

5.5.4 Test Result

Test Data

Note 1: The 99% OBW of the fundamental emission is without 2 MHz of the authorized band.

Note 2: All antenna were tested, but only the worst case has been reported in this report.

SISO-Antenna A

802.11b Mode:

Channel	Measured Max. Band Edge Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low Channel	-39.29	5.31	-14.70	Pass
High Channel	-46.64	5.13	-14.87	Pass

802.11g Mode:

Channel	Measured Max. Band Edge Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low Channel	-34.20	2.60	-17.40	Pass
High Channel	-43.06	3.12	-16.88	Pass

802.11n-20 MHz Mode:

Channel	Measured Max. Band Edge Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low Channel	-35.03	2.34	-17.66	Pass
High Channel	-44.56	2.11	-17.89	Pass

802.11n-40 MHz Mode:

Channel	Measured Max. Band Edge Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low Channel	-34.71	-0.55	-20.55	Pass
High Channel	-41.19	-0.53	-20.53	Pass

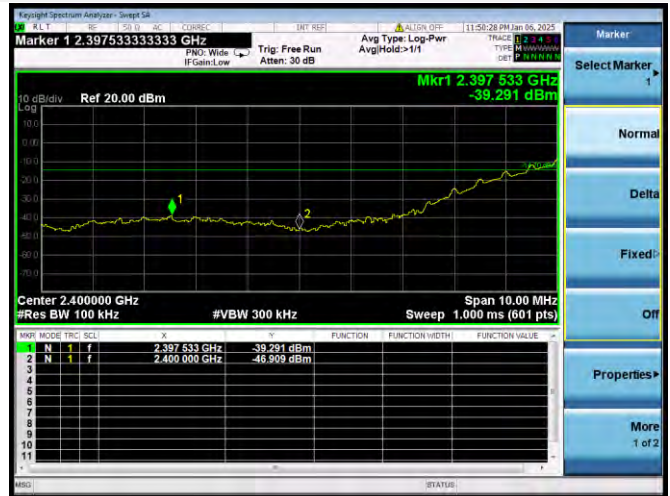
Test Plots

SISO-Antenna A

802.11b LOW CHANNEL, CARRIER LEVEL



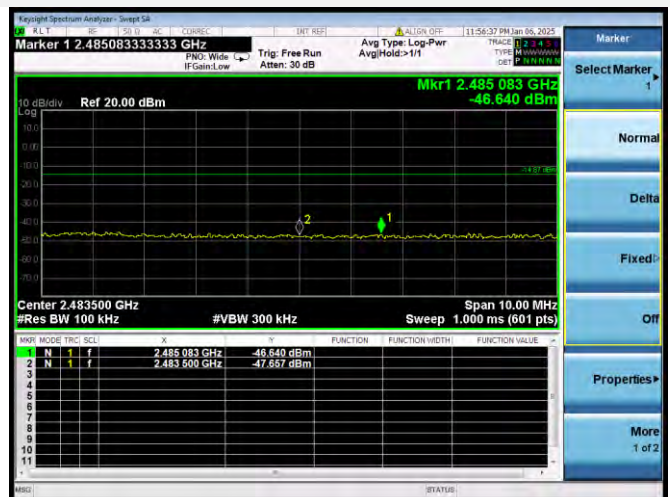
802.11b LOW CHANNEL, BAND EDGE



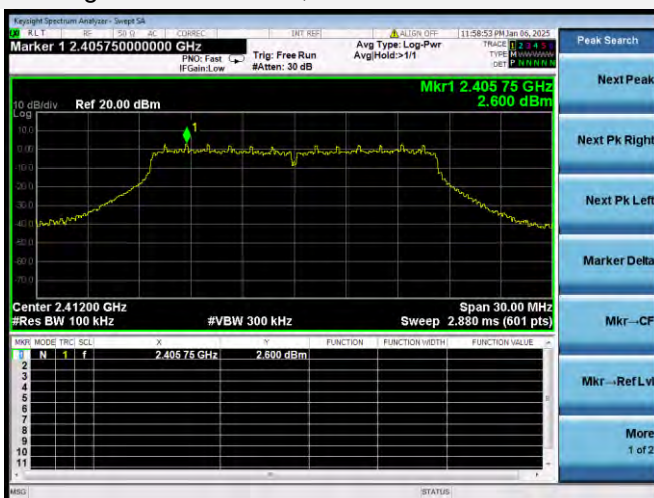
802.11b HIGH CHANNEL, CARRIER LEVEL



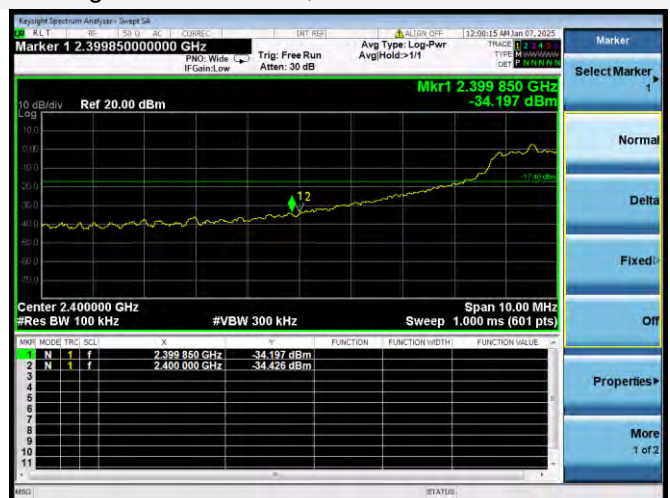
802.11b HIGH CHANNEL, BAND EDGE



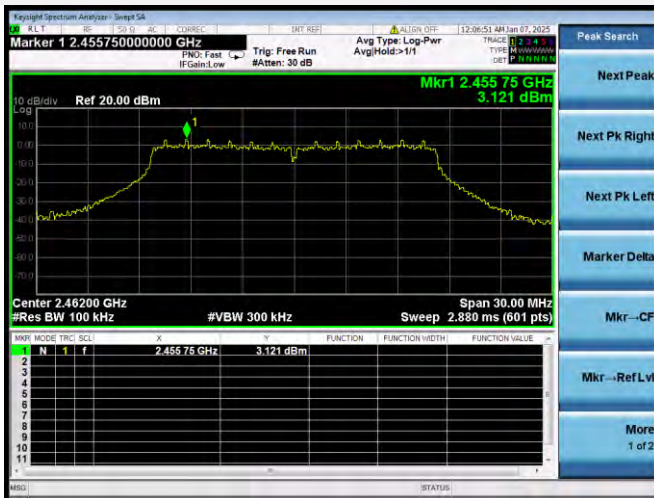
802.11g LOW CHANNEL, CARRIER LEVEL



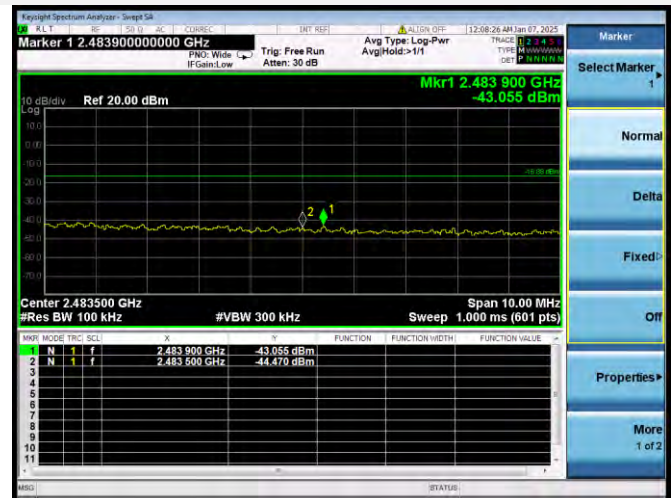
802.11g LOW CHANNEL, BAND EDGE



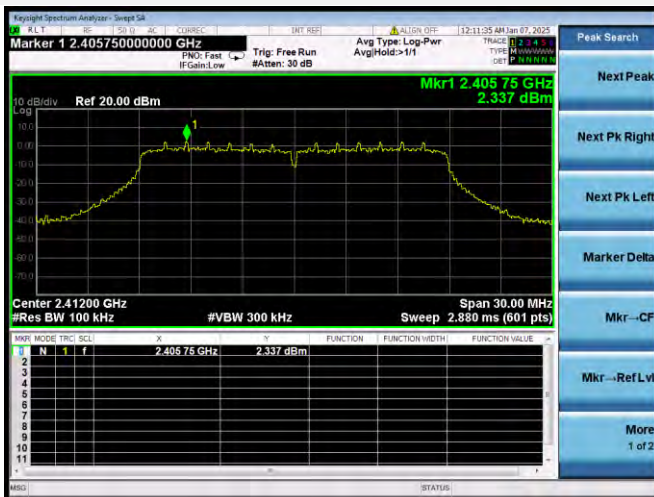
802.11g HIGH CHANNEL, CARRIER LEVEL



802.11g HIGH CHANNEL, BAND EDGE



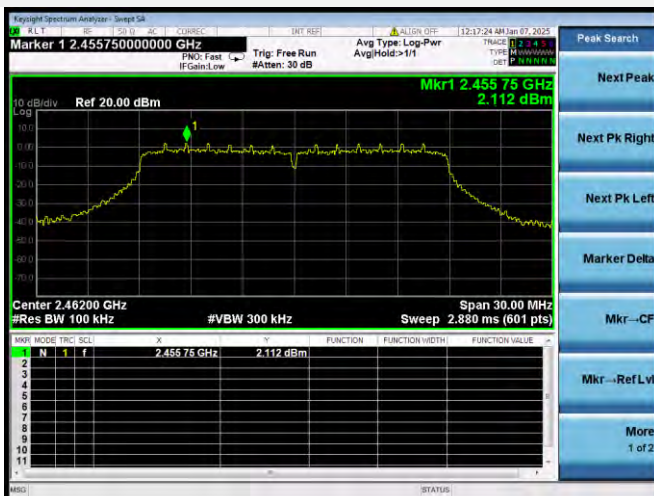
802.11n-20 MHz LOW CHANNEL, CARRIER LEVEL



