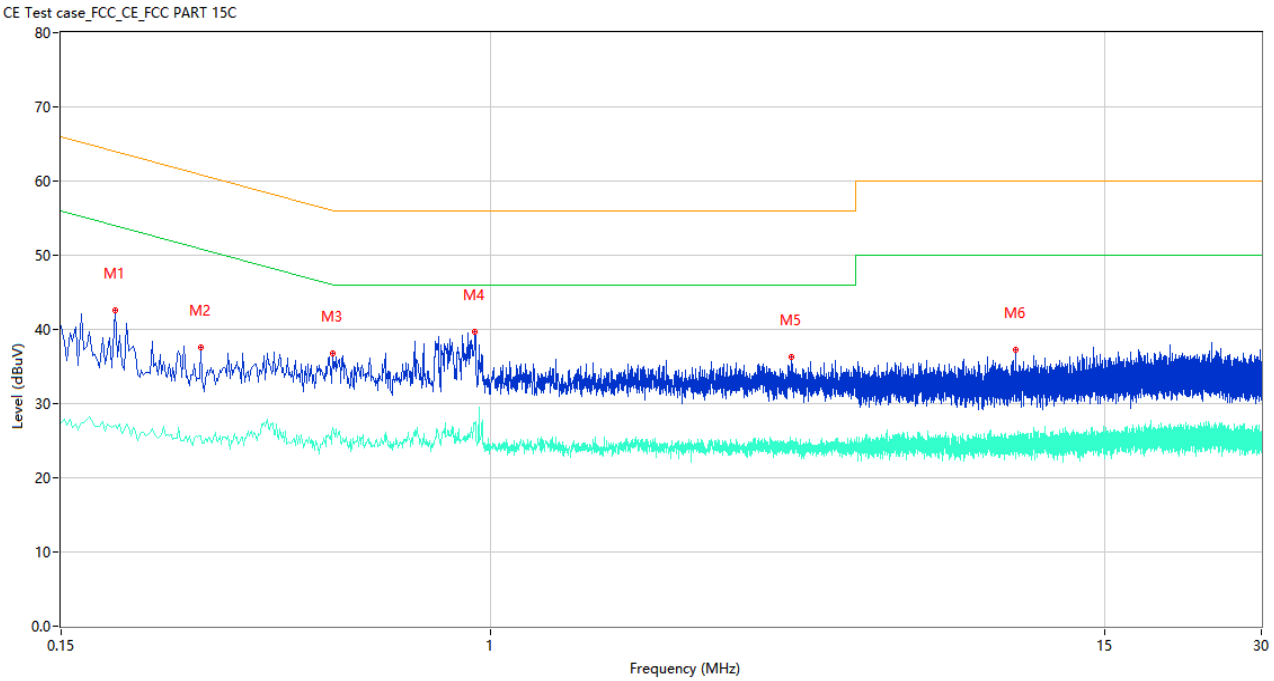
Note [1]: The EUT was tested in Link mode and the charging.

Note [2]: Devices subject to Part 15 must be tested for all available U.S. voltages and frequencies (such as a nominal 120 VAC, 60 Hz and 240 VAC, 50 Hz) for which the device is capable of operation. So, The configuration 120 VAC, 60 Hz and 240 VAC, 50 Hz were tested respectively, but only the worst configuration (120 VAC, 60 Hz) shown here.

Note [3]: Results (dBuV) = Original reading level of Spectrum Analyzer (dBuV) + Factor (dB)

