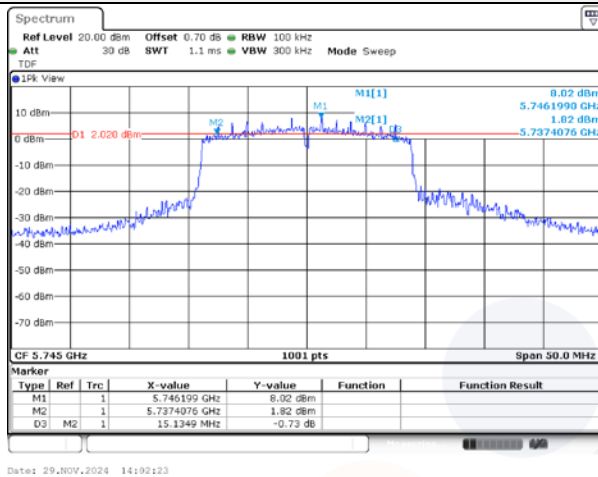


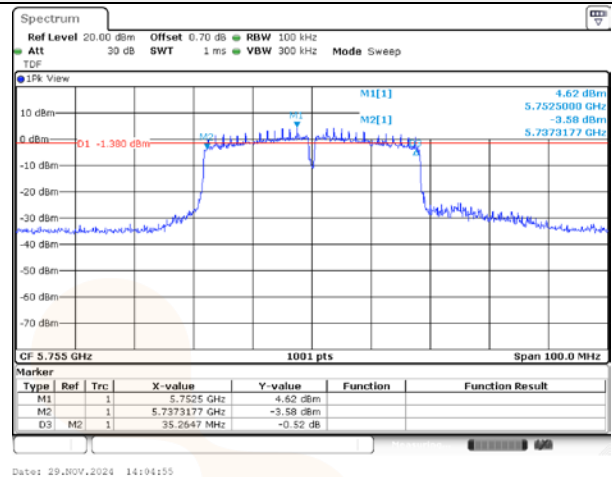
In order to simplify the report, only ac mode test plots are attached.

6 dB bandwidth
SISO_ANT1

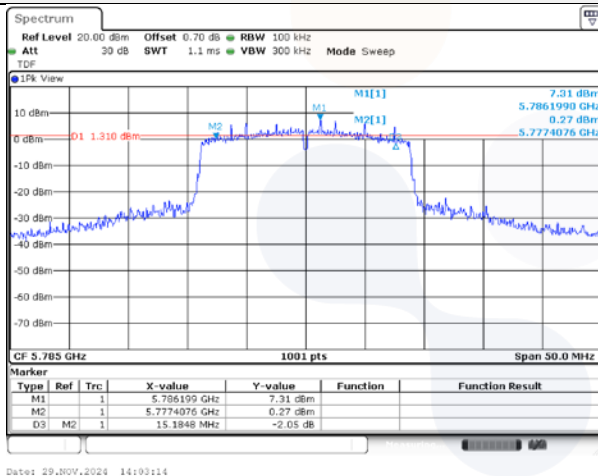
UNII-3 / 802.11ac VHT 20 / Low ch.



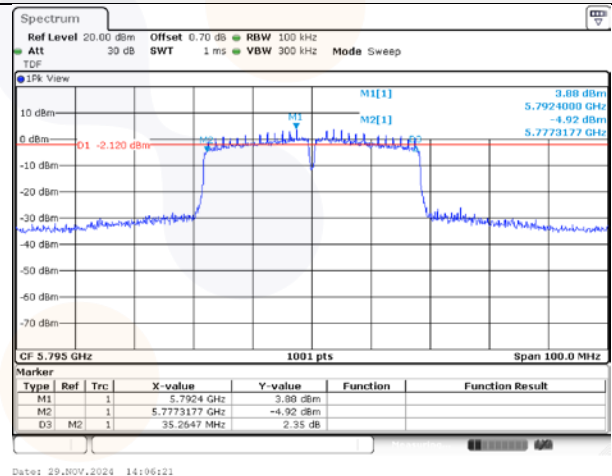
UNII-3 / 802.11ac VHT40 / Low ch.



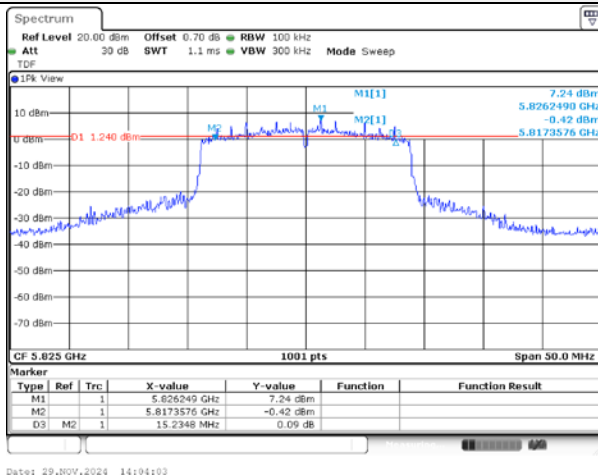
UNII-3 / 802.11ac VHT 20 / Mid ch.



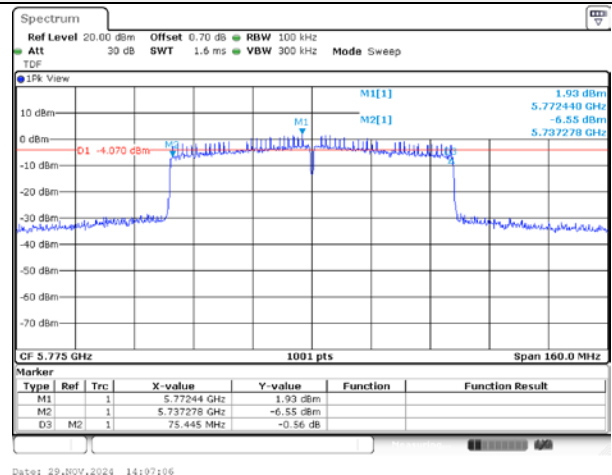
UNII-3 / 802.11ac VHT40 / High ch.



UNII-3 / 802.11ac VHT 20 / High ch.



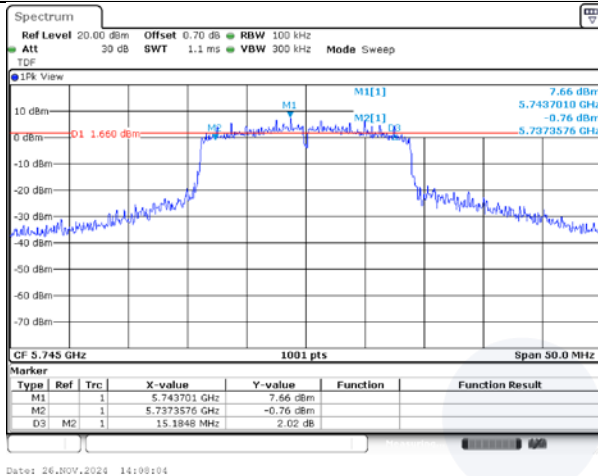
UNII-3 / 802.11ac VHT80 / Mid ch.



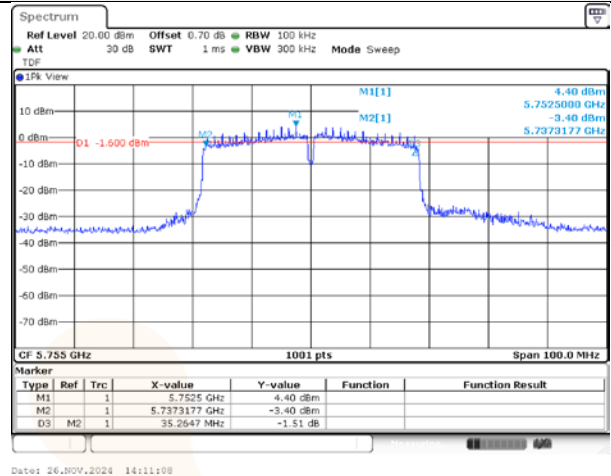
In order to simplify the report, only ANT 1 ac mode test plots are attached.

MIMO

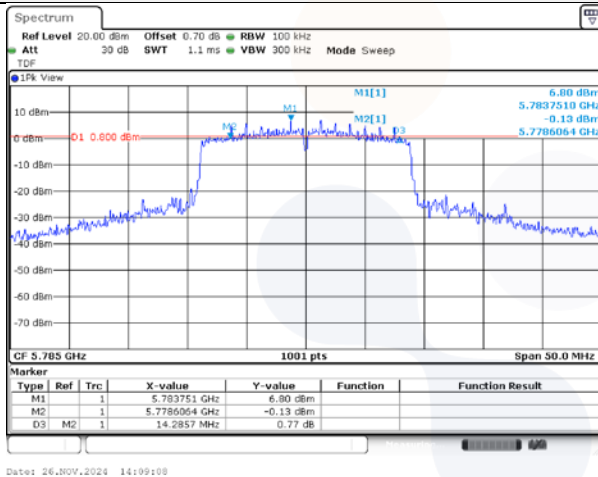
UNII-3 / 802.11ac VHT 20 / Low ch.



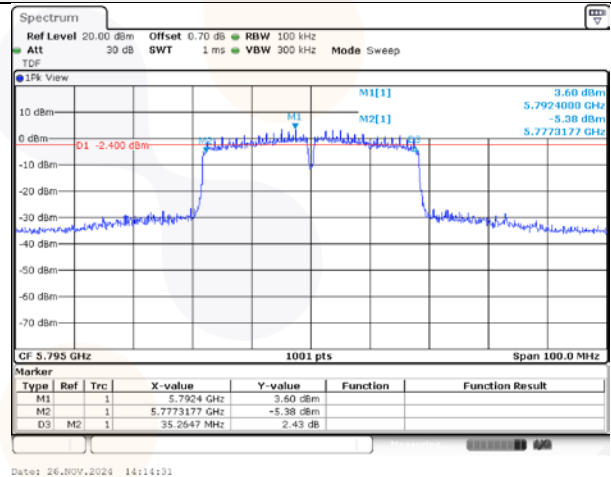
UNII-3 / 802.11ac VHT40 / Low ch.



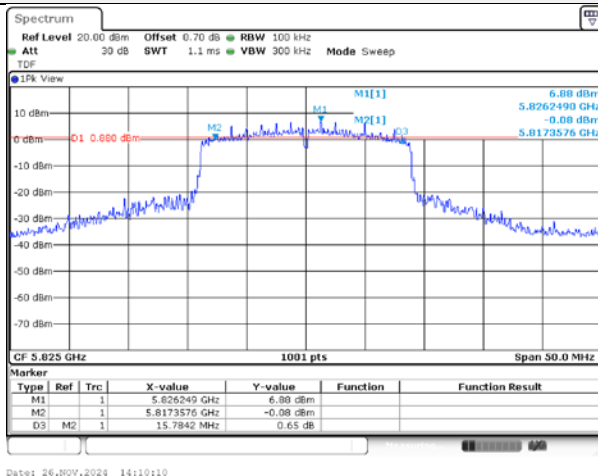
UNII-3 / 802.11ac VHT 20 / Mid ch.



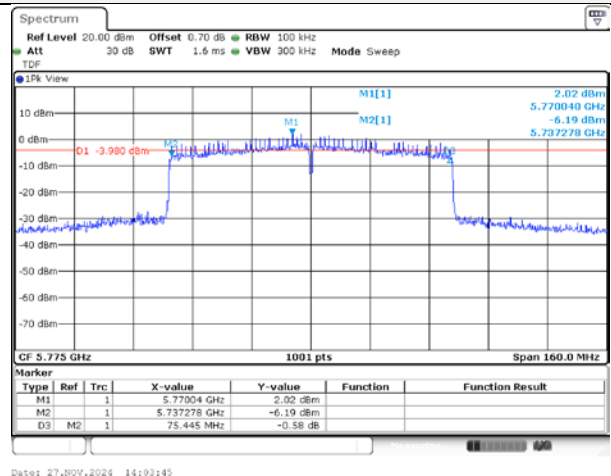
UNII-3 / 802.11ac VHT40 / High ch.



UNII-3 / 802.11ac VHT 20 / High ch.



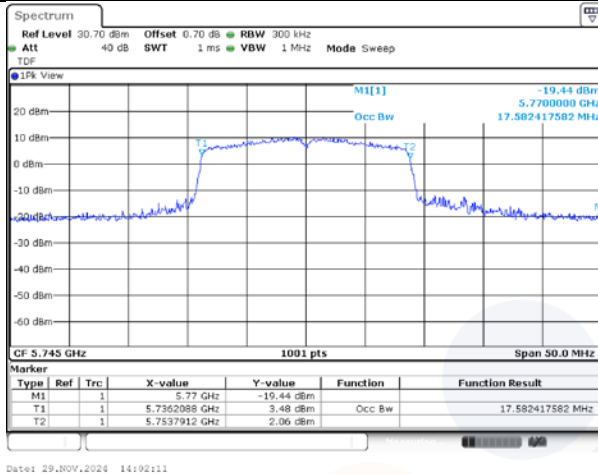
UNII-3 / 802.11ac VHT80 / Mid ch.



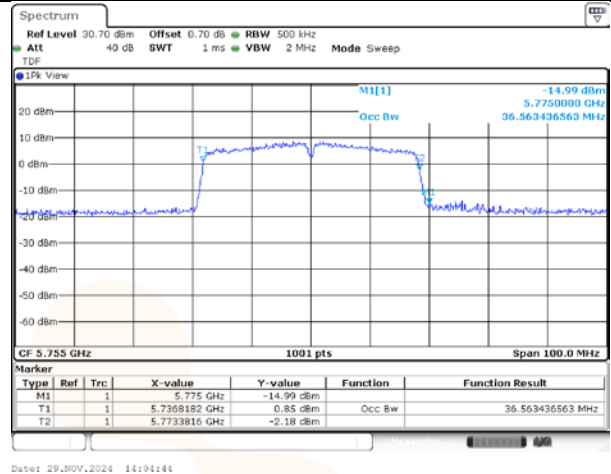
In order to simplify the report, only ac mode test plots are attached.

99% bandwidth
SISO_ANT1

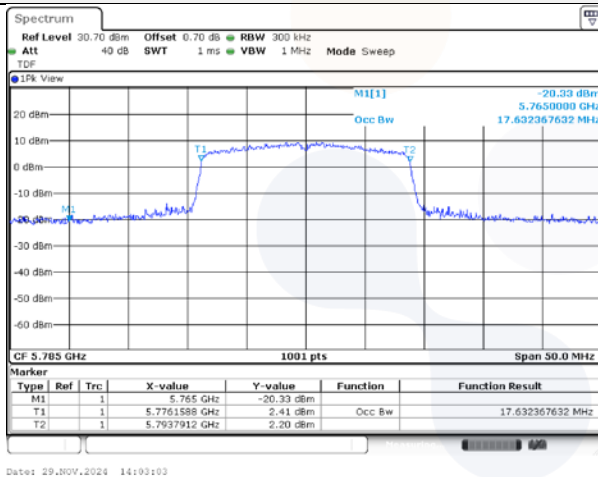
UNII-3 / 802.11ac VHT 20 / Low ch.



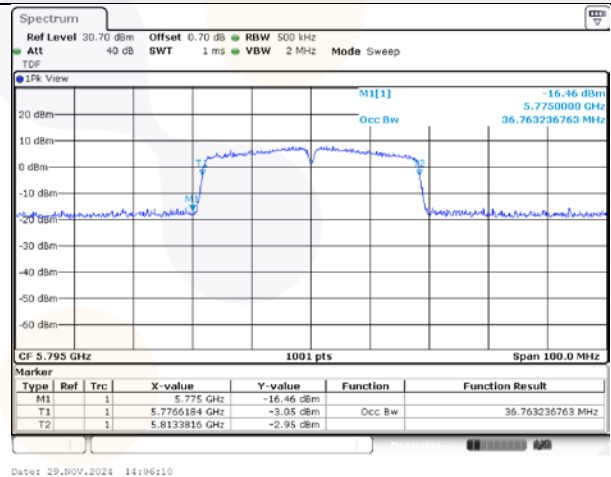
UNII-3 / 802.11ac VHT40 / Low ch.



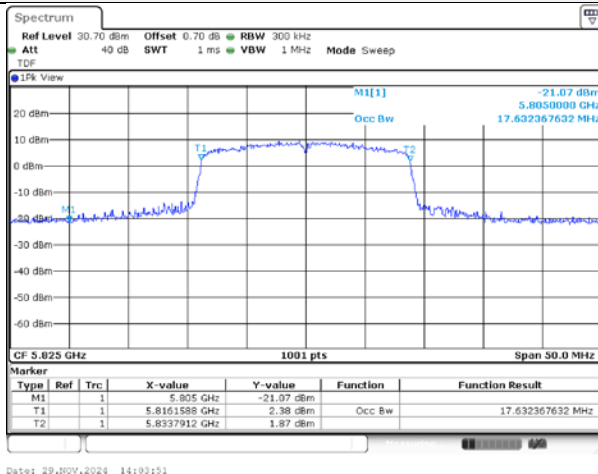
UNII-3 / 802.11ac VHT 20 / Mid ch.



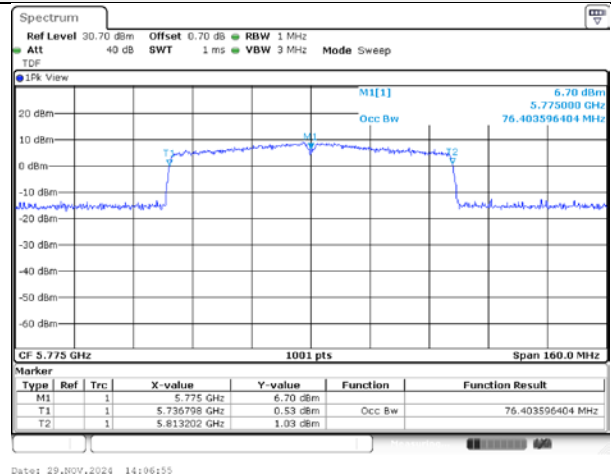
UNII-3 / 802.11ac VHT40 / High ch.