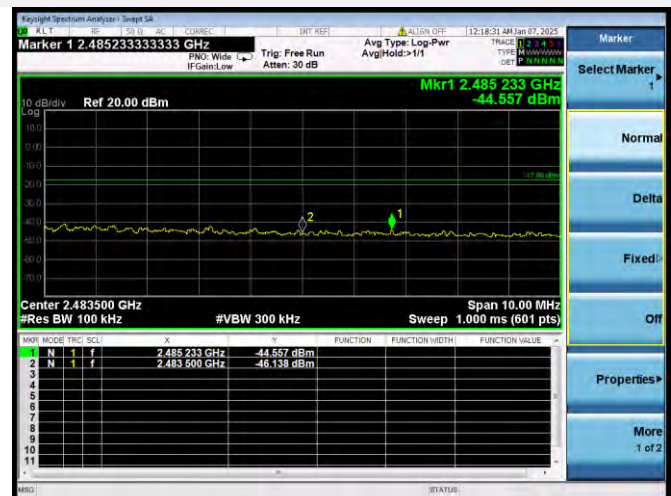
802.11n-20 MHz LOW CHANNEL, BAND EDGE



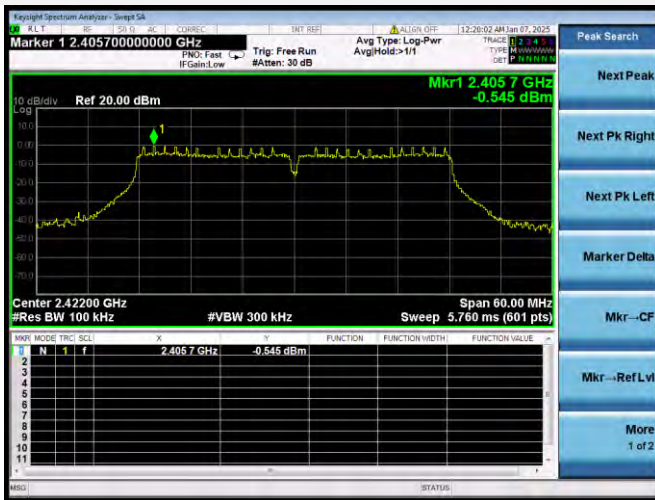
802.11n-20 MHz HIGH CHANNEL, CARRIER LEVEL



802.11n-20 MHz HIGH CHANNEL, BAND EDGE



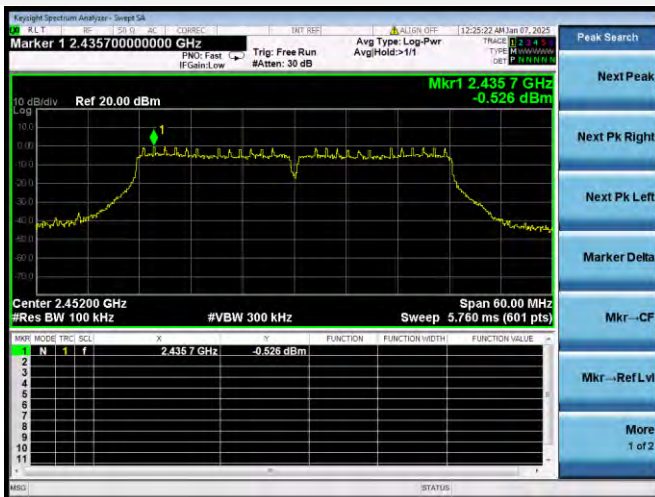
802.11n-40 MHz LOW CHANNEL, CARRIER LEVEL



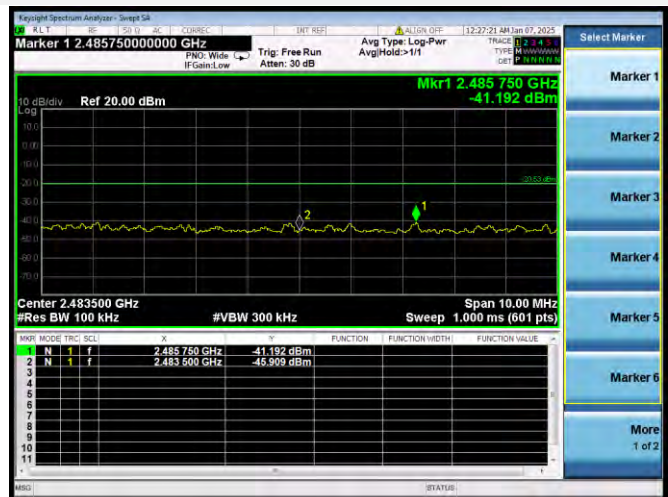
802.11n-40 MHz LOW CHANNEL, BAND EDGE



802.11n-40 MHz HIGH CHANNEL, CARRIER LEVEL



802.11n-40 MHz HIGH CHANNEL, BAND EDGE



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 50 μ H/50 Ω line impedance stabilization network (LISN).

Frequency range (MHz)	Conducted Limit (dB μ V)	
	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 charging mode.

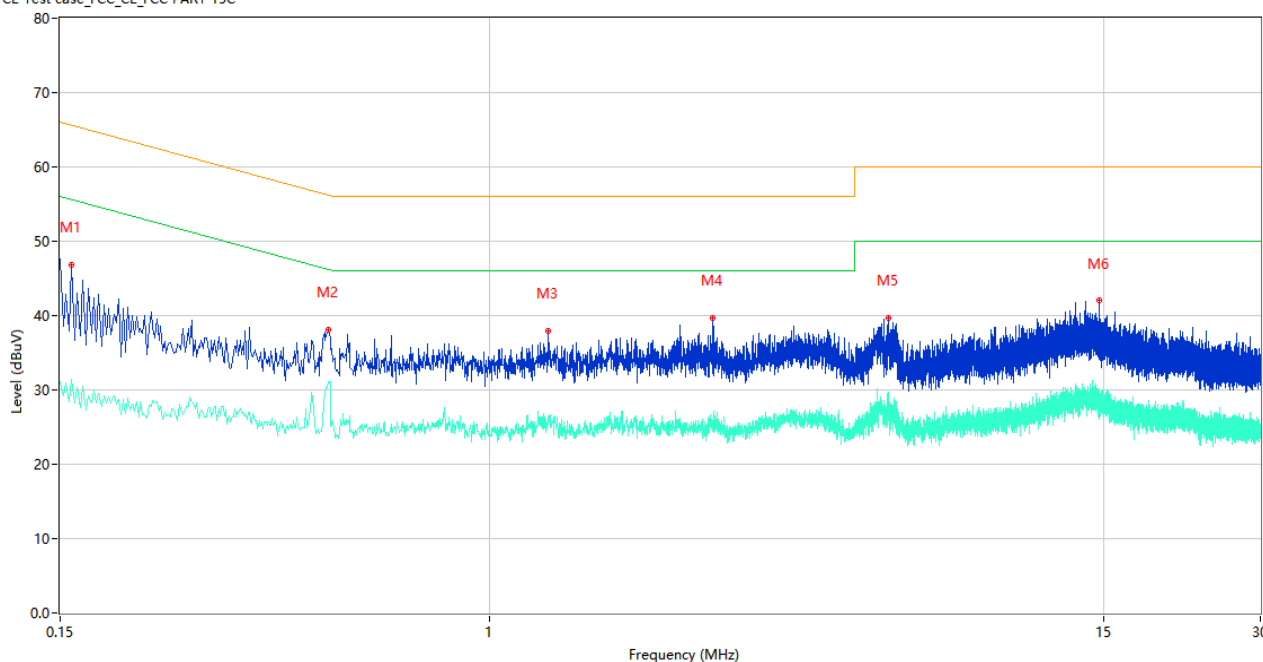
Note ²: Devices subject to Part 15 must be tested for all available U.S. voltages and frequencies (such as a nominal 120 VAC, 60 Hz and 240 VAC, 50 Hz) for which the device is capable of operation. So, The configuration 120 VAC, 60 Hz and 240 VAC, 50 Hz were tested respectively, but only the worst configuration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

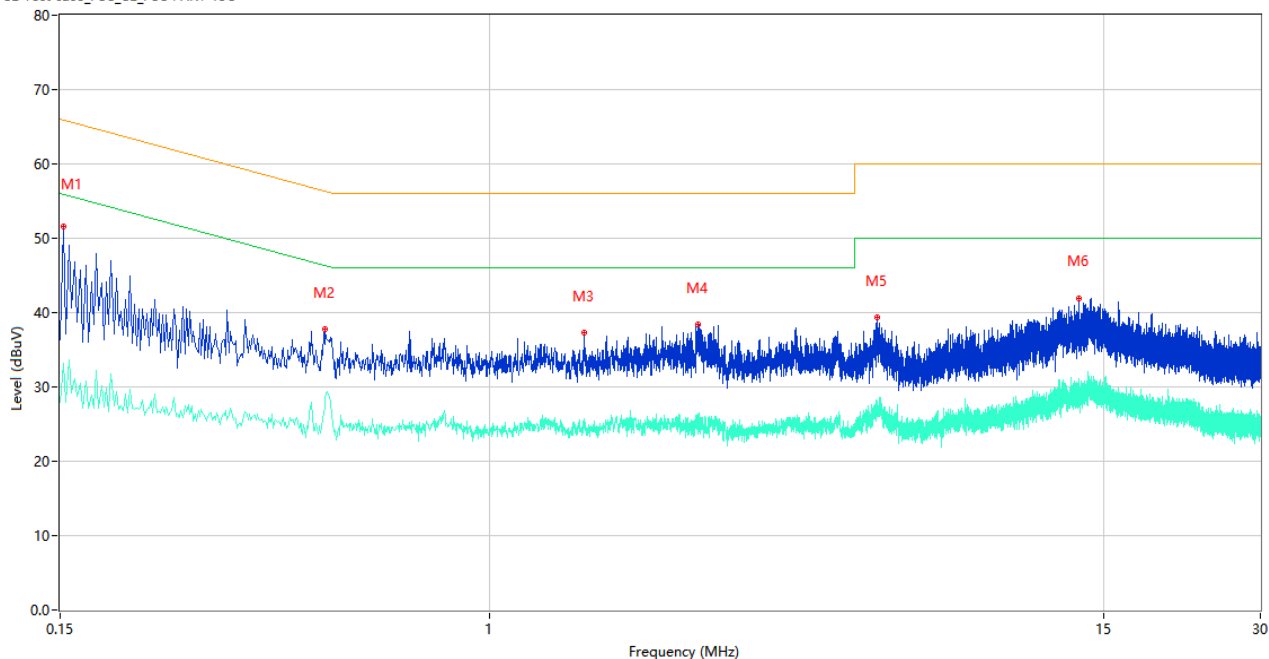
CE Test case_FCC_CE_FCC PART 15C



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.158	46.88	9.78	65.57	18.69	Peak	L	Pass
1**	0.158	31.40	9.78	55.57	24.17	AV	L	Pass
2	0.490	38.10	9.99	56.17	18.07	Peak	L	Pass
2**	0.490	31.06	9.99	46.17	15.11	AV	L	Pass
3	1.290	37.98	10.50	56.00	18.02	Peak	L	Pass
3**	1.290	25.89	10.50	46.00	20.11	AV	L	Pass
4	2.680	39.69	10.10	56.00	16.31	Peak	L	Pass
4**	2.680	25.51	10.10	46.00	20.49	AV	L	Pass
5	5.814	39.70	10.20	60.00	20.30	Peak	L	Pass
5**	5.814	29.76	10.20	50.00	20.24	AV	L	Pass
6	14.738	42.02	10.41	60.00	17.98	Peak	L	Pass
6**	14.738	29.39	10.41	50.00	20.61	AV	L	Pass

PHASE N

CE Test case_FCC_CE_FCC PART 15C



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.152	51.65	9.78	65.89	14.24	Peak	N	Pass
1**	0.152	33.18	9.78	55.89	22.71	AV	N	Pass
2	0.484	37.77	10.00	56.27	18.50	Peak	N	Pass
2**	0.484	28.35	10.00	46.27	17.92	AV	N	Pass
3	1.520	37.27	10.22	56.00	18.73	Peak	N	Pass
3**	1.520	25.79	10.22	46.00	20.21	AV	N	Pass
4	2.510	38.35	10.15	56.00	17.65	Peak	N	Pass
4**	2.510	25.95	10.15	46.00	20.05	AV	N	Pass
5	5.518	39.35	10.44	60.00	20.65	Peak	N	Pass
5**	5.518	28.08	10.44	50.00	21.92	AV	N	Pass
6	13.458	41.98	10.48	60.00	18.02	Peak	N	Pass
6**	13.458	30.85	10.48	50.00	19.15	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:

$$E = \text{EIRP} - 20\log D + 104.8$$

where:

E = electric field strength in dB μ V/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 $\geq 3 \times$ 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 $\geq 3 \times$ RBW.
- e) Detector = RMS, if $\text{span}/(\# \text{ of points in sweep}) \leq (\text{RBW}/2)$. 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 $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz

VBW $\geq$ 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 C63.10-2013, 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.

