REP018372B

Test Report

Product	**Wireless Module**
Name and address of the applicant	**Cisco Systems Norway AS** **Philip Pedersens vei 1** **1366 Lysaker, NORWAY**
Name and address of the manufacturer	**Cisco Systems, Inc.** **170 West Tasman Drive** **San Jose, CA 95134, USA**
Model	**LBEE5XV2EA**
Trademark	**CISCO**
Additional information	**Bluetooth LE, Bluetooth Classic, WiFi 6E**
Tested according to	**Parts of FCC Part 15.407** Unlicensed National Information Infrastructure Devices (U-NII) **Parts of Industry Canada RSS-247, Issue 3** Licence-Exempt Local Area Network (LE-LAN) Devices
Order number	**PRJ0039024**
Tested in period	**2023-09-19 to 2023-10-03**
Issue date	**2023-12-08**
Name and address of the testing laboratory	Nemko Scandinavia AS Instituttveien 6 2007 Kjeller, Norway www.nemko.com CAB Number: FCC: NO0001 ISED: NO0470 ISED No: 2040D-1 **An accredited technical test executed under the Norwegian accreditation scheme**

Prepared by [Frode Sveinsen]	Approved by [Jan G Eriksen]

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Template version: C

Revision history

Revision	Date	Comment	Sign
A	2023-11-28	First Edition	FS
B	2023-12-08	Corrected some cal dates	FS

GENERAL REMARKS

This report applies only to the sample(s) tested. It is the manufacturer's responsibility to ensure the additional production units of this product are manufactured with identical electrical and mechanical components. The manufacturer is solely responsible for any modifications that could result in non-compliance with the relevant regulations.

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Opinions expressed within this report regarding general assessments and qualifications for PASS or FAIL to the standards limits and requirements, are not part of the current accreditation. Neither are opinions expressed regarding model variants covered by the testing of this report.

CALIBRATION

All instruments used in the tests given in this test report are calibrated and traceable to national or international standards. Between calibrations all test set-ups are controlled and verified on a regular basis by periodic checks to ensure, with 95% confidence, that the instruments remain within the calibrated levels.

MEASUREMENT UNCERTAINTY

Measurement uncertainties are calculated or considered for all instruments and instrument set-ups used during these tests. Uncertainty figures are found in a separate clause in this report.

1 INFORMATION

1.1 Test Item

Name	**Cisco**
Model	**LBEE5XV2EA**
FCC ID	**LDKXV2EA2797**
ISED ID	**2461N-XV2EA2797**
Serial number	**/**
Hardware identity and/or version	**1.0**
Software identity and/or version	**1.1.1.1 1.1.2.1 1.1.1.2 1.1.2.2**
Frequency Ranges	**U-NII 1 : 5180 – 5240 MHz: 4 channels U-NII 2A : 5260 – 5320 MHz: 4 channels U-NII 2C : 5500 – 5700 MHz: 11 channels U-NII 3 : 5745 – 5825 MHz: 5 channels**
Operating Modes	**802.11a 802.11n (20/40 MHz BW) 802.11ac (20/40/80 MHz BW) 802.11ax (20/40/80 MHz BW)**
Type of Modulation	**Digital (OFDM - Orthogonal frequency-division multiplexing)**
Conducted Output Power	**5180 – 5240 MHz: 63 mW 5260 – 5320 MHz: 62 mW 5500 – 5700 MHz: 61 mW 5745 – 5825 MHz: 63 mW**
Antenna Connector	**Internal U-FL**
Number of Antennas	**2**
Antenna Diversity Supported	**Yes**
Smart Antennas Supported	**MIMO**
TPC Supported	**Not implemented. Not required when EIRP is below 500 mW**
DFS Supported	**No, EUT is a Client Device without Radar Detection**
Ad-hoc Mode	**EUT does not support Ad-hoc Mode in DFS Bands***
Hotspot Mode	**EUT does not support Hotspot Mode in DFS Bands***
Power Supply	**Powered from Host**
Antennas	**Antenna 1: Amphenol Model OCF605-15-000-R Antenna 2: Amphenol Model OCF606-15-000-R**

*If the EUT supports Ad-hoc or Hotspot mode in the DFS Bands, it is to be considered a Master Device

Description of Test Item

The tested EUT is a module with WiFi and Bluetooth.

This report covers additional tests for use with the specified antennas.

All radiated tests were performed with the module installed in host model TTC60-36.

1.2 Test Engineer

Frode Sveinsen

Jørn Gustavsen (Power Line Conducted)

1.3 Hosts Used During Testing

Name	**Cisco**
Model No.	**TTC60-35** **TTC60-36**
Serial number	**TTC60-35: WZS2731L008** **TTC60-36: WZS2731M00N**
Hardware identity and/or version	**DV1**
Software identity and/or version	**CE 11.9.0 / s01845-2.58.0.0**
Antenna Connector	**Internal U-FL**
Power Supply	**Mains (120V 60Hz AC)**
Rating	**TTC60-35: 100-240V_{AC} 50/60Hz 3.0-1.5A** **TTC60-36: 100-240V_{AC} 50/60Hz 4.0-2.0A**

1.4 Normal test conditions

Temperature:	**20 - 24 °C**
Relative humidity:	**20 - 50 %**
Normal test voltage:	**120 V 60 Hz**

The values are the limit registered during the test period.

1.5 Antenna Requirement

Is the antenna detachable?	☐ **Yes**	☒ **No**
If detachable, is the antenna connector non-standard?	☐ **Yes**	☒ **No**
Type of antenna connector: Internal U-FL		

1.6 Worst-Case Configuration

Radiated Emissions and Power Line Conducted Emissions were performed with the EUT set to transmit at the channel with the highest output power as worst-case scenario.

1.7 EUT Operating Modes

Description of operating modes	Continuous TX, 5 GHz 802.11a/n/ac/ax 20/40/80 MHz Mode

1.8 Power Levels

Default Power Levels were used for all tests.

1.9 Comments

The measurements were done with the EUT powered by 120 V AC. It was checked that power variations between 85% and 115% did not have any influence on the measurements.

MIMO measurements were performed with the EUT transmitting in MIMO mode on both antennas (P0 and P1). When measuring radiated the direction was locked and the maximum position was found.

Measurements in SISO mode was performed on P0 when measuring at the antenna connector, and on both antennas when measuring radiated.

2 TEST REPORT SUMMARY

2.1 General

The tests were performed to demonstrate compliance with FCC CFR 47 Part 15, paragraph 15.407 and ISED RSS-247 Issue 3.

Tests were performed in accordance with ANSI C63.4-2014 and ANSI C63.10-2013.

Radiated tests were performed in a semi-anechoic chamber at measuring distances of 1m and 3m.

☐ **New Submission**	☒ **Production Unit**
☒ **Class II Permissive Change**	☐ **Pre-production Unit**
NII Equipment Code	☐ **Family Listing**

2.2 Test Summary

Name of test	FCC Part 15 reference	RSS-247 Issue 3 RSS-GEN Issue 5 reference	Result
Supply Voltage Variations	15.31(e)	6.11 (RSS-GEN)	**Complies**
Antenna Requirement	15.203	6.8 (RSS-GEN)	**Complies**
Power Line Conducted Emission	15.107(a) 15.207(a)	7.2 / 8.8 (RSS-GEN)	**Complies**
Maximum Output Power	15.407(a)	6.2	**Complies***
Power Spectral Density	15.407(a)	6.2	**Complies***
Emission Bandwidth	15.407(a)(2)	6.2	**Complies***
Unwanted Emissions	15.407(b)	6.2	**Complies**
Discontinuation of Transmission	15.407(c)	6.3	**N/T[1]**
6 dB Bandwidth	15.407(e)	6.2.4	**Complies***
Transmit Power Control	15.407(h)	6.2.3	**N/A[2]**
Dynamic Frequency Selection	15.407(h)	6.3	**Complies***
Radiated Emissions	15.205 15.209	7.3 (RSS-GEN) 8.9 (RSS-GEN)	**Complies**

***Covered by SGS Test report No. TERF2211002259ER and TERF2211002260ER**

[1] See manufacturers declaration.

[2] Transmit Power Control is not required when Max EIRP is below 500 mW.

3 TEST RESULTS

3.1 Power Line Conducted Emissions

FCC Part 15.207

ISED RSS-GEN Issue 5, Clause 7.2 / 8.8

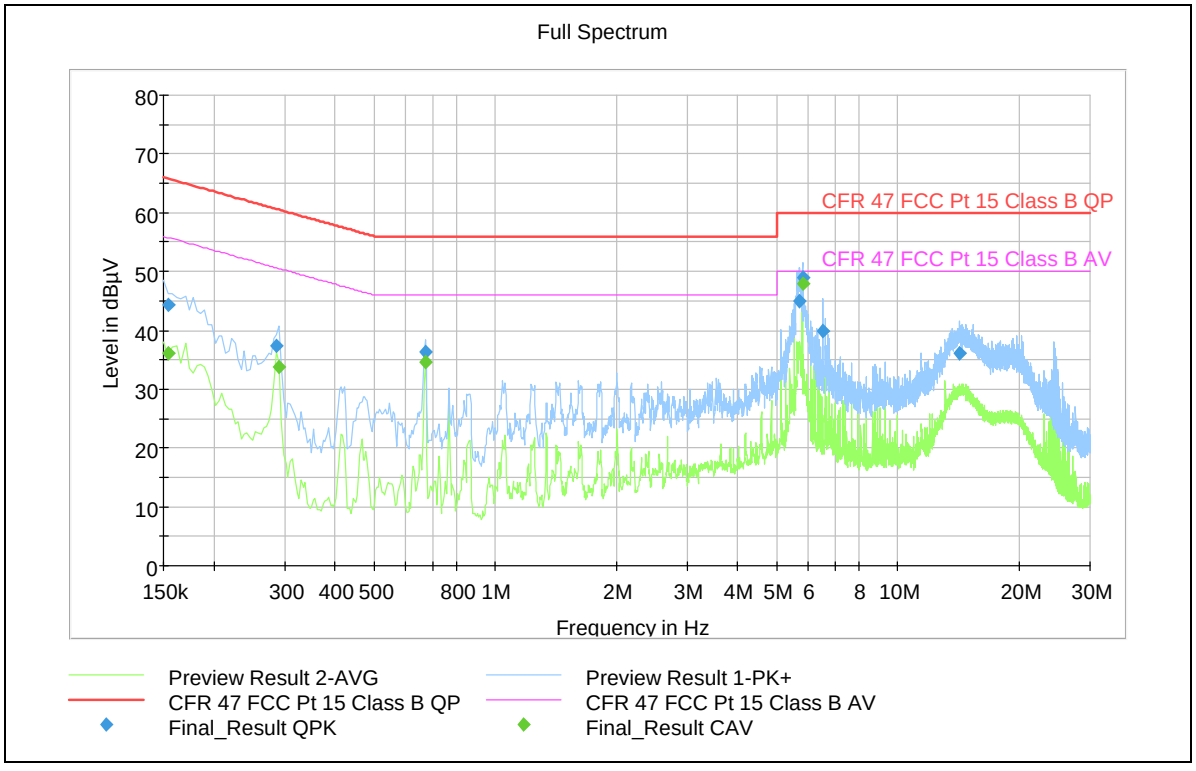
Measurement procedure: **ANSI C63.4-2014 using 50 µH/50 ohms LISN.**

Test Results: **Complies**

Measurement Data: **120V 60Hz, See attached plots.**

Highest measured value (L1 and N)

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.154000	---	36.04	55.78	19.74	15000.0	9.000	L1	OFF	9.7
0.154000	44.31	---	65.78	21.47	15000.0	9.000	L1	OFF	9.7
0.286000	37.46	---	60.64	23.18	15000.0	9.000	L1	OFF	9.7
0.290000	---	33.79	50.52	16.74	15000.0	9.000	L1	OFF	9.7
0.670000	---	34.72	46.00	11.28	15000.0	9.000	N	OFF	9.6
0.670000	36.33	---	56.00	19.67	15000.0	9.000	N	OFF	9.6
5.690000	44.92	---	60.00	15.08	15000.0	9.000	L1	OFF	9.8
5.798000	48.89	---	60.00	11.11	15000.0	9.000	L1	OFF	9.8
5.798000	---	47.84	50.00	2.16	15000.0	9.000	L1	OFF	9.8
6.510000	39.81	---	60.00	20.19	15000.0	9.000	N	OFF	9.6
14.234000	36.09	---	60.00	23.91	15000.0	9.000	N	OFF	9.7



3.2 Unwanted Emissions

FCC 15.407 (b)

ISED RSS-247, Issue 3, clause 6.2

Measurement procedure: ANSI C63.10-2013 Clause 12.7

Test Results: Complies

Measurement Data:

Band Edge Emissions:

Band Edge Frequency (MHz)	Measured Values (dBm/MHz e.i.r.p.)			
	802.11a	802.11n/ac/ax HT20	802.11n/ac/ax HT40	802.11ac/ax HT80
5150	< -27	< -27	< -27	< -27
5350	< -27	< -27	< -27	< -27
5470	< -27	< -27	< -27	< -27
5725	< -27	< -27	< -27	< -27
5650	< -40	< -40	< -40	< -40
5700	< -45	< -45	< -45	< -45
5875	< -45	< -45	< -45	< -45
5925	< -40	< -40	< -40	< -40

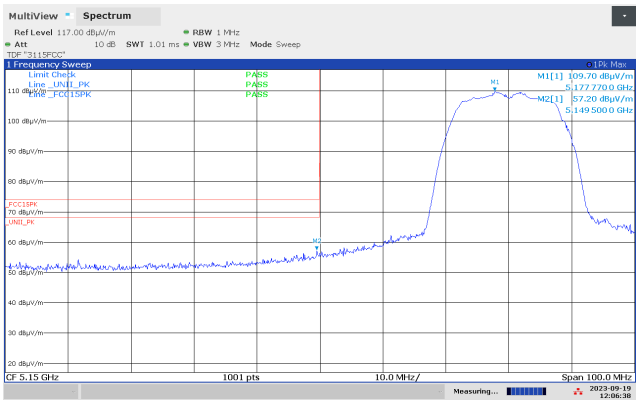
Band Edge Measurement were performed radiated. EIRP values were calculated from field strength using the method in KDB 412172 D01.

The tested equipment is for indoor use only, no band-edge requirements apply at 5250 MHz.

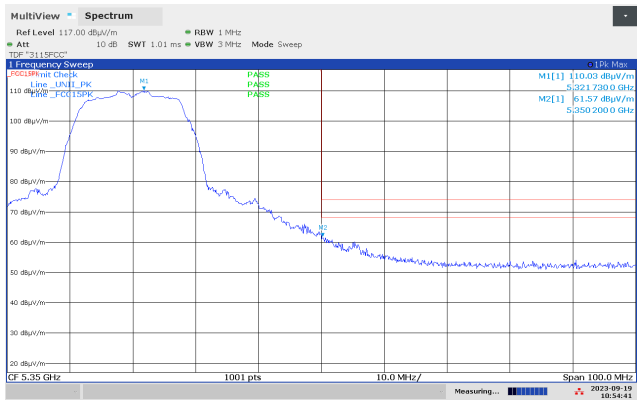
Limits:

Operating Frequency band	Limit for Emissions Outside Operating Frequency Band
5150 – 5250 MHz	-27 dBm/MHz e.i.r.p.
5250 – 5350 MHz	-27 dBm/MHz e.i.r.p.
5470 – 5725 MHz	-27 dBm/MHz e.i.r.p.
5725 – 5825 MHz	See FCC 15.407(b)(4)(i) or 15.407(b)(4)(ii)

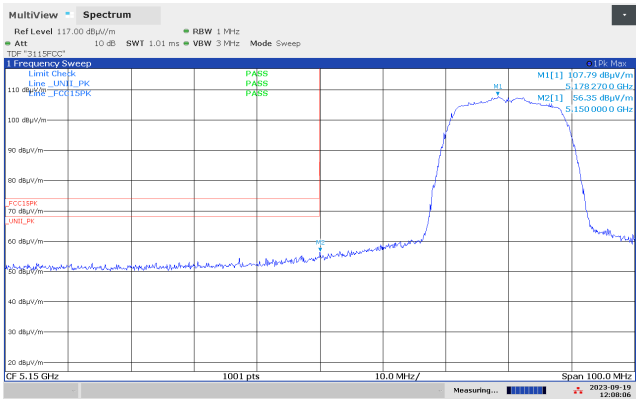
Devices operating in the 5.25-5.35 GHz band that generate emissions in the 5.15-5.25 GHz band must meet all applicable technical requirements for operation in the 5.15-5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5.15-5.25 GHz band.



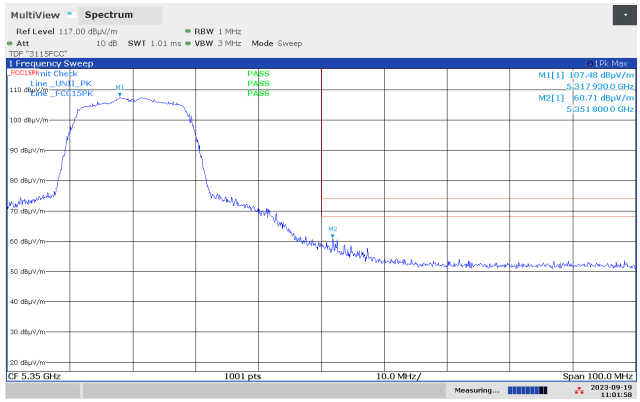
Band Edge 5150 MHz, ch036, 802.11a 6Mb, Radiated, Max



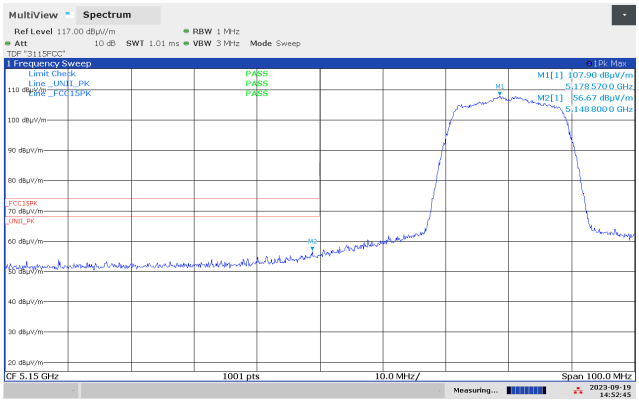
Band Edge 5350 MHz, ch064, 802.11a 6Mb, Radiated, Max



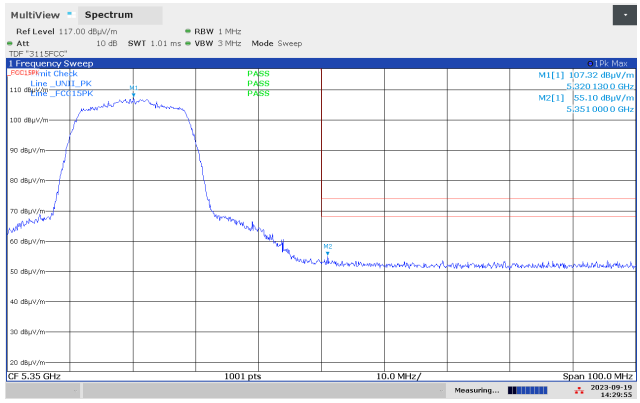
Band Edge 5150 MHz, ch036, 802.11n MCS0, Radiated, Max



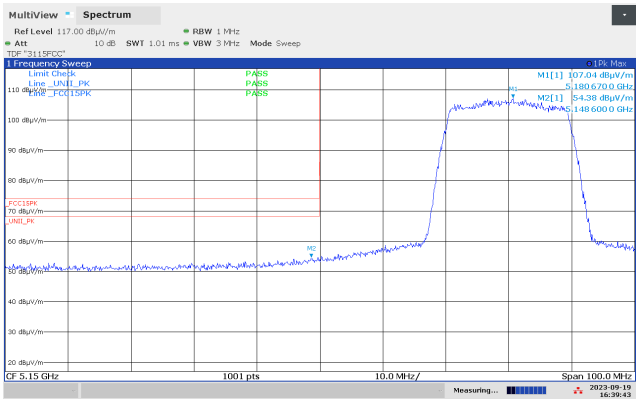
Band Edge 5350 MHz, ch064, 802.11n MCS0, Radiated, Max



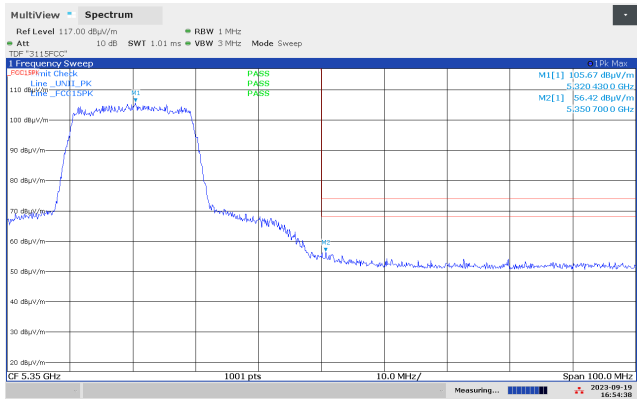
Band Edge 5150 MHz, ch036, 802.11n MCS8 MIMO, Radiated, Max