UNII-3 / 802.11ac VHT 20 / High ch.



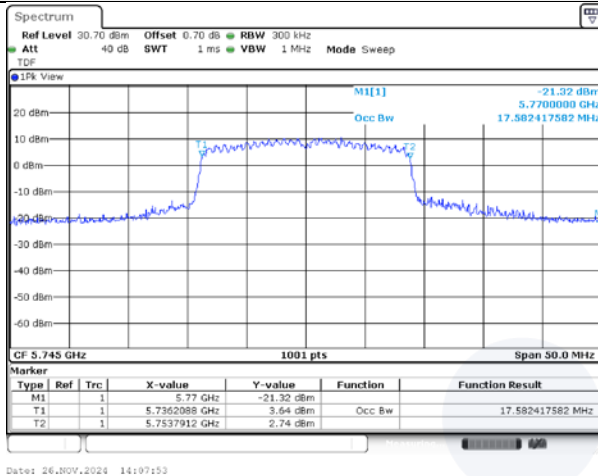
UNII-3 / 802.11ac VHT80 / Mid ch.



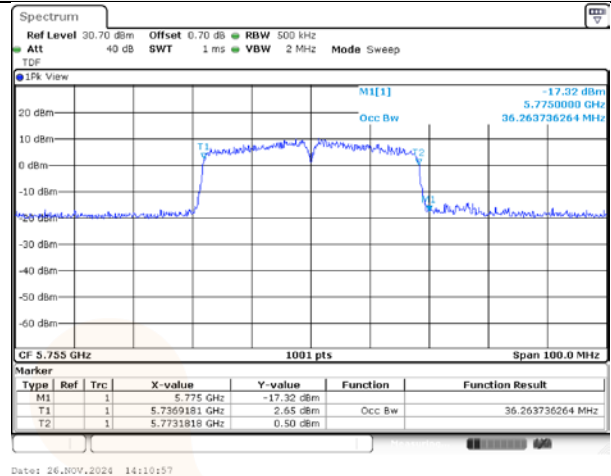
In order to simplify the report, only ANT 1 ac mode test plots are attached.

MIMO

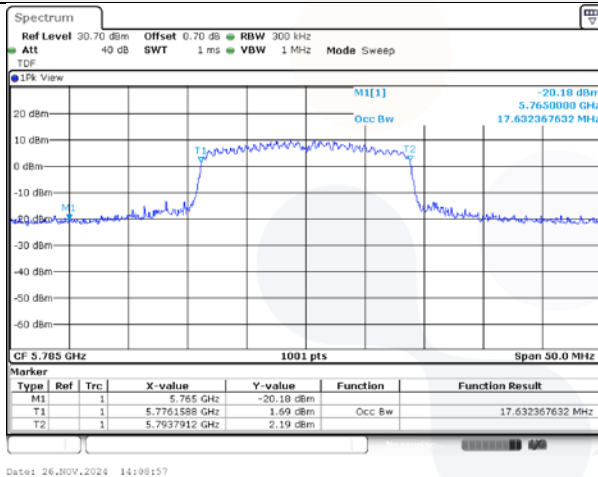
UNII-3 / 802.11ac VHT 20 / Low ch.



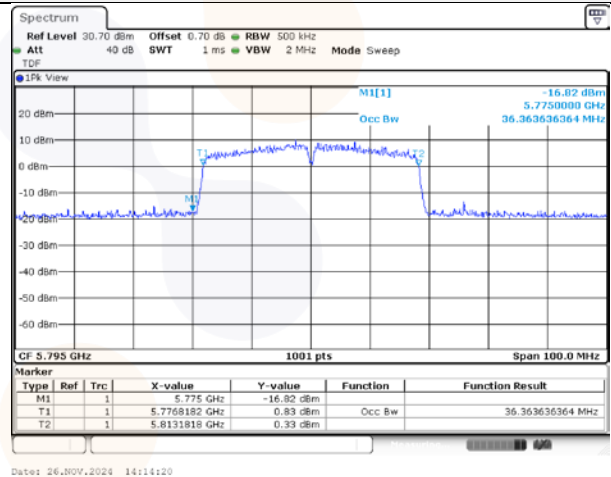
UNII-3 / 802.11ac VHT40 / Low ch.



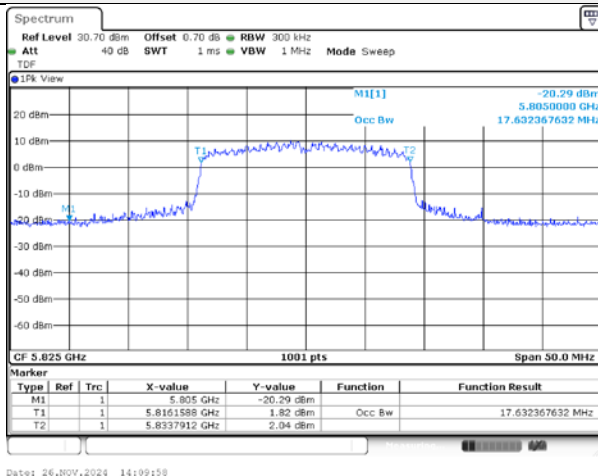
UNII-3 / 802.11ac VHT 20 / Mid ch.



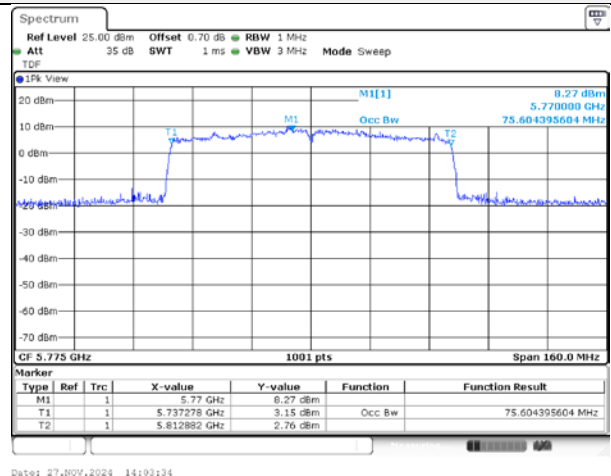
UNII-3 / 802.11ac VHT40 / High ch.



UNII-3 / 802.11ac VHT 20 / High ch.

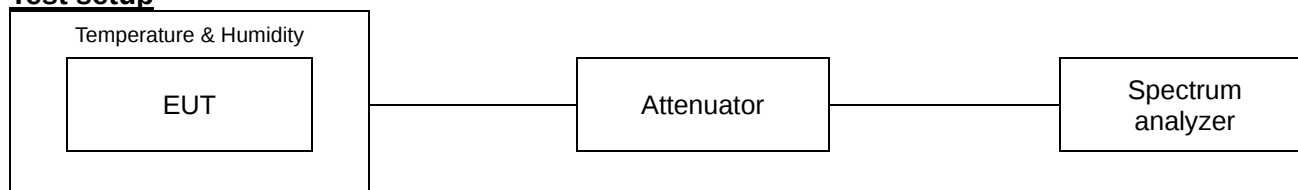


UNII-3 / 802.11ac VHT80 / Mid ch.



7.5. Frequency stability

Test setup



Limit

According to §15.407(g),

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual.

According to RSS-GEN(6.11),

For licence-exempt devices, the following conditions apply:

- (a) at the temperatures of -20°C (-4°F), +20°C (+68°F) and +50°C (+122°F), and at the manufacturer's rated supply voltage
- (b) at the temperature of +20°C (+68°F) and at ±15% of the manufacturer's rated supply voltage

If the frequency stability limits are only met within a temperature range that is smaller than the range specified in (a) for licensed or licence-exempt devices, the frequency stability requirement will be deemed to be met if the transmitter is automatically prevented from operating outside this smaller temperature range and if the published operating characteristics for the equipment are revised to reflect this restricted temperature range.

If the device contains both licence and licence-exempt transmitter modules, the device's frequency stability shall be measured under the most stringent condition specified in the applicable RSS of the transmitter module.

In addition, if an unmodulated carrier is not available, the method used to measure frequency stability shall be described in the test report.

According to RSS-GEN(8.11),

If the frequency stability of the licence-exempt radio apparatus is not specified in the applicable RSS, the fundamental emissions of the radio apparatus should be kept within at least the central 80% of its permitted operating frequency band in order to minimize the possibility of out-of-band operation. In addition, its occupied bandwidth shall be entirely outside the restricted bands and the prohibited TV bands of 54-72 MHz, 76-88 MHz, 174-216 MHz, and 470-602 MHz, unless otherwise indicated.

Test procedure

ANSI C63.10-2013 - Section 6.8.1

Test results

Test band : UNII-1

Frequency (Hz) : 5 180 000 000

Voltage (%)	Power (V)	Temp. (°C)		Frequency (Hz)	Frequency error (Hz)	Deviation	
						(ppm)	(%)
100	5.00	20(Ref.)	Startup	5 180 024 119	24 119.000	4.66	0.000 466
			2 Minutes	5 180 024 670	24 670.000	4.76	0.000 476
			5 Minutes	5 180 024 845	24 845.000	4.80	0.000 480
			10 Minutes	5 180 024 969	24 969.000	4.82	0.000 482
		-30	Startup	5 180 008 719	8 719.000	1.68	0.000 168
			2 Minutes	5 180 004 232	4 232.000	0.82	0.000 082
			5 Minutes	5 180 002 079	2 079.000	0.40	0.000 040
			10 Minutes	5 180 000 930	930.000	0.18	0.000 018
		-20	Startup	5 179 968 558	-31 442.000	-6.07	-0.000 607
			2 Minutes	5 179 968 546	-31 454.000	-6.07	-0.000 607
			5 Minutes	5 179 968 547	-31 453.000	-6.07	-0.000 607
			10 Minutes	5 179 968 543	-31 457.000	-6.07	-0.000 607
		-10	Startup	5 180 016 085	16 085.000	3.11	0.000 311
			2 Minutes	5 180 015 405	15 405.000	2.97	0.000 297
			5 Minutes	5 180 014 537	14 537.000	2.81	0.000 281
			10 Minutes	5 180 013 997	13 997.000	2.70	0.000 270
		0	Startup	5 180 007 450	7 450.000	1.44	0.000 144
			2 Minutes	5 180 005 784	5 784.000	1.12	0.000 112
			5 Minutes	5 180 005 104	5 104.000	0.99	0.000 099
			10 Minutes	5 180 004 577	4 577.000	0.88	0.000 088
		10	Startup	5 179 985 839	-14 161.000	-2.73	-0.000 273
			2 Minutes	5 179 982 259	-17 741.000	-3.42	-0.000 342
			5 Minutes	5 179 980 451	-19 549.000	-3.77	-0.000 377
			10 Minutes	5 179 979 413	-20 587.000	-3.97	-0.000 397
		30	Startup	5 179 975 356	-24 644.000	-4.76	-0.000 476
			2 Minutes	5 179 974 424	-25 576.000	-4.94	-0.000 494
			5 Minutes	5 179 973 695	-26 305.000	-5.08	-0.000 508
			10 Minutes	5 179 973 133	-26 867.000	-5.19	-0.000 519
		40	Startup	5 179 969 267	-30 733.000	-5.93	-0.000 593
			2 Minutes	5 179 969 201	-30 799.000	-5.95	-0.000 595
			5 Minutes	5 179 969 204	-30 796.000	-5.95	-0.000 595
			10 Minutes	5 179 969 235	-30 765.000	-5.94	-0.000 594
		50	Startup	5 179 969 561	-30 439.000	-5.88	-0.000 588
			2 Minutes	5 179 971 046	-28 954.000	-5.59	-0.000 559
			5 Minutes	5 179 972 032	-27 968.000	-5.40	-0.000 540
			10 Minutes	5 179 972 653	-27 347.000	-5.28	-0.000 528
85	4.25	20(Ref.)	Startup	5 180 025 219	25 219.000	4.87	0.000 487
			2 Minutes	5 180 025 329	25 329.000	4.89	0.000 489
			5 Minutes	5 180 025 439	25 439.000	4.91	0.000 491
			10 Minutes	5 180 025 598	25 598.000	4.94	0.000 494
115	5.75	20(Ref.)	Startup	5 180 026 265	26 265.000	5.07	0.000 507
			2 Minutes	5 180 025 895	25 895.000	5.00	0.000 500
			5 Minutes	5 180 026 010	26 010.000	5.02	0.000 502
			10 Minutes	5 180 026 101	26 101.000	5.04	0.000 504

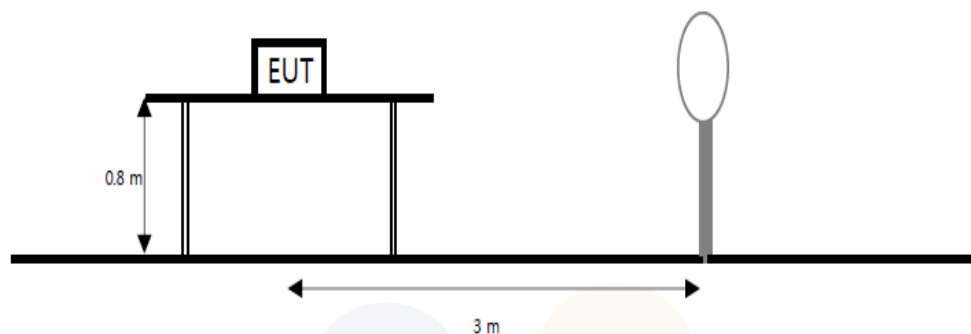
Test band : UNII-3
 Frequency (Hz) : 5 745 000 000

Voltage (%)	Power (V)	Temp. (°C)		Frequency (Hz)	Frequency error (Hz)	Deviation	
						(ppm)	(%)
100	5.00	20(Ref.)	Startup	5 744 996 848	-3 152.000	-0.55	-0.000 055
			2 Minutes	5 745 003 896	3 896.000	0.68	0.000 068
			5 Minutes	5 745 006 766	6 766.000	1.18	0.000 118
			10 Minutes	5 745 008 631	8 631.000	1.50	0.000 150
		-30	Startup	5 744 995 472	-4 528.000	-0.79	-0.000 079
			2 Minutes	5 744 989 026	-10 974.000	-1.91	-0.000 191
			5 Minutes	5 744 988 608	-11 392.000	-1.98	-0.000 198
			10 Minutes	5 744 987 867	-12 133.000	-2.11	-0.000 211
		-20	Startup	5 744 965 790	-34 210.000	-5.95	-0.000 595
			2 Minutes	5 744 966 276	-33 724.000	-5.87	-0.000 587
			5 Minutes	5 744 966 061	-33 939.000	-5.91	-0.000 591
			10 Minutes	5 744 965 911	-34 089.000	-5.93	-0.000 593
		-10	Startup	5 745 016 711	16 711.000	2.91	0.000 291
			2 Minutes	5 745 015 548	15 548.000	2.71	0.000 271
			5 Minutes	5 745 015 018	15 018.000	2.61	0.000 261
			10 Minutes	5 745 014 735	14 735.000	2.56	0.000 256
		0	Startup	5 745 008 439	8 439.000	1.47	0.000 147
			2 Minutes	5 745 006 459	6 459.000	1.12	0.000 112
			5 Minutes	5 745 005 437	5 437.000	0.95	0.000 095
			10 Minutes	5 745 004 836	4 836.000	0.84	0.000 084
		10	Startup	5 744 972 994	-27 006.000	-4.70	-0.000 470
			2 Minutes	5 744 971 407	-28 593.000	-4.98	-0.000 498
			5 Minutes	5 744 970 788	-29 212.000	-5.08	-0.000 508
			10 Minutes	5 744 970 387	-29 613.000	-5.15	-0.000 515
		30	Startup	5 744 972 324	-27 676.000	-4.82	-0.000 482
			2 Minutes	5 744 970 494	-29 506.000	-5.14	-0.000 514
			5 Minutes	5 744 969 944	-30 056.000	-5.23	-0.000 523
			10 Minutes	5 744 969 609	-30 391.000	-5.29	-0.000 529
		40	Startup	5 744 964 941	-35 059.000	-6.10	-0.000 610
			2 Minutes	5 744 965 417	-34 583.000	-6.02	-0.000 602
			5 Minutes	5 744 965 487	-34 513.000	-6.01	-0.000 601
			10 Minutes	5 744 965 579	-34 421.000	-5.99	-0.000 599
		50	Startup	5 744 967 257	-32 743.000	-5.70	-0.000 570
			2 Minutes	5 744 969 795	-30 205.000	-5.26	-0.000 526
			5 Minutes	5 744 970 901	-29 099.000	-5.07	-0.000 507
			10 Minutes	5 744 971 652	-28 348.000	-4.93	-0.000 493
85	4.25	20(Ref.)	Startup	5 745 012 024	12 024.000	2.09	0.000 209
			2 Minutes	5 745 012 476	12 476.000	2.17	0.000 217
			5 Minutes	5 745 013 333	13 333.000	2.32	0.000 232
			10 Minutes	5 745 013 762	13 762.000	2.40	0.000 240
115	5.75	20(Ref.)	Startup	5 745 014 124	14 124.000	2.46	0.000 246
			2 Minutes	5 745 014 453	14 453.000	2.52	0.000 252
			5 Minutes	5 745 014 815	14 815.000	2.58	0.000 258
			10 Minutes	5 745 015 095	15 095.000	2.63	0.000 263

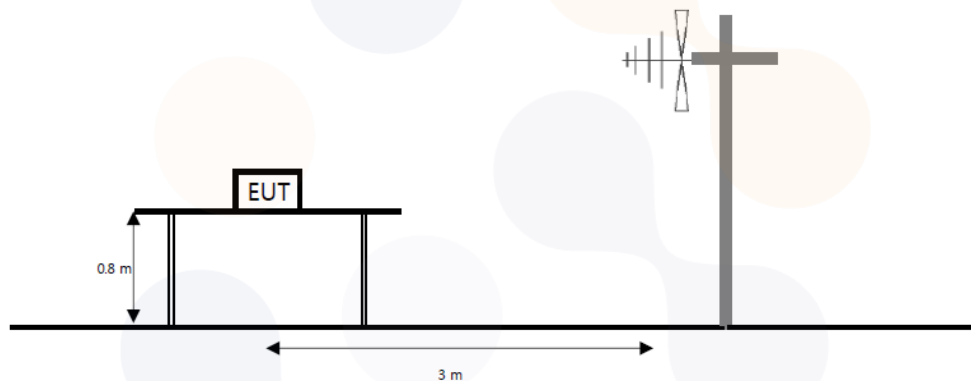
7.6. Spurious Emission, Band Edge and Restricted bands

Test setup

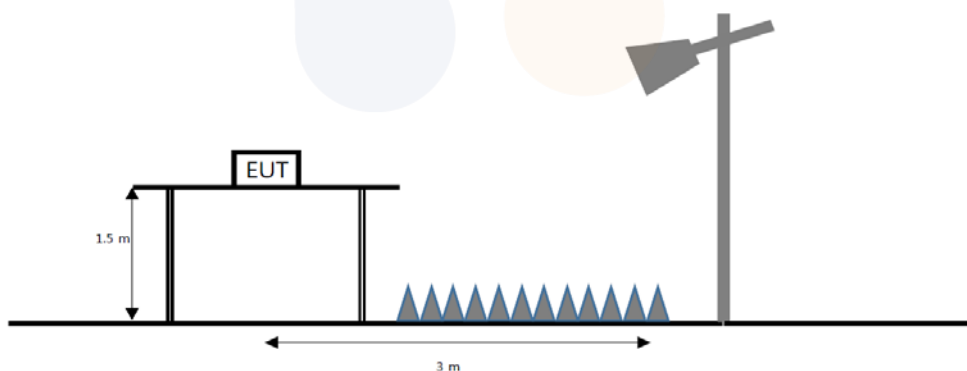
The diagram below shows the test setup that is utilized to make the measurements for emission from 9 kHz to 30 MHz Emissions



The diagram below shows the test setup that is utilized to make the measurements for emission from 30 MHz to 1 GHz emissions.