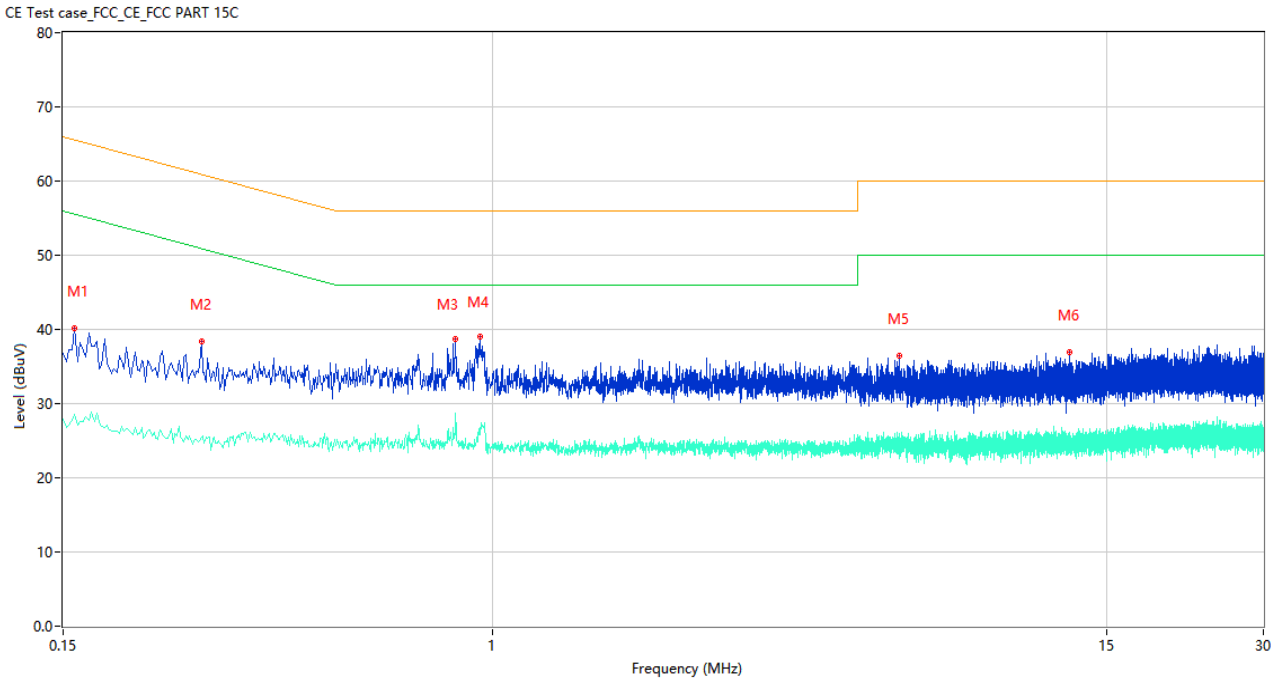
Test Data and Plots

PHASE L



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.190	42.52	9.84	64.04	21.52	Peak	L	Pass
1**	0.190	27.04	9.84	54.04	27.00	AV	L	Pass
2	0.278	37.58	9.83	60.88	23.30	Peak	L	Pass
2**	0.278	25.57	9.83	50.88	25.31	AV	L	Pass
3	0.498	36.71	10.04	56.03	19.32	Peak	L	Pass
3**	0.498	26.84	10.04	46.03	19.19	AV	L	Pass
4	0.932	39.63	10.17	56.00	16.37	Peak	L	Pass
4**	0.932	27.22	10.17	46.00	18.78	AV	L	Pass
5	3.766	36.25	10.46	56.00	19.75	Peak	L	Pass
5**	3.766	24.96	10.46	46.00	21.04	AV	L	Pass
6	10.156	37.21	10.37	60.00	22.79	Peak	L	Pass
6**	10.156	25.63	10.37	50.00	24.37	AV	L	Pass

PHASE N



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.158	40.15	9.86	65.57	25.42	Peak	N	Pass
1**	0.158	28.51	9.86	55.57	27.06	AV	N	Pass
2	0.276	38.40	9.83	60.94	22.54	Peak	N	Pass
2**	0.276	25.40	9.83	50.94	25.54	AV	N	Pass
3	0.848	38.76	10.69	56.00	17.24	Peak	N	Pass
3**	0.848	28.70	10.69	46.00	17.30	AV	N	Pass
4	0.944	39.05	10.14	56.00	16.95	Peak	N	Pass
4**	0.944	25.74	10.14	46.00	20.26	AV	N	Pass
5	6.002	36.40	10.35	60.00	23.60	Peak	N	Pass
5**	6.002	25.99	10.35	50.00	24.01	AV	N	Pass
6	12.732	36.97	10.73	60.00	23.03	Peak	N	Pass
6**	12.732	25.17	10.73	50.00	24.83	AV	N	Pass

5.7 Radiated Spurious Emission

5.7.1 Limit

FCC §15.209&15.247(d)

Radiated emission outside the frequency band attenuation below the general limits specified in FCC section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in FCC section 15.205(a), must also comply with the radiated emission limits specified in FCC section 15.209(a).

According to FCC section 15.209 (a), except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (μV/m)	Measurement Distance (m)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

Note:

1. For Above 1000 MHz, the emission limit in this paragraph is based on measurement instrumentation employing an average detector, measurement using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit.
2. For above 1000 MHz, limit field strength of harmonics: 54dBuV/m@3m (AV) and 74dBuV/m@3m (PK).

5.7.2 Test Setup

See section 4.5.3 to 4.5.5 for test setup description for the antenna port. The photo of test setup please refer to ANNEX A.

5.7.3 Test Procedure

Since the emission limits are specified in terms of radiated field strength levels, measurements performed to demonstrate compliance have traditionally relied on a radiated test configuration. Radiated measurements remain the principal method for demonstrating compliance to the specified limits; however antenna-port conducted measurements are also now acceptable to demonstrate compliance (see below for details). When radiated measurements are utilized, test site requirements and procedures for maximizing and measuring radiated emissions that are described in ANSI C63.10 shall be followed.

Antenna-port conducted measurements may also be used as an alternative to radiated measurements for demonstrating compliance in the restricted frequency bands. If conducted measurements are performed, then proper impedance matching must be ensured and an additional radiated test for cabinet/case spurious emissions is required.

General Procedure for conducted measurements in restricted bands

a) Measure the conducted output power (in dBm) using the detector specified (see guidance regarding measurement procedures for determining quasi-peak, peak, and average conducted output power, respectively).

b) Add the maximum transmit antenna gain (in dBi) to the measured output power level to determine the EIRP level (see guidance on determining the applicable antenna gain)

c) Add the appropriate maximum ground reflection factor to the EIRP level (6 dB for frequencies ≤ 30 MHz, 4.7 dB for frequencies between 30 MHz and 1000 MHz, inclusive and 0 dB for frequencies > 1000 MHz).

d) For devices with multiple antenna-ports, measure the power of each individual chain and sum the EIRP of all chains in linear terms (e.g., Watts, mW).

e) Convert the resultant EIRP level to an equivalent electric field strength using the following relationship:

$E = EIRP – 20\log D + 104.8$

where:

E = electric field strength in dBμV/m,

EIRP = equivalent isotropic radiated power in dBm

D = specified measurement distance in meters.

f) Compare the resultant electric field strength level to the applicable limit.

g) Perform radiated spurious emission test.

Quasi-Peak measurement procedure

The specifications for measurements using the CISPR quasi-peak detector can be found in Publication 16 of the International Special Committee on Radio Frequency Interference (CISPR) of the International Electrotechnical Commission.

As an alternative to CISPR quasi-peak measurement, compliance can be demonstrated to the applicable emission limits using a peak detector.