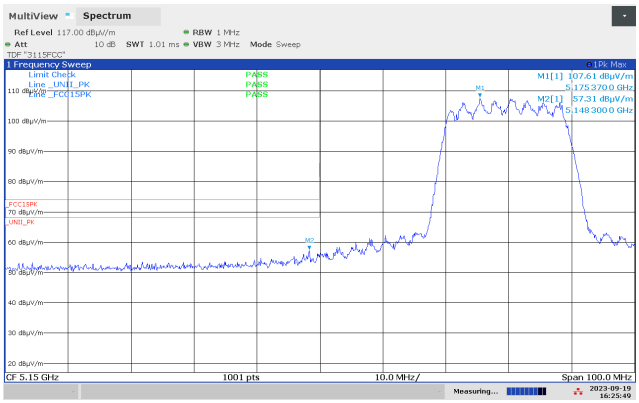
Band Edge 5350 MHz, ch064, 802.11n MCS8 MIMO, Radiated, Max



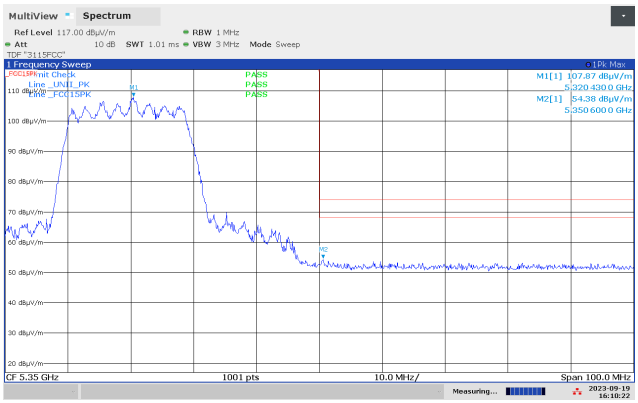
Band Edge 5150 MHz, ch036, 802.11ax MCS0 SISO, Radiated, Max



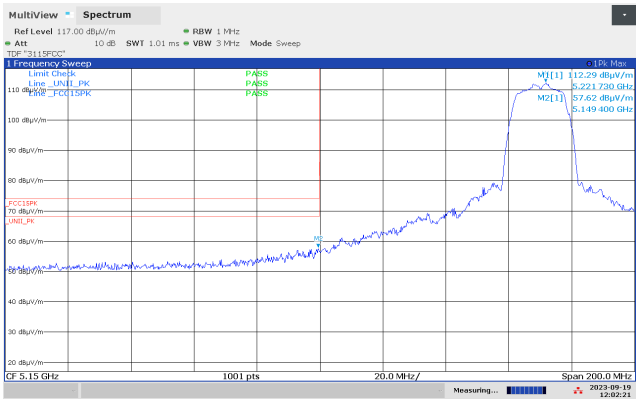
Band Edge 5350 MHz, ch064, 802.11ax MCS0 SISO, Radiated, Max



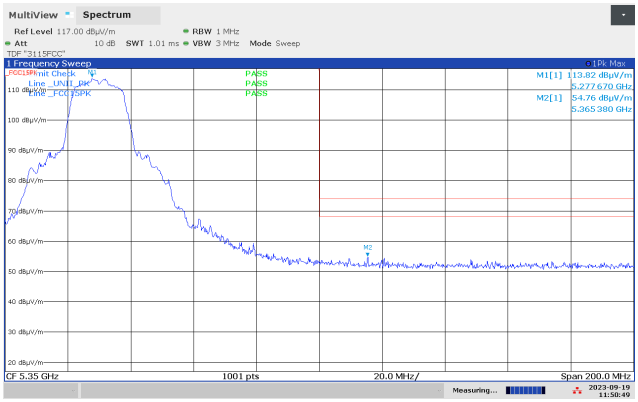
Band Edge 5150 MHz, ch036, 802.11ax MCS0 MIMO, Radiated, Max



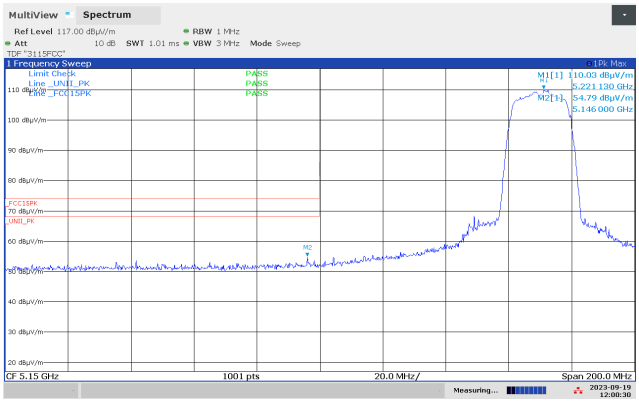
Band Edge 5350 MHz, ch064, 802.11ax MCS0 MIMO, Radiated, Max



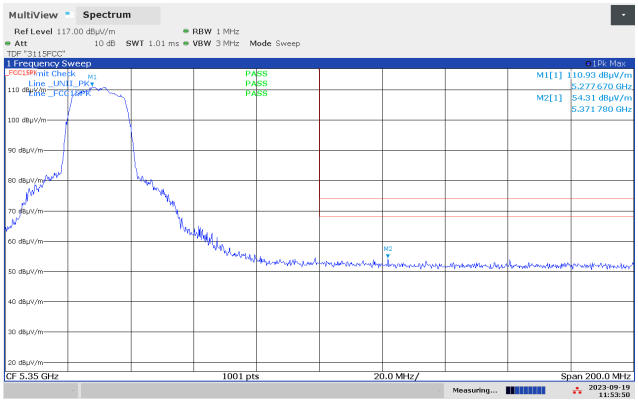
Band Edge 5150 MHz, ch044, 802.11a 6Mb, Radiated, Max



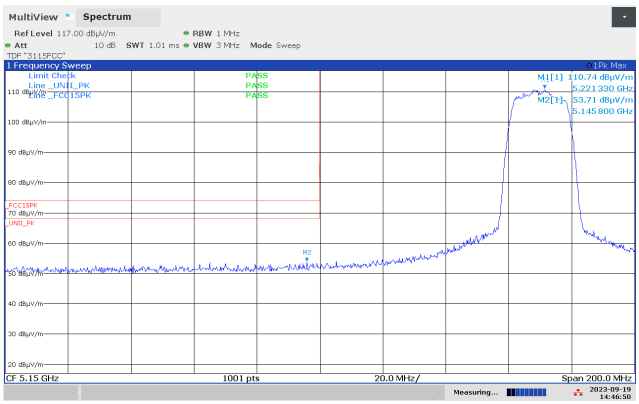
Band Edge 5350 MHz, ch056, 802.11a 6Mb, Radiated, Max



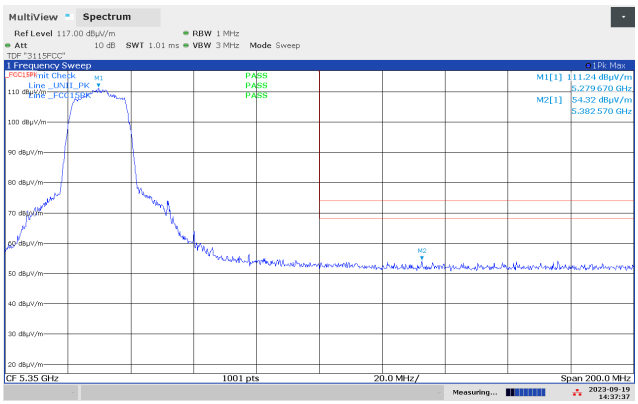
Band Edge 5150 MHz, ch044, 802.11n MCS0, Radiated, Max



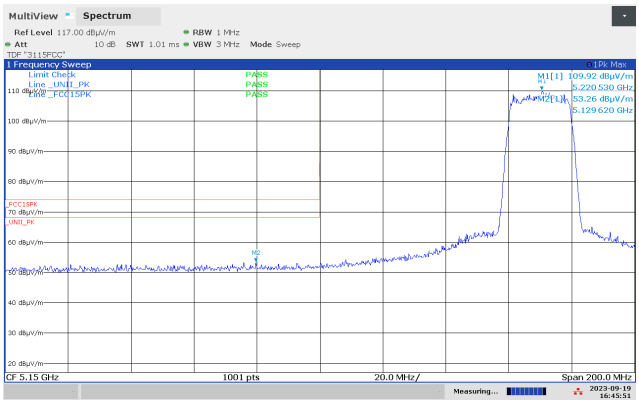
Band Edge 5350 MHz, ch056, 802.11n MCS0, Radiated, Max



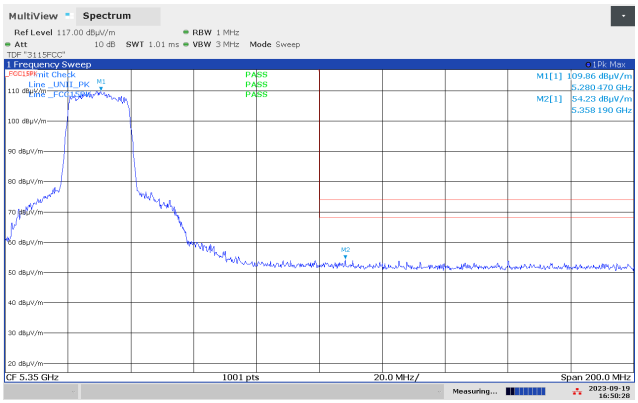
Band Edge 5150 MHz, ch044, 802.11n MCS8 MIMO, Radiated, Max



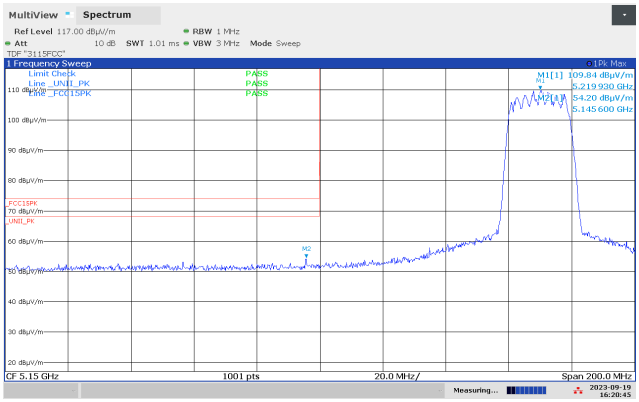
Band Edge 5350 MHz, ch056, 802.11n MCS8 MIMO, Radiated, Max



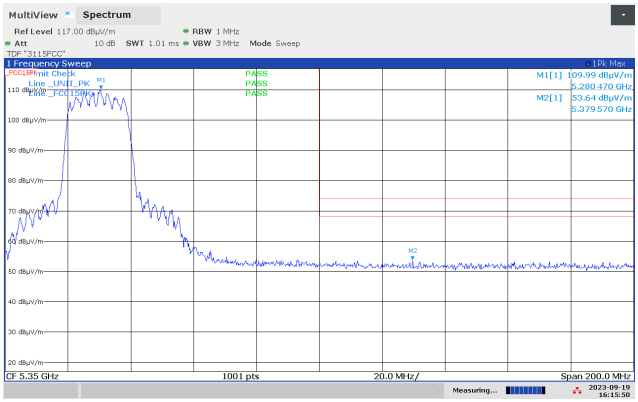
Band Edge 5150 MHz, ch044, 802.11ax MCS0 SISO, Radiated, Max



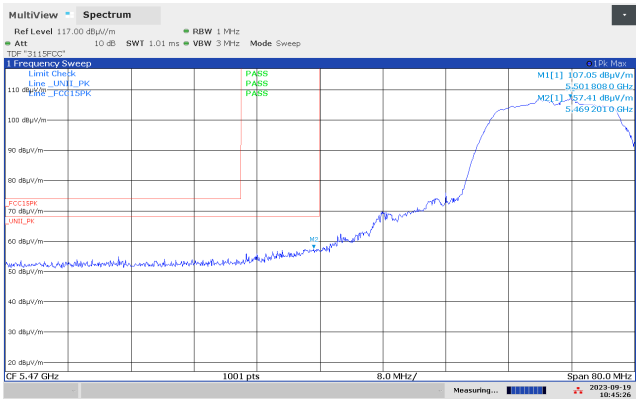
Band Edge 5350 MHz, ch056, 802.11ax MCS0 SISO, Radiated, Max



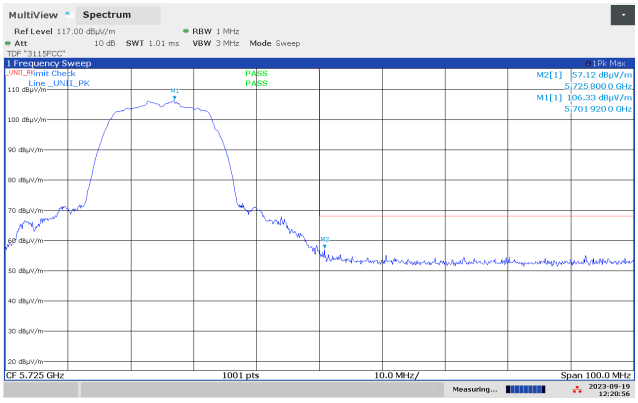
Band Edge 5150 MHz, ch044, 802.11ax MCS0 MIMO, Radiated, Max



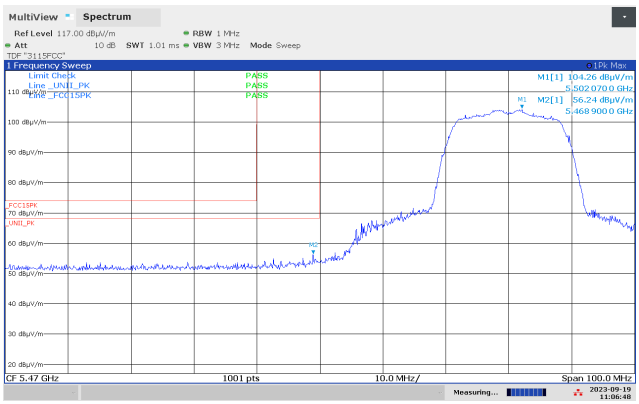
Band Edge 5350 MHz, ch056, 802.11ax MCS0 MIMO, Radiated, Max



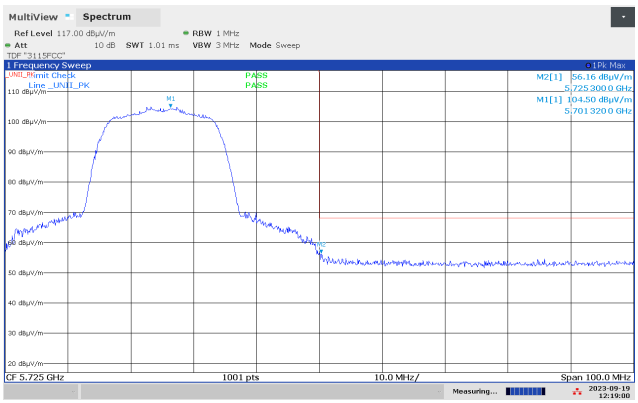
Band Edge 5470 MHz, ch100, 802.11a 6Mb, Radiated, Max



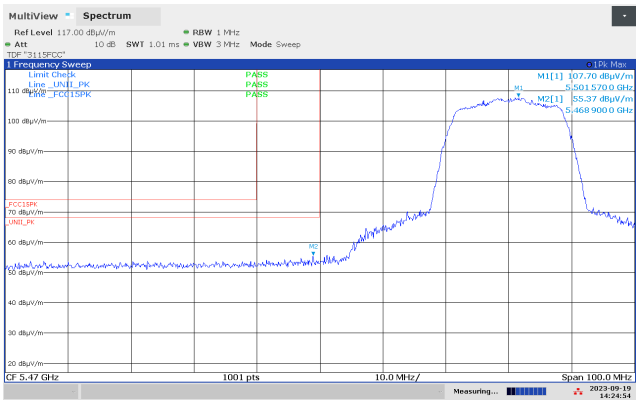
Band Edge 5725 MHz, ch140, 802.11a 6Mb, Radiated, Max



Band Edge 5470 MHz, ch100, 802.11n MCS0, Radiated, Max

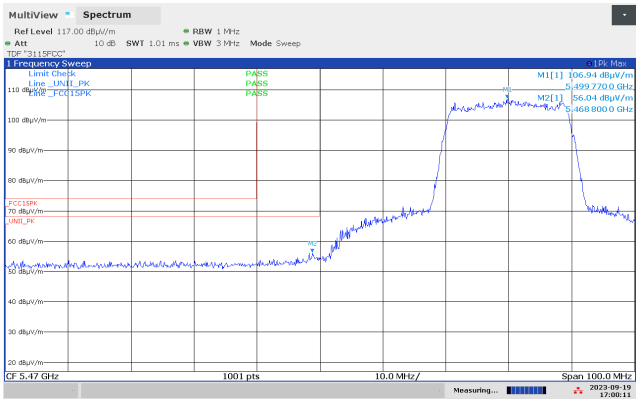


Band Edge 5725 MHz, ch140, 802.11n MCS0, Radiated, Max

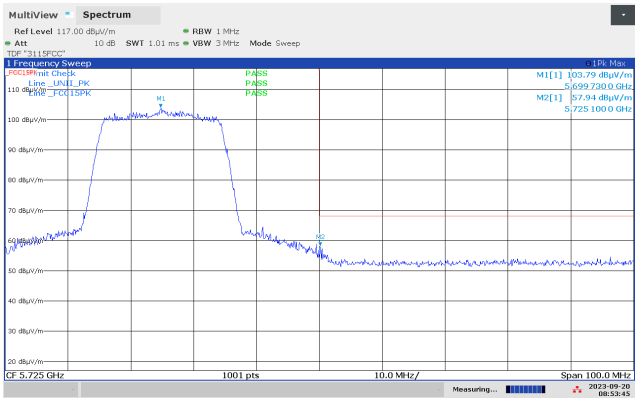


Band Edge 5470 MHz, ch100, 802.11n MCS8 MIMO, Radiated, Max

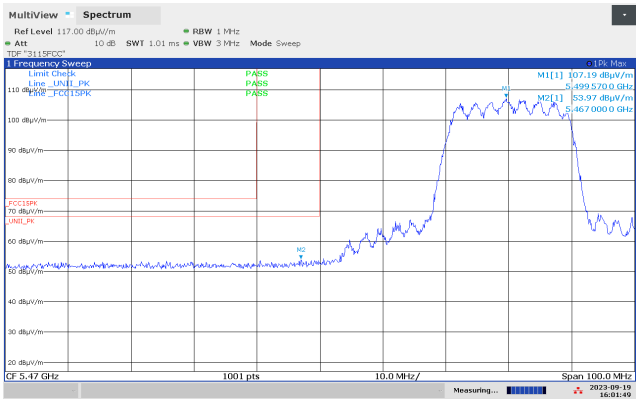
Band Edge 5725 MHz, ch140, 802.11n MCS8 MIMO, Radiated, Max



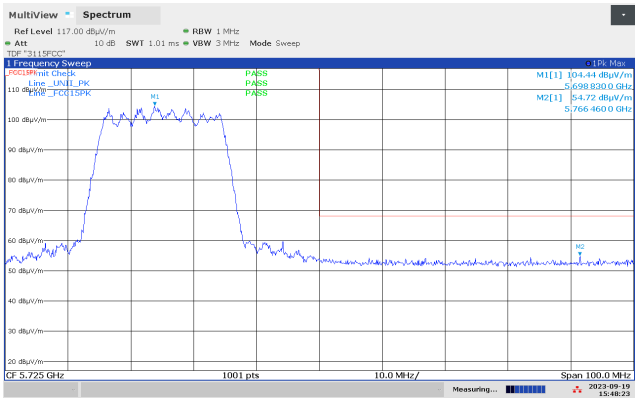
Band Edge 5470 MHz, ch100, 802.11ax MCS0 SISO, Radiated, Max



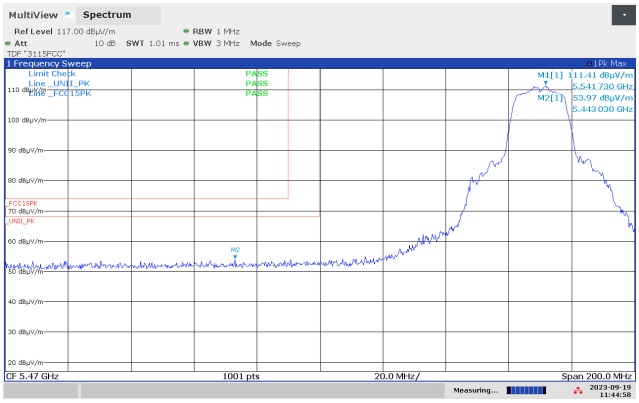
Band Edge 5725 MHz, ch140, 802.11ax MCS0 SISO, Radiated, Max