The diagram below shows the test setup that is utilized to make the measurements for emission from 1 GHz to the tenth harmonic of the highest fundamental frequency or to 40 GHz emissions, whichever is lower.



Limit

FCC

According to 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 ($\mu V/m$)	Measurement distance (m)
0.009 - 0.490	2 400/F(kHz)	300
0.490 - 1.705	24 000/F(kHz)	30
1.705 - 30	30	30
30 - 88	100**	3
88 - 216	150**	3
216 - 960	200**	3
Above 960	500	3

**Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54–72 MHz, 76–88 MHz, 174–216 MHz or 470–806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., Section 15.231 and 15.241.

According to section 15.205(a) and (b),

only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.009 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
0.495 - 0.505	16.694 75 - 16.695 25	608 - 614	5.35 - 5.46
2.173 5 - 2.190 5	16.804 25 - 16.804 75	960 - 1 240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1 300 - 1 427	8.025 - 8.5
4.177 25 - 4.177 75	37.5 - 38.25	1 435 - 1 626.5	9.0 - 9.2
4.207 25 - 4.207 75	73 - 74.6	1 645.5 - 1 646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1 660 - 1 710	10.6 - 12.7
6.267 75 - 6.268 25	108 - 121.94	1 718.8 - 1 722.2	13.25 - 13.4
6.311 75 - 6.312 25	123 - 138	2 200 - 2 300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2 310 - 2 390	15.35 - 16.2
8.362 - 8.366	156.524 75 - 156.525 25	2 483.5 - 2 500	17.7 - 21.4
8.376 25 - 8.386 75	25	2 690 - 2 900	22.01 - 23.12
8.414 25 - 8.414 75	156.7 - 156.9	3 260 - 3 267	23.6 - 24.0
12.29 - 12.293	162.012 5 - 167.17	3 332 - 3 339	31.2 - 31.8
12.519 75 - 12.520 25	167.72 - 173.2	3 345.8 - 3 358	36.43 - 36.5
12.576 75 - 12.577 25	240 - 285	3 600 - 4 400	Above 38.6
13.36 - 13.41	322 - 335.4		

The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in section 15.209. At frequencies equal to or less than 1 000 MHz, compliance with the limits in section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1 000 MHz, compliance with the emission limits in section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in section 15.35 apply to these measurements.

Eurofins KCTL Co.,Ltd. 65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea TEL: 82-70-5008-1021 FAX: 82-505-299-8311 www.kctl.co.kr	Report No.: KR25-SRF0003 Page (66) of (150)	
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According to section 15.407(b),

undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz

For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

For transmitters operating in the 5.725-5.85 GHz band: All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.



IC

According to RSS-247(5.5),

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced 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, provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under section 5.4(d), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

According to RSS-Gen(8.9),

Except where otherwise indicated in the applicable RSS, radiated emissions shall comply with the field strength limits shown in table 5 and table 6. Additionally, the level of any transmitter unwanted emission shall not exceed the level of the transmitter's fundamental emission.

Table 5- General field strength limits at frequencies above 30 MHz

Frequency(MHz)	Field strength ($\mu V/m$ at 3 m)
30 to 88	100
88 to 216	150
216 to 960	200
Above 960	500

Table 6- General field strength limits at frequencies below 30 MHz

Frequency	Magnetic field strength (H-Field) ($\mu A/m$)	Measurement distance(m)
9 – 490 kHz ¹⁾	6.37/F (F in kHz)	300
490 – 1705 kHz	63.7/F (F in kHz)	30
1.705 - 30 MHz	0.08	30

According to RSS-Gen(8.10),

Restricted frequency bands, identified in table 7, are designated primarily for safety-of-life services (distress calling and certain aeronautical activities), certain satellite downlinks, radio astronomy and some government uses. Except where otherwise indicated, the following conditions related to the restricted frequency bands apply:

- The transmit frequency, including fundamental components of modulation, of licence-exempt radio apparatus shall not fall within the restricted frequency bands listed in table 7 except for apparatus compliant with RSS-287, Emergency Position Indicating Radio Beacons (EPIRB), Emergency Locator Transmitters (ELT), Personal Locator Beacons (PLB), and Maritime Survivor Locator Devices (MSLD).
- Unwanted emissions that fall into restricted frequency bands listed in table 7 shall comply with the limits specified in table 5 and table 6.
- Unwanted emissions that do not fall within the restricted frequency bands listed in table 7 shall comply either with the limits specified in the applicable RSS or with those specified in table 5 and table 6.

Table 7- Restricted frequency bands*

MHz	MHz	GHz
0.090 - 0.110	149.9 - 150.05	9.0 - 9.2
0.495 - 0.505	156.52475 - 156.52525	9.3 - 9.5
2.1735 - 2.1905	156.7 - 156.9	10.6 - 12.7
3.020 - 3.026	162.0125 - 167.17	13.25 - 13.4
4.125 - 4.128	167.72 - 173.2	14.47 - 14.5
4.17725 - 4.17775	240 - 285	15.35 - 16.2
4.20725 - 4.20775	322 - 335.4	17.7 - 21.4
5.677 - 5.683	399.9 - 410	22.01 - 23.12
6.215 - 6.218	608 - 614	23.6 - 24.0
6.26775 - 6.26825	960 - 1427	31.2 - 31.8
6.31175 - 6.31225	1435 - 1626.5	36.43 - 36.5
8.291 - 8.294	1645.5 - 1646.5	Above 38.6
8.362 - 8.366	1660 - 1710	
8.37625 - 8.38675	1718.8 - 1722.2	
8.41425 - 8.41475	2200 - 2300	
12.29 - 12.293	2310 - 2390	
12.51975 - 12.52025	2483.5 - 2500	
12.57675 - 12.57725	2655 - 2900	
13.36 - 13.41	3260 - 3267	
16.42 - 16.423	3332 - 3339	
16.69475 - 16.69525	3345.8 - 3358	
16.80425 - 16.80475	3500 - 4400	
25.5 - 25.67	4500 - 5150	
37.5 - 38.25	5350 - 5460	
73 - 74.6	7250 - 7750	
74.8 - 75.2	8025 - 8500	
108 - 138	--	

* Certain frequency bands listed in table 7 and in bands above 38.6 GHz are designated for licence-exempt applications. These frequency bands and the requirements that apply to related devices are set out in the 200 and 300 series of RSSs.

Test procedure

ANSI C63.10-2013 Section 12.7.7.2, 12.7.5, 12.7.6
 KDB 789033 D02 v02r01 – Section G

Test settings

Peak field strength measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = as specified in table
3. VBW $\geq$ (3 $\times$ RBW)
4. Detector = peak
5. Sweep time = auto
6. Trace mode = max hold
7. Allow sweeps to continue until the trace stabilizes

Table. RBW as a function of frequency

Frequency	RBW
9 kHz to 150 kHz	200 Hz to 300 Hz
0.15 MHz to 30 MHz	9 kHz to 10 kHz
30 MHz to 1 000 MHz	100 kHz to 120 kHz
> 1 000 MHz	1 MHz

Average field strength measurements

Trace averaging with continuous EUT transmission at full power

If the EUT can be configured or modified to transmit continuously ($D \geq 98\%$), then the average emission levels shall be measured using the following method (with EUT transmitting continuously):

1. RBW = 1 MHz (unless otherwise specified).
2. VBW $\geq (3 \times \text{RBW})$.
3. Detector = RMS (power averaging), 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.
4. 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 to use linear voltage averaging. Log or dB averaging shall not be used.
5. Sweep time = auto.
6. Perform a trace average of at least 100 traces.

Trace averaging across ON and OFF times of the EUT transmissions followed by duty cycle correction

If continuous transmission of the EUT ($D \geq 98\%$) cannot be achieved and the duty cycle is constant (duty cycle variations are less than $\pm 2\%$), then the following procedure shall be used:

1. The EUT shall be configured to operate at the maximum achievable duty cycle.
2. Measure the duty cycle D of the transmitter output signal as described in 11.6.
3. RBW = 1 MHz (unless otherwise specified).
4. VBW $\geq [3 \times \text{RBW}]$.
5. Detector = RMS (power averaging), 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.
6. 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 to use linear voltage averaging. Log or dB averaging shall not be used.
7. Sweep time = auto.
8. Perform a trace average of at least 100 traces.
9. A correction factor shall be added to the measurement results prior to comparing with the emission limit to compute the emission level that would have been measured had the test been performed at 100% 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 $[10 \log (1 / D)]$, where D is the duty cycle.
 - 2) If linear voltage averaging mode was used in step f), then the applicable correction factor is $[20 \log (1 / D)]$, where D is the duty cycle.
 - 3) If a specific emission is demonstrated to be continuous ($D \geq 98\%$) rather than turning ON and OFF with the transmit cycle, then no duty cycle correction is required for that emission.

Band edge measurements

Integration Method

For maximum emissions measurements, follow the procedures described in II.G.5., “Procedures for unwanted maximum Emissions Measurements above 1000 MHz. Except for the following changes:

1. Set RBW = 100 kHz
2. Set VBW $\geq 3 \times$ RBW
3. Perform a band-power integration across the 1 MHz bandwidth in which the band edge emission level is to be measured. CAUTION: you must ensure that the spectrum analyzer or EMI receiver is set for peak detection and max-hold for this measurement.

For average emissions measurements, follow the procedures described in II.G.6., “Procedures for average unwanted Emissions Measurements above 1000 MHz. Except for the following changes:

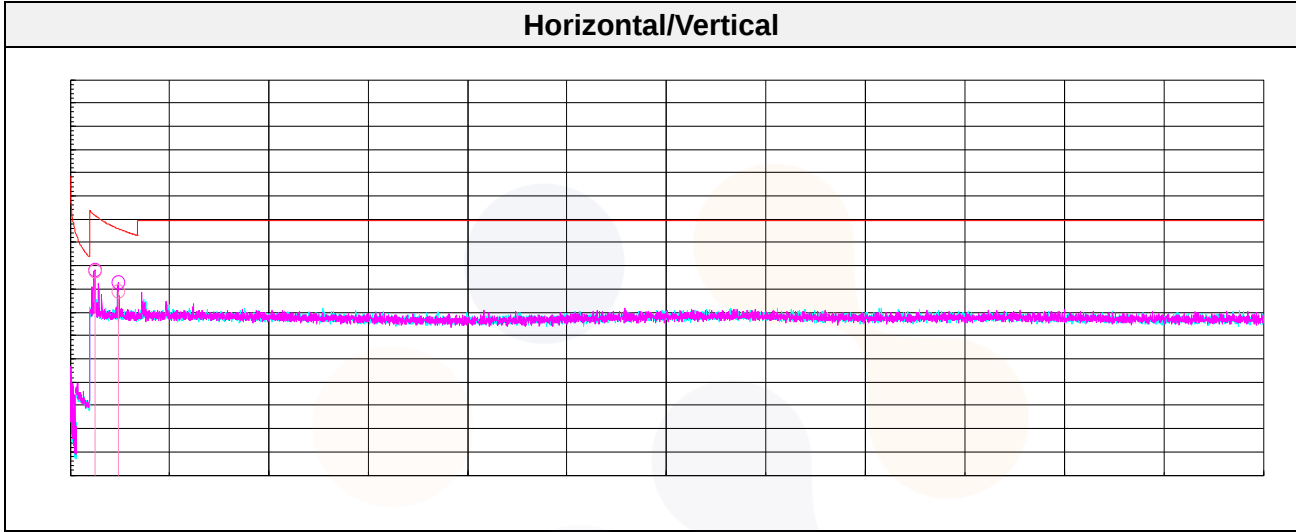
1. Set RBW = 100 kHz
2. Set VBW $\geq 3 \times$ RBW
3. Perform a band-power integration across the 1 MHz bandwidth in which the band edge emission level is to be measured.

Notes:

1. $f < 30$ MHz, extrapolation factor of 40 dB/decade of distance. $F_d = 40\log(D_m/D_s)$
 $f \geq 30$ MHz, extrapolation factor of 20 dB/decade of distance. $F_d = 20\log(D_m/D_s)$
Where:
 F_d = Distance factor in dB
 D_m = Measurement distance in meters
 D_s = Specification distance in meters
2. Factors(dB) = Antenna factor(dB/m) + Cable loss(dB) + or Amp. gain(dB) + or F_d (dB)
3. The worst-case emissions are reported however emissions whose levels were not within 20 dB of respective limits were not reported.
4. Average test would be performed if the peak result were greater than the average limit.
5. ¹⁾ means restricted band.
6. Above 1 GHz the worst results between two antenna polarizations (H and V) were documented in the test report.
7. Below 30 MHz frequency range, In order to search for the worst result, all orientations about parallel, perpendicular, and ground-parallel were investigated then reported. when the emission level was higher than 20 dB of the limit, then the following statement shall be made: “No spurious emissions were detected within 20 dB of the limit.”
8. For above 1 GHz pre-scan to detect harmonic and spurious emissions, the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 30 kHz for peak measurements.
9. The limits in CFR 47, Part 15, Subpart C, paragraph 15.209 (a), are identical to those in RSS-GEN Section 8.9, Table 6, since the measurements are performed in terms of magnetic field strength and converted to electric field strength levels (as reported in the table) using the free space impedance of 377Ω. For example, the measurement frequency X kHz resulted in a level of Y dBμV/m, which is equivalent to $Y - 51.5 = Z$ dBμA/m, which has the same margin, W dB, to the corresponding RSS-GEN Table 6 limit as it has to be 15.209(a) limit.