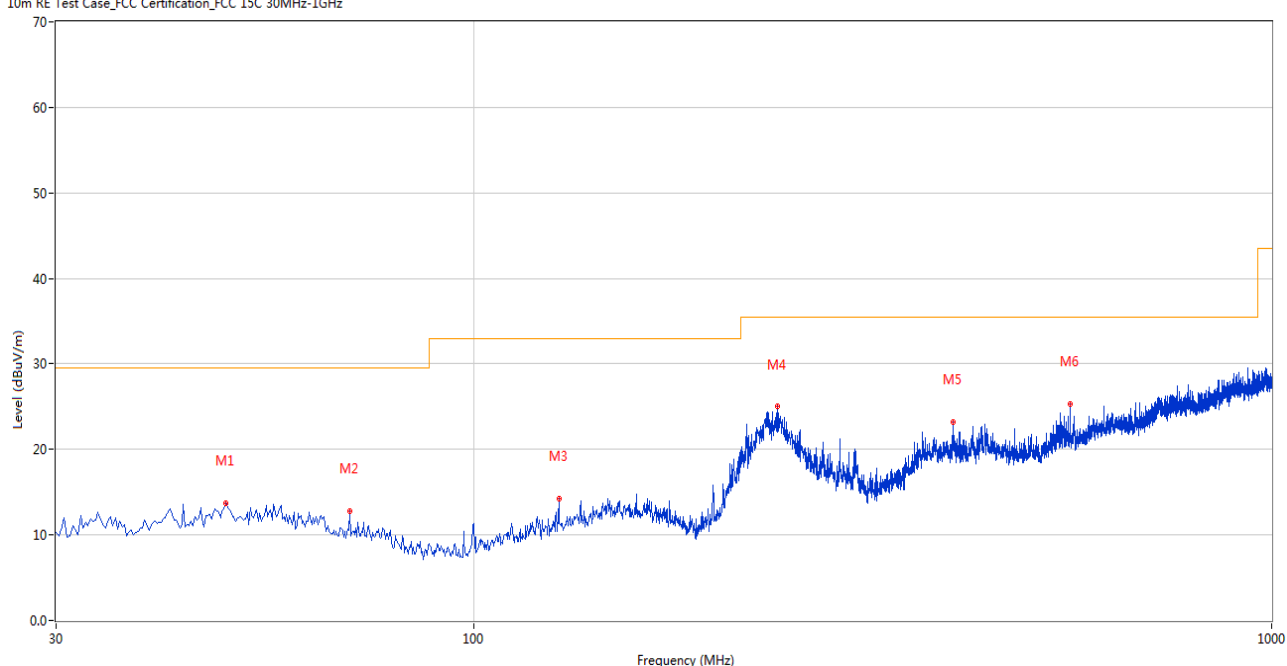
Note 3: The low frequency, which started from 9 kHz to 30 MHz, was pre-scanned and the result which was 20 dB lower than the limit line per 15.31(o) was not reported.

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

Test Data and Plots

30 MHz to 1 GHz, ANT H

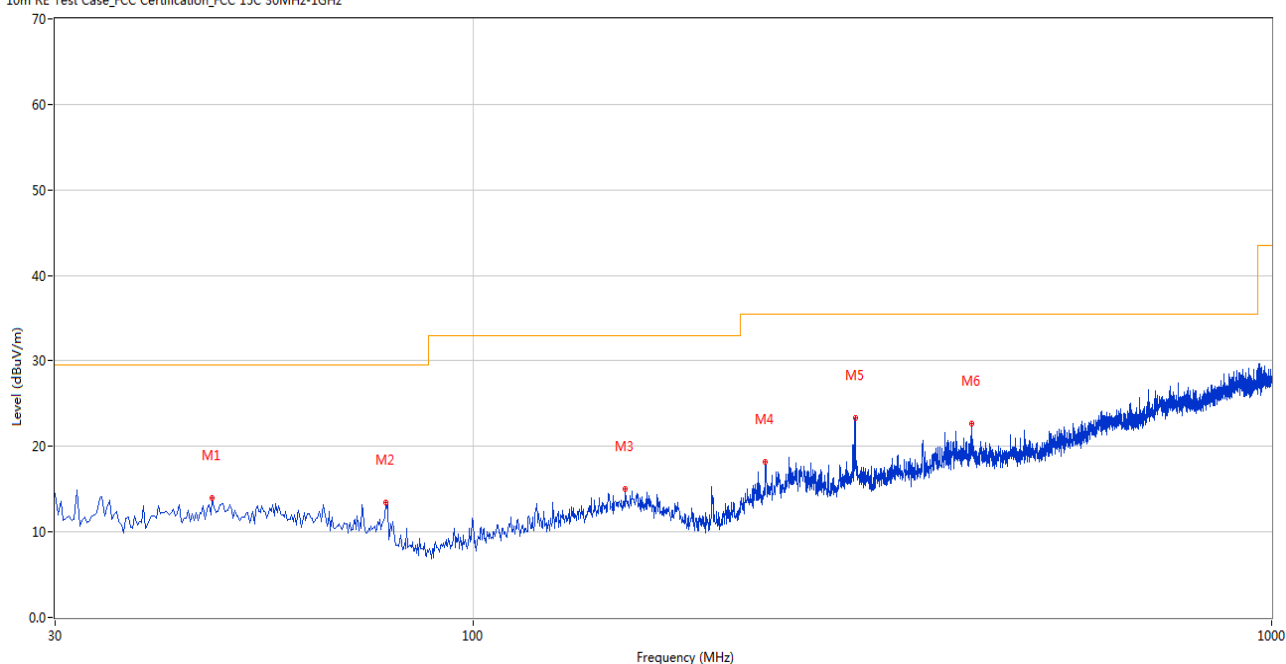
10m RE Test Case_FCC Certification_FCC 15C 30MHz-1GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	48.910	13.74	-26.04	29.5	15.76	Peak	326.00	100	Horizontal	Pass
2	70.002	12.81	-28.22	29.5	16.69	Peak	202.00	100	Horizontal	Pass
3	127.946	14.26	-27.27	33.0	18.74	Peak	41.00	100	Horizontal	Pass
4	240.437	24.99	-27.12	35.5	10.51	Peak	202.00	200	Horizontal	Pass
5	398.508	23.17	-22.36	35.5	12.33	Peak	81.00	200	Horizontal	Pass
6	559.003	25.33	-18.07	35.5	10.17	Peak	115.00	200	Horizontal	Pass

30 MHz to 1 GHz, ANT V

10m RE Test Case_FCC Certification_FCC 15C 30MHz-1GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	47.213	13.99	-26.18	29.5	15.51	Peak	143.00	100	Vertical	Pass
2	77.761	13.44	-29.83	29.5	16.06	Peak	87.00	200	Vertical	Pass
3	155.341	15.07	-25.40	33.0	17.93	Peak	248.00	100	Vertical	Pass
4	232.437	18.21	-28.04	35.5	17.29	Peak	360.00	200	Vertical	Pass
5	301.047	23.35	-24.86	35.5	12.15	Peak	236.00	100	Vertical	Pass
6	421.297	22.63	-21.61	35.5	12.87	Peak	0.00	100	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 tested, but only the worst case has been reported in this report.