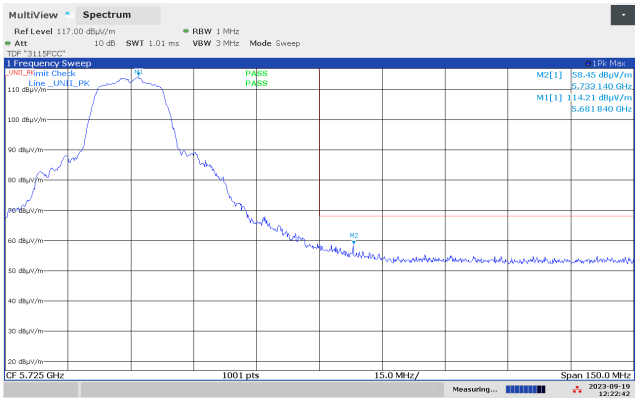
Band Edge 5470 MHz, ch100, 802.11ax MCS0 MIMO, Radiated, Max



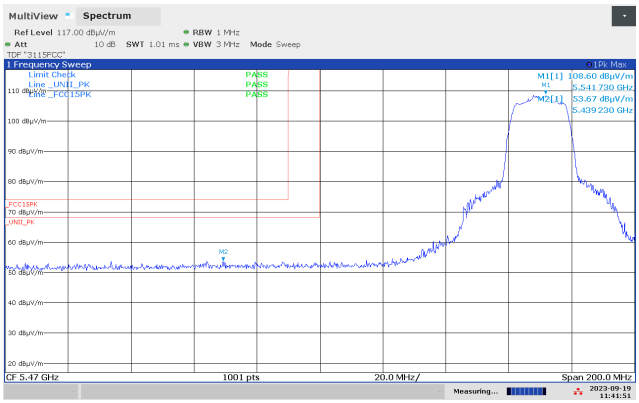
Band Edge 5725 MHz, ch140, 802.11ax MCS0 MIMO, Radiated, Max



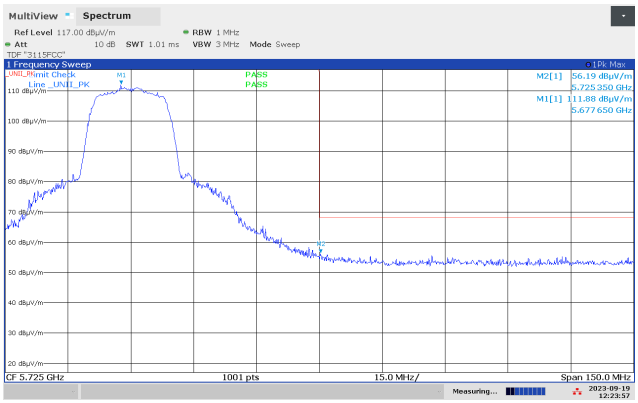
Band Edge 5470 MHz, ch108, 802.11a 6M, Radiated, Max



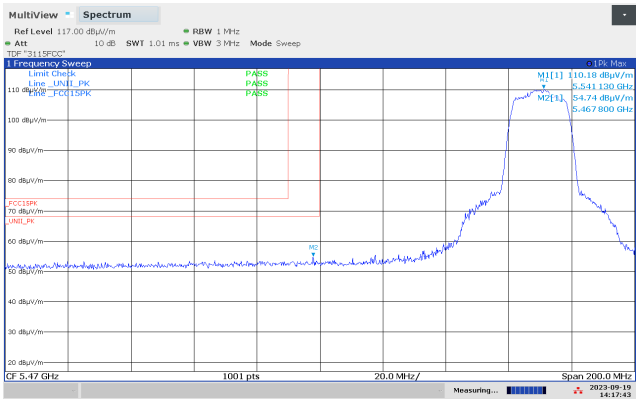
Band Edge 5725 MHz, ch136, 802.11a 6Mb, Radiated, Max



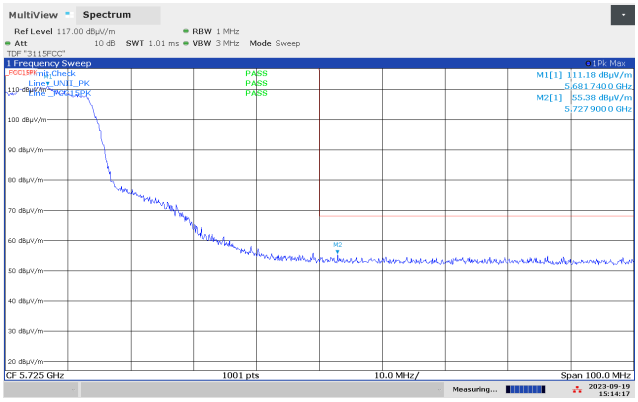
Band Edge 5470 MHz, ch108, 802.11n MCS0 SISO, Radiated, Max



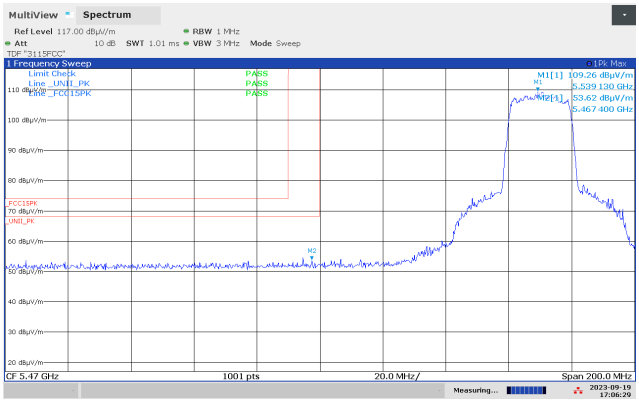
Band Edge 5725 MHz, ch136, 802.11n MCS0, Radiated, Max



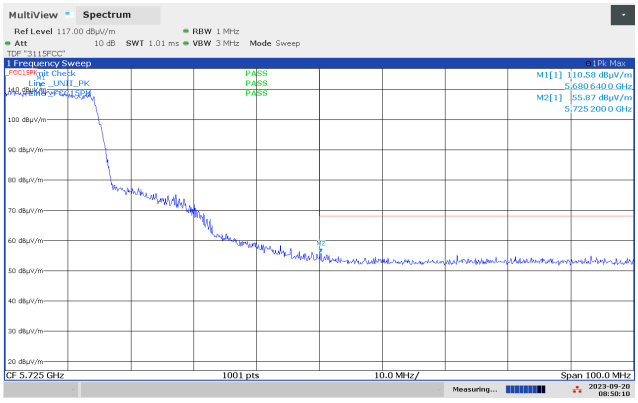
Band Edge 5470 MHz, ch108, 802.11n MCS8 MIMO, Radiated, Max



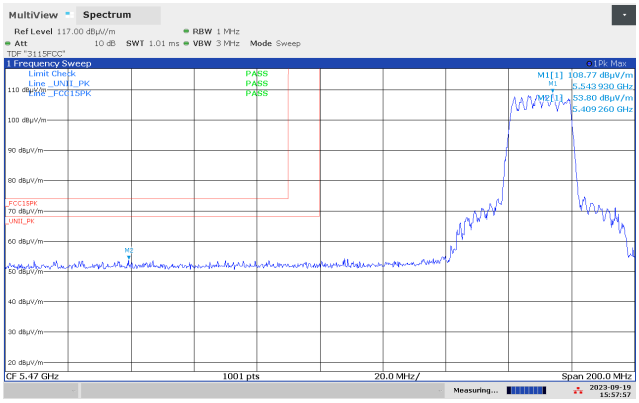
Band Edge 5725 MHz, ch136, 802.11n MCS8 MIMO, Radiated, Max



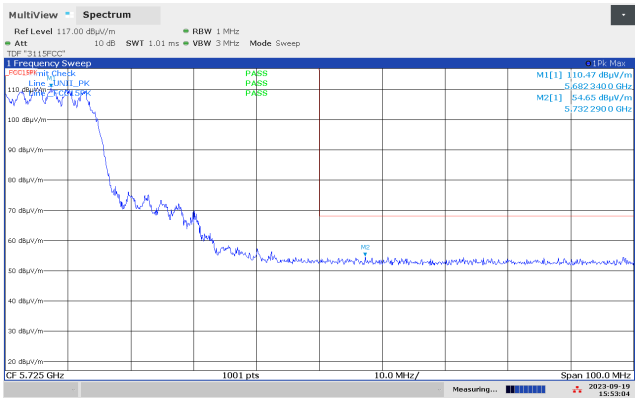
Band Edge 5470 MHz, ch108, 802.11ax MCS0 SISO, Radiated, Max



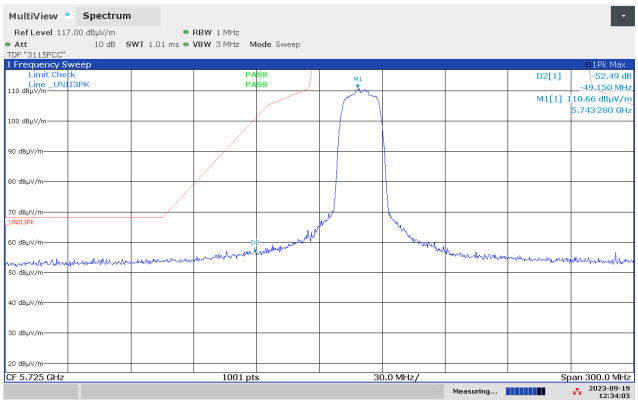
Band Edge 5725 MHz, ch136, 802.11ax MCS0 SISO, Radiated, Max



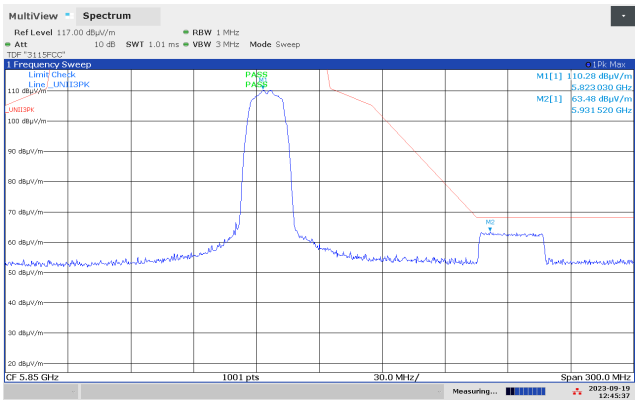
Band Edge 5470 MHz, ch108, 802.11ax MCS0 MIMO, Radiated, Max



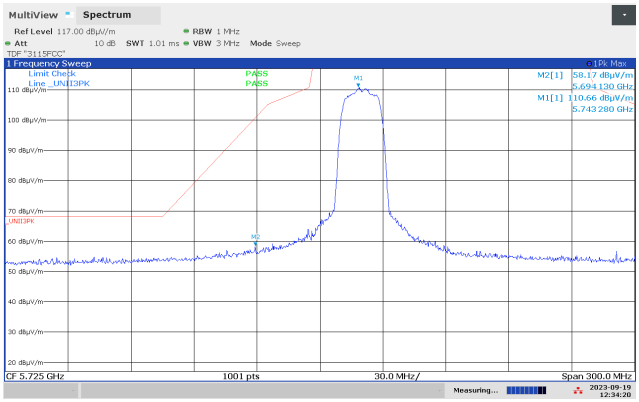
Band Edge 5725 MHz, ch136, 802.11ax MCS0 MIMO, Radiated, Max



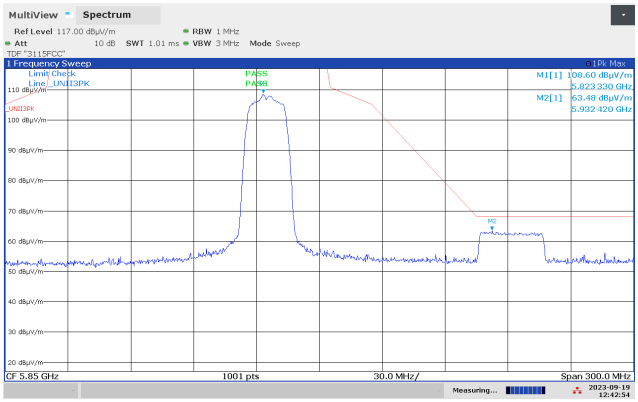
Band Edge 5725 MHz, ch149, 802.11a 6Mb, Radiated, Max



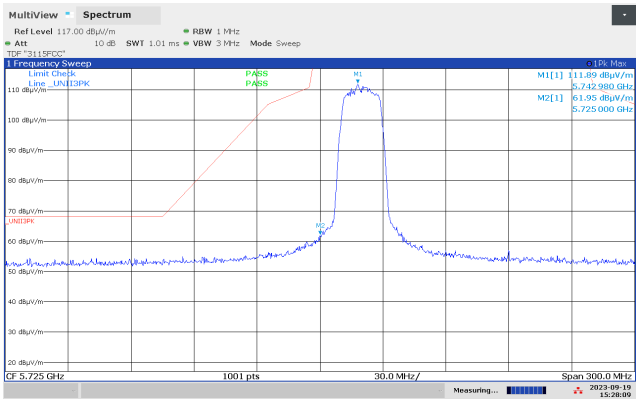
Band Edge 5850 MHz, ch157, 802.11a 6Mb, Radiated, Max



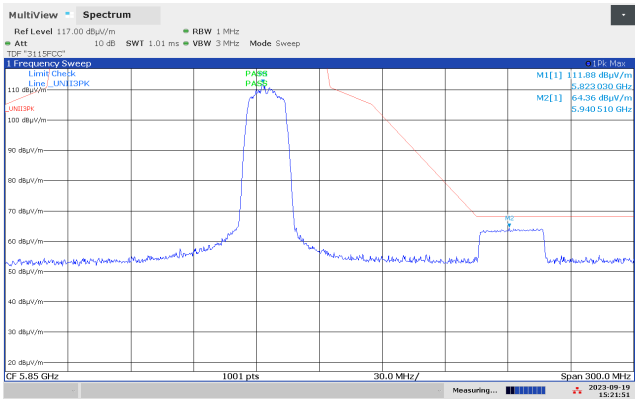
Band Edge 5725 MHz, ch149, 802.11n MCS0 SISO, Radiated, Max



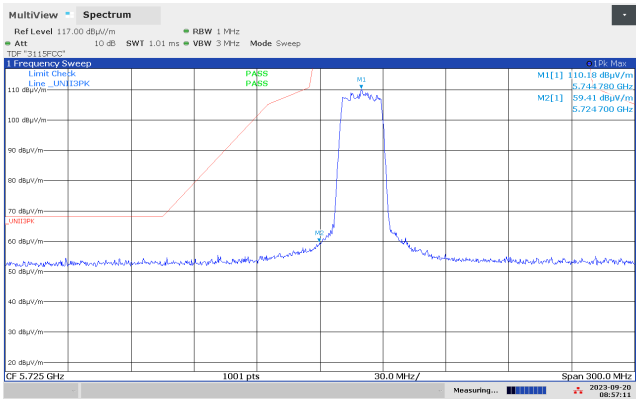
Band Edge 5850 MHz, ch157, 802.11n MCS0, Radiated, Max



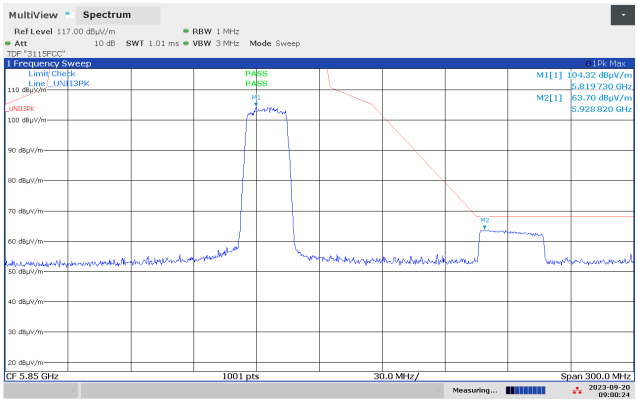
Band Edge 5725 MHz, ch149, 802.11n MCS8 MIMO, Radiated, Max



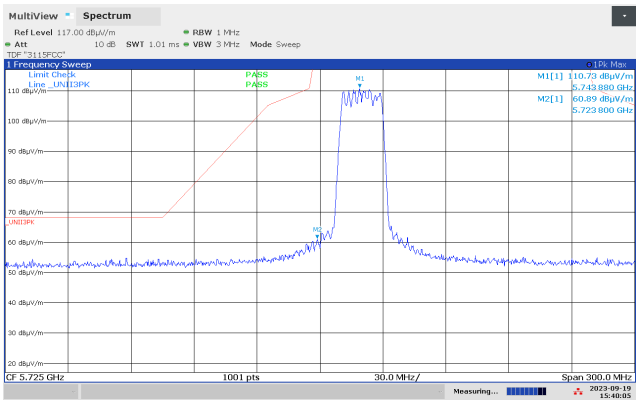
Band Edge 5850 MHz, ch157, 802.11n MCS8 MIMO, Radiated, Max



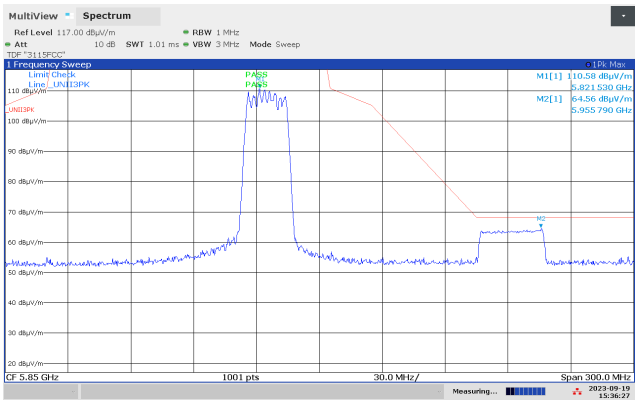
Band Edge 5725 MHz, ch149, 802.11ax MCS0 SISO, Radiated, Max



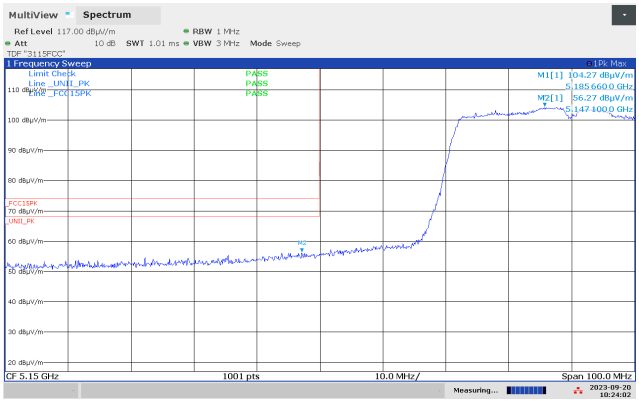
Band Edge 5850 MHz, ch165, 802.11ax MCS0 SISO, Radiated, Max



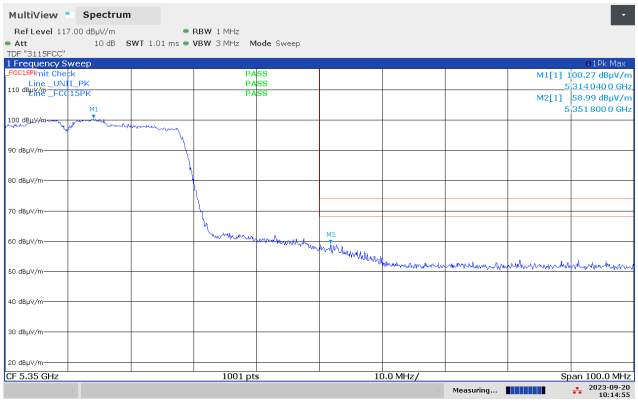
Band Edge 5725 MHz, ch149, 802.11ax MCS0 MIMO, Radiated, Max



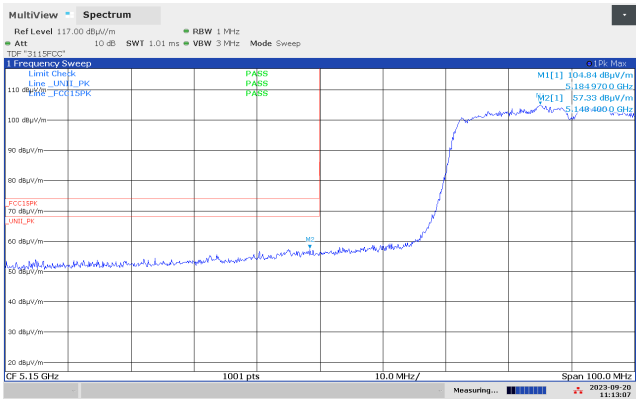
Band Edge 5850 MHz, ch165, 802.11ax MCS0 MIMO, Radiated, Max



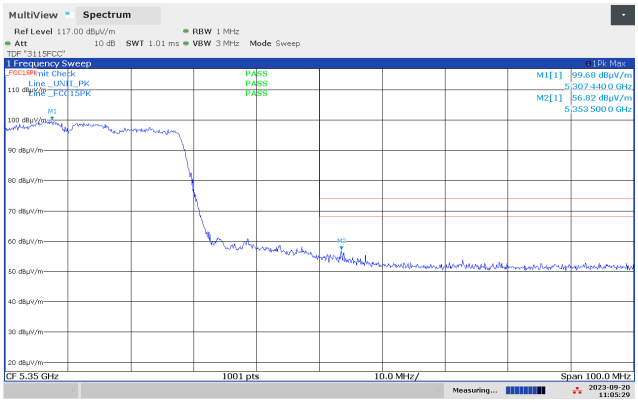
Band Edge 5150 MHz, ch038, 802.11n MCS0 HT40, Radiated, Max