Peak power measurement procedure

Peak emission levels are measured by setting the instrument as follows:

a) RBW = as specified in Table 1.

b) VBW ≥ 3 x RBW.

c) Detector = Peak.

d) Sweep time = auto.

e) Trace mode = max hold.

f) Allow sweeps to continue until the trace stabilizes. (Note that the required measurement time may be

longer for low duty cycle applications).

Table 1—RBW as a function of frequency

Frequency	RBW
9-150 kHz	200-300 Hz
0.15-30 MHz	9-10 kHz
30-1000 MHz	100-120 kHz
> 1000 MHz	1 MHz

If the peak-detected amplitude can be shown to comply with the average limit, then it is not necessary to perform a separate average measurement.

Trace averaging across on and off times of the EUT transmissions followed by duty cycle correction

If continuous transmission of the EUT (i.e., duty cycle ≥ 98 percent) cannot be achieved and the duty cycle is constant (i.e., duty cycle variations are less than ± 2 percent), then the following procedure shall be used:

a) The EUT shall be configured to operate at the maximum achievable duty cycle.

b) Measure the duty cycle, x, of the transmitter output signal as described in section 6.0.

c) RBW = 1 MHz (unless otherwise specified).

d) VBW ≥ 3 x RBW.

e) Detector = RMS, if span/(# of points in sweep) ≤ (RBW/2). Satisfying this condition may require increasing the number of points in the sweep or reducing the span. If this condition cannot be satisfied, then the detector mode shall be set to peak.

f) Averaging type = power (i.e., RMS).

1) As an alternative, the detector and averaging type may be set for linear voltage averaging.

2) Some instruments require linear display mode in order to use linear voltage averaging. Log or dB averaging shall not be used.

g) Sweep time = auto.

h) Perform a trace average of at least 100 traces.

i) A correction factor shall be added to the measurement results prior to comparing to the emission limit in order to compute the emission level that would have been measured had the test been performed at 100 percent duty cycle. The correction factor is computed as follows:

1) If power averaging (RMS) mode was used in step f), then the applicable correction factor is 10 log(1/x), where x is the duty cycle.

2) If linear voltage averaging mode was used in step f), then the applicable correction factor is 20 log(1/x), where x is the duty cycle.

3) If a specific emission is demonstrated to be continuous (≥ 98 percent duty cycle) rather than turning on and off with the transmit cycle, then no duty cycle correction is required for that emission.

NOTE: Reduction of the measured emission amplitude levels to account for operational duty factor is not permitted. Compliance is based on emission levels occurring during transmission - not on an average across on and off times of the transmitter.

Determining the applicable transmit antenna gain

A conducted power measurement will determine the maximum output power associated with a restricted band emission; however, in order to determine the associated EIRP level, the gain of the transmitting antenna (in dBi) must be added to the measured output power (in dBm).

Since the out-of-band characteristics of the EUT transmit antenna will often be unknown, the use of a conservative antenna gain value is necessary. Thus, when determining the EIRP based on the measured conducted power, the upper bound on antenna gain for a device with a single RF output shall be selected as the maximum in-band gain of the antenna across all operating bands, or 2 dBi, whichever is greater. However, for devices that operate in multiple frequency bands while using the same transmit antenna, the highest gain of the antenna within the operating band nearest in frequency to the restricted band emission being measured may be used in lieu of the overall highest gain when the emission is at a frequency that is within 20 percent of the nearest band edge frequency, but in no case shall a value less than 2 dBi be used.

See KDB 662911 for guidance on calculating the additional array gain term when determining the effective antenna gain for a EUT with multiple outputs occupying the same or overlapping frequency ranges in the same band.

Radiated spurious emission test

An additional consideration when performing conducted measurements of restricted band emissions is that unwanted emissions radiating from the EUT cabinet, control circuits, power leads, or intermediate circuit elements will likely go undetected in a conducted measurement configuration. To address this concern, a radiated test shall be performed to ensure that emissions emanating from the EUT cabinet (rather than the antenna port) also comply with the applicable limits.

For these cabinet radiated spurious emission measurements the EUT transmit antenna may be replaced with a termination matching the nominal impedance of the antenna. Procedures for performing radiated measurements are specified in ANSI C63.10. All detected emissions shall comply with the applicable limits.

The measurement frequency range is from 30 MHz to the 10th harmonic of the fundamental frequency. The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. Mid channels on all channel bandwidth verified. Only the worst RB size/offset presented.

The power of the EUT transmitting frequency should be ignored.

All Spurious Emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

Use the following spectrum analyzer settings:

Span = wide enough to fully capture the emission being measured
RBW = 1 MHz for f ≥ 1 GHz, 100 kHz for f < 1 GHz
VBW ≥ RBW
Sweep = auto
Detector function = peak
Trace = max hold

5.7.4 Test Result

Note 1: The symbol of "--" in the table which means not application.