SISO-Antenna A

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	1502.300	42.50	74.0	31.50	Peak	59.00	200	Horizontal	Pass
1**	1502.300	33.21	54.0	20.79	AV	59.00	200	Horizontal	Pass
2	2412.000	95.85	74.0	-21.85	Peak	316.00	200	Horizontal	N/A
2**	2412.000	90.73	54.0	-36.73	AV	316.00	200	Horizontal	N/A
3	2999.400	52.36	74.0	21.64	Peak	235.00	150	Horizontal	Pass
3**	2999.400	42.18	54.0	11.82	AV	235.00	150	Horizontal	Pass
4	6981.000	56.21	74.0	17.79	Peak	247.00	400	Horizontal	Pass
4**	6981.000	46.73	54.0	7.27	AV	247.00	400	Horizontal	Pass
5	11779.974	52.29	74.0	21.71	Peak	7.00	300	Horizontal	Pass
5**	11779.974	42.51	54.0	11.49	AV	7.00	300	Horizontal	Pass
6	16023.638	55.71	74.0	18.29	Peak	272.00	100	Horizontal	Pass
6**	16023.638	45.09	54.0	8.91	AV	272.00	100	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	1327.400	44.89	74.0	29.11	Peak	170.00	400	Vertical	Pass
1**	1327.400	33.42	54.0	20.58	AV	170.00	400	Vertical	Pass
2	2412.100	104.51	74.0	-30.51	Peak	276.00	150	Vertical	N/A
2**	2412.100	99.79	54.0	-45.79	AV	276.00	150	Vertical	N/A
3	2655.600	54.06	74.0	19.94	Peak	63.00	150	Vertical	Pass
3**	2655.600	43.15	54.0	10.85	AV	63.00	150	Vertical	Pass
4	5322.400	57.51	74.0	16.49	Peak	136.00	200	Vertical	Pass
4**	5322.400	45.01	54.0	8.99	AV	136.00	200	Vertical	Pass
5	11501.963	51.94	74.0	22.06	Peak	360.00	300	Vertical	Pass
5**	11501.963	43.13	54.0	10.87	AV	360.00	300	Vertical	Pass
6	17389.949	55.52	74.0	18.48	Peak	313.00	300	Vertical	Pass
6**	17389.949	46.00	54.0	8.00	AV	313.00	300	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	1368.400	42.48	74.0	31.52	Peak	196.00	400	Horizontal	Pass
1**	1368.400	32.55	54.0	21.45	AV	196.00	400	Horizontal	Pass
2	2436.900	94.87	74.0	-20.87	Peak	316.00	200	Horizontal	N/A
2**	2436.900	90.69	54.0	-36.69	AV	316.00	200	Horizontal	N/A
3	2903.500	51.81	74.0	22.19	Peak	124.00	200	Horizontal	Pass
3**	2903.500	41.52	54.0	12.48	AV	124.00	200	Horizontal	Pass
4	6973.200	55.19	74.0	18.81	Peak	360.00	200	Horizontal	Pass
4**	6973.200	46.30	54.0	7.70	AV	360.00	200	Horizontal	Pass
5	11940.400	52.30	74.0	21.70	Peak	214.00	300	Horizontal	Pass
5**	11940.400	43.20	54.0	10.80	AV	214.00	300	Horizontal	Pass
6	17430.374	55.84	74.0	18.16	Peak	37.00	200	Horizontal	Pass
6**	17430.374	48.41	54.0	5.59	AV	37.00	200	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	1329.700	45.08	74.0	28.92	Peak	178.00	100	Vertical	Pass
1**	1329.700	36.99	54.0	17.01	AV	178.00	100	Vertical	Pass
2	2437.000	104.55	74.0	-30.55	Peak	151.00	200	Vertical	N/A
2**	2437.000	100.54	54.0	-46.54	AV	151.00	200	Vertical	N/A
3	2661.800	53.91	74.0	20.09	Peak	231.00	150	Vertical	Pass
3**	2661.800	44.08	54.0	9.92	AV	231.00	150	Vertical	Pass
4	5308.000	58.28	74.0	15.72	Peak	132.00	200	Vertical	Pass
4**	5308.000	43.35	54.0	10.65	AV	132.00	200	Vertical	Pass
5	11933.500	52.47	74.0	21.53	Peak	360.00	400	Vertical	Pass
5**	11933.500	44.16	54.0	9.84	AV	360.00	400	Vertical	Pass
6	17384.438	55.51	74.0	18.49	Peak	115.00	100	Vertical	Pass
6**	17384.438	45.67	54.0	8.33	AV	115.00	100	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	1569.000	42.55	74.0	31.45	Peak	96.00	100	Horizontal	Pass
1**	1569.000	32.40	54.0	21.60	AV	96.00	100	Horizontal	Pass
2	2462.000	95.44	74.0	-21.44	Peak	317.00	200	Horizontal	N/A
2**	2462.000	90.54	54.0	-36.54	AV	317.00	200	Horizontal	N/A
3	4987.400	52.91	74.0	21.09	Peak	53.00	150	Horizontal	Pass
3**	4987.400	42.96	54.0	11.04	AV	53.00	150	Horizontal	Pass
4	6978.800	55.26	74.0	18.74	Peak	296.00	300	Horizontal	Pass
4**	6978.800	47.25	54.0	6.75	AV	296.00	300	Horizontal	Pass
5	12778.613	52.13	74.0	21.87	Peak	272.00	200	Horizontal	Pass
5**	12778.613	43.11	54.0	10.89	AV	272.00	200	Horizontal	Pass
6	17430.374	56.29	74.0	17.71	Peak	116.00	200	Horizontal	Pass
6**	17430.374	47.40	54.0	6.60	AV	116.00	200	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	1328.600	44.55	74.0	29.45	Peak	163.00	100	Vertical	Pass
1**	1328.600	32.10	54.0	21.90	AV	163.00	100	Vertical	Pass
2	2462.100	105.08	74.0	-31.08	Peak	150.00	100	Vertical	N/A
2**	2462.100	100.92	54.0	-46.92	AV	150.00	100	Vertical	N/A
3	2663.900	54.08	74.0	19.92	Peak	89.00	150	Vertical	Pass
3**	2663.900	43.31	54.0	10.69	AV	89.00	150	Vertical	Pass
4	5321.600	55.34	74.0	18.66	Peak	133.00	150	Vertical	Pass
4**	5321.600	42.87	54.0	11.13	AV	133.00	150	Vertical	Pass
5	10926.675	53.24	74.0	20.76	Peak	360.00	300	Vertical	Pass
5**	10926.675	43.59	54.0	10.41	AV	360.00	300	Vertical	Pass
6	17403.075	56.15	74.0	17.85	Peak	0.00	400	Vertical	Pass
6**	17403.075	46.72	54.0	7.28	AV	0.00	400	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	1560.000	42.66	74.0	31.34	Peak	330.00	200	Horizontal	Pass
1**	1560.000	32.99	54.0	21.01	AV	330.00	200	Horizontal	Pass
2	2411.900	98.12	74.0	-24.12	Peak	316.00	150	Horizontal	N/A
2**	2411.900	87.39	54.0	-33.39	AV	316.00	150	Horizontal	N/A
3	4914.800	52.26	74.0	21.74	Peak	339.00	100	Horizontal	Pass
3**	4914.800	41.73	54.0	12.27	AV	339.00	100	Horizontal	Pass
4	6979.200	55.23	74.0	18.77	Peak	305.00	200	Horizontal	Pass
4**	6979.200	47.23	54.0	6.77	AV	305.00	200	Horizontal	Pass
5	11499.950	52.87	74.0	21.13	Peak	291.00	400	Horizontal	Pass
5**	11499.950	42.46	54.0	11.54	AV	291.00	400	Horizontal	Pass
6	17437.198	55.61	74.0	18.39	Peak	57.00	300	Horizontal	Pass
6**	17437.198	46.84	54.0	7.16	AV	57.00	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	1328.800	44.30	74.0	29.70	Peak	163.00	300	Vertical	Pass
1**	1328.800	37.24	54.0	16.76	AV	163.00	300	Vertical	Pass
2	2412.200	105.79	74.0	-31.79	Peak	149.00	100	Vertical	N/A
2**	2412.200	96.30	54.0	-42.30	AV	149.00	100	Vertical	N/A
3	2664.200	54.68	74.0	19.32	Peak	102.00	200	Vertical	Pass
3**	2664.200	43.54	54.0	10.46	AV	102.00	200	Vertical	Pass
4	5318.600	56.55	74.0	17.45	Peak	134.00	300	Vertical	Pass
4**	5318.600	47.60	54.0	6.40	AV	134.00	300	Vertical	Pass
5	11330.612	52.12	74.0	21.88	Peak	143.00	300	Vertical	Pass
5**	11330.612	43.79	54.0	10.21	AV	143.00	300	Vertical	Pass
6	17419.088	55.56	74.0	18.44	Peak	18.00	400	Vertical	Pass
6**	17419.088	46.89	54.0	7.11	AV	18.00	400	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	1492.200	42.32	74.0	31.68	Peak	270.00	200	Horizontal	Pass
1**	1492.200	32.73	54.0	21.27	AV	270.00	200	Horizontal	Pass
2	2430.500	97.33	74.0	-23.33	Peak	317.00	200	Horizontal	N/A
2**	2430.500	89.79	54.0	-35.79	AV	317.00	200	Horizontal	N/A
3	4921.200	52.02	74.0	21.98	Peak	8.00	150	Horizontal	Pass
3**	4921.200	42.19	54.0	11.81	AV	8.00	150	Horizontal	Pass
4	6790.200	55.27	74.0	18.73	Peak	8.00	300	Horizontal	Pass
4**	6790.200	45.59	54.0	8.41	AV	8.00	300	Horizontal	Pass
5	11282.600	52.61	74.0	21.39	Peak	255.00	200	Horizontal	Pass
5**	11282.600	41.30	54.0	12.70	AV	255.00	200	Horizontal	Pass
6	17442.187	55.31	74.0	18.69	Peak	117.00	100	Horizontal	Pass
6**	17442.187	46.59	54.0	7.41	AV	117.00	100	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	1329.800	44.81	74.0	29.19	Peak	172.00	100	Vertical	Pass
1**	1329.800	33.21	54.0	20.79	AV	172.00	100	Vertical	Pass
2	2436.700	106.28	74.0	-32.28	Peak	145.00	100	Vertical	N/A
2**	2436.700	96.57	54.0	-42.57	AV	145.00	100	Vertical	N/A
3	2656.600	54.01	74.0	19.99	Peak	237.00	150	Vertical	Pass
3**	2656.600	42.92	54.0	11.08	AV	237.00	150	Vertical	Pass
4	5321.600	58.67	74.0	15.33	Peak	112.00	400	Vertical	Pass
4**	5321.600	44.26	54.0	9.74	AV	112.00	400	Vertical	Pass
5	12398.963	52.14	74.0	21.86	Peak	4.00	100	Vertical	Pass
5**	12398.963	42.56	54.0	11.44	AV	4.00	100	Vertical	Pass
6	17437.725	55.55	74.0	18.45	Peak	336.00	400	Vertical	Pass
6**	17437.725	47.09	54.0	6.91	AV	336.00	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	1565.700	42.48	74.0	31.52	Peak	64.00	300	Horizontal	Pass
1**	1565.700	32.76	54.0	21.24	AV	64.00	300	Horizontal	Pass
2	2467.900	97.21	74.0	-23.21	Peak	322.00	100	Horizontal	N/A
2**	2467.900	89.86	54.0	-35.86	AV	322.00	100	Horizontal	N/A
3	4984.400	51.74	74.0	22.26	Peak	56.00	100	Horizontal	Pass
3**	4984.400	42.68	54.0	11.32	AV	56.00	100	Horizontal	Pass
4	6978.800	55.60	74.0	18.40	Peak	360.00	100	Horizontal	Pass
4**	6978.800	46.82	54.0	7.18	AV	360.00	100	Horizontal	Pass
5	12576.062	52.22	74.0	21.78	Peak	8.00	300	Horizontal	Pass
5**	12576.062	42.41	54.0	11.59	AV	8.00	300	Horizontal	Pass
6	17440.088	56.39	74.0	17.61	Peak	342.00	200	Horizontal	Pass
6**	17440.088	47.17	54.0	6.83	AV	342.00	200	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	1330.300	43.60	74.0	30.40	Peak	120.00	300	Vertical	Pass
1**	1330.300	32.64	54.0	21.36	AV	120.00	300	Vertical	Pass
2	2468.400	106.84	74.0	-32.84	Peak	150.00	150	Vertical	N/A
2**	2468.400	99.12	54.0	-45.12	AV	150.00	150	Vertical	N/A
3	3282.600	48.03	74.0	25.97	Peak	360.00	150	Vertical	Pass
3**	3282.600	44.91	54.0	9.09	AV	360.00	150	Vertical	Pass
4	5329.600	56.92	74.0	17.08	Peak	109.00	100	Vertical	Pass
4**	5329.600	44.45	54.0	9.55	AV	109.00	100	Vertical	Pass
5	10921.213	52.58	74.0	21.42	Peak	0.00	300	Vertical	Pass
5**	10921.213	43.32	54.0	10.68	AV	0.00	300	Vertical	Pass
6	17392.839	56.19	74.0	17.81	Peak	238.00	400	Vertical	Pass
6**	17392.839	46.80	54.0	7.20	AV	238.00	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	1596.000	42.16	74.0	31.84	Peak	32.00	400	Horizontal	Pass
1**	1596.000	32.77	54.0	21.23	AV	32.00	400	Horizontal	Pass
2	2415.200	96.99	74.0	-22.99	Peak	309.00	200	Horizontal	N/A
2**	2415.200	87.68	54.0	-33.68	AV	309.00	200	Horizontal	N/A
3	4791.600	52.30	74.0	21.70	Peak	306.00	200	Horizontal	Pass
3**	4791.600	41.84	54.0	12.16	AV	306.00	200	Horizontal	Pass
4	6800.200	55.03	74.0	18.97	Peak	51.00	300	Horizontal	Pass
4**	6800.200	45.33	54.0	8.67	AV	51.00	300	Horizontal	Pass
5	11940.975	52.06	74.0	21.94	Peak	276.00	100	Horizontal	Pass
5**	11940.975	43.03	54.0	10.97	AV	276.00	100	Horizontal	Pass
6	17390.213	56.11	74.0	17.89	Peak	58.00	200	Horizontal	Pass
6**	17390.213	46.05	54.0	7.95	AV	58.00	200	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	1330.900	43.59	74.0	30.41	Peak	108.00	200	Vertical	Pass
1**	1330.900	36.17	54.0	17.83	AV	108.00	200	Vertical	Pass
2	2415.100	104.97	74.0	-30.97	Peak	287.00	100	Vertical	N/A
2**	2415.100	97.30	54.0	-43.30	AV	287.00	100	Vertical	N/A
3	2658.800	54.51	74.0	19.49	Peak	91.00	200	Vertical	Pass
3**	2658.800	44.08	54.0	9.92	AV	91.00	200	Vertical	Pass
4	5319.200	55.36	74.0	18.64	Peak	108.00	200	Vertical	Pass
4**	5319.200	42.55	54.0	11.45	AV	108.00	200	Vertical	Pass
5	12510.224	52.08	74.0	21.92	Peak	64.00	100	Vertical	Pass
5**	12510.224	42.82	54.0	11.18	AV	64.00	100	Vertical	Pass
6	16480.650	55.56	74.0	18.44	Peak	269.00	400	Vertical	Pass
6**	16480.650	45.44	54.0	8.56	AV	269.00	400	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	1331.000	42.53	74.0	31.47	Peak	255.00	400	Horizontal	Pass
1**	1331.000	32.08	54.0	21.92	AV	255.00	400	Horizontal	Pass
2	2430.100	95.97	74.0	-21.97	Peak	324.00	150	Horizontal	N/A
2**	2430.100	88.00	54.0	-34.00	AV	324.00	150	Horizontal	N/A
3	4807.600	51.95	74.0	22.05	Peak	149.00	100	Horizontal	Pass
3**	4807.600	42.63	54.0	11.37	AV	149.00	100	Horizontal	Pass
4	6610.600	55.39	74.0	18.61	Peak	0.00	400	Horizontal	Pass
4**	6610.600	45.51	54.0	8.49	AV	0.00	400	Horizontal	Pass
5	12736.775	51.84	74.0	22.16	Peak	360.00	300	Horizontal	Pass
5**	12736.775	42.59	54.0	11.41	AV	360.00	300	Horizontal	Pass
6	17423.813	55.44	74.0	18.56	Peak	247.00	300	Horizontal	Pass
6**	17423.813	46.91	54.0	7.09	AV	247.00	300	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	1329.500	44.32	74.0	29.68	Peak	171.00	400	Vertical	Pass
1**	1329.500	33.64	54.0	20.36	AV	171.00	400	Vertical	Pass
2	2440.200	105.43	74.0	-31.43	Peak	148.00	150	Vertical	N/A
2**	2440.200	97.11	54.0	-43.11	AV	148.00	150	Vertical	N/A
3	2655.400	54.50	74.0	19.50	Peak	244.00	200	Vertical	Pass
3**	2655.400	45.03	54.0	8.97	AV	244.00	200	Vertical	Pass
4	6978.000	55.25	74.0	18.75	Peak	109.00	100	Vertical	Pass
4**	6978.000	46.54	54.0	7.46	AV	109.00	100	Vertical	Pass
5	11927.175	52.64	74.0	21.36	Peak	360.00	200	Vertical	Pass
5**	11927.175	42.71	54.0	11.29	AV	360.00	200	Vertical	Pass
6	17396.511	56.34	74.0	17.66	Peak	219.00	100	Vertical	Pass
6**	17396.511	47.39	54.0	6.61	AV	219.00	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	1556.600	42.25	74.0	31.75	Peak	214.00	300	Horizontal	Pass
1**	1556.600	33.13	54.0	20.87	AV	214.00	300	Horizontal	Pass
2	2465.500	96.17	74.0	-22.17	Peak	310.00	100	Horizontal	N/A
2**	2465.500	88.13	54.0	-34.13	AV	310.00	100	Horizontal	N/A
3	4977.200	52.13	74.0	21.87	Peak	360.00	150	Horizontal	Pass
3**	4977.200	43.65	54.0	10.35	AV	360.00	150	Horizontal	Pass
4	6979.200	55.29	74.0	18.71	Peak	204.00	200	Horizontal	Pass
4**	6979.200	46.72	54.0	7.28	AV	204.00	200	Horizontal	Pass
5	11211.588	52.10	74.0	21.90	Peak	272.00	400	Horizontal	Pass
5**	11211.588	43.37	54.0	10.63	AV	272.00	400	Horizontal	Pass
6	17395.988	56.10	74.0	17.90	Peak	18.00	100	Horizontal	Pass
6**	17395.988	46.55	54.0	7.45	AV	18.00	100	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	1332.100	43.63	74.0	30.37	Peak	119.00	200	Vertical	Pass
1**	1332.100	34.76	54.0	19.24	AV	119.00	200	Vertical	Pass
2	2465.200	106.31	74.0	-32.31	Peak	153.00	150	Vertical	N/A
2**	2465.200	98.29	54.0	-44.29	AV	153.00	150	Vertical	N/A
3	2664.900	53.47	74.0	20.53	Peak	89.00	150	Vertical	Pass
3**	2664.900	42.76	54.0	11.24	AV	89.00	150	Vertical	Pass
4	5323.200	54.13	74.0	19.87	Peak	119.00	150	Vertical	Pass
4**	5323.200	43.27	54.0	10.73	AV	119.00	150	Vertical	Pass
5	12526.900	52.06	74.0	21.94	Peak	188.00	400	Vertical	Pass
5**	12526.900	42.83	54.0	11.17	AV	188.00	400	Vertical	Pass
6	17423.550	56.20	74.0	17.80	Peak	283.00	300	Vertical	Pass
6**	17423.550	46.92	54.0	7.08	AV	283.00	300	Vertical	Pass