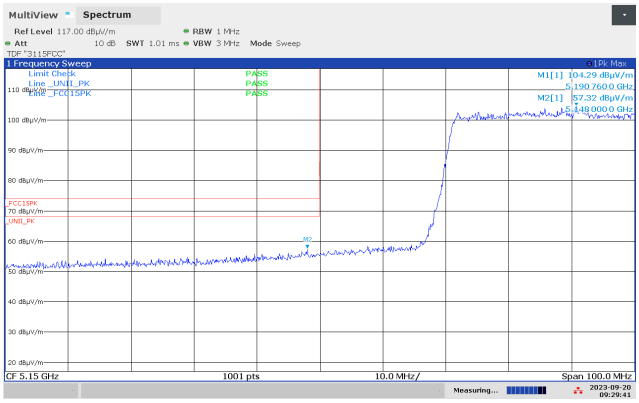
Band Edge 5350 MHz, ch062, 802.11n MCS0 HT40, Radiated, Max



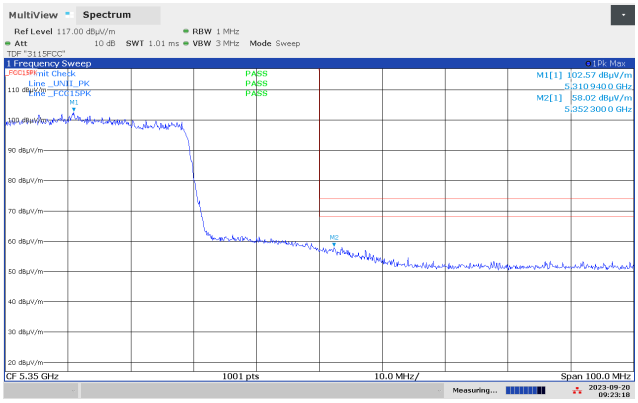
Band Edge 5150 MHz, ch038, 802.11n MCS8 HT40 MIMO, Radiated, Max



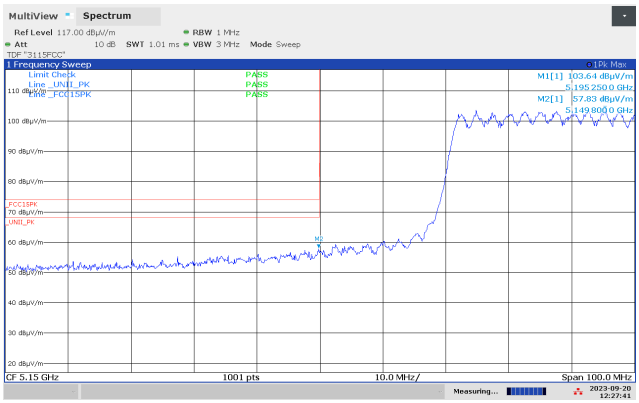
Band Edge 5350 MHz, ch062, 802.11n MCS8 MIMO, Radiated, Max



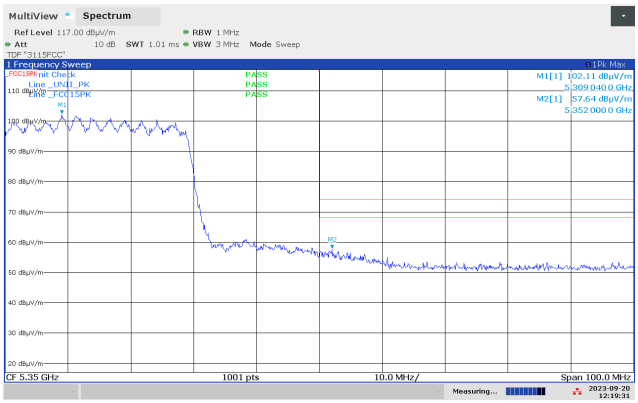
Band Edge 5150 MHz, ch038, 802.11ax MCS0 HT40 SISO, Radiated, Max



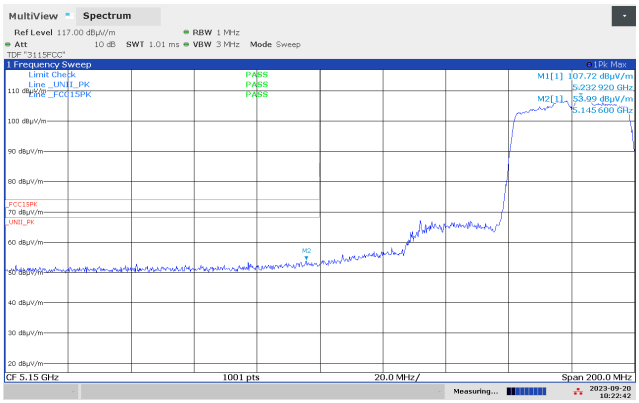
Band Edge 5350 MHz, ch062, 802.11ax MCS0 HT40 SISO, Radiated, Max



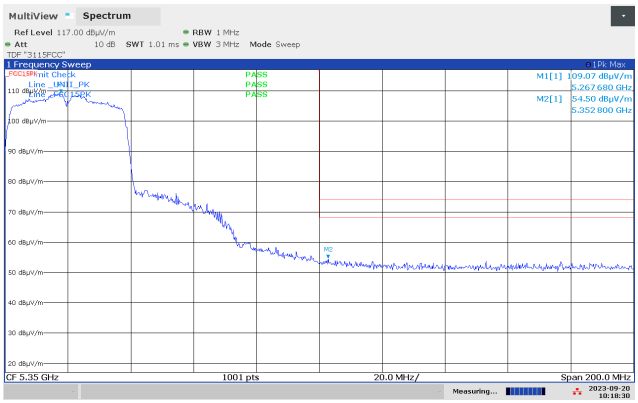
Band Edge 5150 MHz, ch038, 802.11ax MCS0 HT40 MIMO, Radiated, Max



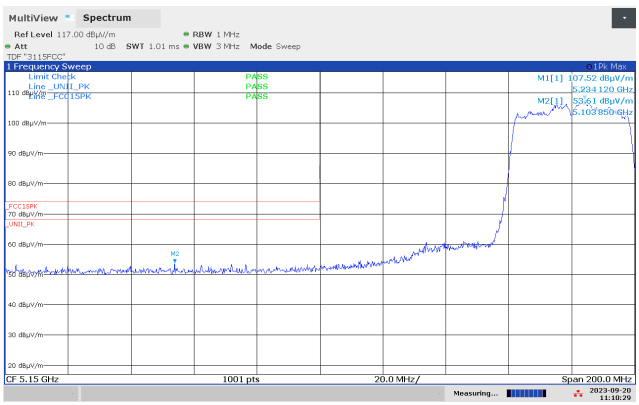
Band Edge 5350 MHz, ch062, 802.11ax MCS0 HT40 MIMO, Radiated, Max



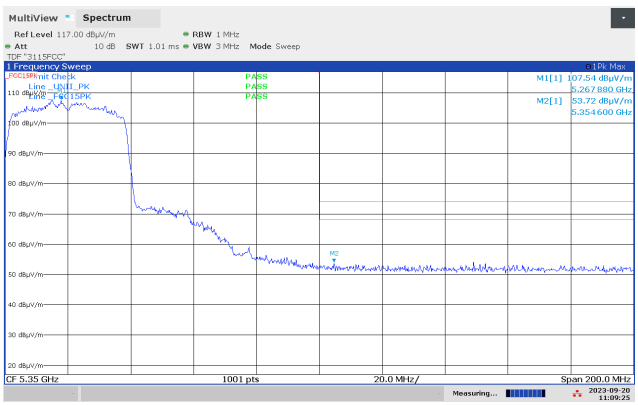
Band Edge 5150 MHz, ch046, 802.11n MCS0 HT40 SISO, Radiated, Max



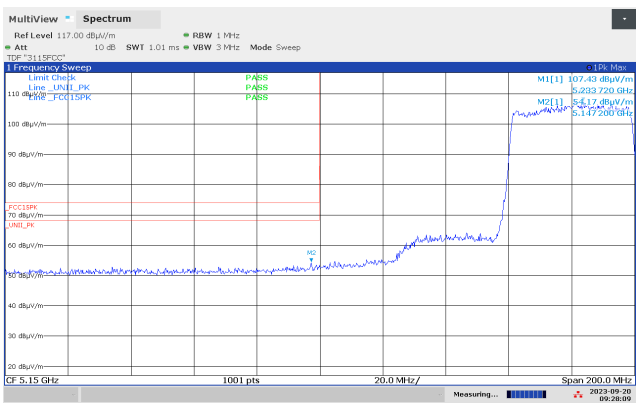
Band Edge 5350 MHz, ch054, 802.11n MCS0 HT40, Radiated, Max



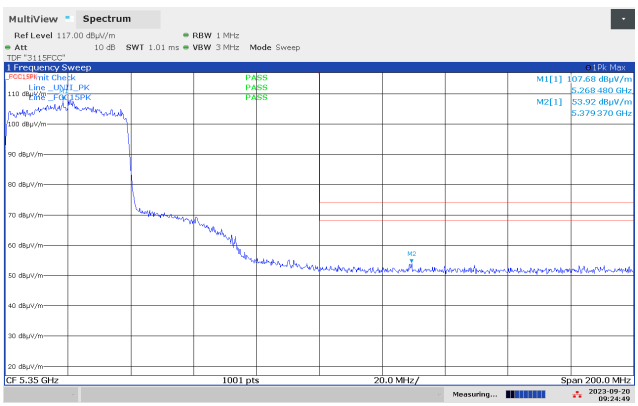
Band Edge 5150 MHz, ch046, 802.11n MCS8 HT40 MIMO, Radiated, Max



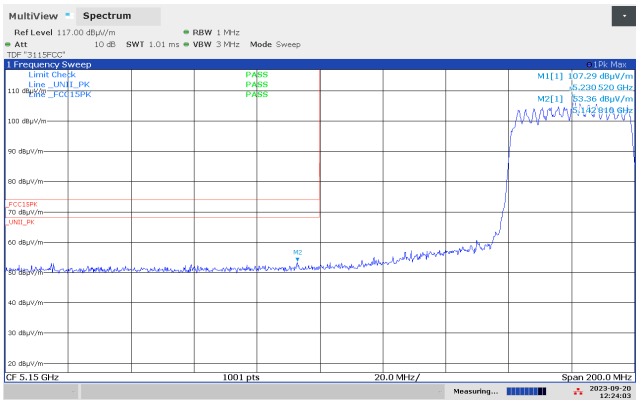
Band Edge 5350 MHz, ch054, 802.11n MCS8 HT40 MIMO, Radiated, Max



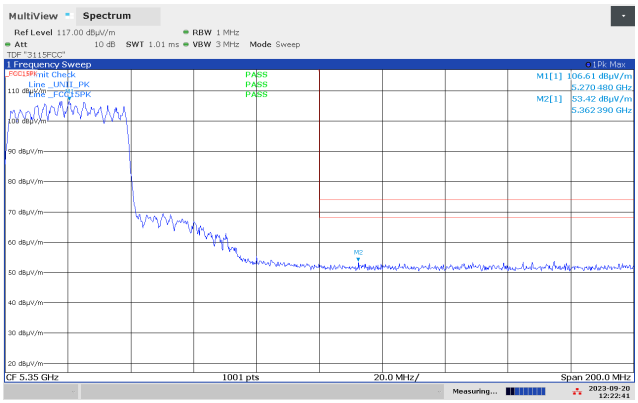
Band Edge 5150 MHz, ch046, 802.11ax MCS0 HT40 SISO, Radiated, Max



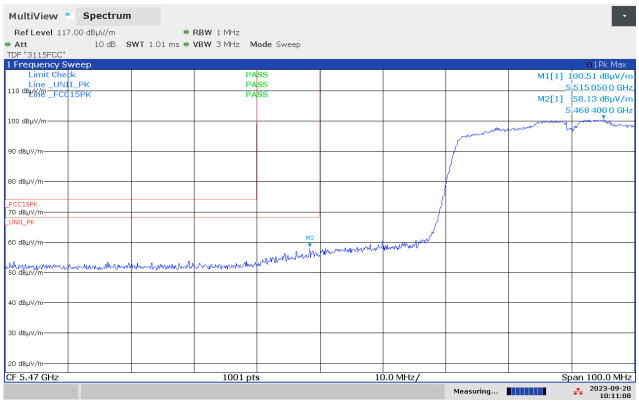
Band Edge 5350 MHz, ch054, 802.11ax MCS0 HT40 SISO, Radiated, Max



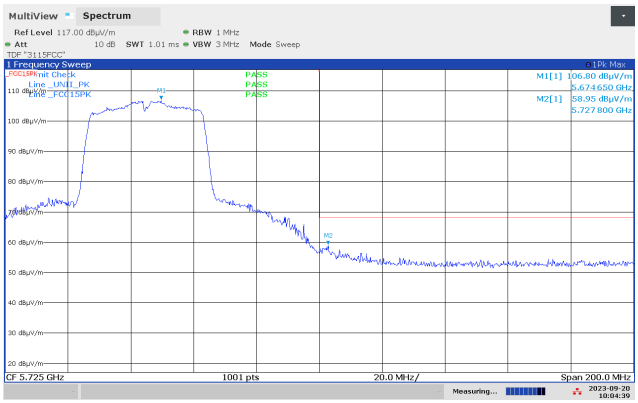
Band Edge 5150 MHz, ch046, 802.11ax MCS0 HT40 MIMO, Radiated, Max



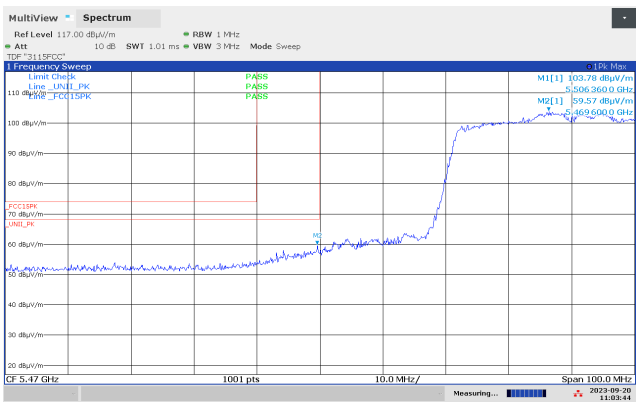
Band Edge 5350 MHz, ch054, 802.11ax MCS0 HT40 MIMO, Radiated, Max



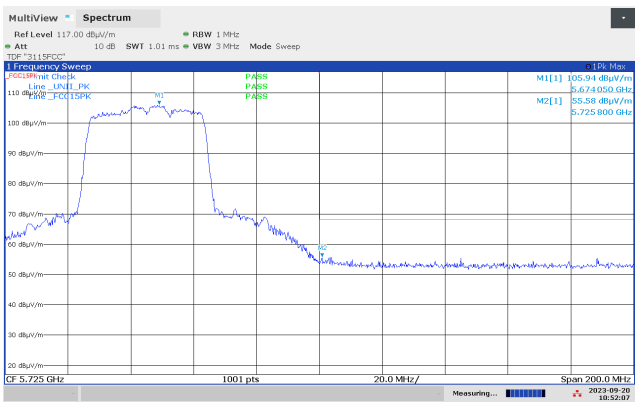
Band Edge 5470 MHz, ch102, 802.11n MCS0 HT40, Radiated, Max



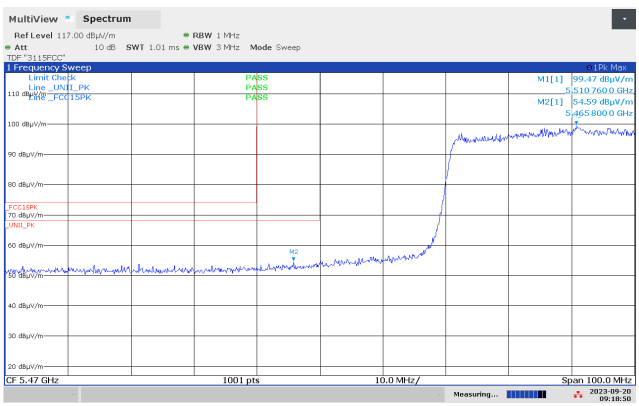
Band Edge 5725 MHz, ch134, 802.11n MCS0 HT40, Radiated, Max



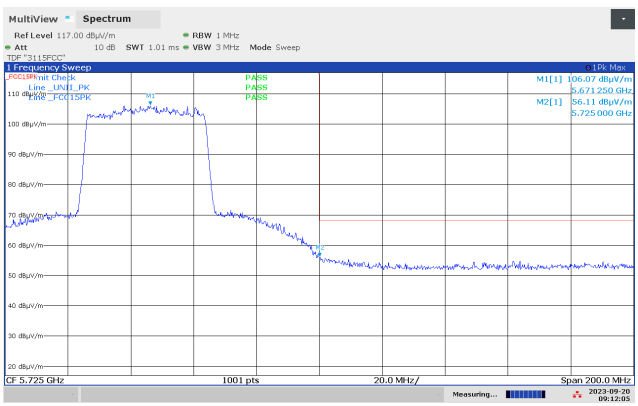
Band Edge 5470 MHz, ch102, 802.11n MCS8 HT40 MIMO, Radiated, Max



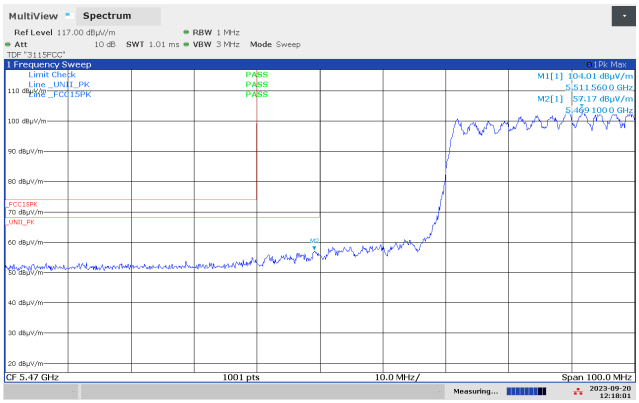
Band Edge 5725 MHz, ch134, 802.11n MCS8 HT40 MIMO, Radiated, Max



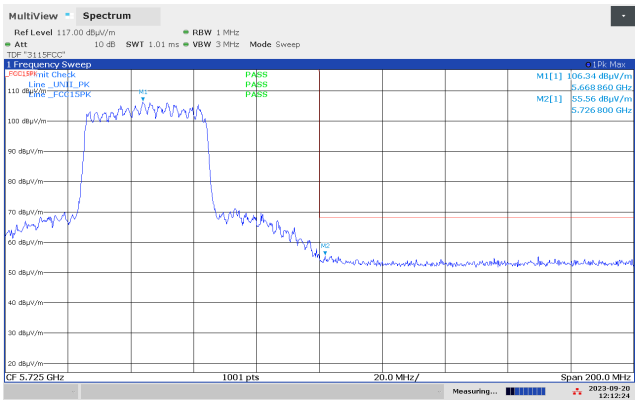
Band Edge 5470 MHz, ch102, 802.11ax MCS0 HT40 SISO, Radiated, Max



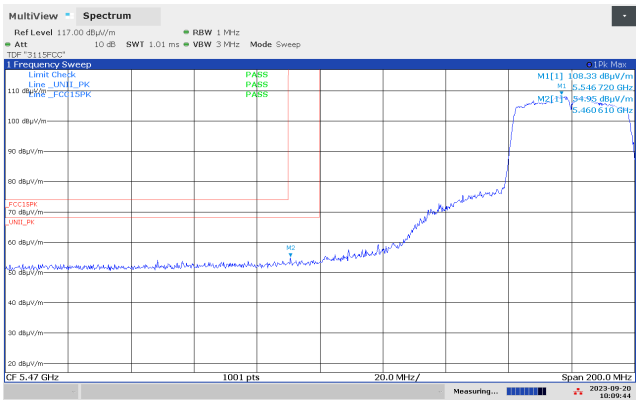
Band Edge 5725 MHz, ch134, 802.11ax MCS0 HT40 SISO, Radiated, Max



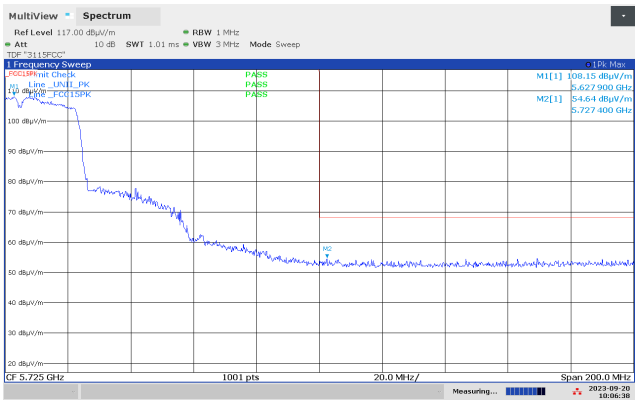
Band Edge 5470 MHz, ch102, 802.11ax MCS0 HT40 MIMO, Radiated, Max