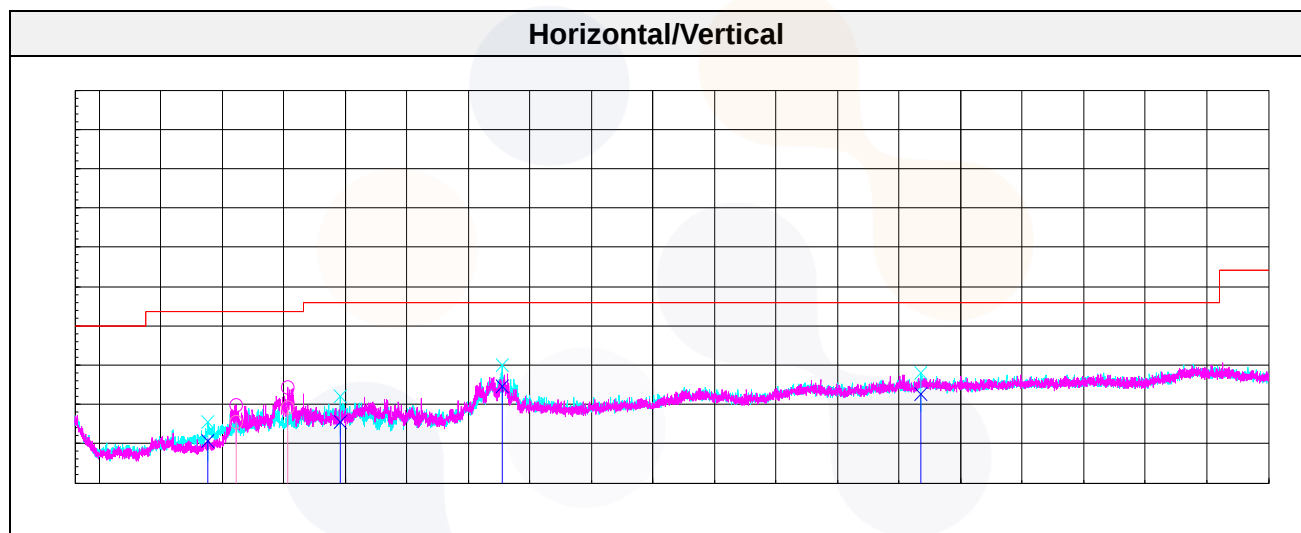
Test results (Below 30 MHz) – Worst case: 802.11n HT20 2TX MIMO / UNII-3_5 745 MHz

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Quasi peak data								
0.63	H	60.00	20.23	-32.53	40.00	7.70	31.60	23.90
1.22	H	51.10	20.31	-32.41	40.00	-1.00	25.90	26.90



Test results (Below 1 000 MHz) – Worst case: 802.11n HT20 2TX MIMO / UNII-3_5 745 MHz

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Quasi peak data								
138.52	V	28.20	13.86	-31.36	-	10.70	43.50	32.80
161.31	H	31.70	14.98	-31.28	-	15.40	43.50	28.10
202.90	H	34.50	15.88	-31.28	-	19.10	43.50	24.40
246.07 ¹⁾	V	28.40	18.03	-30.97	-	15.46	46.00	30.54
377.26	V	33.70	21.71	-30.91	-	24.50	46.00	21.50
717.85	V	24.20	28.36	-29.99	-	22.57	46.00	23.43



Test results (Above 1 000 MHz)

UNII-1 SISO

802.11a_Lowest Channel (5 180 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 149.68 ¹⁾	H	60.50	33.20	-27.26	-	66.44	74.00	7.56
10 360.55	H	63.70	38.78	-44.56	-	57.92	68.20	10.28
15 542.03 ¹⁾	V	55.80	38.12	-42.44	-	51.48	74.00	22.52
Average Data								
5 149.68 ¹⁾	H	44.05	33.20	-27.26	1.17	51.16	54.00	2.84
15 542.03 ¹⁾	V	44.48	38.12	-42.44	1.17	41.33	54.00	12.67

802.11a_Middle Channel (5 200 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 401.18	V	63.50	38.80	-44.54	-	57.76	68.20	10.44
15 603.25 ¹⁾	V	56.90	37.89	-42.43	-	52.36	74.00	21.64
Average Data								
15 603.25 ¹⁾	V	45.78	37.89	-42.43	1.17	42.41	54.00	11.59

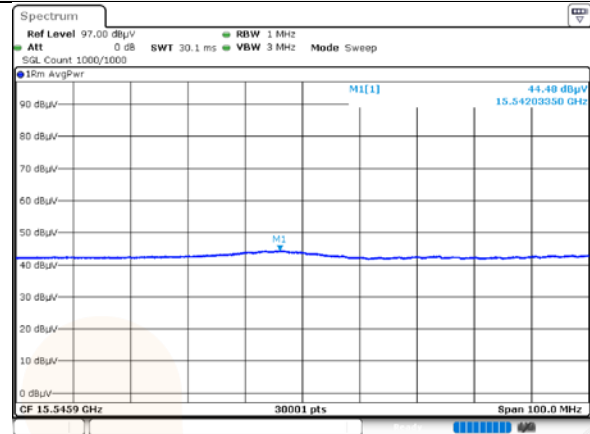
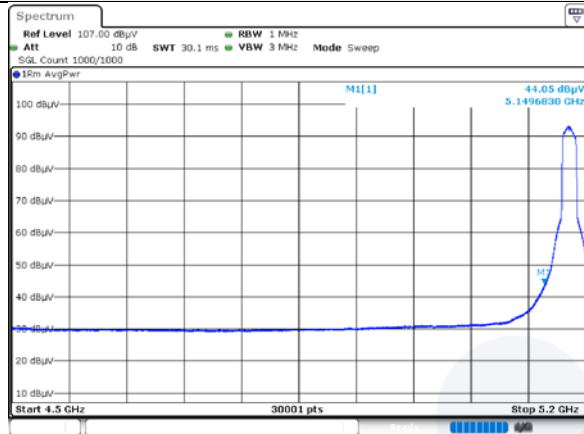
802.11a_Highest Channel (5 240 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 479.77	H	65.90	38.96	-44.51	-	60.35	68.20	7.85
15 720.88 ¹⁾	V	56.40	37.90	-42.42	-	51.88	74.00	22.12
Average Data								
15 720.88 ¹⁾	V	46.97	37.90	-42.42	1.17	43.62	54.00	10.38

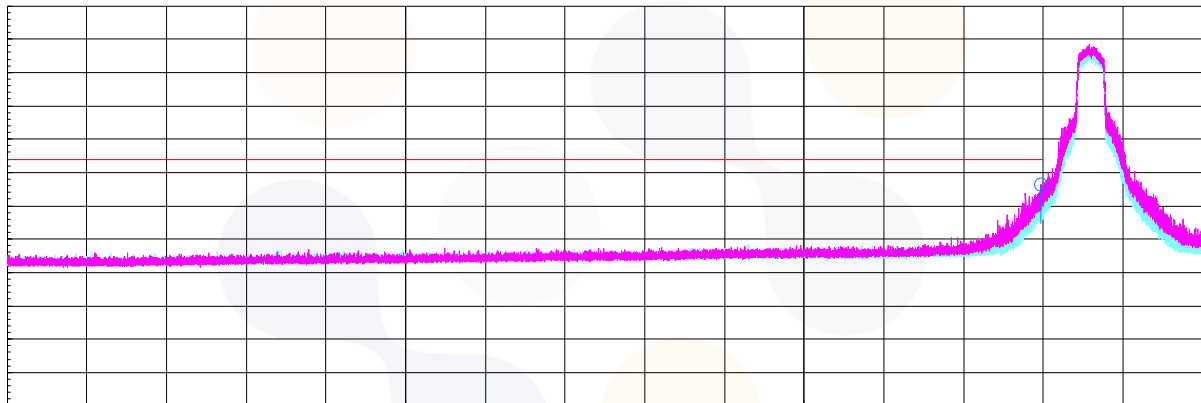
In order to simplify the report, attached plots were only the lowest margin condition

802.11a_Lowest Channel (5 180 MHz)

Average data



Horizontal/Vertical for Band-edge



Eurofins KCTL Co.,Ltd. 65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea TEL: 82-70-5008-1021 FAX: 82-505-299-8311 www.kctl.co.kr	Report No.: KR25-SRF0003 Page (75) of (150)	
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802.11n_HT20_Lowest Channel (5 180 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 149.85 ¹⁾	H	52.40	33.20	-27.26	-	58.34	74.00	15.66
10 360.93	V	59.90	38.78	-44.56	-	54.12	68.20	14.08
15 539.00 ¹⁾	H	55.20	38.12	-42.44	-	50.88	74.00	23.12
Average Data								
5 149.85 ¹⁾	H	36.71	33.20	-27.26	1.25	43.90	54.00	10.10

802.11n_HT20_Middle Channel (5 200 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 399.65	V	59.70	38.70	-44.54	-	53.86	68.20	14.34
15 617.97 ¹⁾	H	55.10	37.86	-42.43	-	50.53	74.00	23.47
Average Data								
No spurious emissions were detected within 20 dB of the limit								

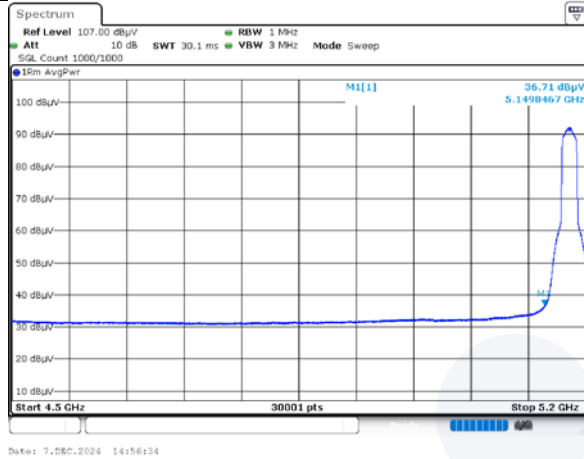
802.11n_HT20_Highest Channel (5 240 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 482.83	V	61.50	38.97	-44.51	-	55.96	68.20	12.24
15 746.53 ¹⁾	H	56.00	37.90	-42.42	-	51.48	74.00	22.52
Average Data								
15 746.53 ¹⁾	H	43.58	37.90	-42.42	1.25	40.31	54.00	13.69

In order to simplify the report, attached plots were only the lowest margin condition

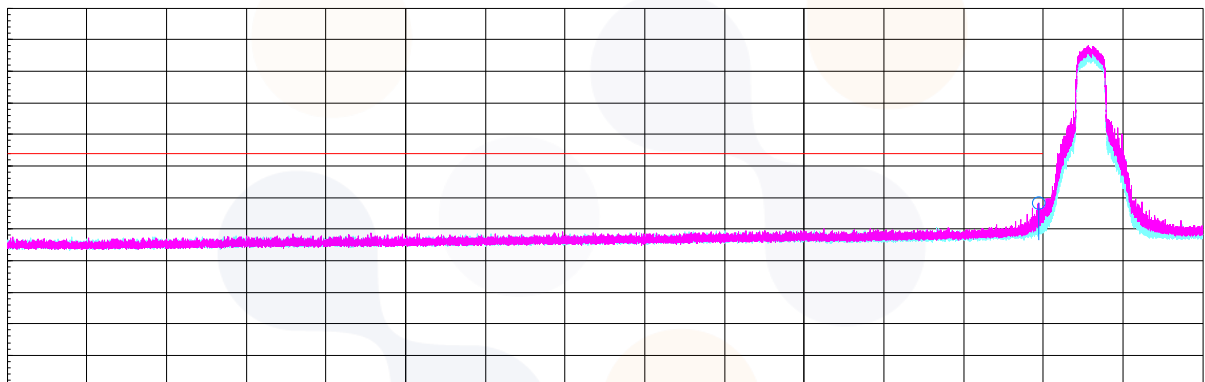
802.11n_HT20_Lowest Channel (5 180 MHz)

Average data



Blank

Horizontal/Vertical for Band-edge



802.11n_HT40_Lowest Channel (5 190 MHz)

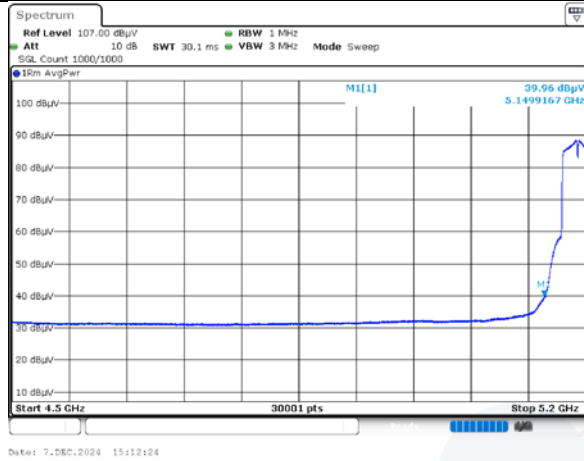
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 149.92 ¹⁾	H	51.90	33.20	-27.26	-	57.84	74.00	16.16
10 378.95	V	57.60	38.74	-44.55	-	51.79	68.20	16.41
15 697.70 ¹⁾	V	55.40	37.90	-42.42	-	50.88	74.00	23.12
Average Data								
5 149.92 ¹⁾	H	39.96	33.20	-27.26	2.25	48.15	54.00	5.85

802.11n_HT40_Highest Channel (5 230 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 459.07	V	59.70	38.92	-44.52	-	54.10	68.20	14.10
15 675.08 ¹⁾	H	54.50	37.90	-42.43	-	49.97	74.00	24.03
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

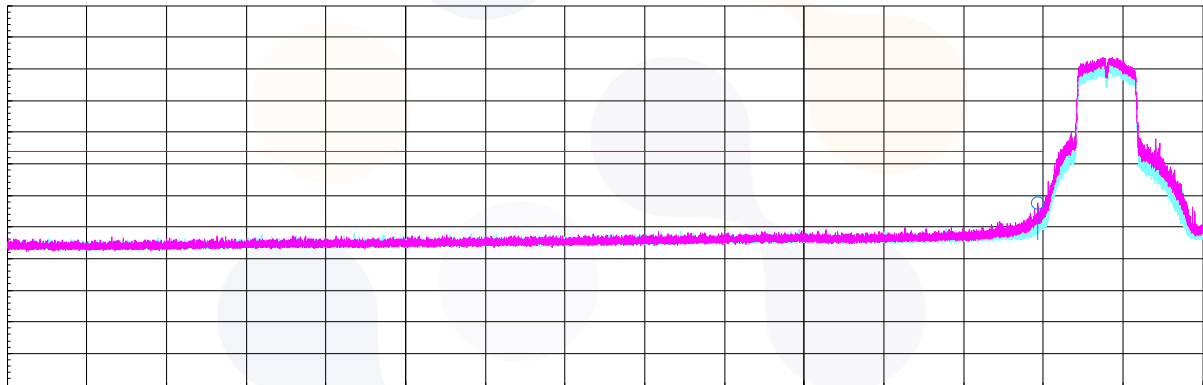
802.11n_HT40_Lowest Channel (5 190 MHz)

Average data



Blank

Horizontal/Vertical for Band-edge



802.11ac_VHT20_Lowest Channel (5 180 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 149.89 ¹⁾	H	52.20	33.20	-27.26	-	58.14	74.00	15.86
10 359.40	V	60.80	38.78	-44.56	-	55.02	68.20	13.18
15 533.25 ¹⁾	H	55.10	38.13	-42.44	-	50.79	74.00	23.21
Average Data								
5 149.89 ¹⁾	H	37.75	33.20	-27.26	1.23	44.92	54.00	9.08

802.11ac_VHT20_Middle Channel (5 200 MHz)

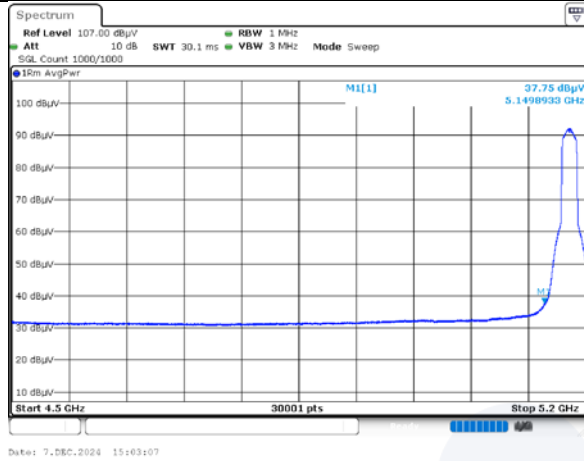
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 404.63	V	59.40	38.80	-44.54	-	53.66	68.20	14.54
15 615.28 ¹⁾	V	54.70	37.87	-42.43	-	50.14	74.00	23.86
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ac_VHT20_Highest Channel (5 240 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 484.75	V	62.20	38.97	-44.51	-	56.66	68.20	11.54
15 752.13 ¹⁾	H	55.10	37.90	-42.41	-	50.59	74.00	23.41
Average Data								
No spurious emissions were detected within 20 dB of the limit								

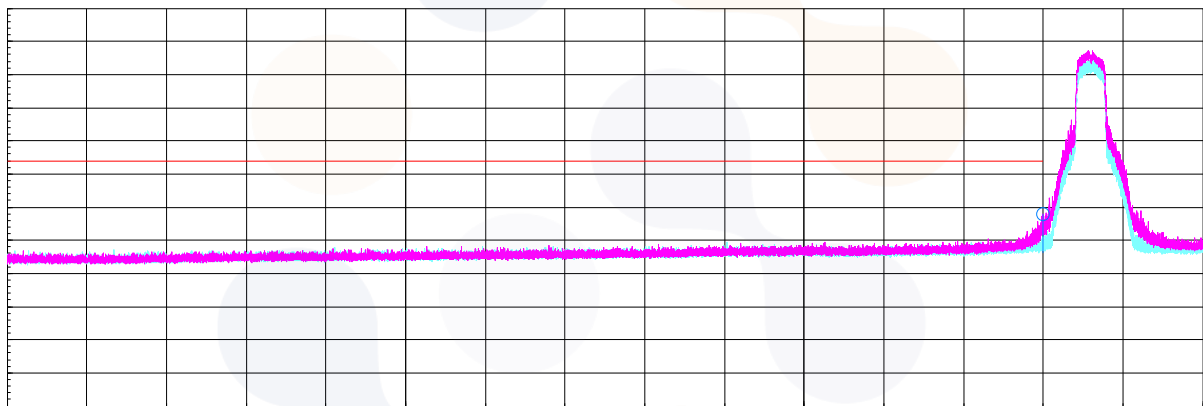
802.11ac_VHT20_Lowest Channel (5 180 MHz)

Average data



Blank

Horizontal/Vertical for Band-edge



Eurofins KCTL Co.,Ltd. 65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea TEL: 82-70-5008-1021 FAX: 82-505-299-8311 www.kctl.co.kr	Report No.: KR25-SRF0003 Page (81) of (150)	
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802.11ac_VHT40_Lowest Channel (5 190 MHz)

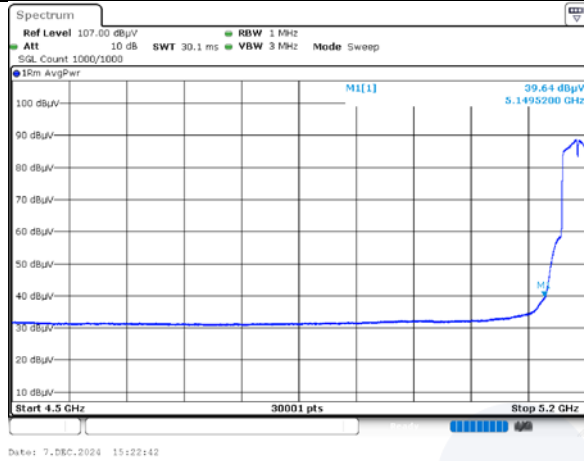
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 149.52 ¹⁾	H	52.30	33.20	-27.26	-	58.24	74.00	15.76
10 377.80	V	57.90	38.74	-44.55	-	52.09	68.20	16.11
15 581.93 ¹⁾	V	54.50	37.87	-42.43	-	49.94	74.00	24.06
Average Data								
5 149.52 ¹⁾	H	39.64	33.20	-27.26	2.21	47.79	54.00	6.21