1 GHz to 18 GHz, ANT H 802.11n40 Low Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1429.400	42.30	74.0	31.70	Peak	293.00	300	Horizontal	Pass
1**	1429.400	32.59	54.0	21.41	AV	293.00	300	Horizontal	Pass
2	2407.500	92.62	74.0	-18.62	Peak	321.00	200	Horizontal	N/A
2**	2407.500	84.95	54.0	-30.95	AV	321.00	200	Horizontal	N/A
3	4921.200	51.58	74.0	22.42	Peak	196.00	100	Horizontal	Pass
3**	4921.200	42.22	54.0	11.78	AV	196.00	100	Horizontal	Pass
4	6973.800	54.98	74.0	19.02	Peak	0.00	300	Horizontal	Pass
4**	6973.800	46.39	54.0	7.61	AV	0.00	300	Horizontal	Pass
5	10926.387	52.81	74.0	21.19	Peak	360.00	200	Horizontal	Pass
5**	10926.387	43.19	54.0	10.81	AV	360.00	200	Horizontal	Pass
6	17439.302	56.01	74.0	17.99	Peak	360.00	200	Horizontal	Pass
6**	17439.302	46.14	54.0	7.86	AV	360.00	200	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11n40 Low Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1328.500	44.37	74.0	29.63	Peak	179.00	400	Vertical	Pass
1**	1328.500	32.80	54.0	21.20	AV	179.00	400	Vertical	Pass
2	2436.800	102.20	74.0	-28.20	Peak	145.00	100	Vertical	N/A
2**	2436.800	94.53	54.0	-40.53	AV	145.00	100	Vertical	N/A
3	2654.100	53.52	74.0	20.48	Peak	235.00	150	Vertical	Pass
3**	2654.100	40.85	54.0	13.15	AV	235.00	150	Vertical	Pass
4	5326.200	58.90	74.0	15.10	Peak	126.00	100	Vertical	Pass
4**	5326.200	45.33	54.0	8.67	AV	126.00	100	Vertical	Pass
5	12427.138	52.00	74.0	22.00	Peak	216.00	300	Vertical	Pass
5**	12427.138	42.18	54.0	11.82	AV	216.00	300	Vertical	Pass
6	17435.888	55.81	74.0	18.19	Peak	324.00	200	Vertical	Pass
6**	17435.888	46.51	54.0	7.49	AV	324.00	200	Vertical	Pass

1 GHz to 18 GHz, ANT H 802.11n40 Middle Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1599.600	42.09	74.0	31.91	Peak	0.00	200	Horizontal	Pass
1**	1599.600	32.19	54.0	21.81	AV	0.00	200	Horizontal	Pass
2	2421.700	93.19	74.0	-19.19	Peak	318.00	200	Horizontal	N/A
2**	2421.700	85.45	54.0	-31.45	AV	318.00	200	Horizontal	N/A
3	2961.100	51.61	74.0	22.39	Peak	259.00	100	Horizontal	Pass
3**	2961.100	41.28	54.0	12.72	AV	259.00	100	Horizontal	Pass
4	6996.200	55.69	74.0	18.31	Peak	173.00	300	Horizontal	Pass
4**	6996.200	45.86	54.0	8.14	AV	173.00	300	Horizontal	Pass
5	11213.025	52.55	74.0	21.45	Peak	0.00	200	Horizontal	Pass
5**	11213.025	42.15	54.0	11.85	AV	0.00	200	Horizontal	Pass
6	17396.251	55.89	74.0	18.11	Peak	296.00	100	Horizontal	Pass
6**	17396.251	47.17	54.0	6.83	AV	296.00	100	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11n40 Middle Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1328.300	42.52	74.0	31.48	Peak	167.00	100	Vertical	Pass
1**	1328.300	32.61	54.0	21.39	AV	167.00	100	Vertical	Pass
2	2451.900	102.12	74.0	-28.12	Peak	153.00	100	Vertical	N/A
2**	2451.900	94.74	54.0	-40.74	AV	153.00	100	Vertical	N/A
3	2659.000	54.75	74.0	19.25	Peak	232.00	150	Vertical	Pass
3**	2659.000	44.59	54.0	9.41	AV	232.00	150	Vertical	Pass
4	5323.200	56.77	74.0	17.23	Peak	105.00	400	Vertical	Pass
4**	5323.200	45.50	54.0	8.50	AV	105.00	400	Vertical	Pass
5	10922.651	52.15	74.0	21.85	Peak	250.00	400	Vertical	Pass
5**	10922.651	43.40	54.0	10.60	AV	250.00	400	Vertical	Pass
6	17470.538	56.29	74.0	17.71	Peak	278.00	200	Vertical	Pass
6**	17470.538	46.55	54.0	7.45	AV	278.00	200	Vertical	Pass