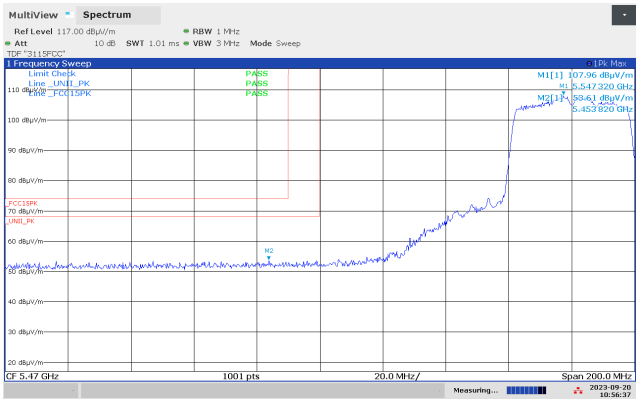
Band Edge 5725 MHz, ch134, 802.11ax MCS0 HT40 MIMO, Radiated, Max



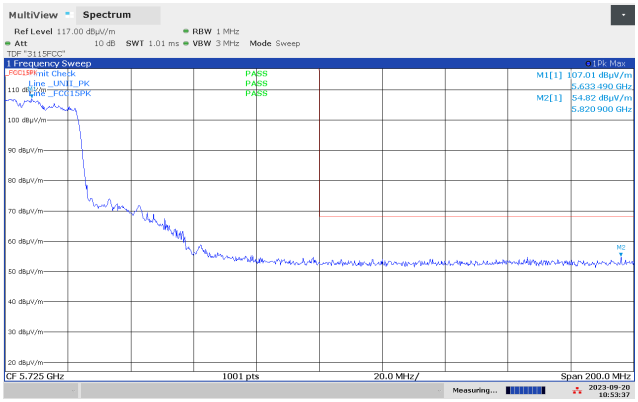
Band Edge 5470 MHz, ch110, 802.11n MCS0 HT40, Radiated, Max



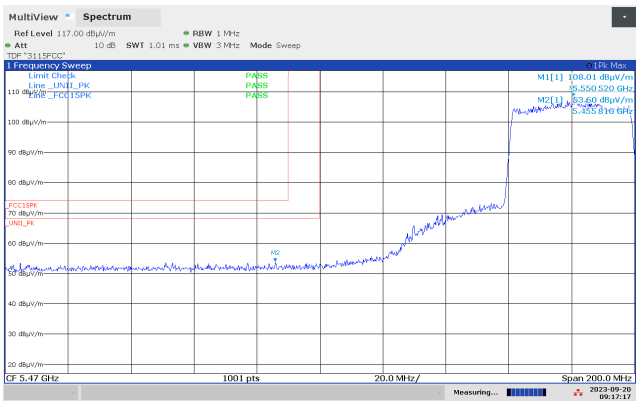
Band Edge 5725 MHz, ch126, 802.11n MCS0 HT40, Radiated, Max



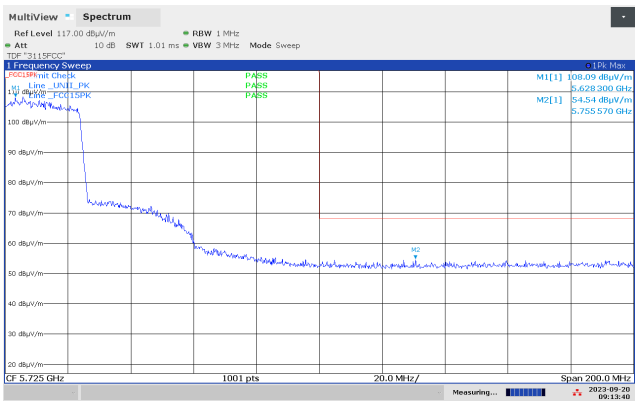
Band Edge 5470 MHz, ch110, 802.11n MCS8 HT40 MIMO, Radiated, Max



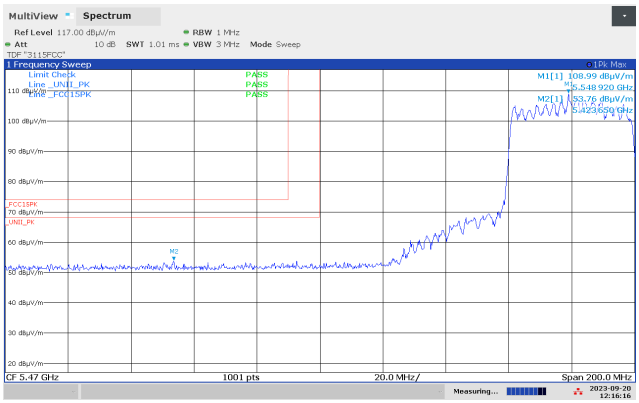
Band Edge 5725 MHz, ch126, 802.11n MCS8 HT40 MIMO, Radiated, Max



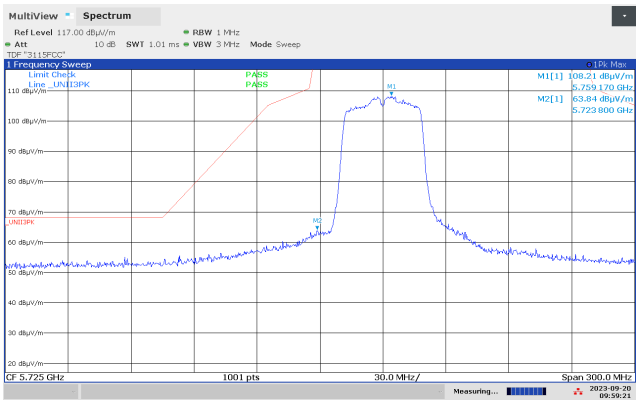
Band Edge 5470 MHz, ch110, 802.11ax MCS0 HT40 SISO, Radiated, Max



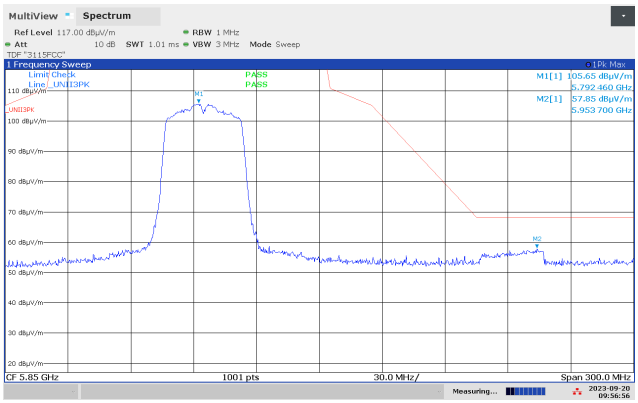
Band Edge 5725 MHz, ch126, 802.11ax MCS0 HT40, Radiated, Max



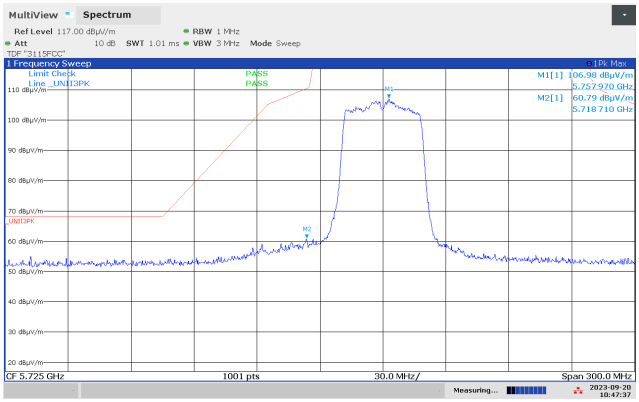
Band Edge 5470 MHz, ch110, 802.11ax MCS0 HT40 MIMO, Radiated, Max



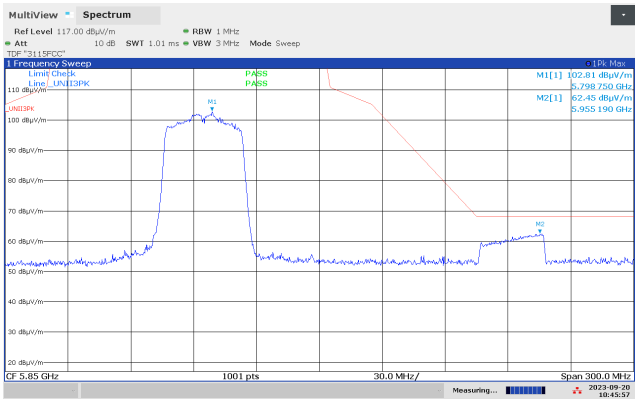
Band Edge 5725 MHz, ch151, 802.11n MCS0 HT40, Radiated, Max



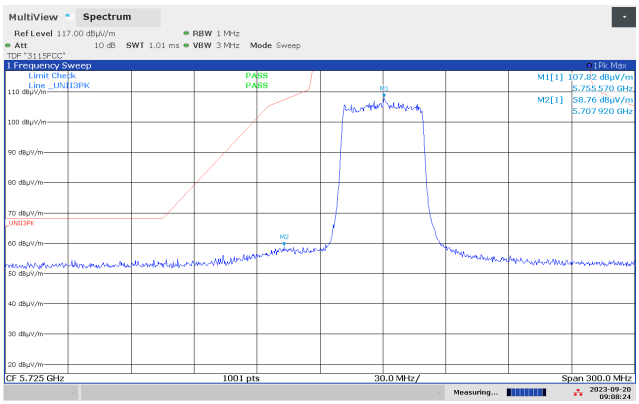
Band Edge 5850 MHz, ch159, 802.11n MCS0 HT40, Radiated, Max



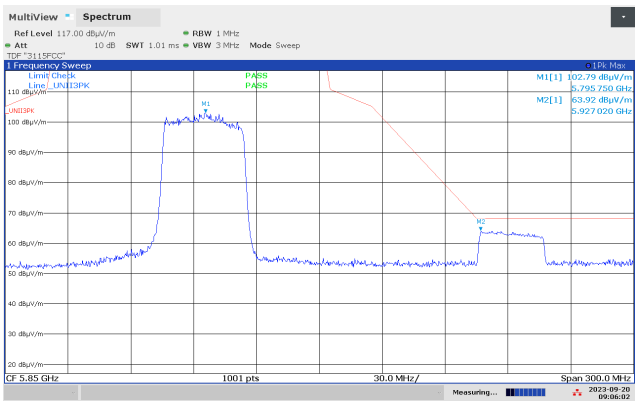
Band Edge 5725 MHz, ch151, 802.11n MCS8 HT40 MIMO, Radiated, Max



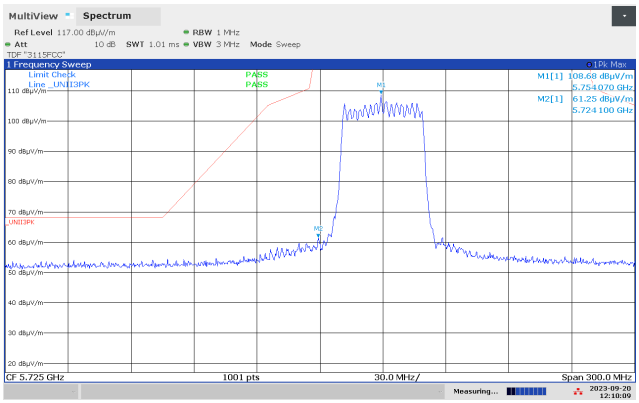
Band Edge 5850 MHz, ch159, 802.11n MCS8 HT40 MIMO, Radiated, Max



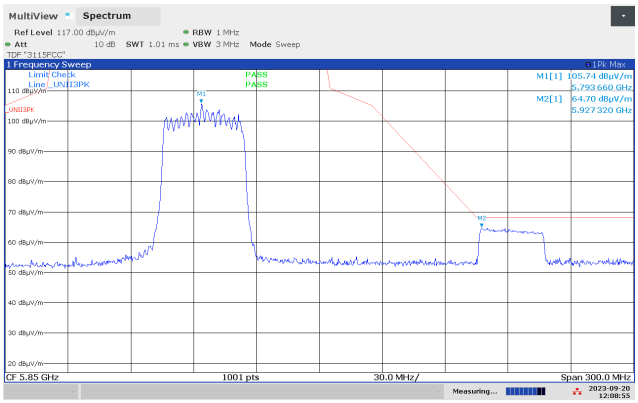
Band Edge 5725 MHz, ch151, 802.11ax MCS0 HT40 SISO, Radiated, Max



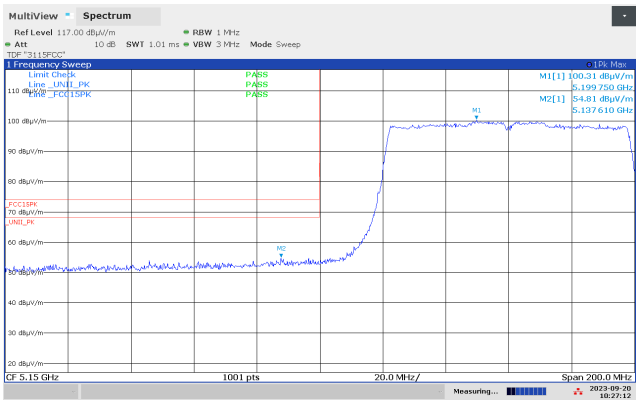
Band Edge 5850 MHz, ch159, 802.11ax MCS0 HT40 SISO, Radiated, Max



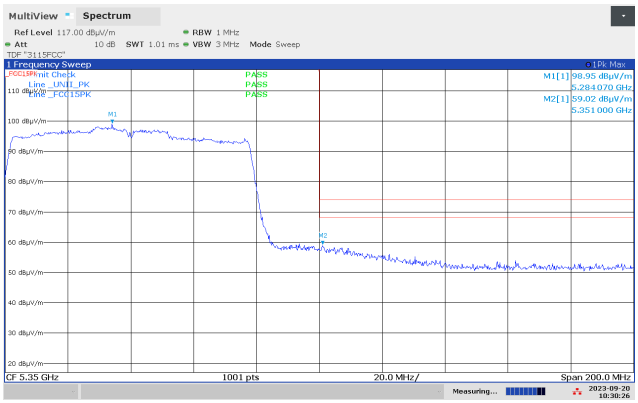
Band Edge 5725 MHz, ch151, 802.11ax MCS0 HT40 MIMO, Radiated, Max



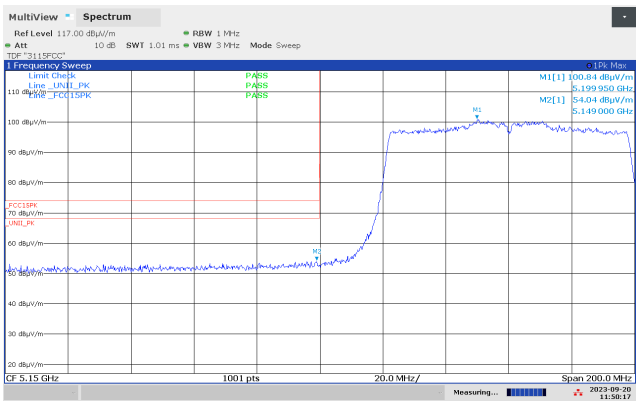
Band Edge 5850 MHz, ch159, 802.11ax MCS0 HT40 MIMO, Radiated, Max



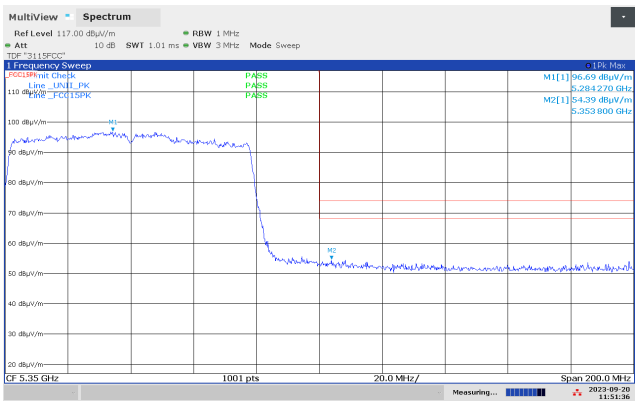
Band Edge 5150 MHz, ch042, 802.11ac MCS0 HT80 SISO, Radiated, Max



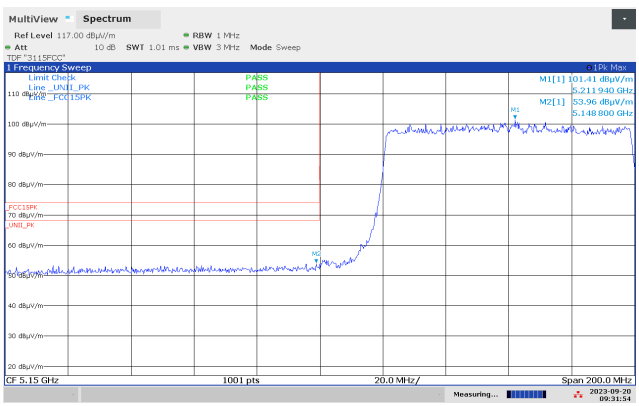
Band Edge 5350 MHz, ch058, 802.11ac MCS0 HT80 SISO, Radiated, Max



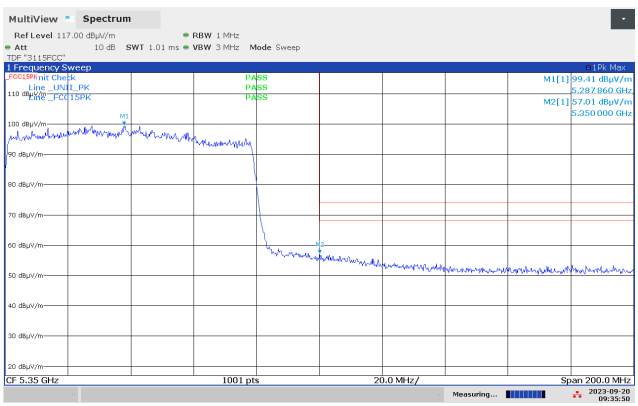
Band Edge 5150 MHz, ch042, 802.11ac MCS0 HT80 MIMO, Radiated, Max



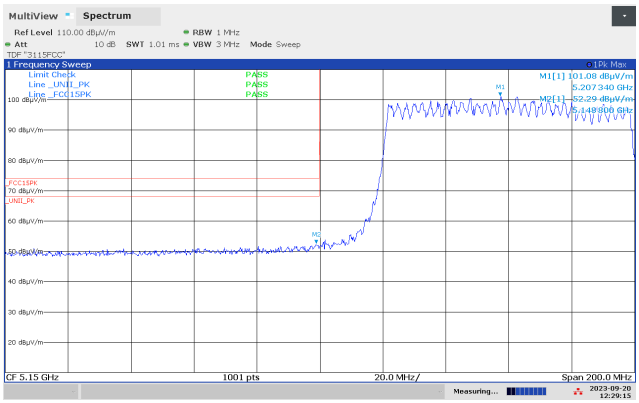
Band Edge 5350 MHz, ch058, 802.11ac MCS0 HT80 MIMO, Radiated, Max



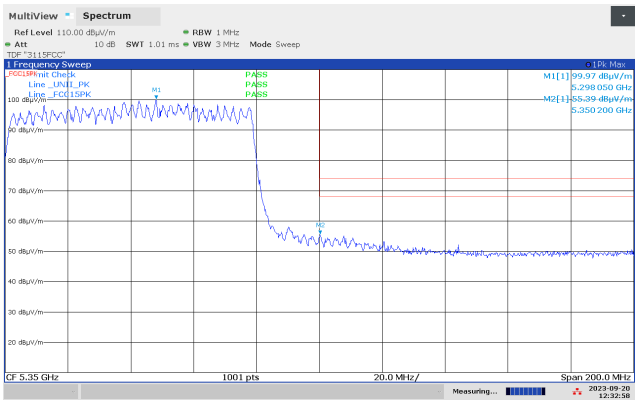
Band Edge 5150 MHz, ch042, 802.11ax MCS0 HT80 SISO, Radiated, Max



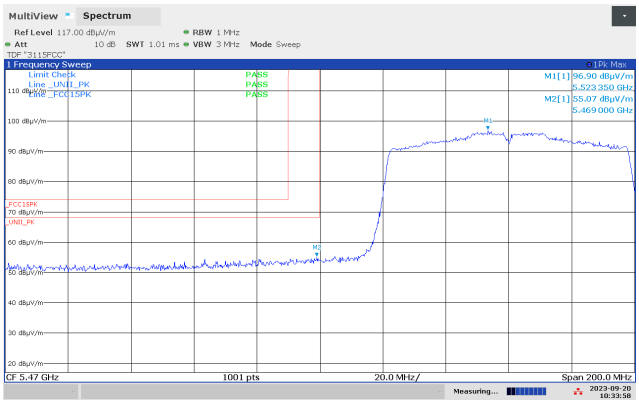
Band Edge 5350 MHz, ch058, 802.11ax MCS0 HT80 SISO, Radiated, Max