802.11ac_VHT40_Highest Channel (5 230 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 463.67	V	59.50	38.93	-44.52	-	53.91	68.20	14.29
15 660.13 ¹⁾	H	54.40	37.90	-42.43	-	49.87	74.00	24.13
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

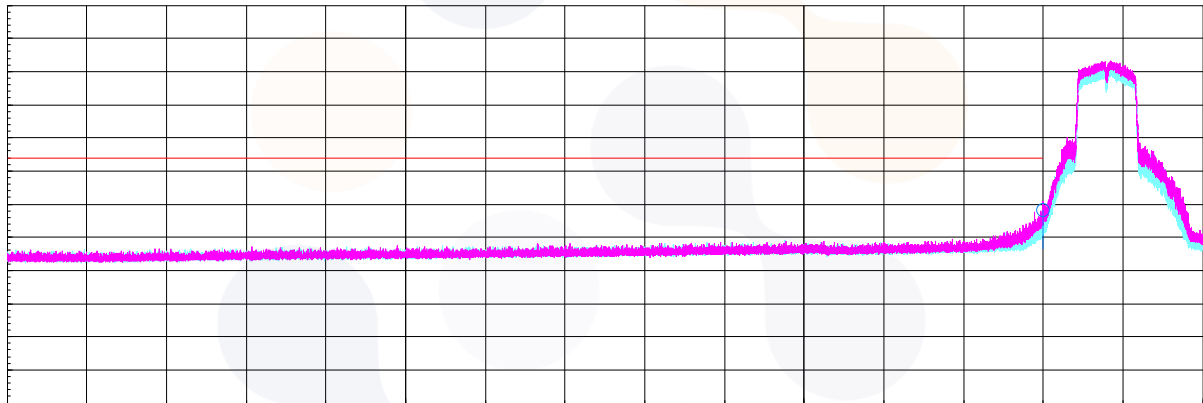
802.11ac_VHT40_Lowest Channel (5 190 MHz)

Average data



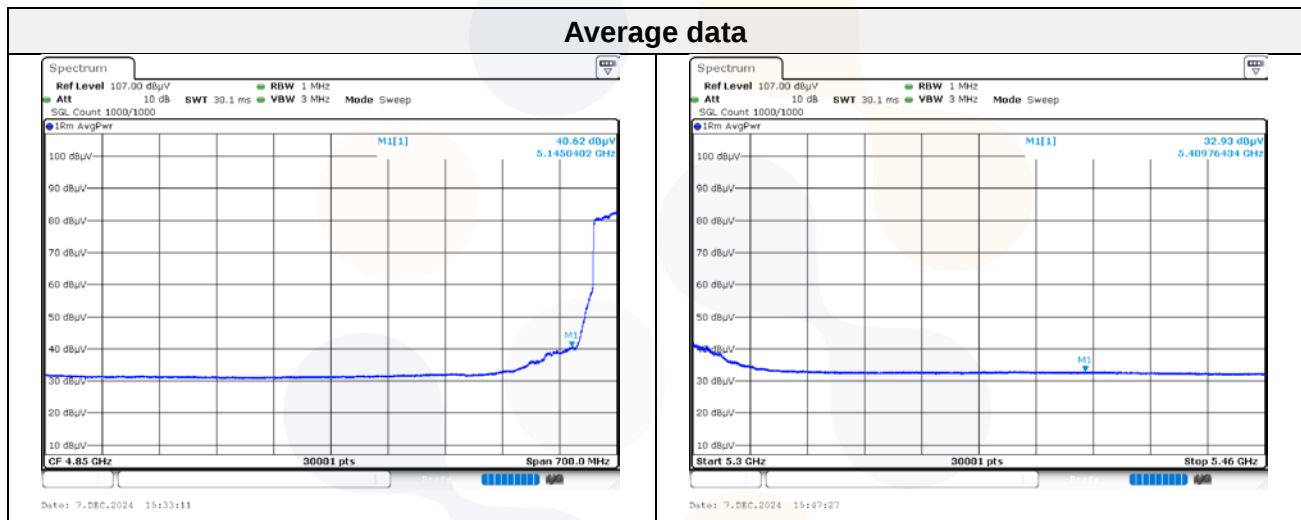
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Horizontal/Vertical for Band-edge

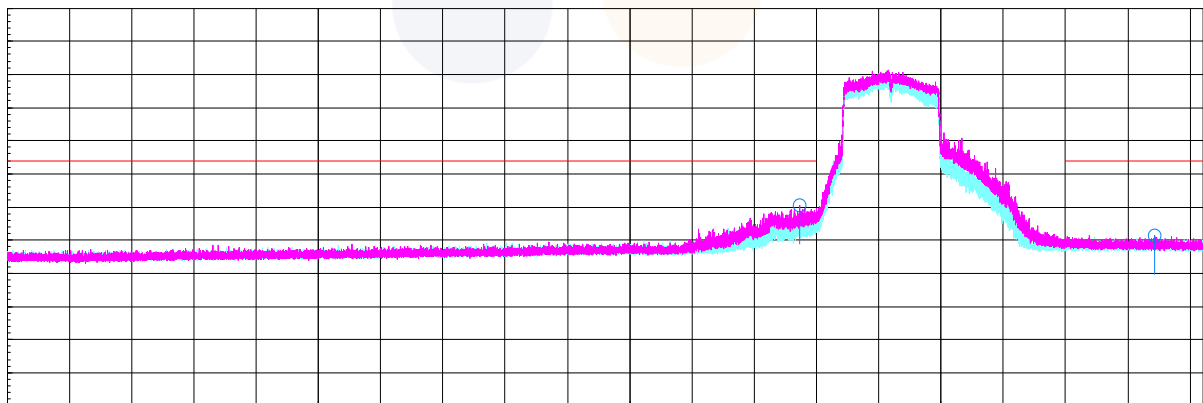


802.11ac_VHT80_Middle Channel (5 210 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 145.04 ¹⁾	H	54.60	33.20	-27.27	-	60.53	74.00	13.47
5 409.76 ¹⁾	H	45.20	33.00	-26.86	-	51.34	74.00	22.66
10 424.57	V	56.60	38.80	-44.53	-	50.87	68.20	17.33
15 607.62 ¹⁾	H	54.20	37.88	-42.43	-	49.65	74.00	24.35
Average Data								
5 145.04 ¹⁾	H	40.62	33.20	-27.27	3.68	50.23	54.00	3.77
5 409.76 ¹⁾	H	32.93	33.00	-26.86	3.68	42.75	54.00	11.25



Horizontal/Vertical for Band-edge



802.11be_EHT20_Lowest Channel (5 180 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 148.96 ¹⁾	H	46.20	33.20	-27.26	-	52.14	74.00	21.86
10 362.47	H	58.50	38.78	-44.56	-	52.72	68.20	15.48
15 548.20 ¹⁾	V	54.70	38.10	-42.44	-	50.36	74.00	23.64
Average Data								
5 148.96 ¹⁾	H	33.03	33.20	-27.26	3.39	42.36	54.00	11.64

802.11be_EHT20_Middle Channel (5 200 MHz)

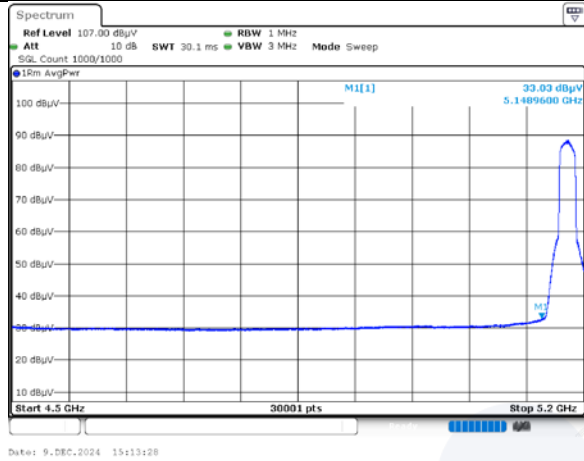
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 400.80	V	58.60	38.80	-44.54	-	52.86	68.20	15.34
15 631.77 ¹⁾	H	54.80	37.84	-42.43	-	50.21	74.00	23.79
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11be_EHT20_Highest Channel (5 240 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 483.60	H	60.10	38.97	-44.51	-	54.56	68.20	13.64
15 755.58 ¹⁾	H	55.20	37.90	-42.40	-	50.70	74.00	23.30
Average Data								
No spurious emissions were detected within 20 dB of the limit								

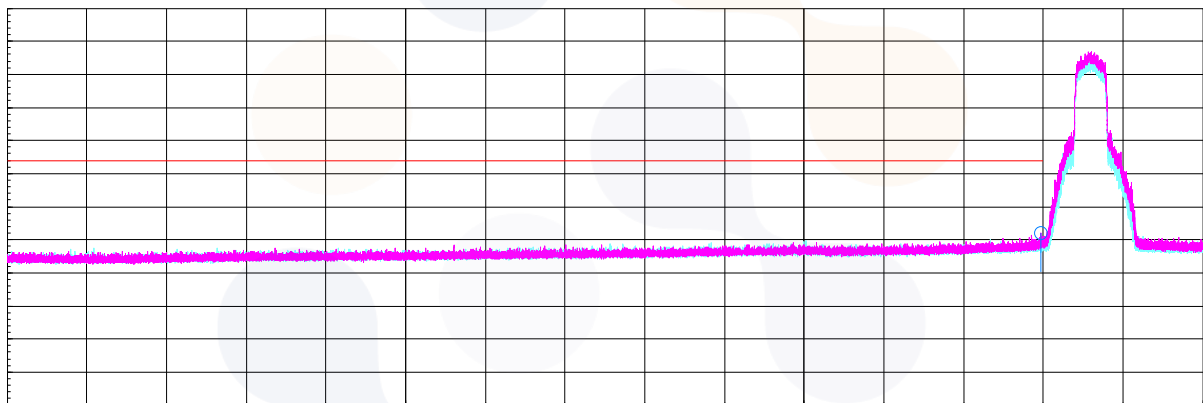
802.11be_EHT20_Lowest Channel (5 180 MHz)

Average data



Blank

Horizontal/Vertical for Band-edge



802.11be_EHT40_Lowest Channel (5 190 MHz)

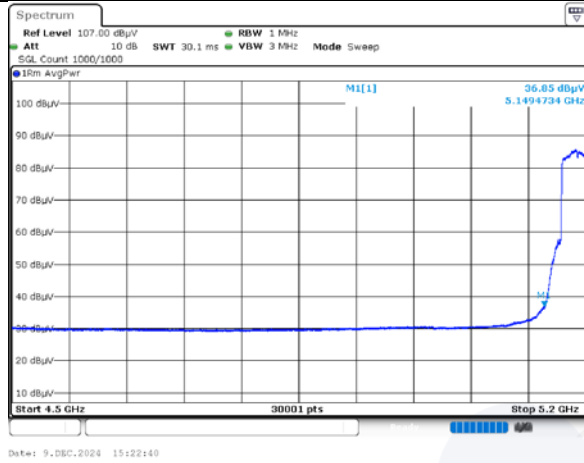
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 149.47 ¹⁾	H	52.50	33.20	-27.26	-	58.44	74.00	15.56
10 381.63	V	58.00	38.74	-44.55	-	52.19	68.20	16.01
15 599.18 ¹⁾	V	54.00	37.80	-42.43	-	49.37	74.00	24.63
Average Data								
5 149.47 ¹⁾	H	36.85	33.20	-27.26	3.39	46.18	54.00	7.82

802.11be_EHT40_Highest Channel (5 230 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 455.62	H	60.20	38.91	-44.52	-	54.59	68.20	13.61
15 688.12 ¹⁾	V	54.90	37.90	-42.42	-	50.38	74.00	23.62
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

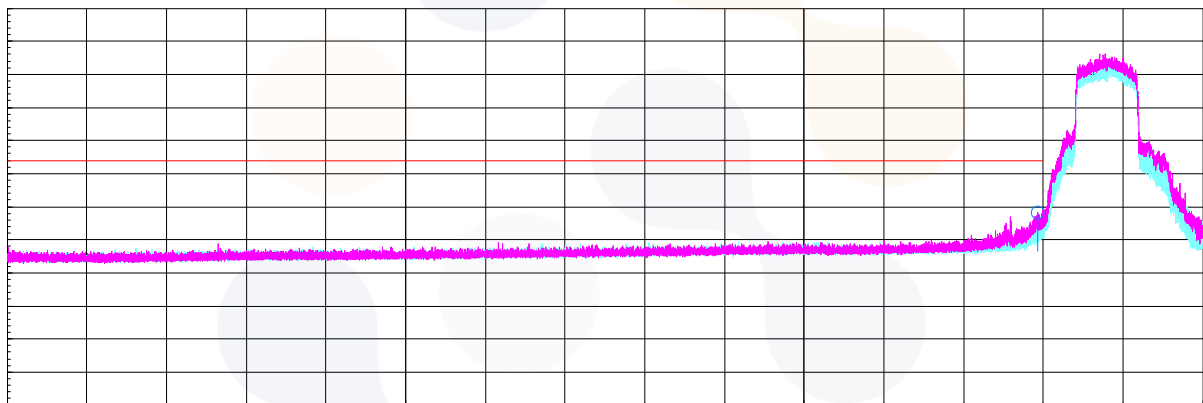
802.11be_EHT40_Lowest Channel (5 190 MHz)

Average data



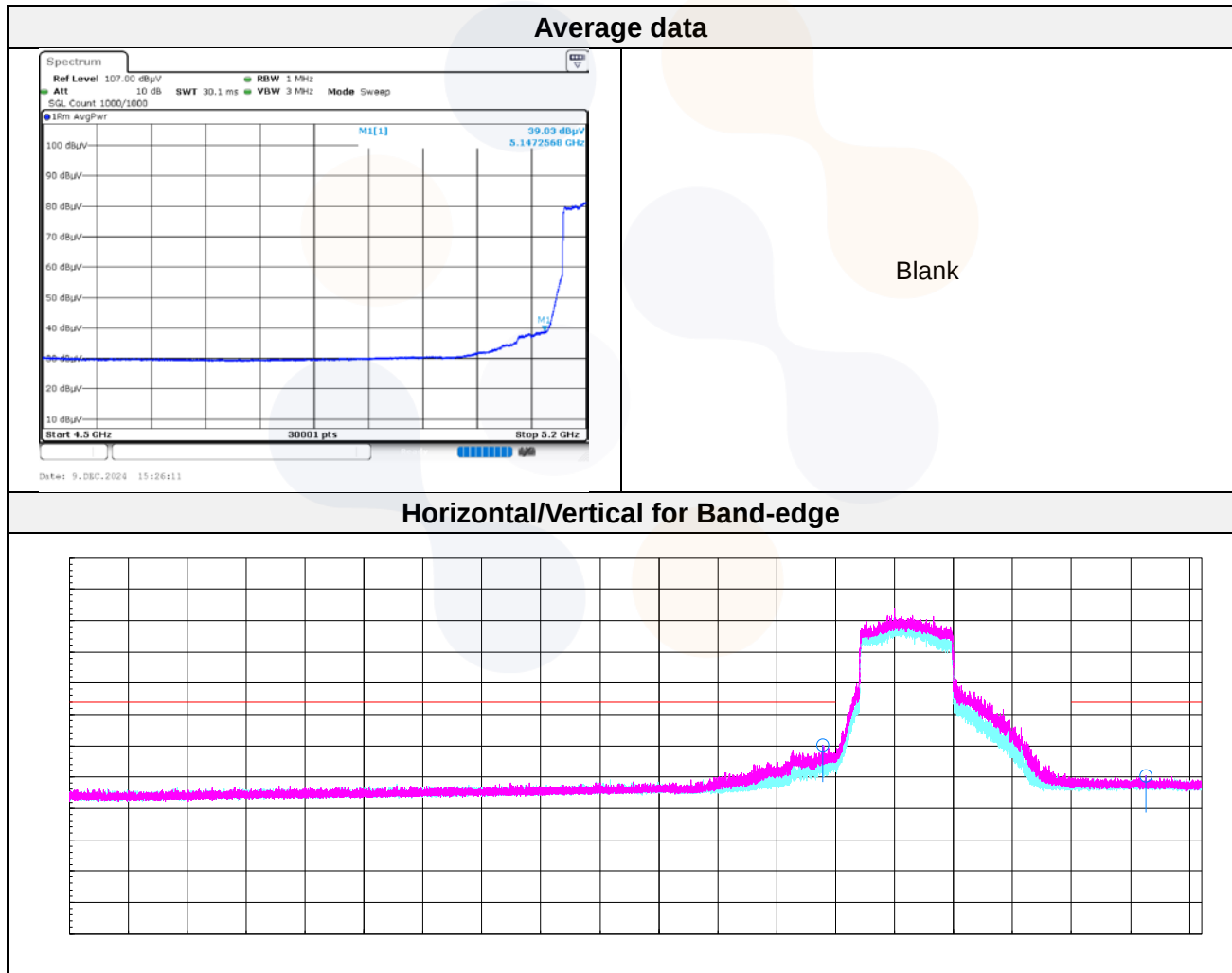
Blank

Horizontal/Vertical for Band-edge



802.11be_EHT80_Middle Channel (5 210 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 147.26 ¹⁾	H	54.40	33.20	-27.26	-	60.34	74.00	13.66
5 412.70 ¹⁾	H	44.10	33.00	-26.86	-	50.24	74.00	23.76
10 407.70	V	56.70	38.80	-44.54	-	50.96	68.20	17.24
15 606.08 ¹⁾	H	55.30	37.89	-42.43	-	50.76	74.00	23.24
Average Data								
5 147.26 ¹⁾	H	39.03	33.20	-27.26	3.50	48.47	54.00	5.53



UNII-1 2TX MIMO

802.11n_HT20_Lowest Channel (5 180 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 149.43 ¹⁾	H	46.70	33.20	-27.26	-	52.64	74.00	21.36
10 360.55	H	58.90	38.78	-44.56	-	53.12	68.20	15.08
15 581.17 ¹⁾	V	53.90	37.88	-42.43	-	49.35	74.00	24.65
Average Data								
5 149.43 ¹⁾	H	35.47	33.20	-27.26	1.25	42.66	54.00	11.34