1 GHz to 18 GHz, ANT H 802.11n40 High Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1455.800	42.40	74.0	31.60	Peak	124.00	200	Horizontal	Pass
1**	1455.800	32.66	54.0	21.34	AV	124.00	200	Horizontal	Pass
2	2465.000	92.89	74.0	-18.89	Peak	315.00	150	Horizontal	N/A
2**	2465.000	84.21	54.0	-30.21	AV	315.00	150	Horizontal	N/A
3	2999.800	51.15	74.0	22.85	Peak	301.00	150	Horizontal	Pass
3**	2999.800	42.35	54.0	11.65	AV	301.00	150	Horizontal	Pass
4	6977.400	55.30	74.0	18.70	Peak	360.00	200	Horizontal	Pass
4**	6977.400	46.60	54.0	7.40	AV	360.00	200	Horizontal	Pass
5	10924.088	52.36	74.0	21.64	Peak	151.00	100	Horizontal	Pass
5**	10924.088	43.64	54.0	10.36	AV	151.00	100	Horizontal	Pass
6	15817.575	56.00	74.0	18.00	Peak	226.00	400	Horizontal	Pass
6**	15817.575	45.66	54.0	8.34	AV	226.00	400	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11n40 High Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1328.000	45.22	74.0	28.78	Peak	177.00	400	Vertical	Pass
1**	1328.000	32.54	54.0	21.46	AV	177.00	400	Vertical	Pass
2	2476.400	103.07	74.0	-29.07	Peak	141.00	100	Vertical	N/A
2**	2476.400	95.49	54.0	-41.49	AV	141.00	100	Vertical	N/A
3	3282.600	49.00	74.0	25.00	Peak	300.00	150	Vertical	Pass
3**	3282.600	43.58	54.0	10.42	AV	300.00	150	Vertical	Pass
4	5313.800	58.96	74.0	15.04	Peak	111.00	300	Vertical	Pass
4**	5313.800	44.96	54.0	9.04	AV	111.00	300	Vertical	Pass
5	11953.625	52.64	74.0	21.36	Peak	360.00	300	Vertical	Pass
5**	11953.625	42.92	54.0	11.08	AV	360.00	300	Vertical	Pass
6	17419.614	56.01	74.0	17.99	Peak	355.00	200	Vertical	Pass
6**	17419.614	46.78	54.0	7.22	AV	355.00	200	Vertical	Pass

5.8 Band Edge (Restricted-band band-edge)

5.8.1 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).

5.8.2 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.

5.8.3 Test Procedure

The measurement frequency range is from 9 kHz 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 $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz

VBW $\geq$ RBW

Sweep = auto

Detector function = peak

Trace = max hold

For measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported, Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

For transmitters operating above 1 GHz repeat the measurement with an average detector.

5.8.4 Test Result

Note 1: The lowest and highest channels are tested to verify the band edge emissions. Please refer to the following the plots for emissions values.

Note 2: The test data all are tested in the vertical and horizontal antenna which the trace is max hold. So these plots have shown the worst case.

Note 3: According the ANSI C63.10-2013, 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 4: All antenna were tested, but only the worst case has been reported in this report.

Test Data

SISO-Antenna A

802.11b LOW CHANNEL

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2382.300	58.02	74.0	15.98	Peak	270.00	200	Vertical	Pass
1**	2382.300	46.68	54.0	7.32	AV	270.00	200	Vertical	Pass
2	2389.950	55.51	74.0	18.49	Peak	186.00	150	Vertical	Pass
2**	2389.950	46.40	54.0	7.60	AV	186.00	150	Vertical	Pass

802.11b HIGH CHANNEL

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2483.515	56.77	74.0	17.23	Peak	140.00	200	Vertical	Pass
1**	2483.515	46.75	54.0	7.25	AV	140.00	200	Vertical	Pass
2	2496.085	58.21	74.0	15.79	Peak	321.00	200	Vertical	Pass
2**	2496.085	46.20	54.0	7.80	AV	321.00	200	Vertical	Pass

802.11g LOW CHANNEL

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2389.550	60.50	74.0	13.50	Peak	257.00	150	Vertical	Pass
1**	2389.550	48.64	54.0	5.36	AV	257.00	150	Vertical	Pass
2	2389.950	59.32	74.0	14.68	Peak	277.00	150	Vertical	Pass
2**	2389.950	49.44	54.0	4.56	AV	277.00	150	Vertical	Pass

802.11g HIGH CHANNEL

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2483.545	62.76	74.0	11.24	Peak	276.00	200	Vertical	Pass
1**	2483.545	51.00	54.0	3.00	AV	276.00	200	Vertical	Pass
2	2483.740	62.77	74.0	11.23	Peak	152.00	200	Vertical	Pass
2**	2483.740	50.73	54.0	3.27	AV	152.00	200	Vertical	Pass

802.11n20 LOW CHANNEL

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2389.500	62.02	74.0	11.98	Peak	271.00	200	Vertical	Pass
1**	2389.500	50.15	54.0	3.85	AV	271.00	200	Vertical	Pass
2	2389.950	61.49	74.0	12.51	Peak	262.00	150	Vertical	Pass
2**	2389.950	50.46	54.0	3.54	AV	262.00	150	Vertical	Pass

802.11n20 HIGH CHANNEL

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2483.500	62.14	74.0	11.86	Peak	257.00	100	Vertical	Pass
1**	2483.500	50.37	54.0	3.63	AV	257.00	100	Vertical	Pass
2	2484.070	63.59	74.0	10.41	Peak	264.00	200	Vertical	Pass
2**	2484.070	49.80	54.0	4.20	AV	264.00	200	Vertical	Pass

802.11n40 LOW CHANNEL

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2389.550	62.52	74.0	11.48	Peak	269.00	150	Vertical	Pass
1**	2389.550	50.52	54.0	3.48	AV	269.00	150	Vertical	Pass
2	2389.950	60.54	74.0	13.46	Peak	284.00	100	Vertical	Pass
2**	2389.950	49.64	54.0	4.36	AV	284.00	100	Vertical	Pass

802.11n40 HIGH CHANNEL

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2483.560	61.22	74.0	12.78	Peak	329.00	100	Vertical	Pass
1**	2483.560	49.88	54.0	4.12	AV	329.00	100	Vertical	Pass
2	2484.685	62.02	74.0	11.98	Peak	153.00	200	Vertical	Pass
2**	2484.685	50.43	54.0	3.57	AV	153.00	200	Vertical	Pass

5.9 Power Spectral density (PSD)

5.9.1 Limit

FCC §15.247(e)

The same method of determining the conducted output power shall be used to determine the power spectral density. If a peak output power is measured, then a peak power spectral density measurement is required. If an average output power is measured, then an average power spectral density measurement should be used.

5.9.2 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.

5.9.3 Test Procedure

Set analyzer center frequency to DTS channel center frequency.

Set the span to 1.5 times the DTS bandwidth.

Set the RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.

Set the VBW $\geq 3 \text{ RBW}$.

Detector = peak.

Sweep time = auto couple.

Trace mode = max hold.

Allow trace to fully stabilize.

Use the peak marker function to determine the maximum amplitude level within the RBW.

If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

5.9.4 Test Result

Test Data

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

SISO-Antenna A

802.11b Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-10.03	6.32
Middle	-10.38	6.32
High	-9.39	6.32

802.11g Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-11.67	6.32
Middle	-11.56	6.32
High	-12.38	6.32

802.11n-20 MHz Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-10.88	8
Middle	-13.47	8
High	-12.10	8

802.11n-40 MHz Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-15.47	8
Middle	-16.65	8
High	-16.22	8