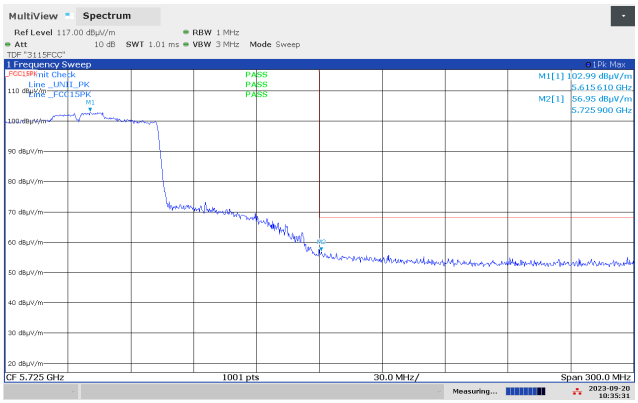
Band Edge 5150 MHz, ch042, 802.11ax MCS0 HT80 MIMO, Radiated, Max



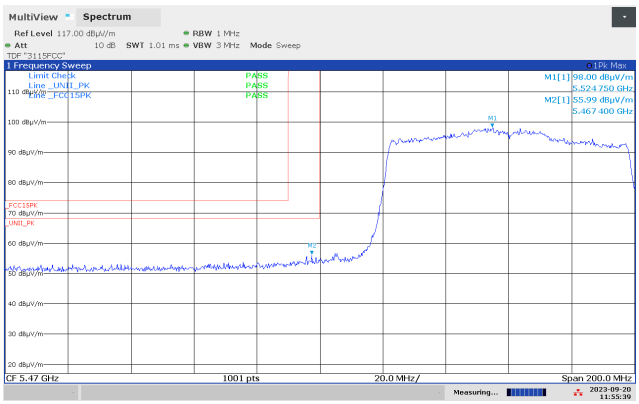
Band Edge 5350 MHz, ch058, 802.11ax MCS0 HT80 MIMO, Radiated, Max



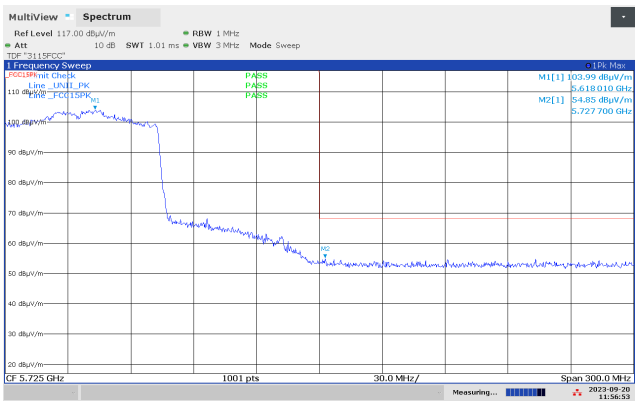
Band Edge 5470 MHz, ch106, 802.11ac MCS0 HT80 SISO, Radiated, Max



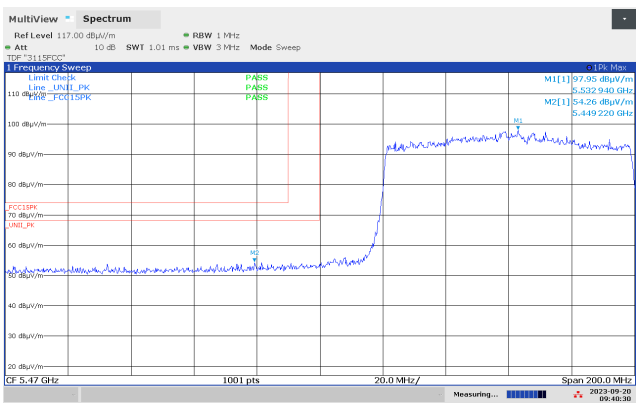
Band Edge 5725 MHz, ch122, 802.11ac MCS0 HT80 SISO, Radiated, Max



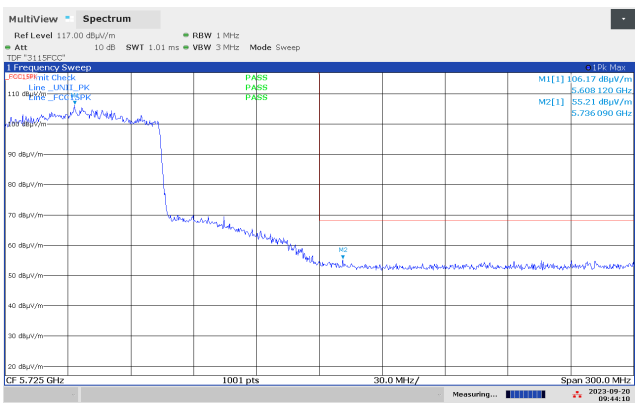
Band Edge 5470 MHz, ch106, 802.11ac MCS0 HT80 MIMO, Radiated, Max



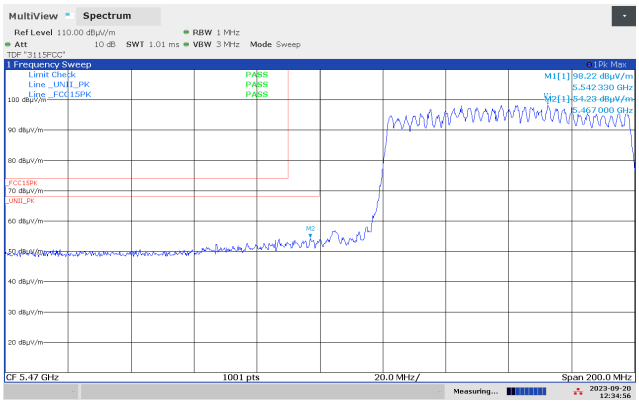
Band Edge 5725 MHz, ch122, 802.11ac MCS0 HT80 MIMO, Radiated, Max



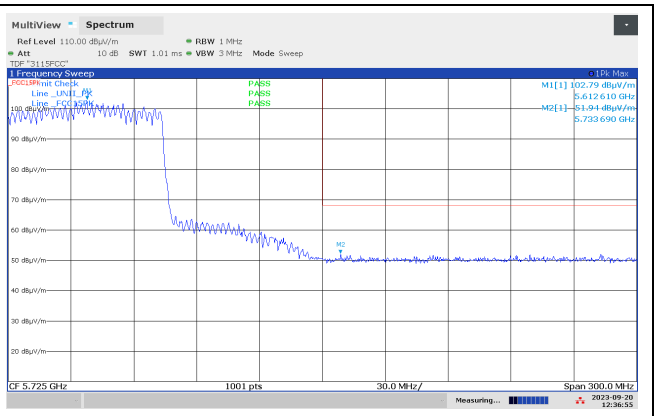
Band Edge 5470 MHz, ch106, 802.11ax MCS0 HT80 SISO, Radiated, Max



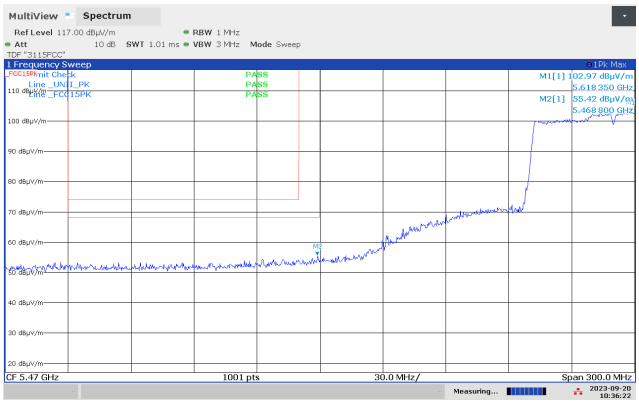
Band Edge 5725 MHz, ch122, 802.11ax MCS0 HT80 SISO, Radiated, Max



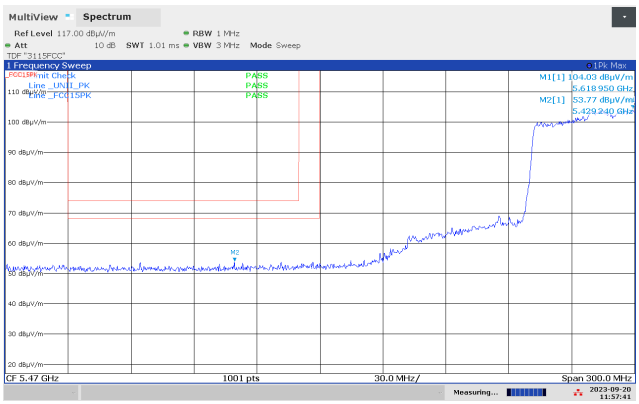
Band Edge 5470 MHz, ch106, 802.11ax MCS0 HT80 MIMO, Radiated, Max



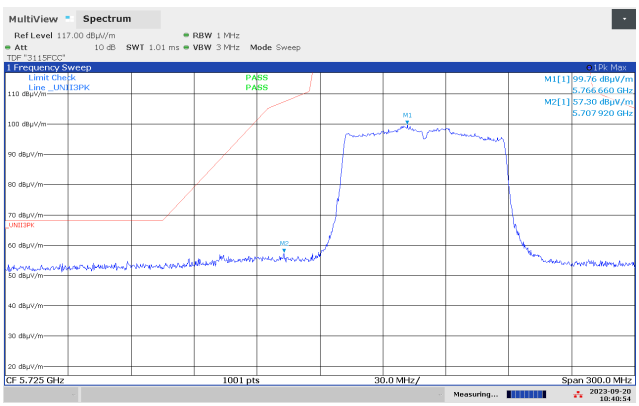
Band Edge 5725 MHz, ch122, 802.11ax MCS0 HT80 MIMO, Radiated, Max



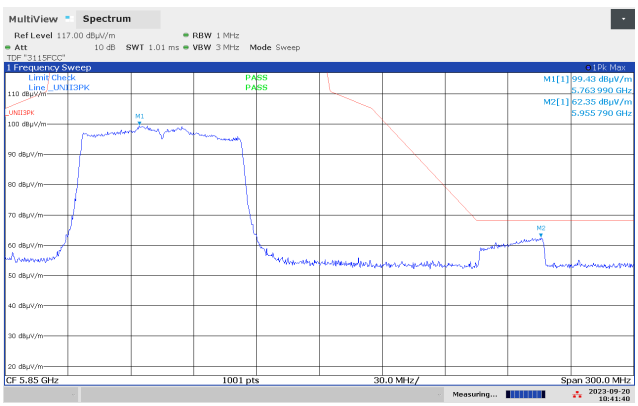
Band Edge 5470 MHz, ch122, 802.11ac MCS0 HT80 SISO, Radiated, Max



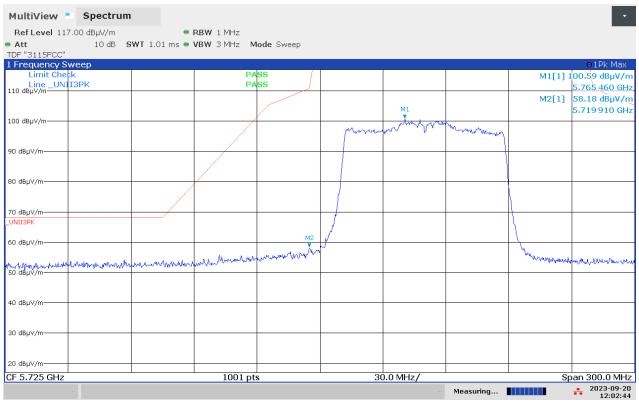
Band Edge 5470 MHz, ch122, 802.11ac MCS0 HT80 MIMO, Radiated, Max



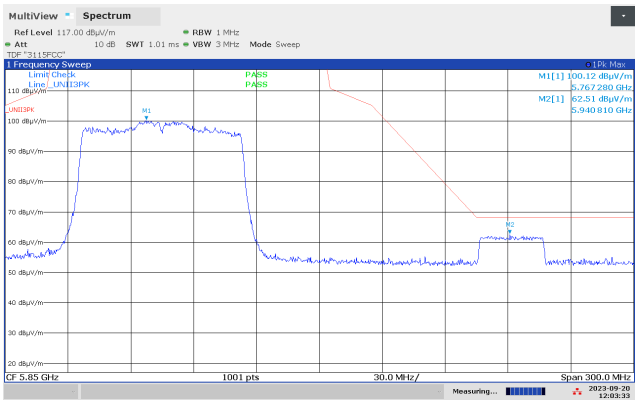
Band Edge 5725 MHz, ch155, 802.11ac MCS0 HT80 SISO, Radiated, Max



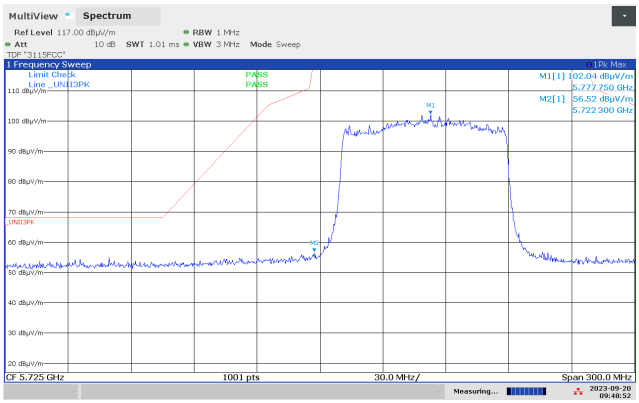
Band Edge 5850 MHz, ch155, 802.11ac MCS0 HT80 SISO, Radiated, Max



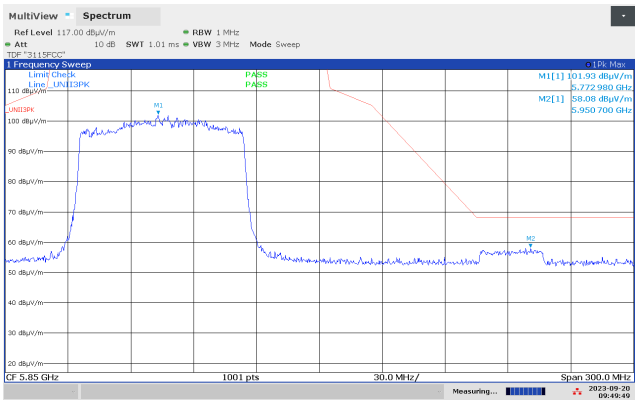
Band Edge 5725 MHz, ch155, 802.11ac MCS0 HT80 MIMO, Radiated, Max



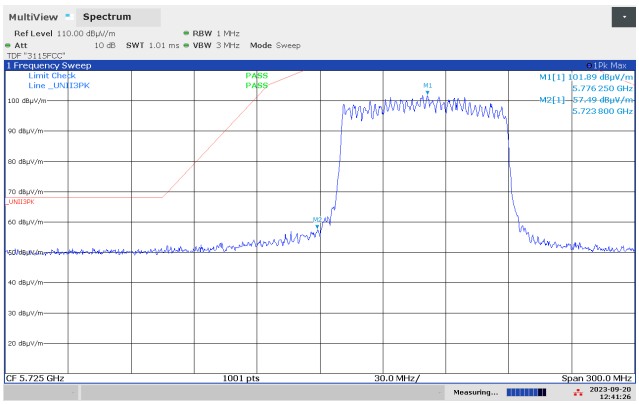
Band Edge 5850 MHz, ch155, 802.11ac MCS0 HT80 MIMO, Radiated, Max



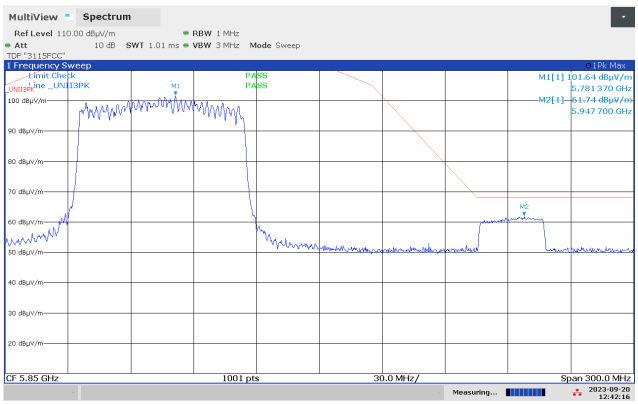
Band Edge 5725 MHz, ch155, 802.11ax MCS0 HT80 SISO, Radiated, Max



Band Edge 5850 MHz, ch155, 802.11ax MCS0 HT80 SISO, Radiated, Max



Band Edge 5725 MHz, ch155, 802.11ax MCS0 HT80 MIMO, Radiated, Max



Band Edge 5850 MHz, ch155, 802.11ax MCS0 HT80 MIMO, Radiated, Max

3.3 Restricted Bands of operation

Restricted Bands of operation for FCC and ISED are defined in FCC Part 15.205 and ISED RSS-GEN, Issue 5 clause 8.10.

Generally, no fundamentals are allowed in the restricted bands and all emissions must comply with the limits in FCC 15.209 or RSS-GEN, Issue 5, clause 8.9.

FCC (MHz)	ISED (MHz)	FCC (GHz)	ISED (GHz)
0.090-0.110		**0.96-1.24** **1.3-1.427**	**0.96-1.427**
0.495-0.505		1.435-1.6265	
2.1735-2.1905		1.6455-1.6465	
	3.020-3.026	1.660-1.710	
4.125-4.128		1.7188-1.7222	
4.17725-4.17775		2.2-2.3	
4.20725-4.20775		2.31-2.39	
	5.677-5.683	2.4835-2.5	
6.215-6.218		**2.69-2.9**	**2.655-2.9**
6.26775-6.26825		3.26-3.267	
6.31175-6.31225		3.332-3.339	
8.291-8.294		3.3458-3.358	
8.362-8.366		**3.6-4.4**	**3.5-4.4**
8.37625-8.38675		4.5-5.15	
8.41425-8.41475		5.35-5.46	
12.29-12.293		7.25-7.75	
12.51975-12.52025		8.025-8.5	
12.57675-12.57725		9.0-9.2	
13.36-13.41		9.3-9.5	
16.42-16.423		10.6-12.7	
16.69475-16.69525		13.25-13.4	
16.80425-16.80475		14.47-14.5	
25.5-25.67		15.35-16.2	
37.5-38.25		17.7-21.4	
73-74.6		22.01-23.12	
74.8-75.2		23.6-24.0	
108-121.94 **123-138**	**108-138**	31.2-31.8	
149.9-150.05		36.43-36.5	
156.52475-156.52525		Above 38.6	
156.7-156.9			
162.0125-167.17			
167.72-173.2			
240-285			
322-335.4			
399.9-410			
608-614			

Frequencies in **Bold** text are specific for FCC or ISED, all other frequencies are common.

3.4 Radiated Emissions, 30 – 1000 MHz

FCC 15.205, 15.209, 15.407

ISED RSS-GEN, Issue 5, Clause 8.9

Measurement procedure: ANSI C63.10-2013 Clause 12.7

Test Results: Complies

Measurement Data:

Detector: QuasiPeak (Pre-scan with Peak Detector)

Measuring distance 3m

Tested in test mode with EUT transmitting continuously.

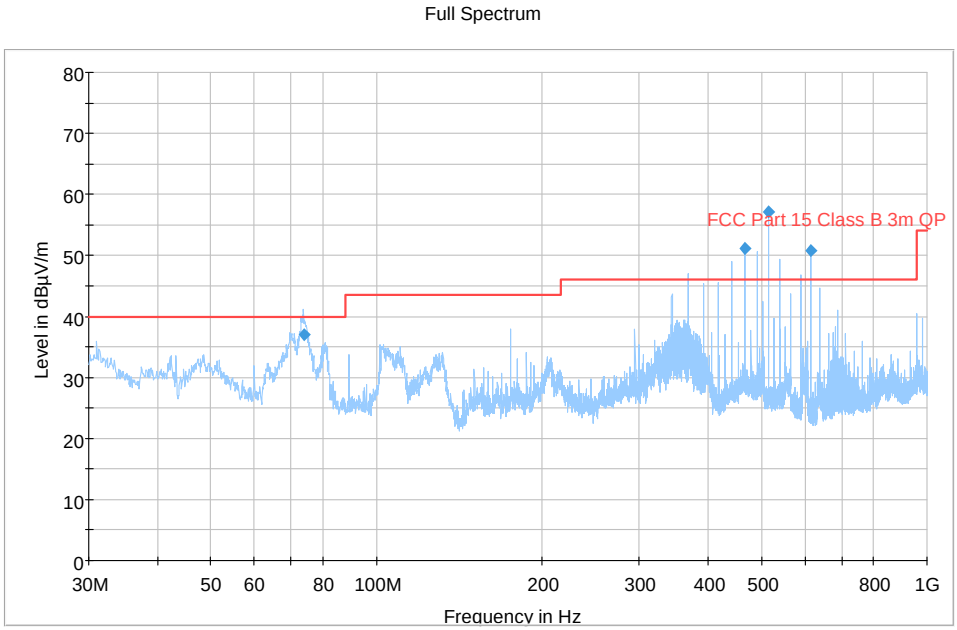
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
73.722486	37.05	40.00	2.95	15000.0	120.000	143.0	V	345.0	-17.7
466.935158*	51.20	46.00	-5.20	15000.0	120.000	125.0	V	322.0	-6.1
516.086386*	57.23	46.00	-11.23	15000.0	120.000	101.0	V	353.0	-5.1
614.388460*	50.82	46.00	-4.82	15000.0	120.000	275.0	V	149.0	-4.0

*These frequencies are not in a Restricted Band

This is a class A device; all emissions are below the Class A limit.
None of the emissions above are in a restricted band.
See attached plots.