802.11n_HT20_Middle Channel (5 200 MHz)

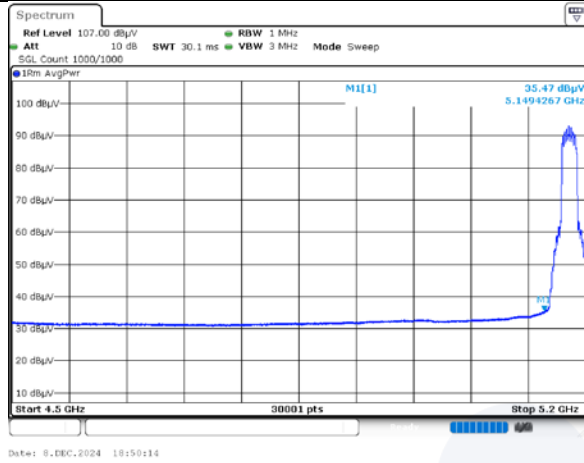
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 400.80	V	57.80	38.80	-44.54	-	52.06	68.20	16.14
15 639.43 ¹⁾	H	54.40	37.82	-42.43	-	49.79	74.00	24.21
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11n_HT20_Highest Channel (5 240 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 479.00	V	57.70	38.96	-44.51	-	52.15	68.20	16.05
15 711.88 ¹⁾	V	53.70	37.90	-42.42	-	49.18	74.00	24.82
Average Data								
No spurious emissions were detected within 20 dB of the limit								

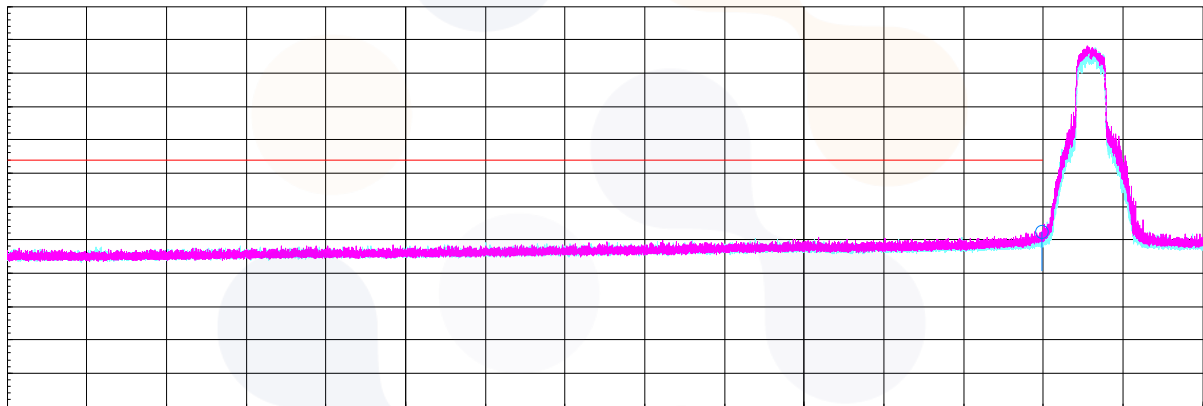
802.11n_HT20_Lowest Channel (5 180 MHz)

Average data



Blank

Horizontal/Vertical for Band-edge



802.11n_HT40_Lowest Channel (5 190 MHz)

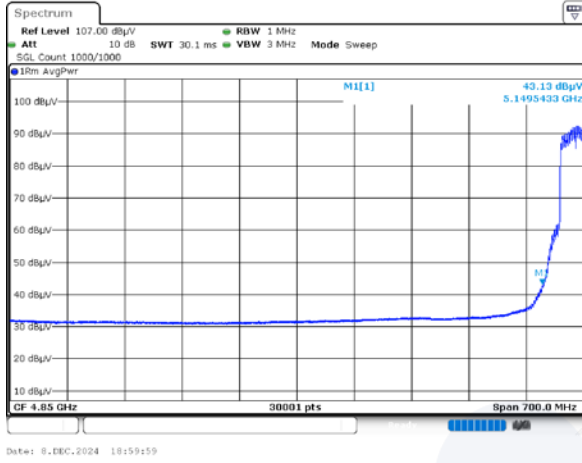
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 149.54 ¹⁾	H	58.00	33.20	-27.26	-	63.94	74.00	10.06
10 380.48	V	56.20	38.74	-44.55	-	50.39	68.20	17.81
15 731.05 ¹⁾	H	55.10	37.90	-42.42	-	50.58	74.00	23.42
Average Data								
5 149.54 ¹⁾	H	43.13	33.20	-27.26	2.25	51.32	54.00	2.68

802.11n_HT40_Highest Channel (5 230 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 452.93	H	58.30	38.91	-44.52	-	52.69	68.20	15.51
15 698.08 ¹⁾	H	54.70	37.90	-42.42	-	50.18	74.00	23.82
Average Data								
No spurious emissions were detected within 20 dB of the limit								

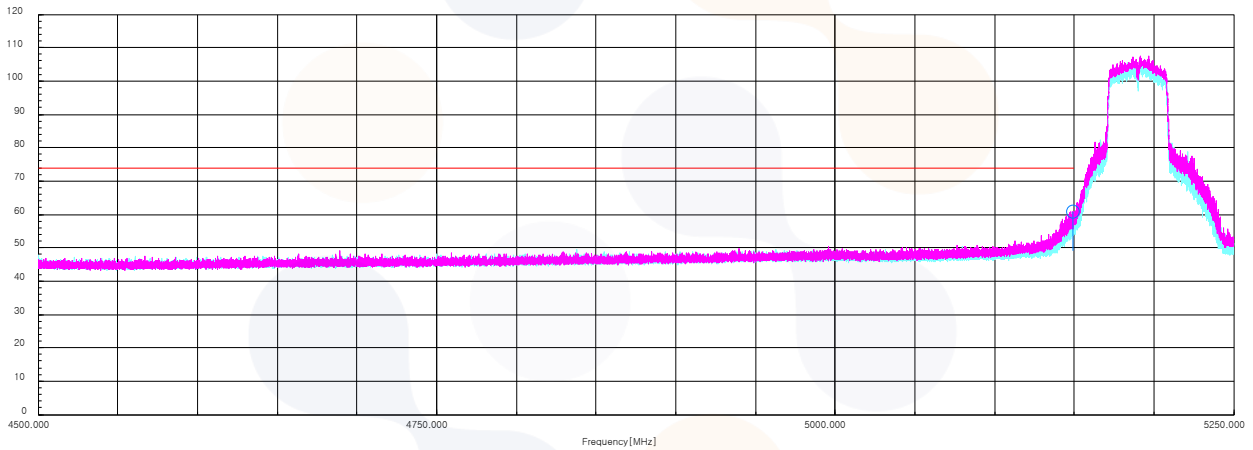
802.11n_HT40_Lowest Channel (5 190 MHz)

Average data



Blank

Horizontal/Vertical for Band-edge



802.11ac_VHT20_Lowest Channel (5 180 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 149.85 ¹⁾	H	45.20	33.20	-27.26	-	51.14	74.00	22.86
10 356.72	V	57.50	38.79	-44.56	-	51.73	68.20	16.47
15 531.33 ¹⁾	V	54.20	38.14	-42.44	-	49.90	74.00	24.10
Average Data								
5 149.85 ¹⁾	H	34.61	33.20	-27.26	2.14	42.69	54.00	11.31

802.11ac_VHT20_Middle Channel (5 200 MHz)

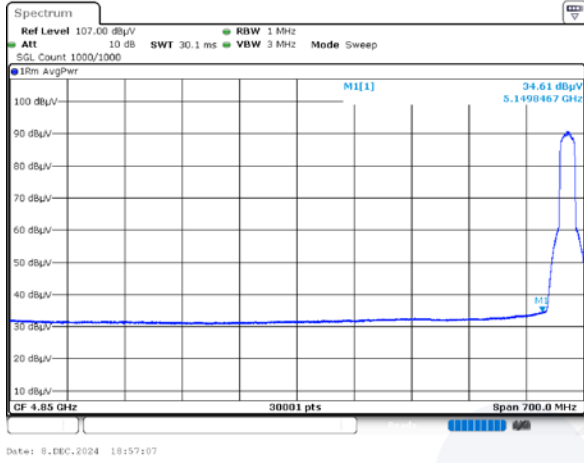
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 401.95	V	58.90	38.80	-44.54	-	53.16	68.20	15.04
15 650.93 ¹⁾	H	55.00	37.90	-42.43	-	50.47	74.00	23.53
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ac_VHT20_Highest Channel (5 240 MHz)

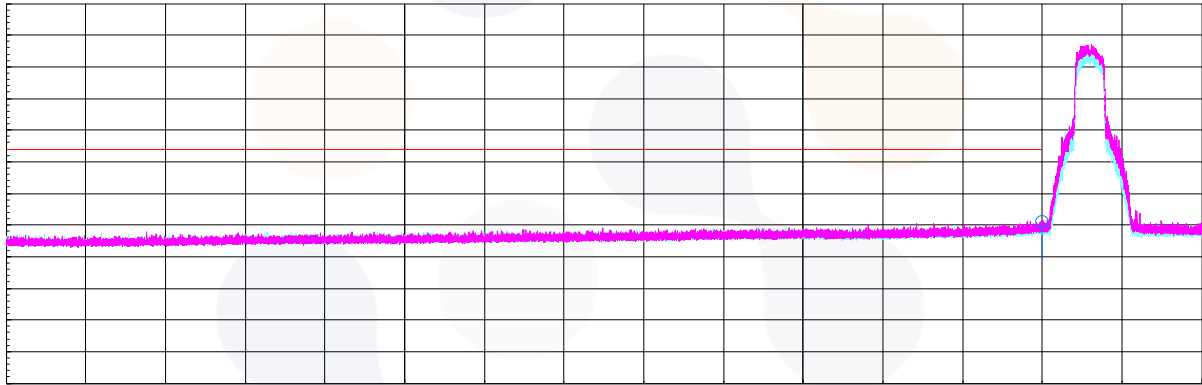
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 483.60	V	58.80	38.97	-44.51	-	53.26	68.20	14.94
15 709.20 ¹⁾	H	55.40	37.90	-42.42	-	50.88	74.00	23.12
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11ac_VHT20_Lowest Channel (5 180 MHz)

Average data



Horizontal/Vertical for Band-edge



802.11ac_VHT40_Lowest Channel (5 190 MHz)

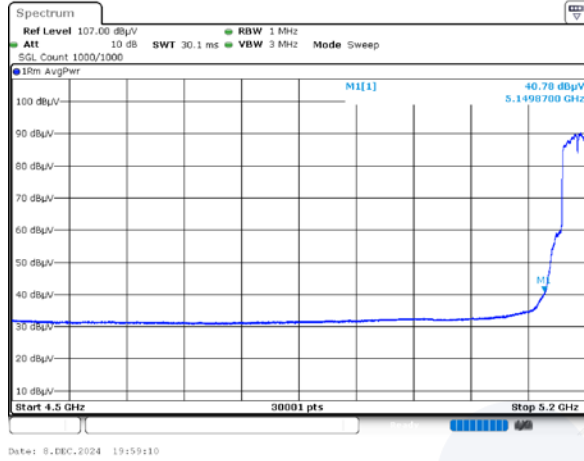
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 149.87 ¹⁾	H	56.40	33.20	-27.26	-	62.34	74.00	11.66
10 378.95	V	57.60	38.74	-44.55	-	51.79	68.20	16.41
15 718.02 ¹⁾	H	54.60	37.90	-42.42	-	50.08	74.00	23.92
Average Data								
5 149.87 ¹⁾	H	40.78	33.20	-27.26	3.47	50.19	54.00	3.81

802.11ac_VHT40_Highest Channel (5 230 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 458.68	V	60.40	38.92	-44.52	-	54.80	68.20	13.40
15 701.92 ¹⁾	H	54.80	37.90	-42.42	-	50.28	74.00	23.72
Average Data								
No spurious emissions were detected within 20 dB of the limit								

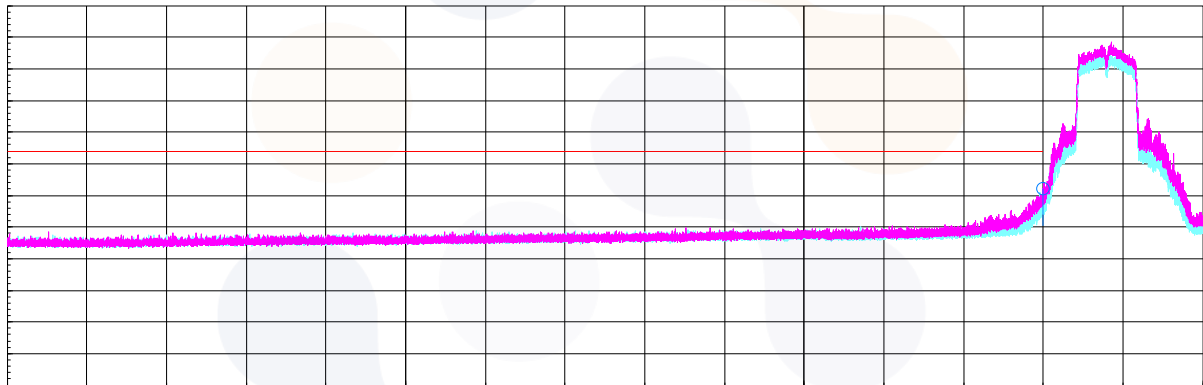
802.11ac_VHT40_Lowest Channel (5 190 MHz)

Average data



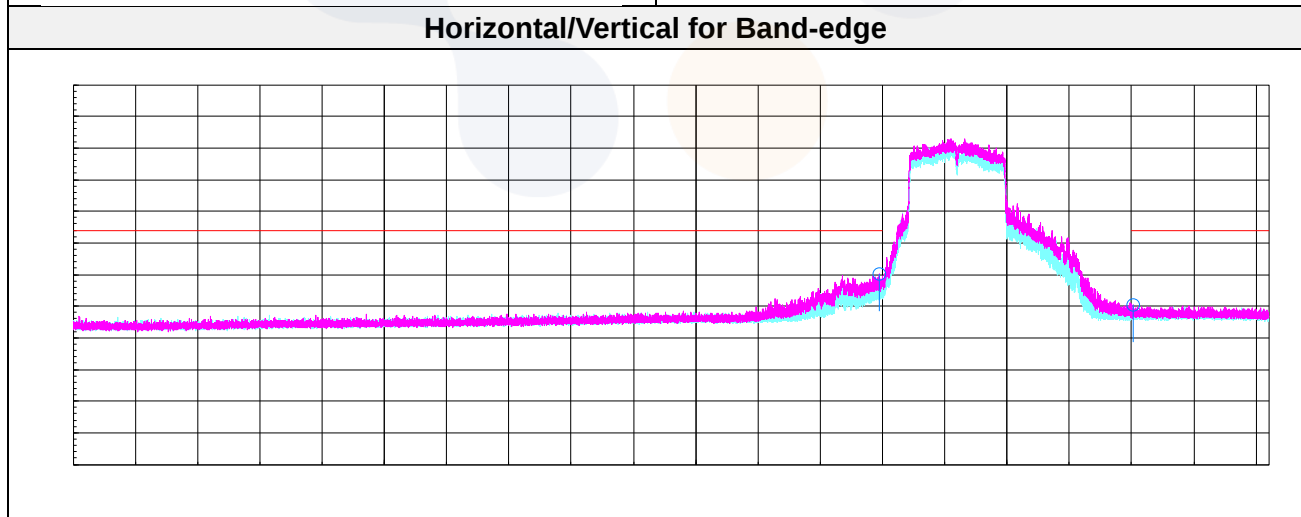
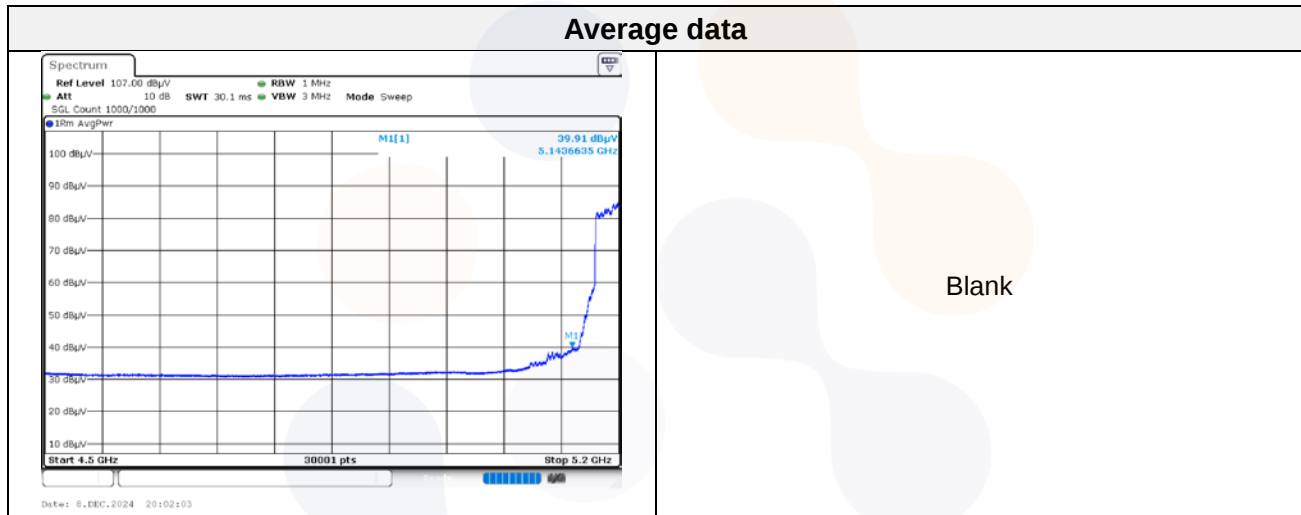
Blank