Test Plots

SISO-Antenna A

802.11b LOW CHANNEL



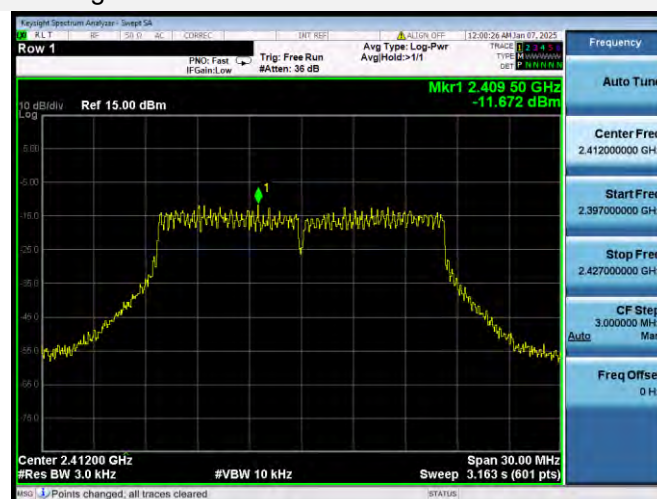
802.11b MIDDLE CHANNEL



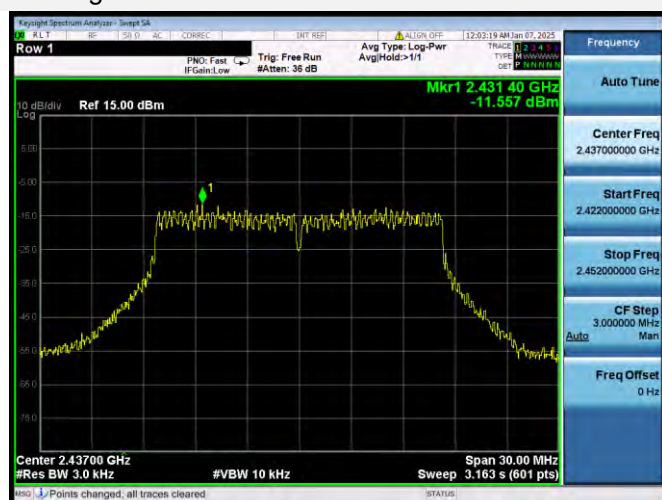
802.11b HIGH CHANNEL



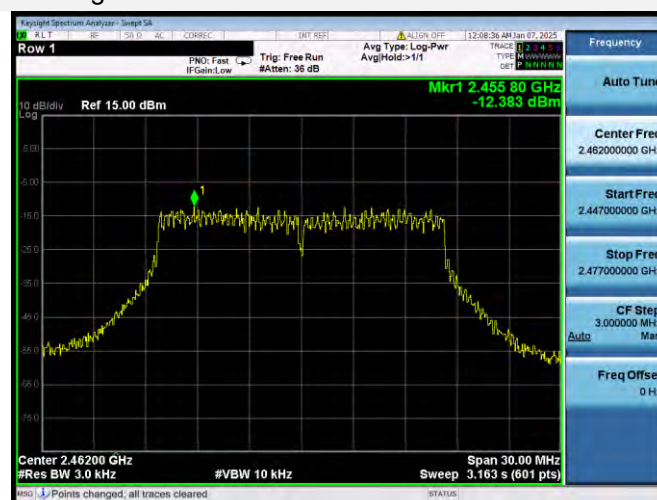
802.11g LOW CHANNEL



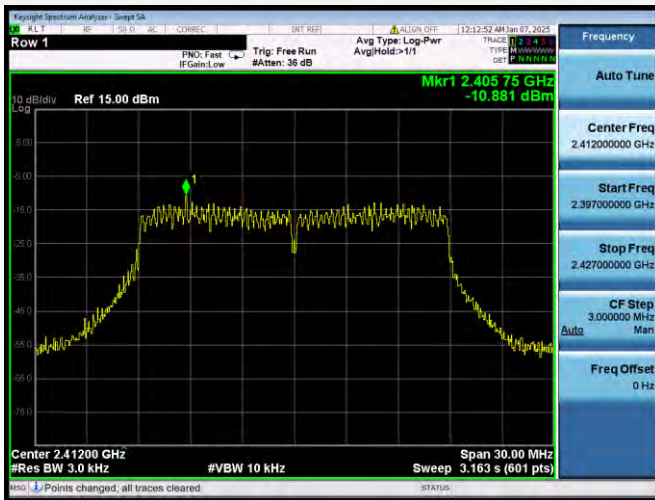
802.11g MIDDLE CHANNEL



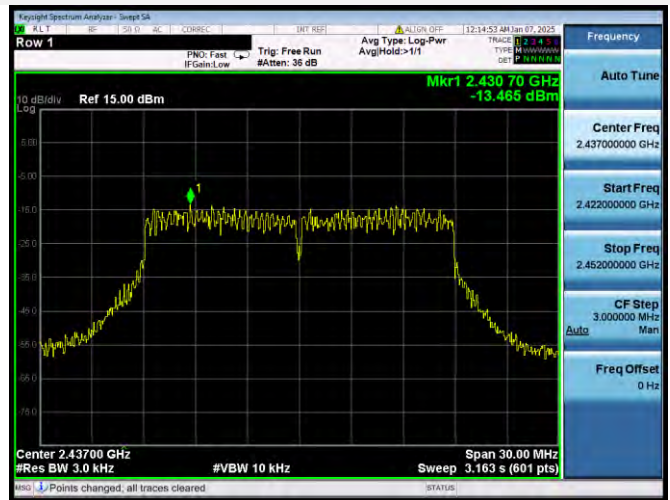
802.11g HIGH CHANNEL



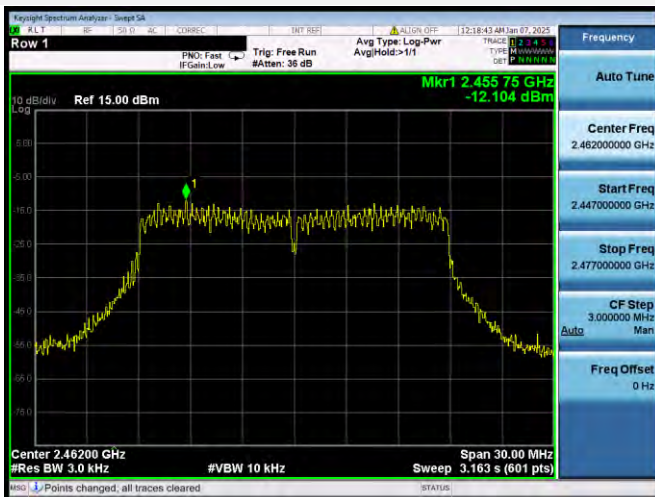
802.11n-20 MHz LOW CHANNEL



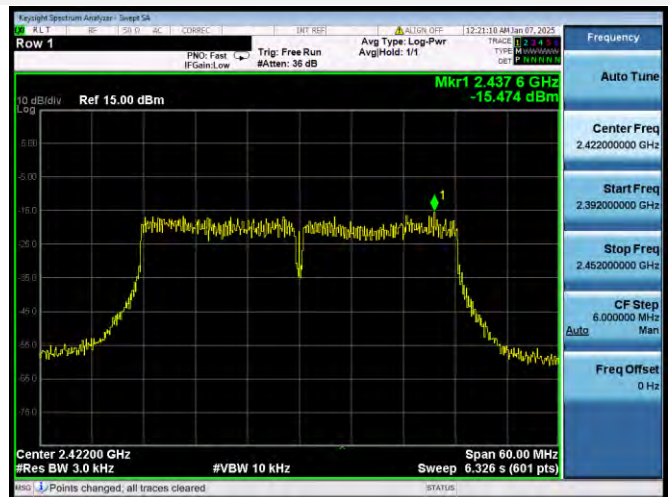
802.11n-20 MHz MIDDLE CHANNEL



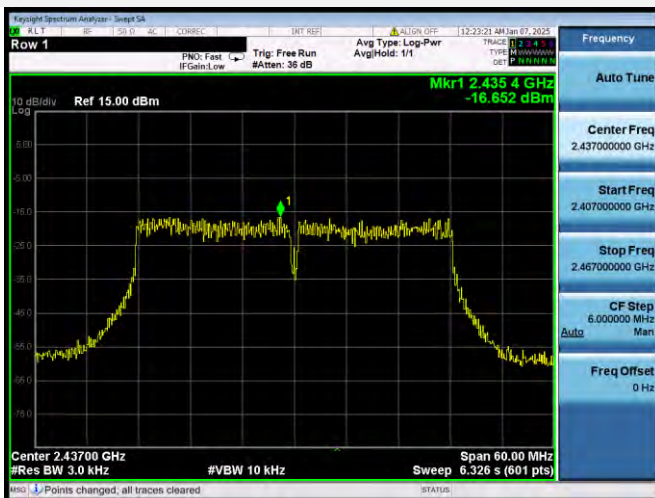
802.11n-20 MHz HIGH CHANNEL



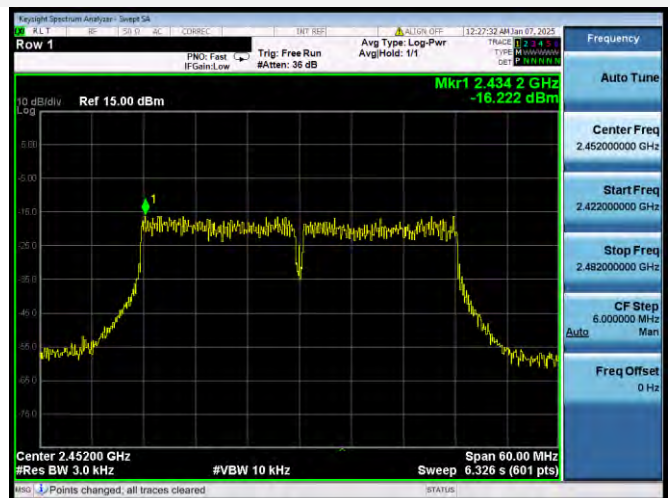
802.11n-40 MHz LOW CHANNEL



802.11n-40 MHz MIDDLE CHANNEL



802.11n-40 MHz HIGH CHANNEL



ANNEX A TEST SETUP PHOTOS

1 Radiated Test Photo

Below 30MHz



Close-up