Requirements/Limit

FCC	Part 15.209 @ frequencies defined in §15.205	
ISED	RSS-GEN Issue 5, Clause 8.9 @ frequencies defined in clause 8.10	
Frequency	Radiated emission limit @3 meters	
30 – 88 MHz	100 µV/m	40.0 dBµV/m
88 – 216 MHz	150 µV/m	43.5 dBµV/m
216 – 960 MHz	200 µV/m	46.0 dBµV/m
960 – 1000 MHz	500 µV/m	54.0 dBµV/m
	Limits above are with Quasi Peak Detector	



Radiated Emissions, 30-1000 MHz

3.5 Radiated Emissions, 1 – 40 GHz

FCC 15.205, 15.209, 15.407

ISED RSS-GEN, Issue 5, Clause 8.9

Measurement procedure: ANSI C63.10-2013 Clause 12.7

Test Results: Complies

Measurement Data:

Measuring distance 3m up to 18 GHz, 1m above 18 GHz.

Carrier freq. (MHz)	Measured Frequency (GHz)	Modulation	Measured Emission (dBµV/m)		Limit (dBµV/m)		Margin (dB)	
			Peak	Average	Pk	Av	Pk	Av
Any	5150	Any	57.8	46.0	74	54	16.2	8.0
Any	5350	Any	61.6	48.3	74	54	12.4	5.7
Any	5460	Any	54.3	42.9	74	54	19.7	11.1
Any	1584	Any	55.2	51.1	74	54	18.8	22.9
Any	2238	Any	58.0	47.3	74	54	16.0	26.7
Any	4989	Any	53.8	41.7	74	54	20.2	12.3
Any	2971*	Any	65.5	/	N/A	/	N/A	/
Any	5941*	Any	65.1	/	N/A	/	N/A	/
Any	Any other	Any	< 56	< 46	74	54	> 18	> 8

*Not in a Restricted Band

A Band Stop Filter was used for all out-of band measurements from 1 to 18 GHz, except Band Edge Measurements.

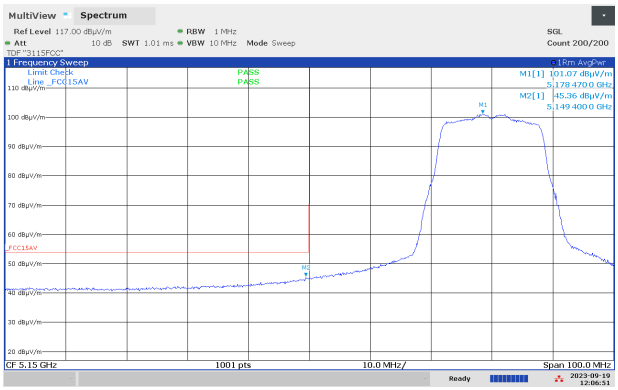
Only harmonics that fall in the restricted bands (ref. §15.205) have been measured.

Antenna factor, amplifier gain and cable loss are included in Spectrum Analyzer “Transducer factor”.

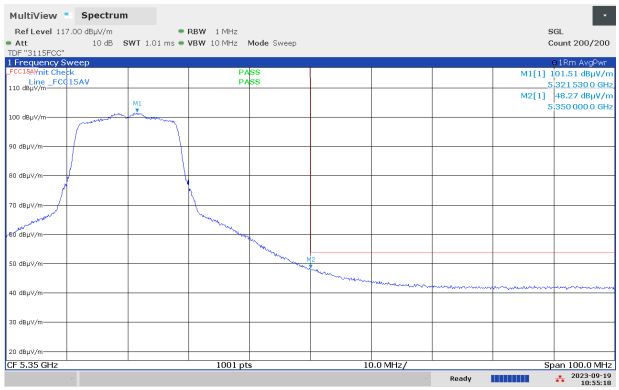
See attached plots.

Requirements/Limit

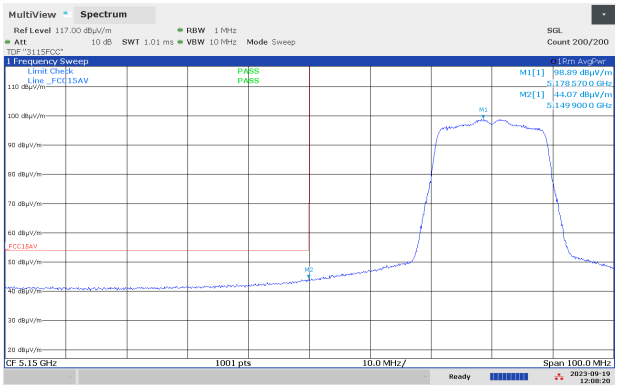
FCC	Part 15.209 @ frequencies defined in §15.205	
ISED	RSS-GEN Issue 5, Clause 8.9 @ frequencies defined in clause 8.10	
	Radiated emission limit @3 meters	
Frequency	Average Detector (dBµV/m)	Peak Detector (dBµV/m)
1 – 40 GHz	54.0	74.0



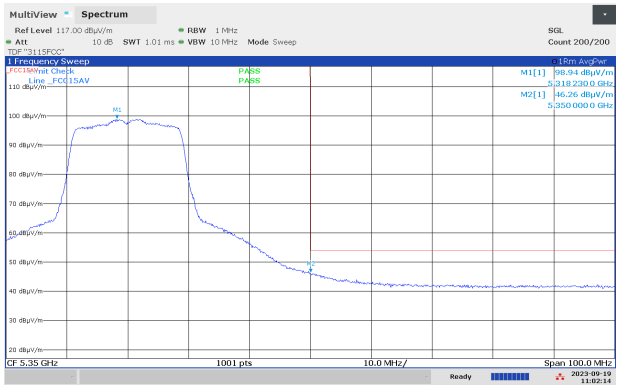
Band Edge, 5150 MHz, Ch036, 802.11a 6M, Av, Max



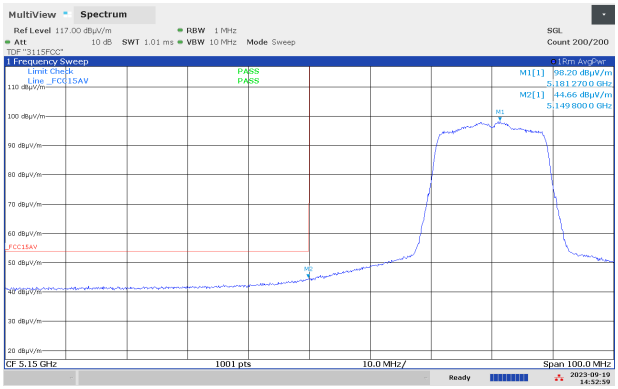
Band Edge, 5350 MHz, Ch064, 802.11a 6M, Av, Max



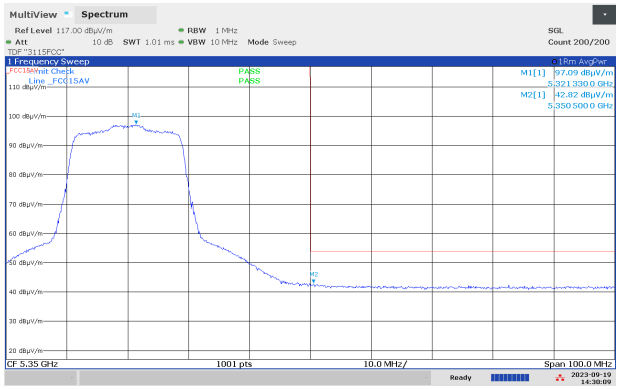
Band Edge, 5150 MHz, Ch036, 802.11n MCS0, Av, Max



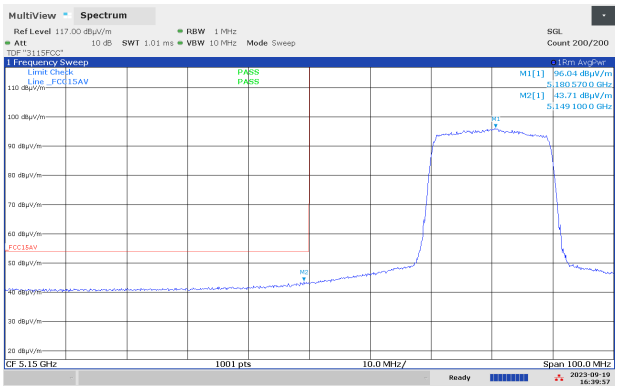
Band Edge, 5350 MHz, Ch064, 802.11n MCS0, Av, Max



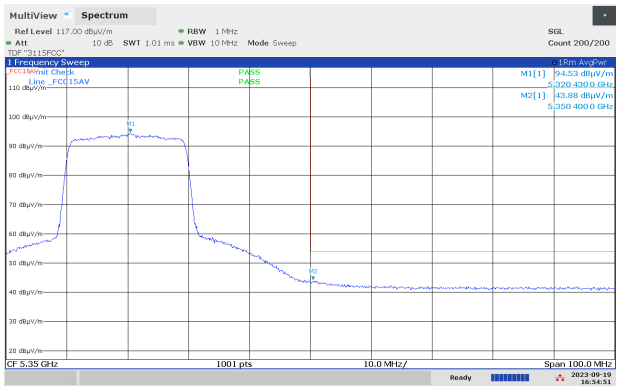
Band Edge, 5150 MHz, Ch036, 802.11n MCS8 MIMO, Av, Max



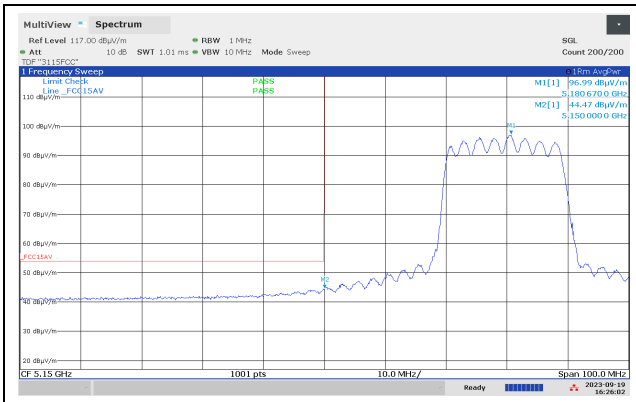
Band Edge, 5350 MHz, Ch064, 802.11n MCS8 MIMO, Av, Max



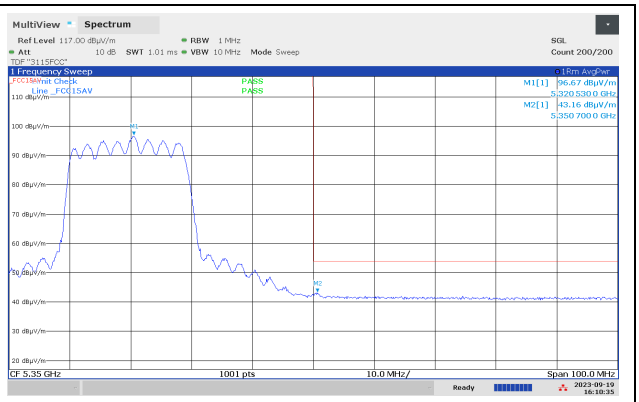
Band Edge, 5150 MHz, Ch036, 802.11ax MCS0 SISO, Av, Max



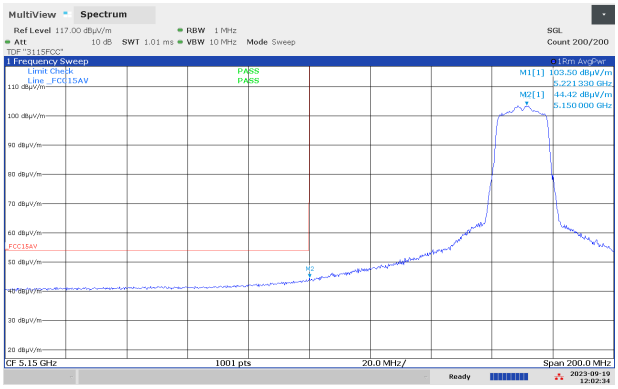
Band Edge, 5350 MHz, Ch064, 802.11ax MCS0 SISO, Av, Max



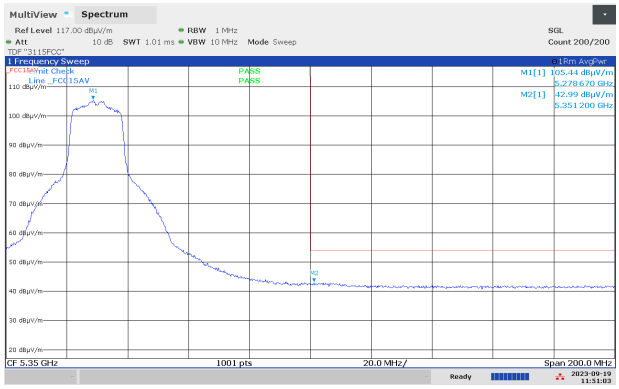
Band Edge, 5150 MHz, Ch036, 802.11ax MCS0 MIMO, Av, Max



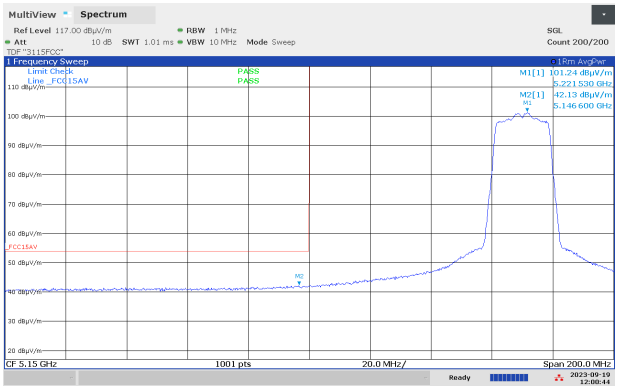
Band Edge, 5350 MHz, Ch064, 802.11ax MCS0 MIMO, Av, Max



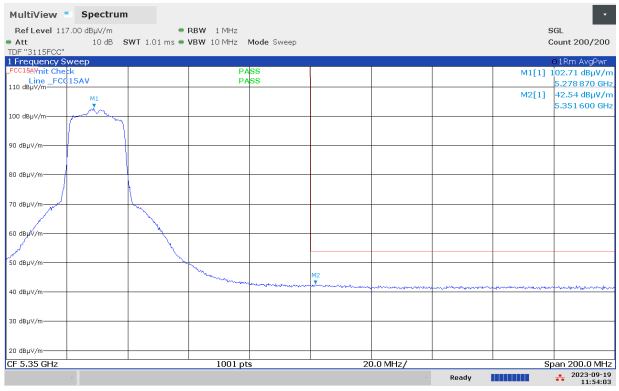
Band Edge, 5150 MHz, Ch044, 802.11a 6M, Av, Max



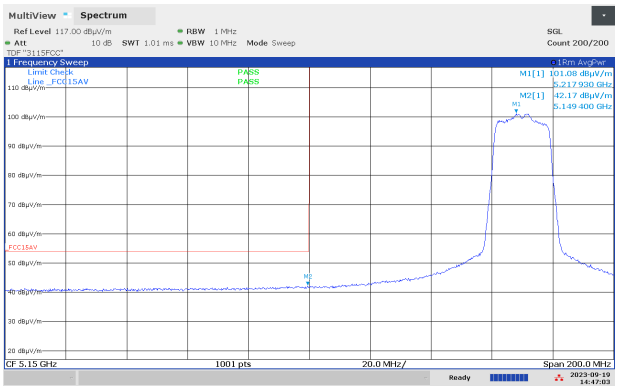
Band Edge, 5350 MHz, Ch056, 802.11a 6M, Av, Max



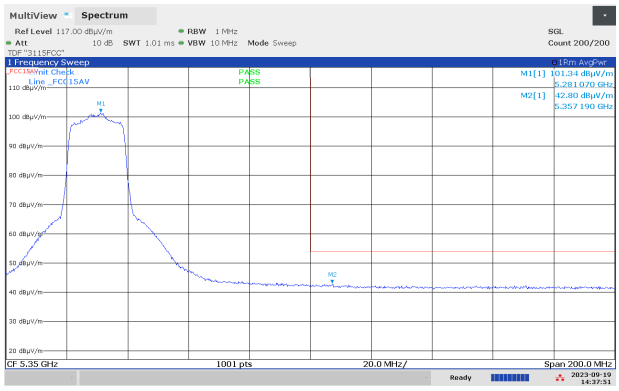
Band Edge, 5150 MHz, Ch044, 802.11n MCS0, Av, Max



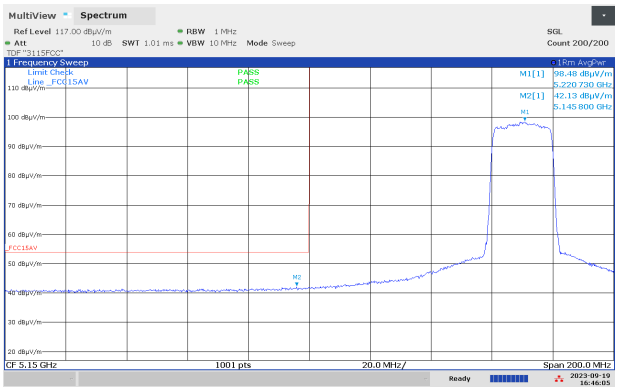
Band Edge, 5350 MHz, Ch056, 802.11n MCS0, Av, Max



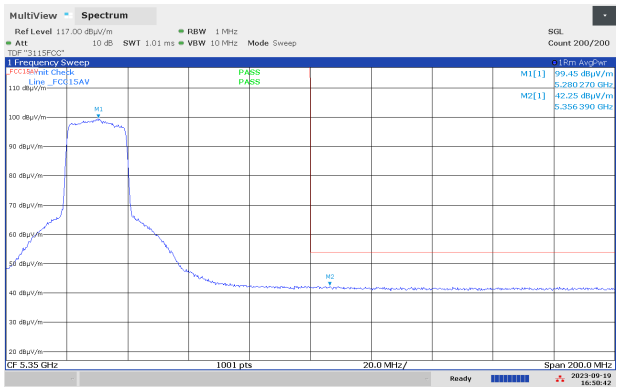
Band Edge, 5150 MHz, Ch044, 802.11n MCS8 MIMO, Av, Max



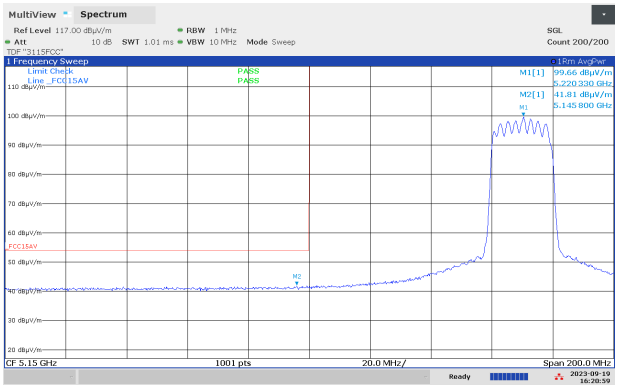
Band Edge, 5350 MHz, Ch056, 802.11n MCS8 MIMO, Av, Max



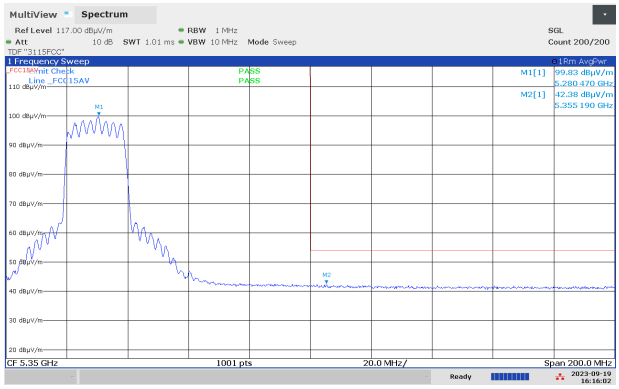
Band Edge, 5150 MHz, Ch044, 802.11ax MCS0 SISO, Av, Max



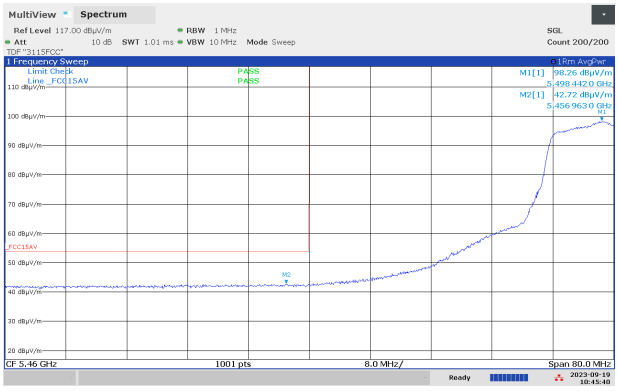
Band Edge, 5350 MHz, Ch056, 802.11ax MCS0 SISO, Av, Max