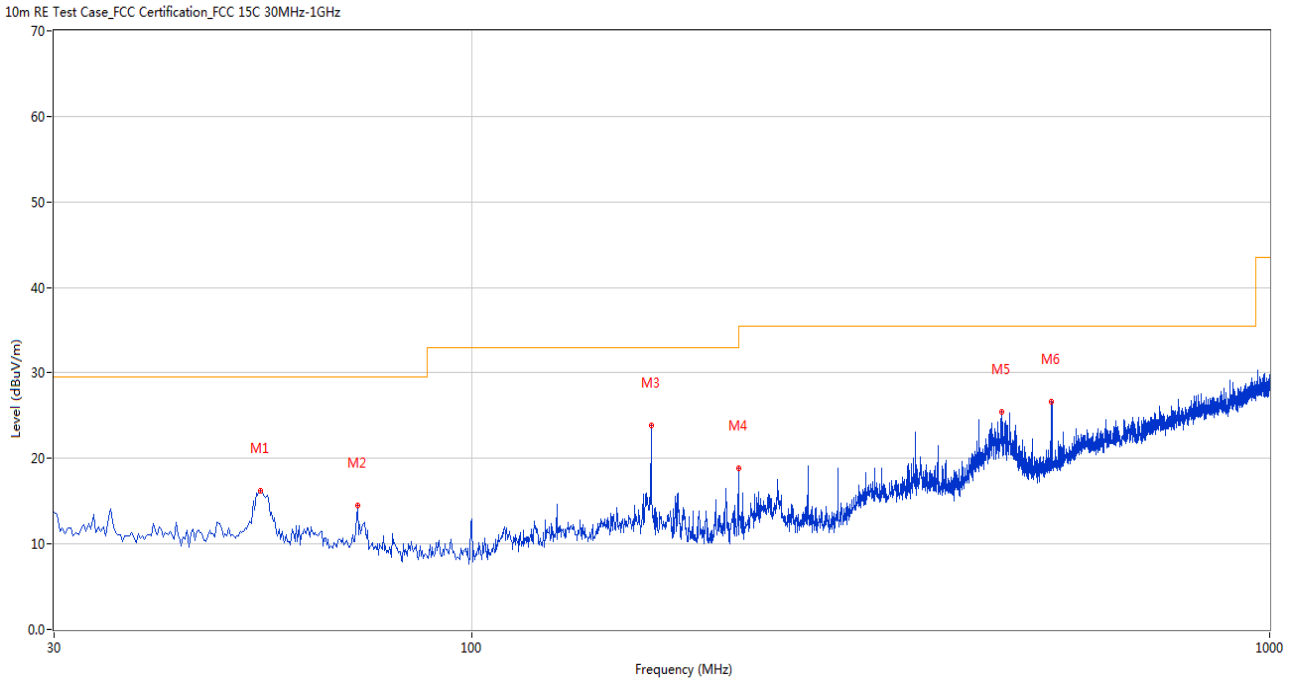
Note 2: For the test data above 1 GHz，According the ANSI C63.10-2020, where limits are specified for both average and peak (or quasi-peak) detector functions, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement.

Note 3: The low frequency, which started from 9 kHz to 30 MHz, was pre-scanned and the result which was 20 dB lower than the limit line per 15.31(o) was not reported.

Note 4: The EUT was tested in Link mode and the charging.

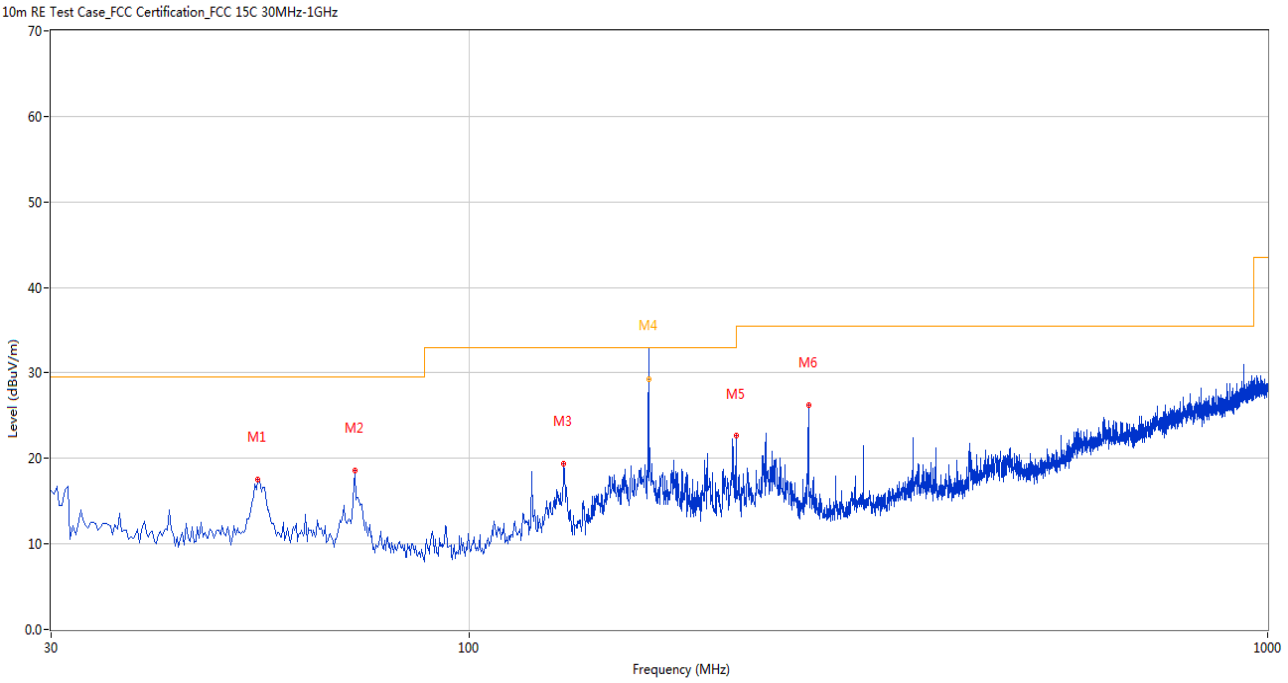
Test Data and Plots

30 MHz to 1 GHz, ANT H



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	54.486	16.20	-27.12	29.5	13.30	Peak	215.00	200	Horizontal	Pass
2	71.942	14.56	-29.24	29.5	14.94	Peak	193.00	100	Horizontal	Pass
3	167.948	23.89	-26.68	33.0	9.11	Peak	161.00	200	Horizontal	Pass
4	215.951	18.80	-29.25	33.0	14.20	Peak	64.00	200	Horizontal	Pass
5	462.269	25.42	-20.97	35.5	10.08	Peak	118.00	200	Horizontal	Pass
6	533.304	26.65	-19.13	35.5	8.85	Peak	101.00	100	Horizontal	Pass