Horizontal/Vertical for Band-edge



802.11ac_VHT80_Middle Channel (5 210 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 143.66 ¹⁾	H	54.30	33.20	-27.27	-	60.23	74.00	13.77
5 351.39 ¹⁾	H	44.20	33.00	-26.92	-	50.28	74.00	23.72
10 447.57	V	55.80	38.80	-44.52	-	50.08	68.20	18.12
15 595.35 ¹⁾	V	54.40	37.82	-42.43	-	49.79	74.00	24.21
Average Data								
5 143.66 ¹⁾	H	39.91	33.20	-27.27	5.17	51.01	54.00	2.99



Eurofins KCTL Co.,Ltd. 65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea TEL: 82-70-5008-1021 FAX: 82-505-299-8311 www.kctl.co.kr	Report No.: KR25-SRF0003 Page (98) of (150)	
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802.11be_EHT20_Lowest Channel (5 180 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 141.85 ¹⁾	H	44.40	33.20	-27.28	-	50.32	74.00	23.68
10 355.95	V	55.90	38.79	-44.56	-	50.13	68.20	18.07
15 511.78 ¹⁾	H	55.00	38.18	-42.44	-	50.74	74.00	23.26
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11be_EHT20_Middle Channel (5 200 MHz)

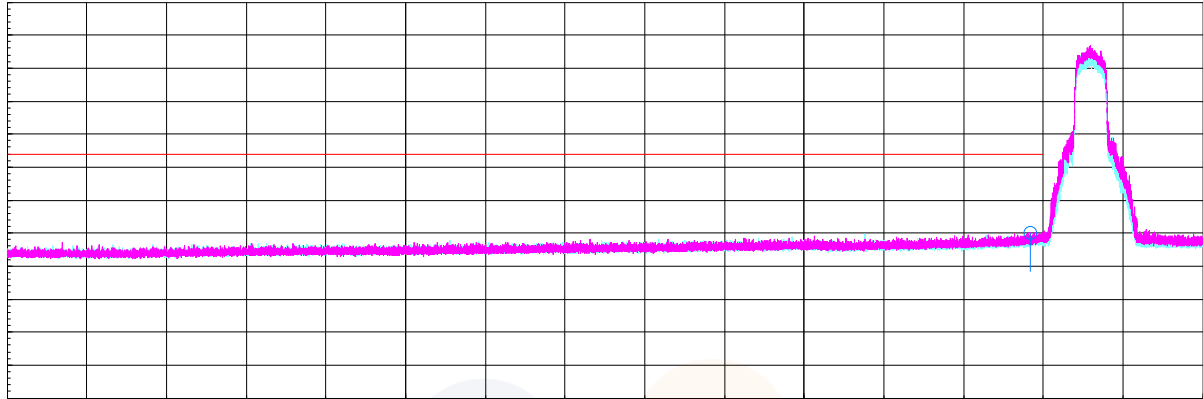
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 447.18	H	55.80	38.80	-44.52	-	50.08	68.20	18.12
15 610.68 ¹⁾	H	54.80	37.88	-42.43	-	50.25	74.00	23.75
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11be_EHT20_Highest Channel (5 240 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 475.93	H	57.90	38.95	-44.51	-	52.34	68.20	15.86
15 743.70 ¹⁾	H	54.90	37.90	-42.42	-	50.38	74.00	23.62
Average Data								
No spurious emissions were detected within 20 dB of the limit								

802.11be_EHT20_Lowest Channel (5 180 MHz)

Horizontal/Vertical for Band-edge



802.11be_EHT40_Lowest Channel (5 190 MHz)

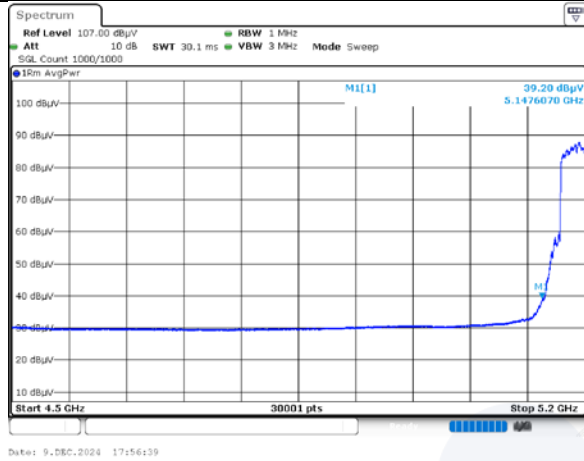
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 147.61 ¹⁾	H	56.30	33.20	-27.26	-	62.24	74.00	11.76
10 386.62	H	57.50	38.73	-44.55	-	51.68	68.20	16.52
15 585.38 ¹⁾	H	54.30	37.86	-42.43	-	49.73	74.00	24.27
Average Data								
5 147.61 ¹⁾	H	39.20	33.20	-27.26	4.48	49.62	54.00	4.38

802.11be_EHT40_Highest Channel (5 230 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 469.80	V	57.90	38.94	-44.51	-	52.33	68.20	15.87
15 681.98 ¹⁾	V	54.80	37.90	-42.43	-	50.27	74.00	23.73
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

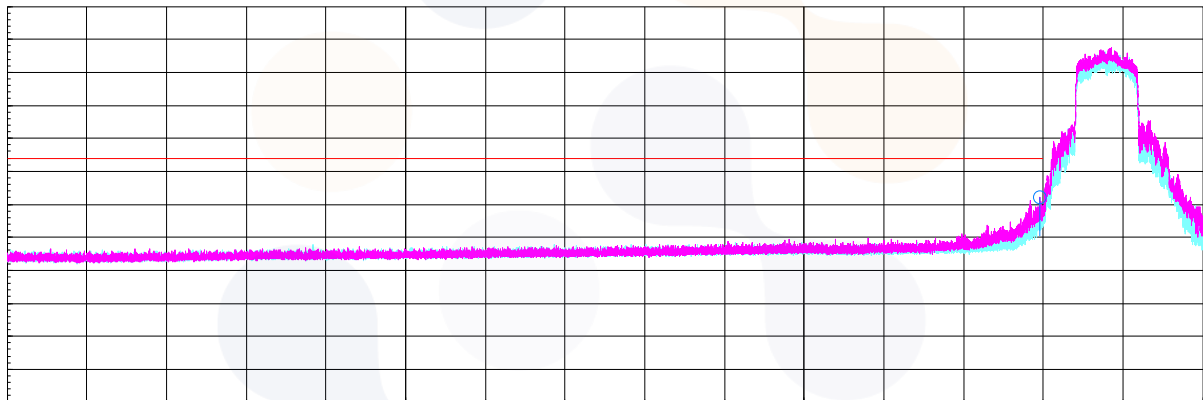
802.11be_EHT40_Lowest Channel (5 190 MHz)

Average data



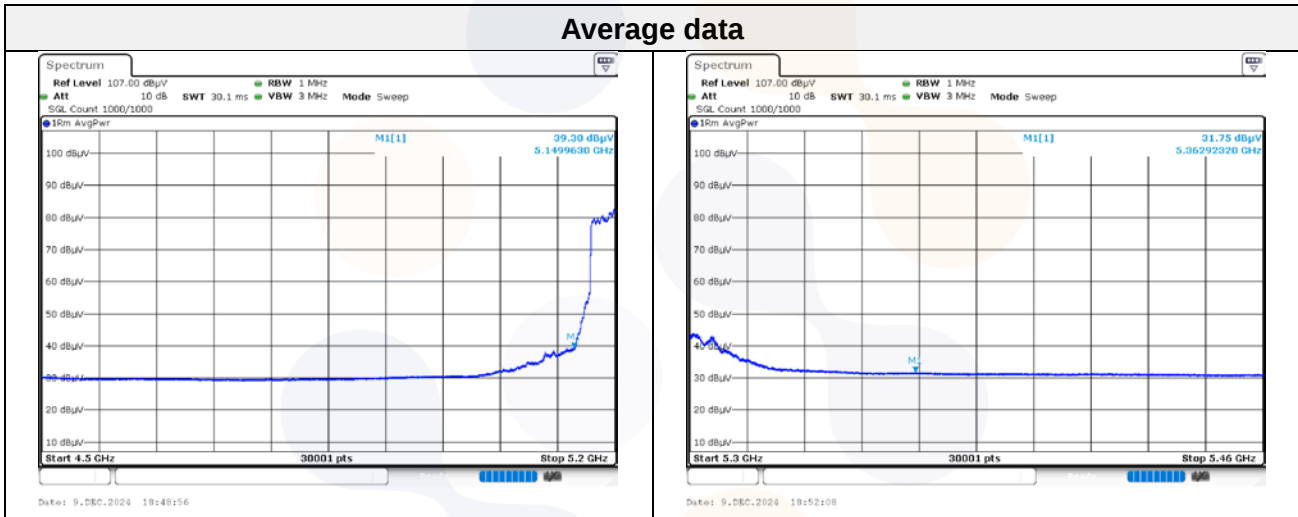
Blank

Horizontal/Vertical for Band-edge

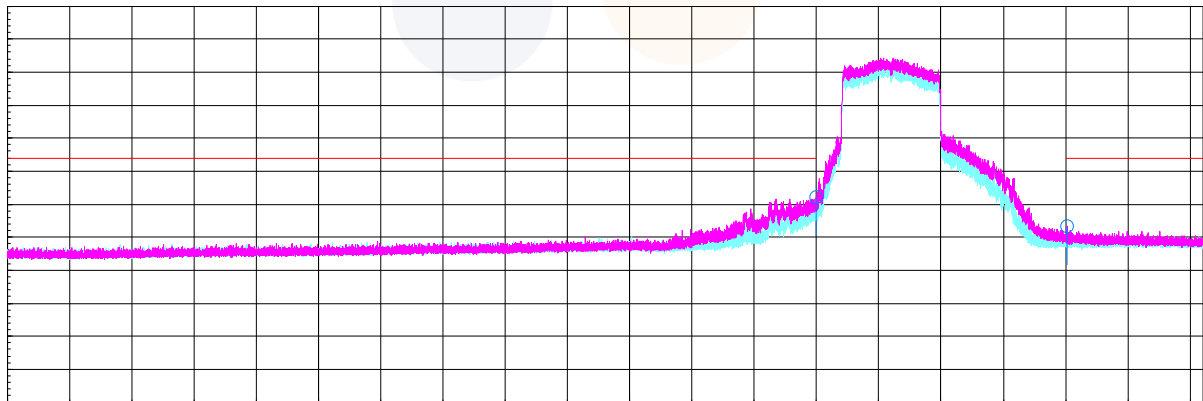


802.11be_EHT80_Middle Channel (5 210 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 149.96 ¹⁾	H	56.30	33.20	-27.26	-	62.24	74.00	11.76
5 362.92 ¹⁾	H	47.30	33.00	-26.91	-	53.39	74.00	20.61
10 448.72	V	56.00	38.80	-44.52	-	50.28	68.20	17.92
15 635.22 ¹⁾	H	55.50	37.83	-42.43	-	50.90	74.00	23.10
Average Data								
5 149.96 ¹⁾	H	39.30	33.20	-27.26	4.62	49.86	54.00	4.14
5 362.92 ¹⁾	H	31.75	33.00	-26.91	4.62	42.46	54.00	11.54



Horizontal/Vertical for Band-edge

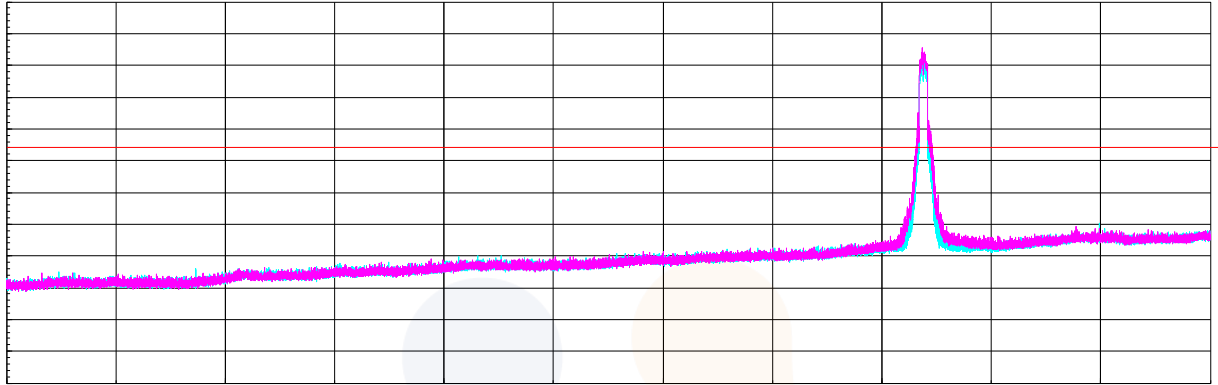


Plot of Harmonics and Spurious Emissions

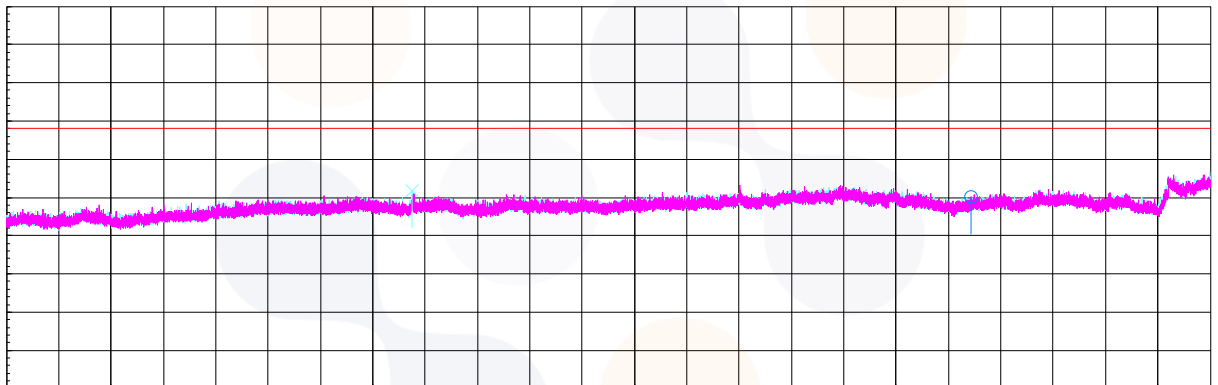
In order to simplify the report, attached plots were only the lowest margin condition

802.11n_HT40_UNII-1_2TX MIMO_ Lowest Channel (5 190 MHz)

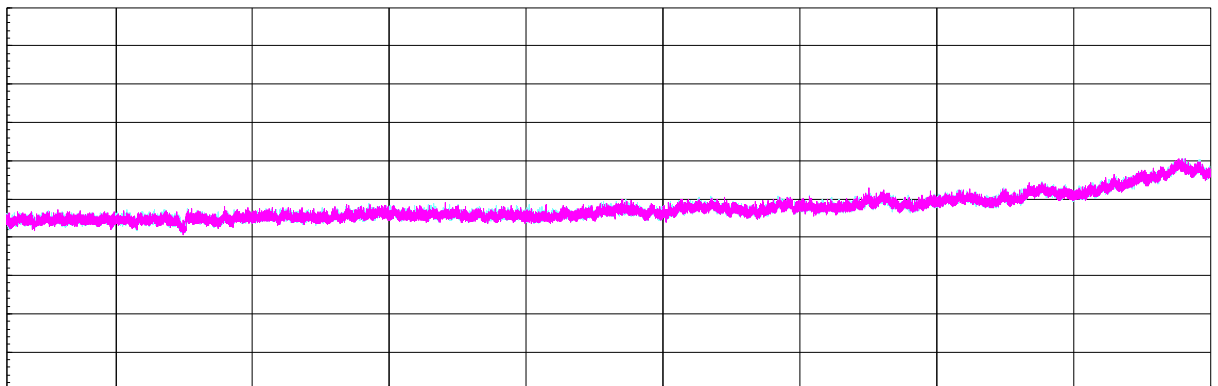
Horizontal/Vertical for 1 GHz ~ 6.5 GHz



Horizontal/Vertical for 6.5 GHz ~ 18 GHz



Horizontal/Vertical for 18 GHz ~ 40 GHz



UNII-3 SISO

802.11a_Lowest Channel (5 745 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μ V))	(dB)	(dB)	(dB)	(dB(μ V/m))	(dB(μ V/m))	(dB)
Peak data								
5 719.88	H	69.70	33.48	-26.16	-	77.02	110.80	33.78
11 490.77 ¹⁾	V	61.40	38.92	-43.13	-	57.19	74.00	16.81
17 233.33	V	56.90	38.13	-41.87	-	53.16	68.20	15.04
Average Data								
11 490.77	V	52.78	38.92	-43.13	1.17	49.74	54.00	4.26

802.11a_Middle Channel (5 785 MHz)

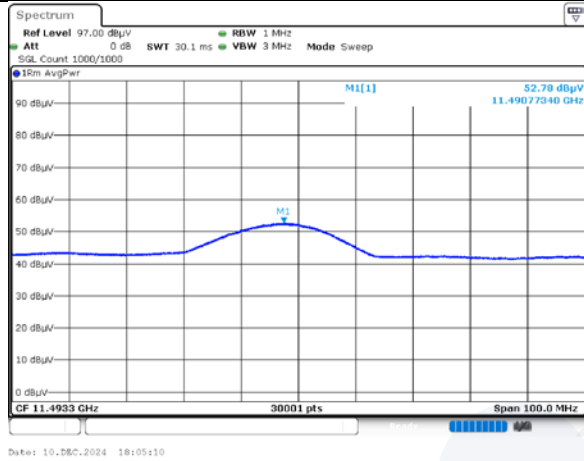
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μ V))	(dB)	(dB)	(dB)	(dB(μ V/m))	(dB(μ V/m))	(dB)
Peak data								
11 569.47 ¹⁾	V	61.10	38.76	-42.87	-	56.99	74.00	17.01
17 364.05	V	55.60	38.53	-42.09	-	52.04	68.20	16.16
Average Data								
11 569.47 ¹⁾	V	51.27	38.76	-42.87	1.17	48.33	54.00	5.67