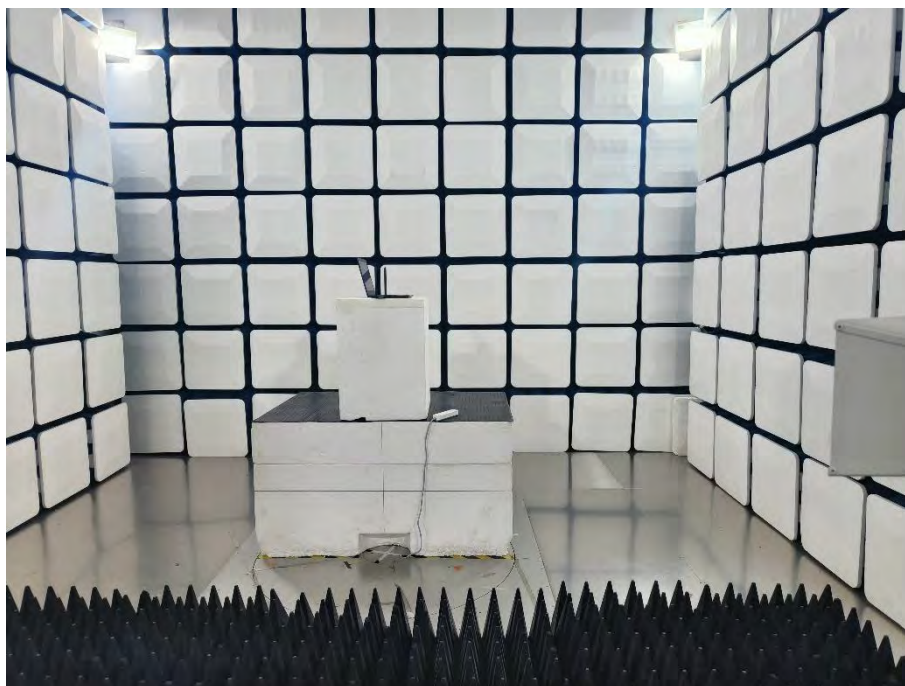
30MHz-1GHz



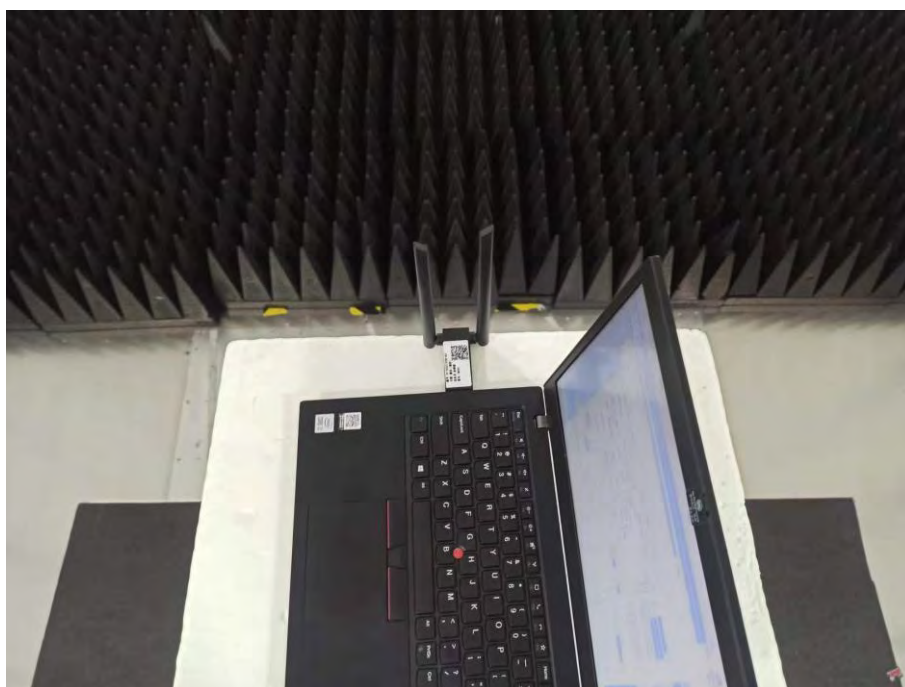
Close-up



Above 1GHz

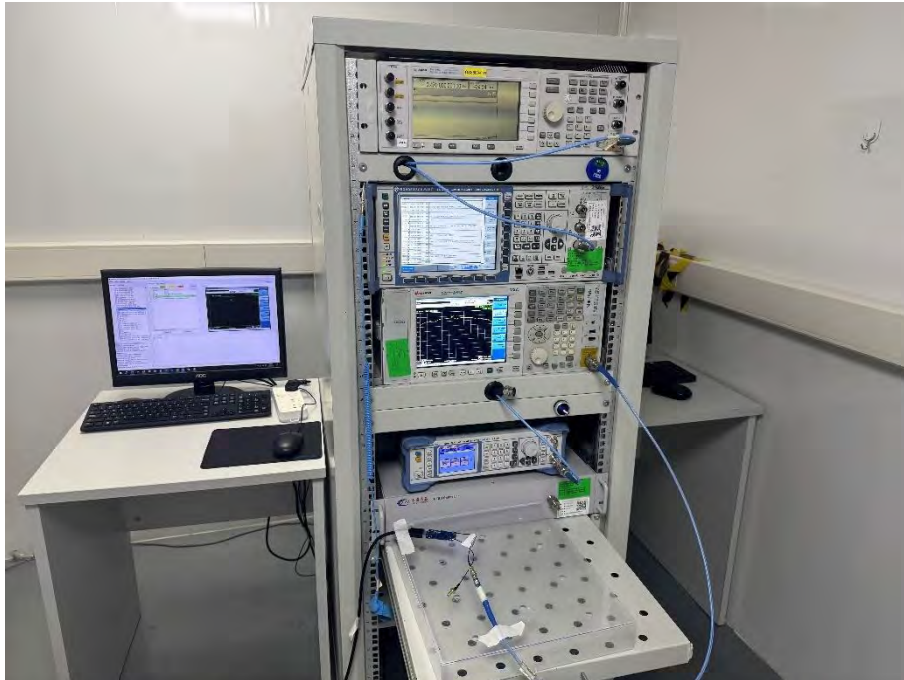


Close-up



2 Conducted Test Photo

Conducted Test



3 Conducted Emissions

Test Photo 1



Test Photo 2



ANNEX B EUT EXTERNAL PHOTOS

FRONT VIEW OF EUT



REAR VIEW OF EUT



LEFT VIEW OF EUT



RIGHT VIEW OF EUT



TOP VIEW OF EUT



BOTTOM VIEW OF EUT



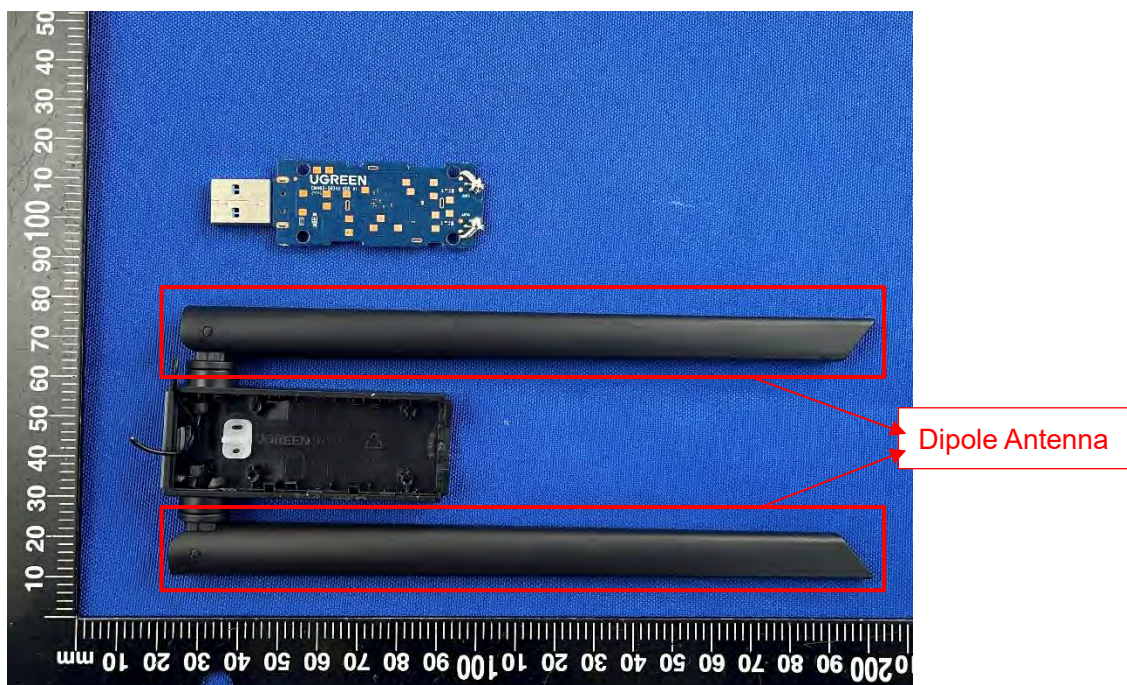


ANNEX C EUT INTERNAL PHOTOS

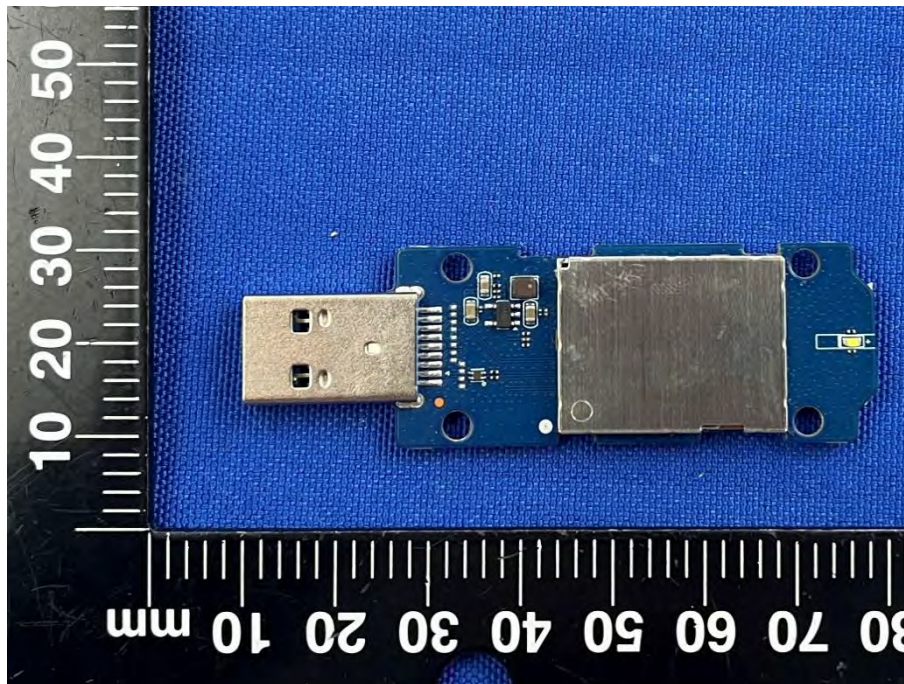
EUT UNCOVER VIEW 1



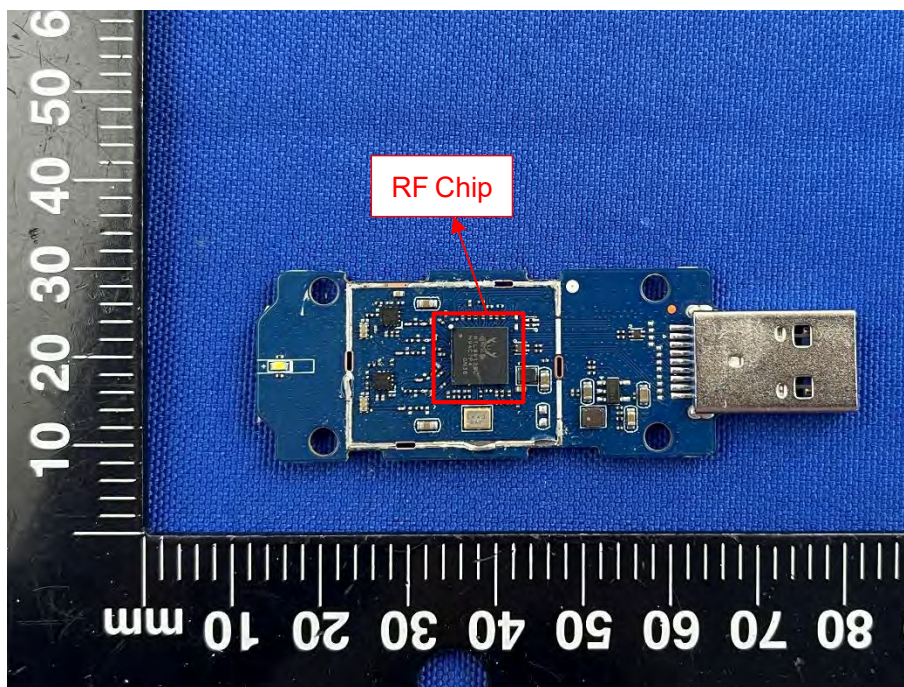
EUT UNCOVER VIEW 2



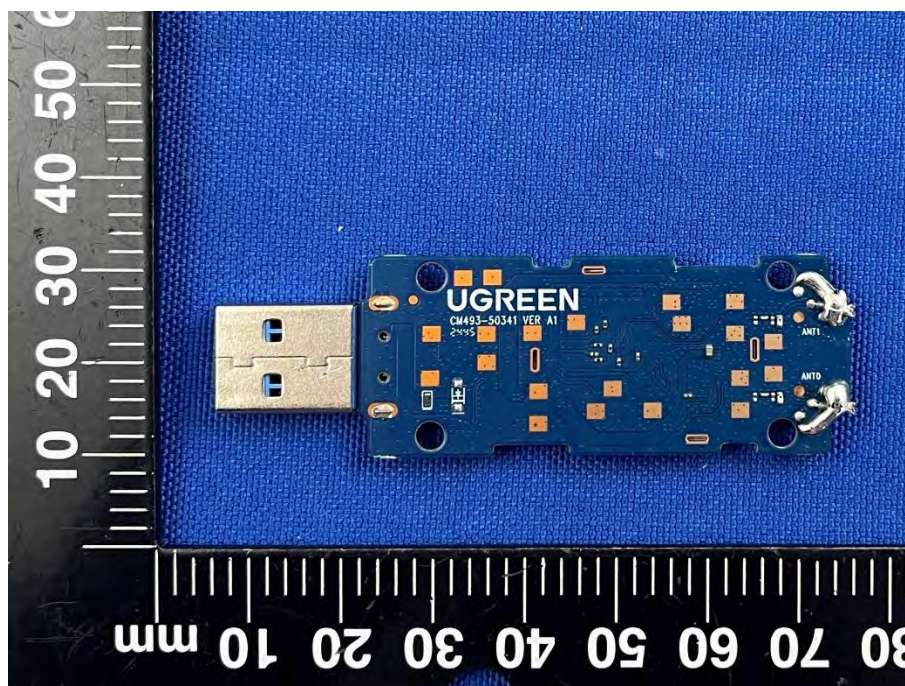
MAIN BOARD TOP VIEW (WITH SHIELDING)



MAIN BOARD TOP VIEW (WITHOUT SHIELDING)



MAIN BOARD REAR VIEW



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--END OF REPORT--