30 MHz to 1 GHz, ANT V



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	54.486	17.59	-27.12	29.5	11.91	Peak	354.00	200	Vertical	Pass
2	71.942	18.54	-29.24	29.5	10.96	Peak	47.00	100	Vertical	Pass
3	131.582	19.35	-27.28	33.0	13.65	Peak	283.00	200	Vertical	Pass
4	167.998	29.85	-26.68	33.0	3.15	Peak	101.00	122	Vertical	N/A
4*	167.998	29.31	-26.68	33.0	3.69	QP	101.00	122	Vertical	Pass
5	215.951	22.61	-29.25	33.0	10.39	Peak	47.00	100	Vertical	Pass
6	266.378	26.19	-26.84	35.5	9.31	Peak	360.00	200	Vertical	Pass

Note 1: The marked spikes near 2400 MHz with circle should be ignored because they are Fundamental signal.

Note 2: The spurious above 18G is noise only, do not show on the report.

Note 3: All antenna were pre tested, but only the worst case has been reported in this report.

Note 4: All the configurations were pre tested, only the worst configuration has been reported in this report.

Test Data

MIMO

1 GHz to 18 GHz, ANT H 802.11b Low Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1512.500	41.99	74.0	32.01	Peak	249.00	400	Horizontal	Pass
1**	1512.500	33.71	54.0	20.29	AV	249.00	400	Horizontal	Pass
2	2413.800	108.14	74.0	-34.14	Peak	125.00	100	Horizontal	N/A
2**	2413.800	105.24	54.0	-51.24	AV	125.00	100	Horizontal	N/A
3	4817.750	49.42	74.0	24.58	Peak	351.00	200	Horizontal	Pass
3**	4817.750	40.77	54.0	13.23	AV	351.00	200	Horizontal	Pass
4	7718.750	52.13	74.0	21.87	Peak	330.00	100	Horizontal	Pass
4**	7718.750	48.08	54.0	5.92	AV	330.00	100	Horizontal	Pass
5	12474.974	53.94	74.0	20.06	Peak	196.00	300	Horizontal	Pass
5**	12474.974	44.29	54.0	9.71	AV	196.00	300	Horizontal	Pass
6	17403.339	55.77	74.0	18.23	Peak	12.00	300	Horizontal	Pass
6**	17403.339	45.80	54.0	8.20	AV	12.00	300	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11b Low Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1000.400	45.10	74.0	28.90	Peak	91.00	200	Vertical	Pass
1**	1000.400	35.89	54.0	18.11	AV	91.00	200	Vertical	Pass
2	2410.600	103.36		-29.36	Peak	238.00	150	Vertical	N/A
2**	2410.600	100.42	54.0	-46.42	AV	238.00	150	Vertical	N/A
3	4914.500	49.20	74.0	24.80	Peak	268.00	100	Vertical	Pass
3**	4914.500	40.62	54.0	13.38	AV	268.00	100	Vertical	Pass
4	7718.750	52.69	74.0	21.31	Peak	72.00	100	Vertical	Pass
4**	7718.750	47.79	54.0	6.21	AV	72.00	100	Vertical	Pass
5	12461.674	54.10	74.0	19.90	Peak	90.00	400	Vertical	Pass
5**	12461.674	43.85	54.0	10.15	AV	90.00	400	Vertical	Pass
6	14476.463	55.96	74.0	18.04	Peak	101.00	200	Vertical	Pass
6**	14476.463	46.29	54.0	7.71	AV	101.00	200	Vertical	Pass

1 GHz to 18 GHz, ANT H 802.11b Middle Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1565.200	42.32	74.0	31.68	Peak	211.00	300	Horizontal	Pass
1**	1565.200	32.73	54.0	21.27	AV	211.00	300	Horizontal	Pass
2	2435.500	108.64	74.0	-34.64	Peak	131.00	100	Horizontal	N/A
2**	2435.500	105.86	54.0	-51.86	AV	131.00	100	Horizontal	N/A
3	4969.000	49.32	74.0	24.68	Peak	308.00	200	Horizontal	Pass
3**	4969.000	40.24	54.0	13.76	AV	308.00	200	Horizontal	Pass
4	6894.000	54.69	74.0	19.31	Peak	308.00	300	Horizontal	Pass
4**	6894.000	44.47	54.0	9.53	AV	308.00	300	Horizontal	Pass
5	12516.300	53.49	74.0	20.51	Peak	212.00	100	Horizontal	Pass
5**	12516.300	45.58	54.0	8.42	AV	212.00	100	Horizontal	Pass
6	17025.864	55.21	74.0	18.79	Peak	169.00	300	Horizontal	Pass
6**	17025.864	45.97	54.0	8.03	AV	169.00	300	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11b Middle Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1331.300	44.60	74.0	29.40	Peak	149.00	100	Vertical	Pass
1**	1331.300	33.32	54.0	20.68	AV	149.00	100	Vertical	Pass
2	2435.700	102.03	74.0	-28.03	Peak	42.00	100	Vertical	N/A
2**	2435.700	99.12	54.0	-45.12	AV	42.00	100	Vertical	N/A
3	4909.750	49.15	74.0	24.85	Peak	210.00	200	Vertical	Pass
3**	4909.750	39.91	54.0	14.09	AV	210.00	200	Vertical	Pass
4	7159.500	53.56	74.0	20.44	Peak	230.00	200	Vertical	Pass
4**	7159.500	43.58	54.0	10.42	AV	230.00	200	Vertical	Pass
5	12500.388	52.95	74.0	21.05	Peak	97.00	400	Vertical	Pass
5**	12500.388	44.48	54.0	9.52	AV	97.00	400	Vertical	Pass
6	17419.874	55.53	74.0	18.47	Peak	266.00	200	Vertical	Pass
6**	17419.874	45.15	54.0	8.85	AV	266.00	200	Vertical	Pass