802.11a_Highest Channel (5 825 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μ V))	(dB)	(dB)	(dB)	(dB(μ V/m))	(dB(μ V/m))	(dB)
Peak data								
5 855.82	H	69.90	34.22	-25.93	-	78.19	110.60	32.41
11 650.79 ¹⁾	H	60.70	38.60	-42.61	-	56.69	74.00	17.31
17 480.97	V	57.40	39.19	-42.33	-	54.26	68.20	13.94
Average Data								
11 650.79 ¹⁾	H	51.50	38.60	-42.61	1.17	48.66	54.00	5.34

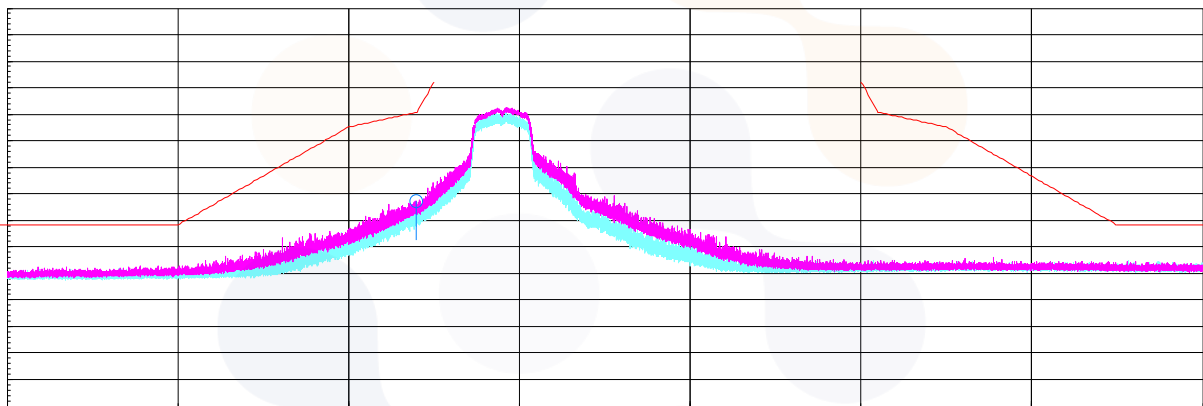
802.11a_Lowest Channel (5 745 MHz)

Average data



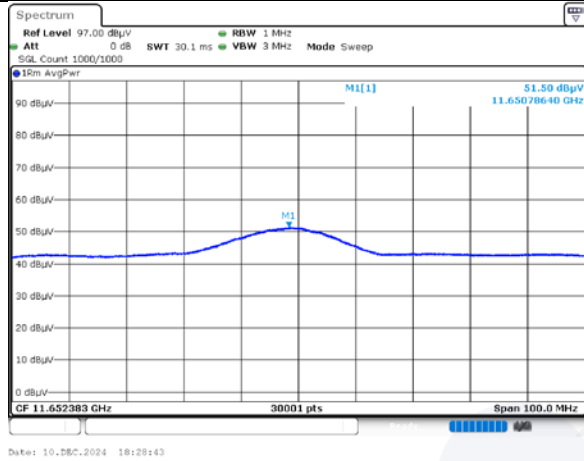
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Horizontal/Vertical for Band-edge



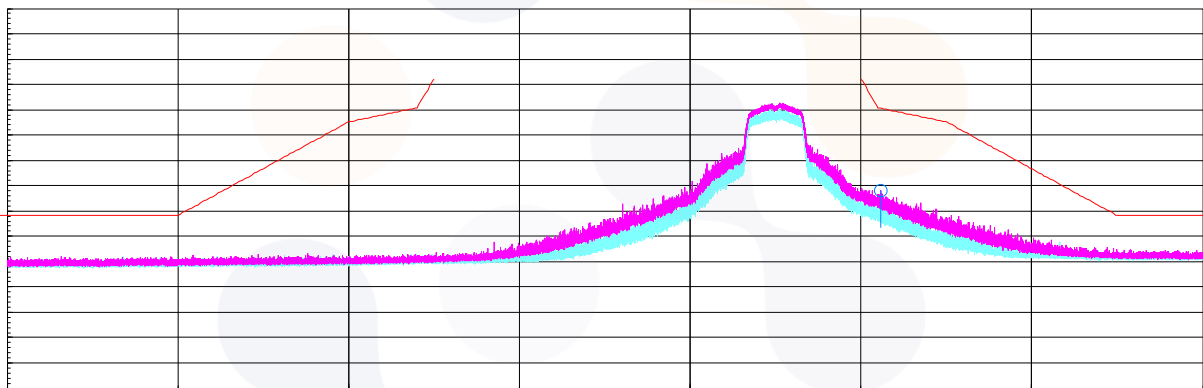
802.11a_Highest Channel (5 825 MHz)

Average data



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Horizontal/Vertical for Band-edge



802.11n_HT20_Lowest Channel (5 745 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 719.25	H	68.90	33.48	-26.16	-	76.22	110.60	34.38
11 492.18 ¹⁾	V	60.30	38.92	-43.13	-	56.09	74.00	17.91
17 226.43	V	56.30	38.11	-41.88	-	52.53	68.20	15.67
Average Data								
11 492.18 ¹⁾	V	52.64	38.92	-43.13	1.25	49.68	54.00	4.32

802.11n_HT20_Middle Channel (5 785 MHz)

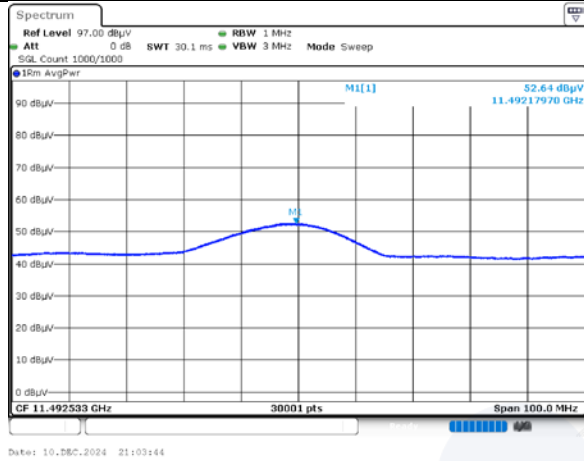
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
11 569.32 ¹⁾	V	59.80	38.76	-42.87	-	55.69	74.00	18.31
17 383.22	V	55.30	38.57	-42.13	-	51.74	68.20	16.46
Average Data								
11 569.32 ¹⁾	V	49.97	38.76	-42.87	1.25	47.11	54.00	6.89

802.11n_HT20_Highest Channel (5 825 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 856.13	H	69.10	34.22	-25.93	-	77.39	110.50	33.11
11 649.88 ¹⁾	V	61.00	38.60	-42.61	-	56.99	74.00	17.01
17 483.65	V	57.00	39.20	-42.34	-	53.86	68.20	14.34
Average Data								
11 649.88 ¹⁾	V	51.58	38.60	-42.61	1.25	48.82	54.00	5.18

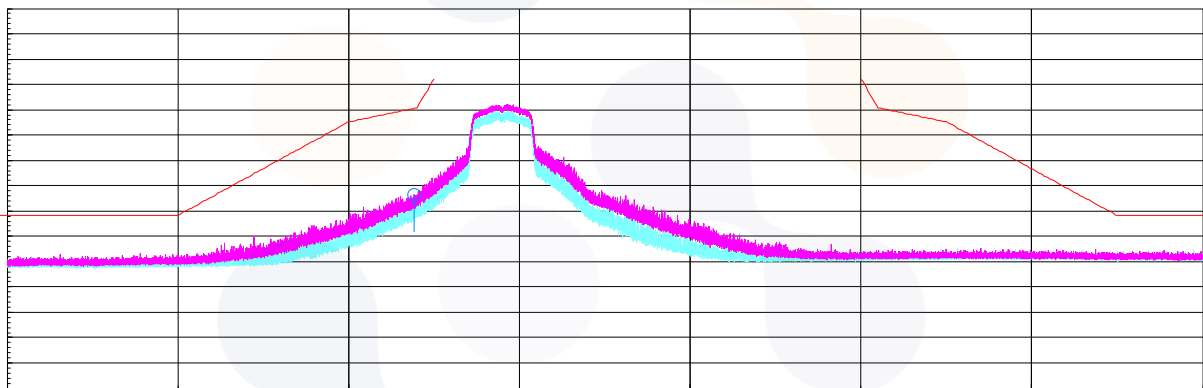
802.11n_HT20_Lowest Channel (5 745 MHz)

Average data



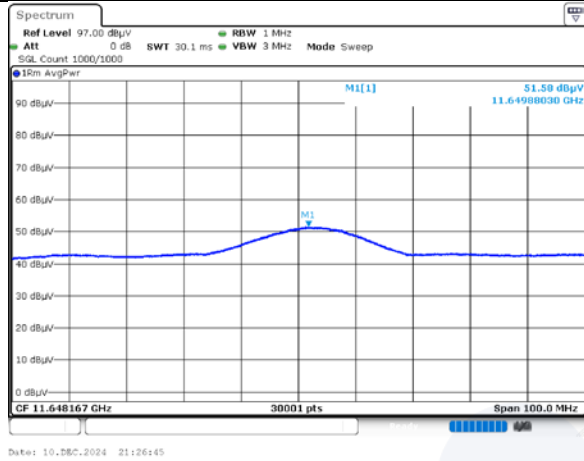
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Horizontal/Vertical for Band-edge



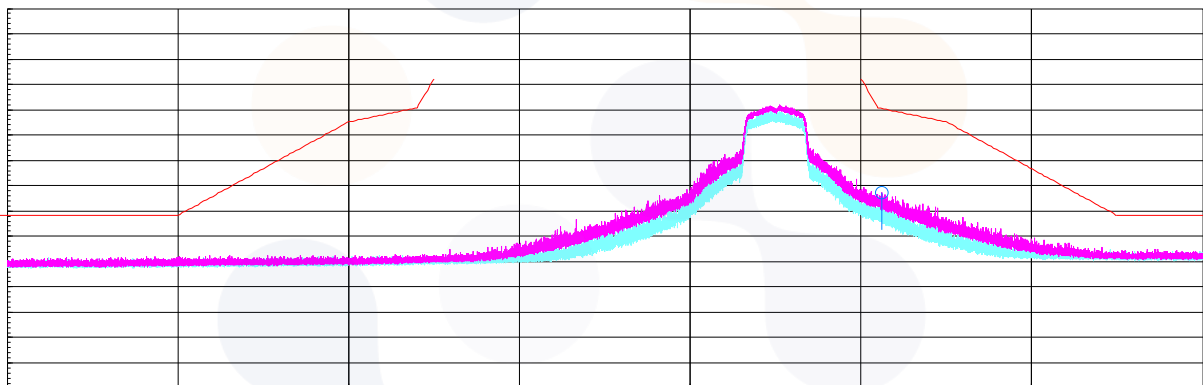
802.11n_HT20_Highest Channel (5 825 MHz)

Average data



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Horizontal/Vertical for Band-edge



802.11n_HT40_Lowest Channel (5 755 MHz)

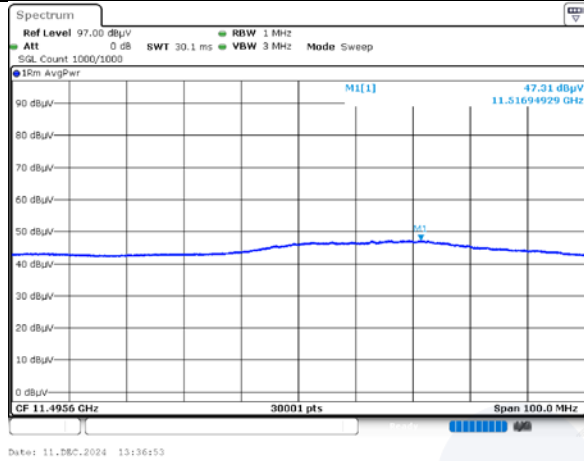
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 717.19	H	66.20	33.47	-26.16	-	73.51	110.00	36.49
11 516.95 ¹⁾	V	57.40	38.87	-43.04	-	53.23	74.00	20.77
17 267.83	V	54.30	38.27	-41.90	-	50.67	68.20	17.53
Average Data								
11 516.95 ¹⁾	V	47.31	38.87	-43.04	2.25	45.39	54.00	8.61

802.11n_HT40_Highest Channel (5 795 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 858.42	H	56.70	34.23	-25.92	-	65.01	109.80	44.79
11 583.52 ¹⁾	H	58.10	38.73	-42.83	-	54.00	74.00	20.00
17 379.38	H	55.00	38.56	-42.12	-	51.44	68.20	16.76
Average Data								
11 583.52 ¹⁾	H	48.71	38.73	-42.83	2.25	46.86	54.00	7.14

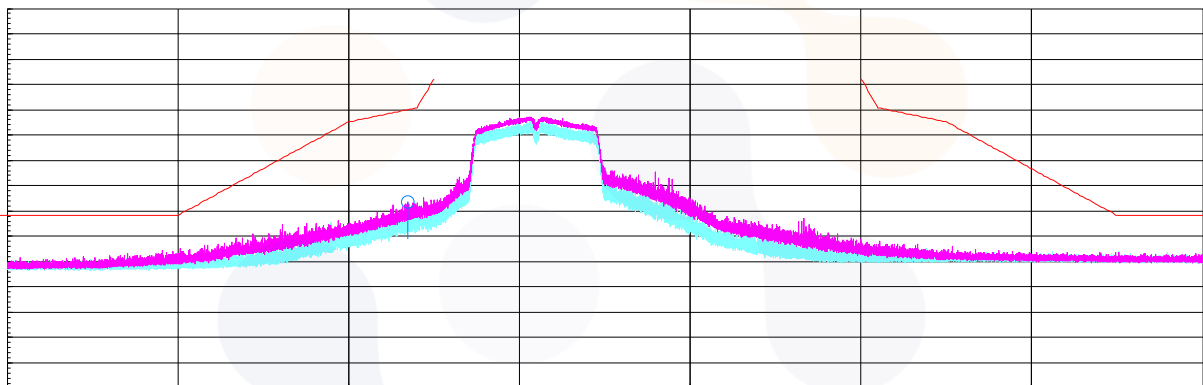
802.11n_HT40_Lowest Channel (5 755 MHz)

Average data



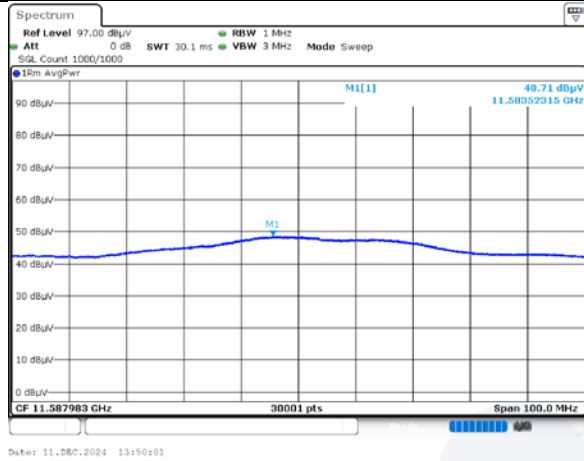
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Horizontal/Vertical for Band-edge



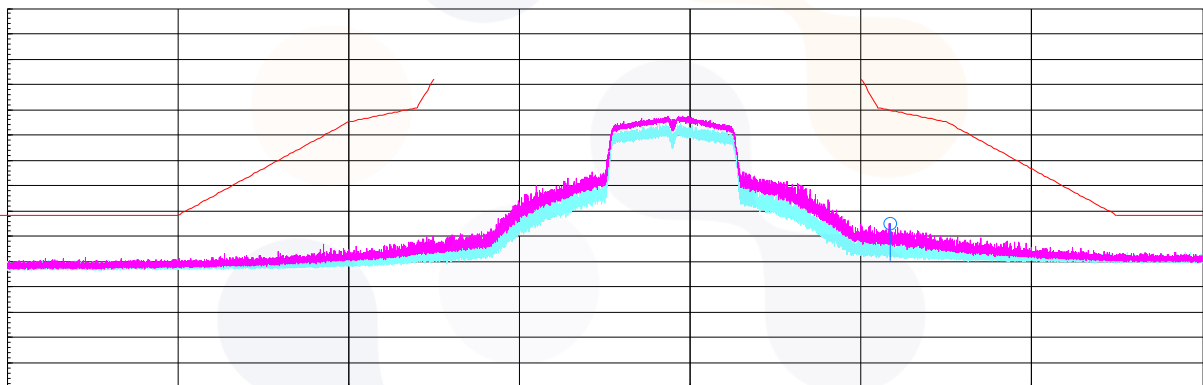
802.11n_HT40_Highest Channel (5 795 MHz)

Average data



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Horizontal/Vertical for Band-edge



802.11ac_VHT20_Lowest Channel (5 745 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 716.63	H	67.50	33.47	-26.16	-	74.81	109.90	35.09
11 491.22 ¹⁾	V	61.20	38.92	-43.13	-	56.99	74.00	17.01
17 218.00	V	56.30	38.07	-41.88	-	52.49	68.20	15.71
Average Data								
11 491.22 ¹⁾	V	51.20	38.92	-43.13	1.23	48.22	54.00	5.78

802.11ac_VHT20_Middle Channel (5 785 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
11 567.50 ¹⁾	V	62.00	38.77	-42.88	-	57.89	74.00	16.11
17 357.53	V	55.80	38.52	-42.08	-	52.24	68.20	15.96
Average Data								
11 567.50 ¹⁾	V	52.00	38.77	-42.88	1.23	49.12	54.00	4.88

802.11ac_VHT20_Highest Channel (5 825 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 856.61	H	66.70	34.23	-25.93	-	75.00	110.30	35.30
11 650.33 ¹⁾	V	61.20	38.60	-42.61	-	57.19	74.00	16.81
17 465.25	H	55.10	39.09	-42.30	-	51.89	68.20	16.31
Average Data								
11 650.33 ¹⁾	V	52.52	38.60	-42.61	1.23	49.74	54.00	4.26