1 GHz to 18 GHz, ANT H 802.11b High Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1527.200	42.51	74.0	31.49	Peak	214.00	200	Horizontal	Pass
1**	1527.200	32.99	54.0	21.01	AV	214.00	200	Horizontal	Pass
2	2463.600	105.67	74.0	-31.67	Peak	161.00	100	Horizontal	N/A
2**	2463.600	102.71	54.0	-48.71	AV	161.00	100	Horizontal	N/A
3	4915.750	49.33	74.0	24.67	Peak	0.00	150	Horizontal	Pass
3**	4915.750	40.47	54.0	13.53	AV	0.00	150	Horizontal	Pass
4	7934.750	54.04	74.0	19.96	Peak	224.00	400	Horizontal	Pass
4**	7934.750	45.43	54.0	8.57	AV	224.00	400	Horizontal	Pass
5	12500.625	53.07	74.0	20.93	Peak	17.00	300	Horizontal	Pass
5**	12500.625	43.89	54.0	10.11	AV	17.00	300	Horizontal	Pass
6	17464.762	55.78	74.0	18.22	Peak	4.00	400	Horizontal	Pass
6**	17464.762	45.60	54.0	8.40	AV	4.00	400	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11b High Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1330.300	44.67	74.0	29.33	Peak	134.00	100	Vertical	Pass
1**	1330.300	34.75	54.0	19.25	AV	134.00	100	Vertical	Pass
2	2460.300	102.02	74.0	-28.02	Peak	356.00	200	Vertical	N/A
2**	2460.300	99.13	54.0	-45.13	AV	356.00	200	Vertical	N/A
3	4931.500	49.52	74.0	24.48	Peak	263.00	150	Vertical	Pass
3**	4931.500	40.17	54.0	13.83	AV	263.00	150	Vertical	Pass
4	7878.500	53.20	74.0	20.80	Peak	8.00	100	Vertical	Pass
4**	7878.500	49.05	54.0	4.95	AV	8.00	100	Vertical	Pass
5	12483.763	53.60	74.0	20.40	Peak	234.00	400	Vertical	Pass
5**	12483.763	44.26	54.0	9.74	AV	234.00	400	Vertical	Pass
6	16987.275	56.34	74.0	17.66	Peak	0.00	100	Vertical	Pass
6**	16987.275	46.15	54.0	7.85	AV	0.00	100	Vertical	Pass

1 GHz to 18 GHz, ANT H 802.11g Low Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1457.800	43.10	74.0	30.90	Peak	328.00	100	Horizontal	Pass
1**	1457.800	32.94	54.0	21.06	AV	328.00	100	Horizontal	Pass
2	2412.700	111.32	74.0	-37.32	Peak	130.00	200	Horizontal	N/A
2**	2412.700	104.58	54.0	-50.58	AV	130.00	200	Horizontal	N/A
3	4928.000	49.33	74.0	24.67	Peak	215.00	100	Horizontal	Pass
3**	4928.000	39.69	54.0	14.31	AV	215.00	100	Horizontal	Pass
4	7718.500	51.68	74.0	22.32	Peak	96.00	100	Horizontal	Pass
4**	7718.500	48.10	54.0	5.90	AV	96.00	100	Horizontal	Pass
5	12979.951	53.76	74.0	20.24	Peak	334.00	100	Horizontal	Pass
5**	12979.951	44.88	54.0	9.12	AV	334.00	100	Horizontal	Pass
6	16850.250	55.47	74.0	18.53	Peak	43.00	300	Horizontal	Pass
6**	16850.250	45.82	54.0	8.18	AV	43.00	300	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11g Low Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1330.400	46.97	74.0	27.03	Peak	150.00	100	Vertical	Pass
1**	1330.400	36.35	54.0	17.65	AV	150.00	100	Vertical	Pass
2	2413.000	107.13	74.0	-33.13	Peak	45.00	150	Vertical	N/A
2**	2413.000	100.24	54.0	-46.24	AV	45.00	150	Vertical	N/A
3	4725.750	49.62	74.0	24.38	Peak	288.00	100	Vertical	Pass
3**	4725.750	39.31	54.0	14.69	AV	288.00	100	Vertical	Pass
4	7718.500	52.07	74.0	21.93	Peak	53.00	100	Vertical	Pass
4**	7718.500	48.62	54.0	5.38	AV	53.00	100	Vertical	Pass
5	12990.451	53.72	74.0	20.28	Peak	215.00	100	Vertical	Pass
5**	12990.451	44.90	54.0	9.10	AV	215.00	100	Vertical	Pass
6	17025.338	56.74	74.0	17.26	Peak	88.00	200	Vertical	Pass
6**	17025.338	46.13	54.0	7.87	AV	88.00	200	Vertical	Pass

1 GHz to 18 GHz, ANT H 802.11g Middle Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1552.700	42.04	74.0	31.96	Peak	53.00	300	Horizontal	Pass
1**	1552.700	32.44	54.0	21.56	AV	53.00	300	Horizontal	Pass
2	2435.200	112.54	74.0	-38.54	Peak	61.00	150	Horizontal	N/A
2**	2435.200	106.12	54.0	-52.12	AV	61.00	150	Horizontal	N/A
3	4827.250	49.31	74.0	24.69	Peak	348.00	200	Horizontal	Pass
3**	4827.250	40.08	54.0	13.92	AV	348.00	200	Horizontal	Pass
4	7931.500	53.38	74.0	20.62	Peak	54.00	300	Horizontal	Pass
4**	7931.500	44.99	54.0	9.01	AV	54.00	300	Horizontal	Pass
5	12967.349	53.35	74.0	20.65	Peak	205.00	100	Horizontal	Pass
5**	12967.349	43.66	54.0	10.34	AV	205.00	100	Horizontal	Pass
6	17016.937	55.89	74.0	18.11	Peak	12.00	200	Horizontal	Pass
6**	17016.937	45.93	54.0	8.07	AV	12.00	200	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11g Middle Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1000.000	45.48	74.0	28.52	Peak	96.00	300	Vertical	Pass
1**	1000.000	39.60	54.0	14.40	AV	96.00	300	Vertical	Pass
2	2437.800	108.47	74.0	-34.47	Peak	142.00	150	Vertical	N/A
2**	2437.800	101.57	54.0	-47.57	AV	142.00	150	Vertical	N/A
3	4745.500	49.87	74.0	24.13	Peak	173.00	200	Vertical	Pass
3**	4745.500	41.46	54.0	12.54	AV	173.00	200	Vertical	Pass
4	7798.750	51.51	74.0	22.49	Peak	76.00	100	Vertical	Pass
4**	7798.750	47.71	54.0	6.29	AV	76.00	100	Vertical	Pass
5	12512.500	53.76	74.0	20.24	Peak	239.00	300	Vertical	Pass
5**	12512.500	44.63	54.0	9.37	AV	239.00	300	Vertical	Pass
6	17018.776	55.36	74.0	18.64	Peak	132.00	400	Vertical	Pass
6**	17018.776	46.17	54.0	7.83	AV	132.00	400	Vertical	Pass

1 GHz to 18 GHz, ANT H 802.11g High Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1317.100	42.53	74.0	31.47	Peak	125.00	100	Horizontal	Pass
1**	1317.100	33.00	54.0	21.00	AV	125.00	100	Horizontal	Pass
2	2462.400	109.36	74.0	-35.36	Peak	125.00	100	Horizontal	N/A
2**	2462.400	103.62	54.0	-49.62	AV	125.00	100	Horizontal	N/A
3	4903.000	49.89	74.0	24.11	Peak	14.00	150	Horizontal	Pass
3**	4903.000	39.88	54.0	14.12	AV	14.00	150	Horizontal	Pass
4	7878.500	53.12	74.0	20.88	Peak	152.00	100	Horizontal	Pass
4**	7878.500	49.63	54.0	4.37	AV	152.00	100	Horizontal	Pass
5	12501.338	53.69	74.0	20.31	Peak	72.00	300	Horizontal	Pass
5**	12501.338	43.97	54.0	10.03	AV	72.00	300	Horizontal	Pass
6	17427.751	55.75	74.0	18.25	Peak	81.00	100	Horizontal	Pass
6**	17427.751	45.49	54.0	8.51	AV	81.00	100	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11g High Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1329.600	45.87	74.0	28.13	Peak	186.00	100	Vertical	Pass
1**	1329.600	37.97	54.0	16.03	AV	186.00	100	Vertical	Pass
2	2460.200	103.53	74.0	-29.53	Peak	45.00	200	Vertical	N/A
2**	2460.200	96.45	54.0	-42.45	AV	45.00	200	Vertical	N/A
3	4878.250	49.79	74.0	24.21	Peak	329.00	150	Vertical	Pass
3**	4878.250	40.52	54.0	13.48	AV	329.00	150	Vertical	Pass
4	7878.500	54.50	74.0	19.50	Peak	113.00	100	Vertical	Pass
4**	7878.500	50.50	54.0	3.50	AV	113.00	100	Vertical	Pass
5	12428.662	53.24	74.0	20.76	Peak	297.00	200	Vertical	Pass
5**	12428.662	43.36	54.0	10.64	AV	297.00	200	Vertical	Pass
6	14465.175	55.49	74.0	18.51	Peak	235.00	400	Vertical	Pass
6**	14465.175	46.14	54.0	7.86	AV	235.00	400	Vertical	Pass

1 GHz to 18 GHz, ANT H 802.11n20 Low Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1239.500	42.21	74.0	31.79	Peak	55.00	300	Horizontal	Pass
1**	1239.500	32.26	54.0	21.74	AV	55.00	300	Horizontal	Pass
2	2413.100	110.52	74.0	-36.52	Peak	150.00	150	Horizontal	N/A
2**	2413.100	102.86	54.0	-48.86	AV	150.00	150	Horizontal	N/A
3	4882.750	49.26	74.0	24.74	Peak	152.00	100	Horizontal	Pass
3**	4882.750	39.73	54.0	14.27	AV	152.00	100	Horizontal	Pass
4	7951.500	54.13	74.0	19.87	Peak	53.00	200	Horizontal	Pass
4**	7951.500	44.51	54.0	9.49	AV	53.00	200	Horizontal	Pass
5	12994.650	54.33	74.0	19.67	Peak	200.00	100	Horizontal	Pass
5**	12994.650	43.70	54.0	10.30	AV	200.00	100	Horizontal	Pass
6	16859.437	56.01	74.0	17.99	Peak	6.00	100	Horizontal	Pass
6**	16859.437	45.79	54.0	8.21	AV	6.00	100	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11n20 Low Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1332.600	44.75	74.0	29.25	Peak	142.00	100	Vertical	Pass
1**	1332.600	35.21	54.0	18.79	AV	142.00	100	Vertical	Pass
2	2413.000	106.43	74.0	-32.43	Peak	43.00	200	Vertical	N/A
2**	2413.000	99.41	54.0	-45.41	AV	43.00	200	Vertical	N/A
3	4813.500	49.29	74.0	24.71	Peak	348.00	200	Vertical	Pass
3**	4813.500	40.36	54.0	13.64	AV	348.00	200	Vertical	Pass
4	7718.500	52.31	74.0	21.69	Peak	54.00	100	Vertical	Pass
4**	7718.500	48.18	54.0	5.82	AV	54.00	100	Vertical	Pass
5	12471.888	53.66	74.0	20.34	Peak	16.00	400	Vertical	Pass
5**	12471.888	44.34	54.0	9.66	AV	16.00	400	Vertical	Pass
6	17211.974	55.70	74.0	18.30	Peak	290.00	200	Vertical	Pass
6**	17211.974	45.58	54.0	8.42	AV	290.00	200	Vertical	Pass

1 GHz to 18 GHz, ANT H 802.11n20 Middle Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1575.900	41.99	74.0	32.01	Peak	261.00	400	Horizontal	Pass
1**	1575.900	34.30	54.0	19.70	AV	261.00	400	Horizontal	Pass
2	2438.700	111.52	74.0	-37.52	Peak	157.00	100	Horizontal	N/A
2**	2438.700	103.74	54.0	-49.74	AV	157.00	100	Horizontal	N/A
3	4884.250	49.33	74.0	24.67	Peak	305.00	150	Horizontal	Pass
3**	4884.250	39.93	54.0	14.07	AV	305.00	150	Horizontal	Pass
4	7936.500	53.85	74.0	20.15	Peak	0.00	300	Horizontal	Pass
4**	7936.500	45.06	54.0	8.94	AV	0.00	300	Horizontal	Pass
5	12999.638	53.42	74.0	20.58	Peak	224.00	300	Horizontal	Pass
5**	12999.638	45.05	54.0	8.95	AV	224.00	300	Horizontal	Pass
6	17097.787	54.94	74.0	19.06	Peak	22.00	100	Horizontal	Pass
6**	17097.787	46.69	54.0	7.31	AV	22.00	100	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11n20 Middle Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1328.300	44.46	74.0	29.54	Peak	197.00	100	Vertical	Pass
1**	1328.300	33.29	54.0	20.71	AV	197.00	100	Vertical	Pass
2	2435.600	107.57	74.0	-33.57	Peak	154.00	150	Vertical	N/A
2**	2435.600	100.40	54.0	-46.40	AV	154.00	150	Vertical	N/A
3	4901.750	50.12	74.0	23.88	Peak	130.00	200	Vertical	Pass
3**	4901.750	40.48	54.0	13.52	AV	130.00	200	Vertical	Pass
4	7971.250	54.21	74.0	19.79	Peak	346.00	300	Vertical	Pass
4**	7971.250	44.62	54.0	9.38	AV	346.00	300	Vertical	Pass
5	12500.625	53.45	74.0	20.55	Peak	221.00	100	Vertical	Pass
5**	12500.625	43.81	54.0	10.19	AV	221.00	100	Vertical	Pass
6	17034.000	55.57	74.0	18.43	Peak	286.00	100	Vertical	Pass
6**	17034.000	46.00	54.0	8.00	AV	286.00	100	Vertical	Pass

1 GHz to 18 GHz, ANT H 802.11n20 High Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1346.800	42.37	74.0	31.63	Peak	173.00	100	Horizontal	Pass
1**	1346.800	32.84	54.0	21.16	AV	173.00	100	Horizontal	Pass
2	2461.300	110.55	74.0	-36.55	Peak	139.00	100	Horizontal	N/A
2**	2461.300	103.00	54.0	-49.00	AV	139.00	100	Horizontal	N/A
3	4869.250	49.26	74.0	24.74	Peak	230.00	200	Horizontal	Pass
3**	4869.250	39.86	54.0	14.14	AV	230.00	200	Horizontal	Pass
4	7878.500	53.19	74.0	20.81	Peak	210.00	100	Horizontal	Pass
4**	7878.500	48.53	54.0	5.47	AV	210.00	100	Horizontal	Pass
5	12986.776	53.22	74.0	20.78	Peak	317.00	200	Horizontal	Pass
5**	12986.776	43.37	54.0	10.63	AV	317.00	200	Horizontal	Pass
6	17447.176	54.96	74.0	19.04	Peak	275.00	200	Horizontal	Pass
6**	17447.176	45.47	54.0	8.53	AV	275.00	200	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11n20 High Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1331.100	44.75	74.0	29.25	Peak	202.00	400	Vertical	Pass
1**	1331.100	35.07	54.0	18.93	AV	202.00	400	Vertical	Pass
2	2460.700	104.18	74.0	-30.18	Peak	52.00	100	Vertical	N/A
2**	2460.700	95.58	54.0	-41.58	AV	52.00	100	Vertical	N/A
3	4991.000	49.44	74.0	24.56	Peak	122.00	100	Vertical	Pass
3**	4991.000	40.10	54.0	13.90	AV	122.00	100	Vertical	Pass
4	7878.750	54.18	74.0	19.82	Peak	142.00	100	Vertical	Pass
4**	7878.750	49.99	54.0	4.01	AV	142.00	100	Vertical	Pass
5	12513.450	53.15	74.0	20.85	Peak	261.00	200	Vertical	Pass
5**	12513.450	44.03	54.0	9.97	AV	261.00	200	Vertical	Pass
6	17080.463	54.88	74.0	19.12	Peak	149.00	200	Vertical	Pass
6**	17080.463	45.64	54.0	8.36	AV	149.00	200	Vertical	Pass