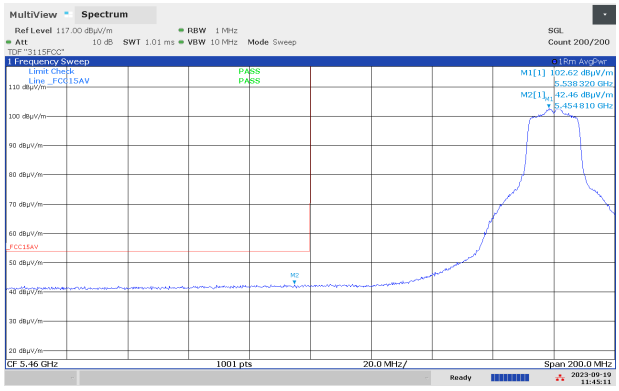
Band Edge, 5150 MHz, Ch044, 802.11ax MCS0 MIMO, Av, Max



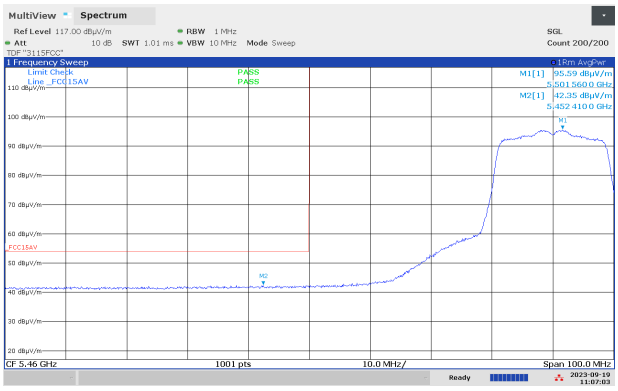
Band Edge, 5350 MHz, Ch056, 802.11ax MCS0 MIMO, Av, Max



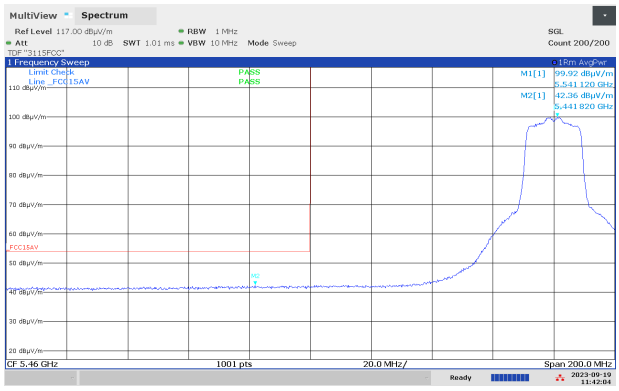
Band Edge, 5460 MHz, Ch100, 802.11a 6M, Av, Max



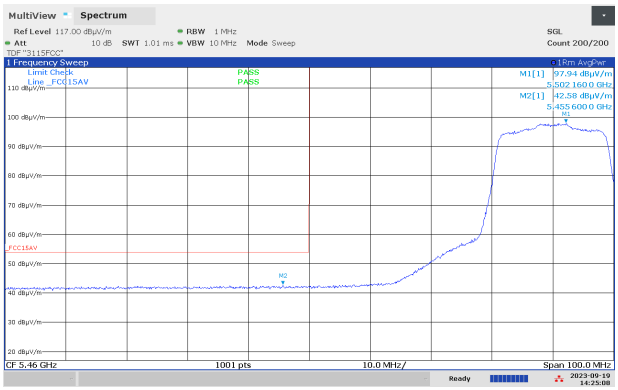
Band Edge, 5460 MHz, Ch108, 802.11a 6M, Av, Max



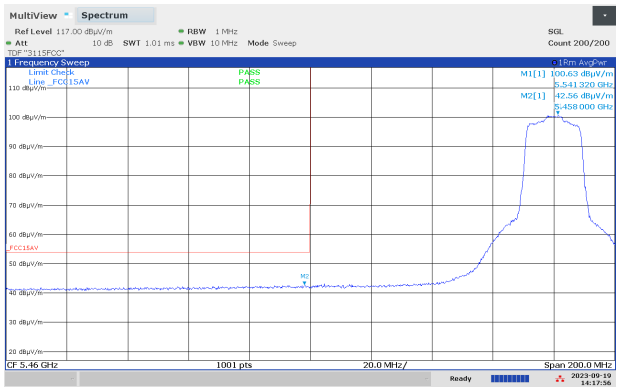
Band Edge, 5460 MHz, Ch100, 802.11n MCS0, Av, Max



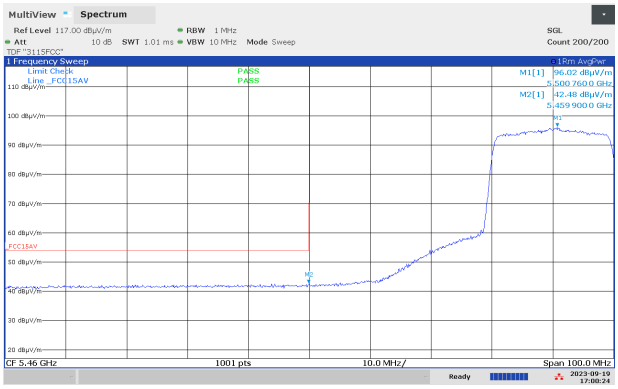
Band Edge, 5460 MHz, Ch108, 802.11a MCS0, Av, Max



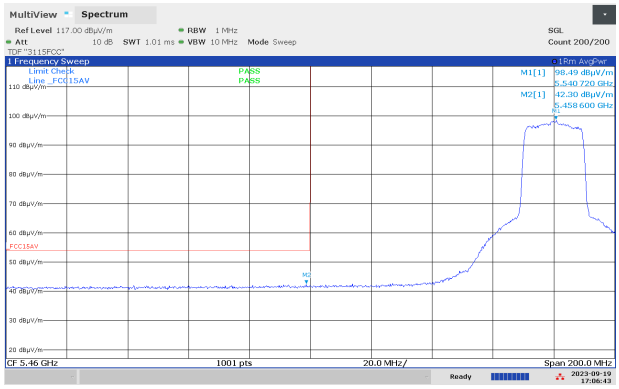
Band Edge, 5460 MHz, Ch100, 802.11n MCS8 MIMO, Av, Max



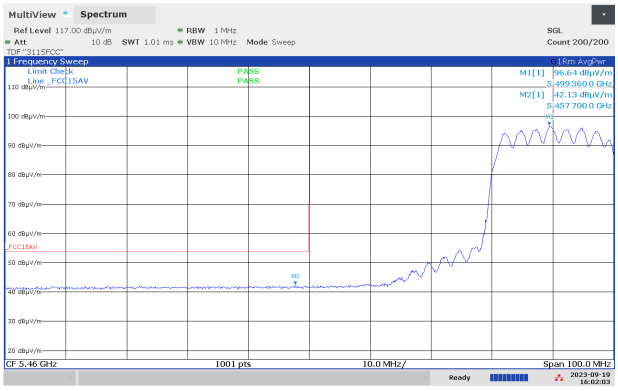
Band Edge, 5460 MHz, Ch108, 802.11a MCS8 MIMO, Av, Max



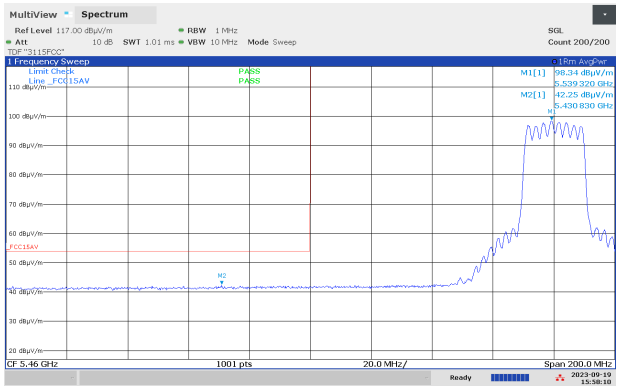
Band Edge, 5460 MHz, Ch100, 802.11ax MCS0 SISO, Av, Max



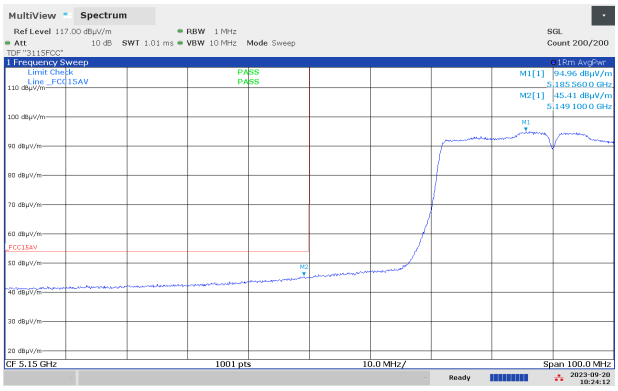
Band Edge, 5460 MHz, Ch108, 802.11ax MCS0 SISO, Av, Max



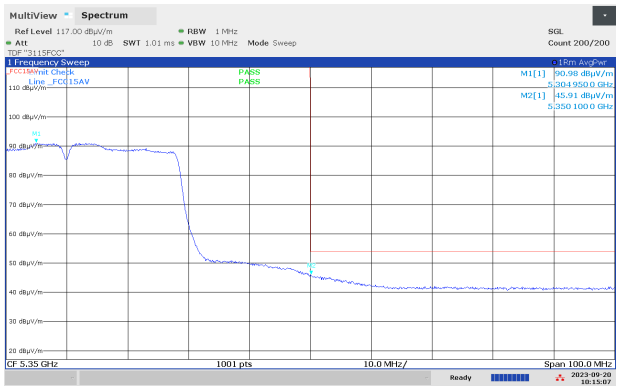
Band Edge, 5460 MHz, Ch100, 802.11ax MCS0 MIMO, Av, Max



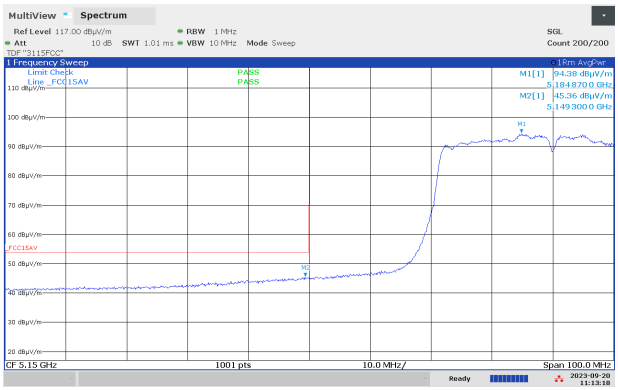
Band Edge, 5460 MHz, Ch108, 802.11ax MCS0 MIMO, Av, Max



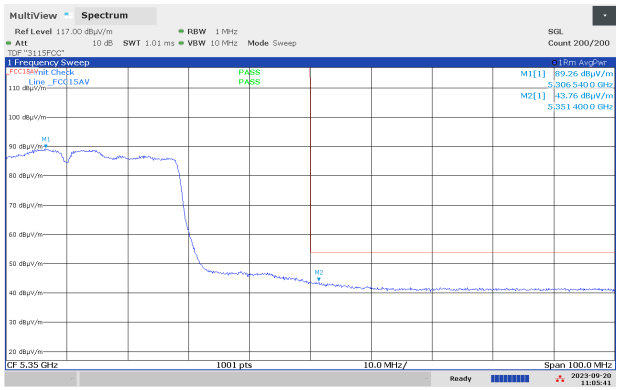
Band Edge, 5150 MHz, Ch038, 802.11n MCS0 HT40 SISO, Av, Max



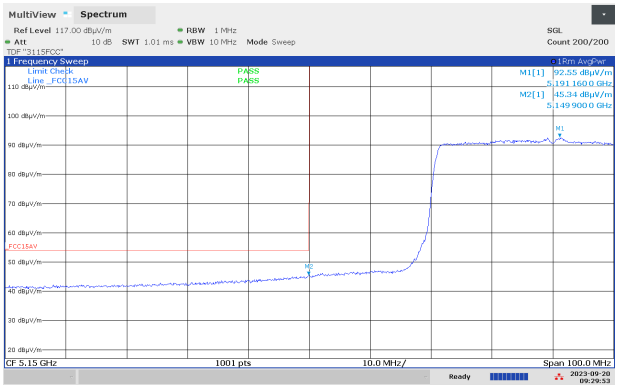
Band Edge, 5350 MHz, Ch062, 802.11n MCS0 HT40 SISO, Av, Max



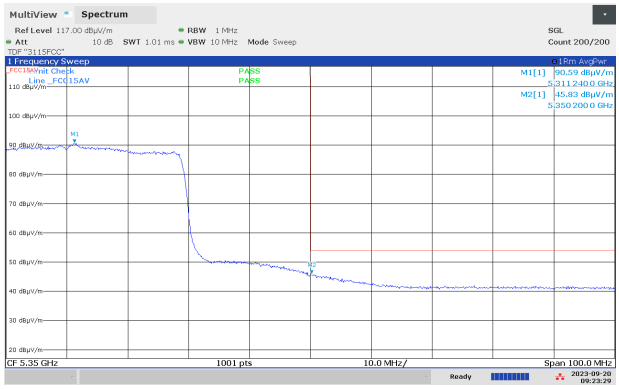
Band Edge, 5150 MHz, Ch038, 802.11n MCS8 HT40 MIMO, Av, Max



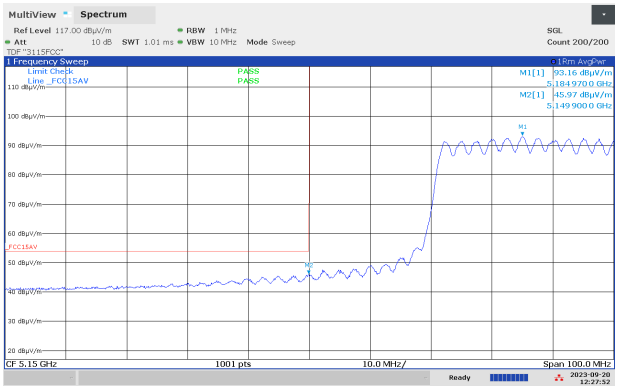
Band Edge, 5350 MHz, Ch062, 802.11n MCS8 HT40 MIMO, Av, Max



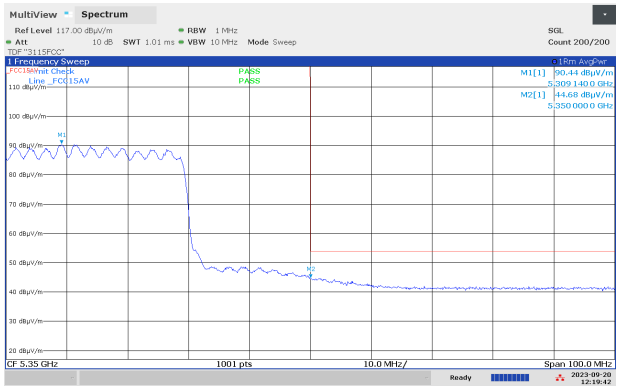
Band Edge, 5150 MHz, Ch038, 802.11ax MCS0 HT40 SISO, Av, Max



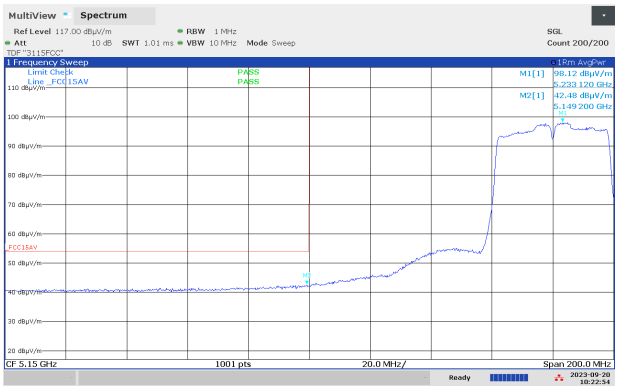
Band Edge, 5350 MHz, Ch062, 802.11ax MCS0 HT40 SISO, Av, Max



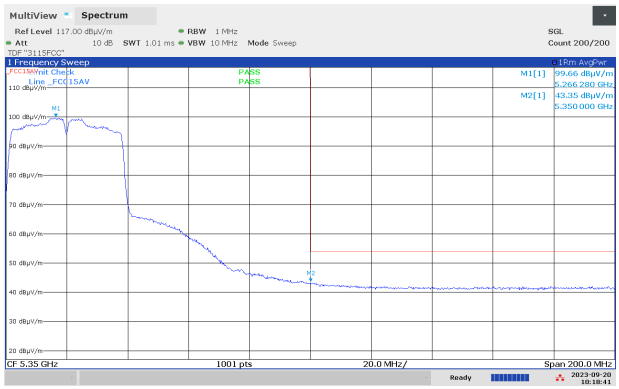
Band Edge, 5150 MHz, Ch038, 802.11ax MCS0 HT40 MIMO, Av, Max



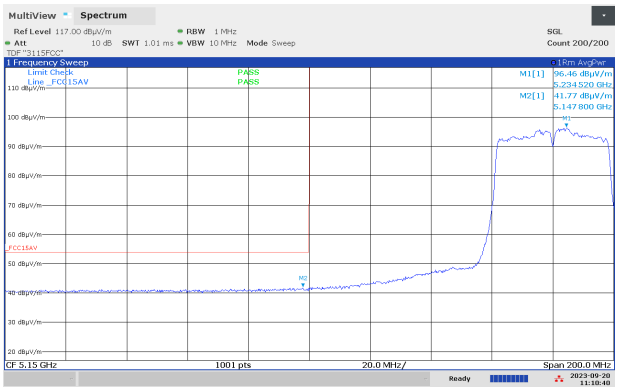
Band Edge, 5350 MHz, Ch062, 802.11ax MCS0 HT40 MIMO, Av, Max



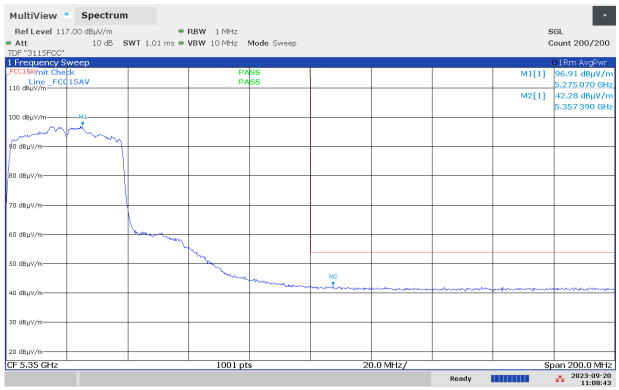
Band Edge, 5150 MHz, Ch046, 802.11n MCS0 HT40 SISO, Av, Max



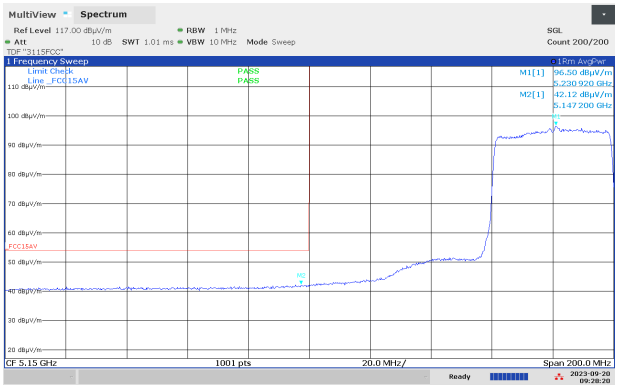
Band Edge, 5350 MHz, Ch054, 802.11n MCS0 HT40 SISO, Av, Max



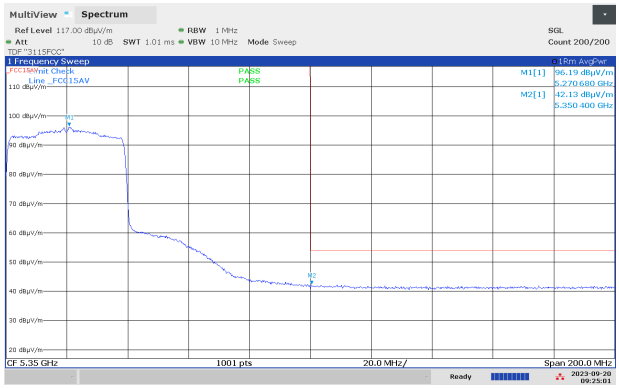
Band Edge, 5150 MHz, Ch046, 802.11n MCS8 HT40 MIMO, Av, Max



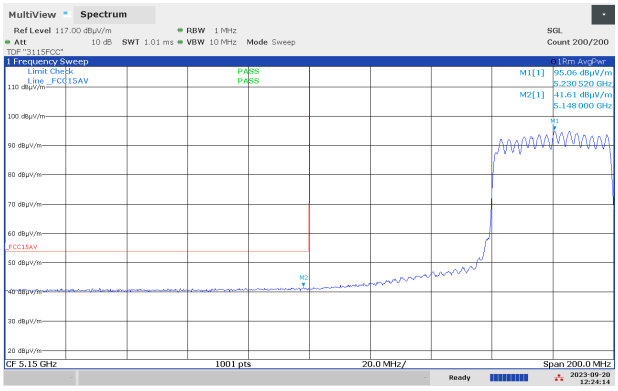
Band Edge, 5350 MHz, Ch054, 802.11n MCS8 HT40 MIMO, Av, Max



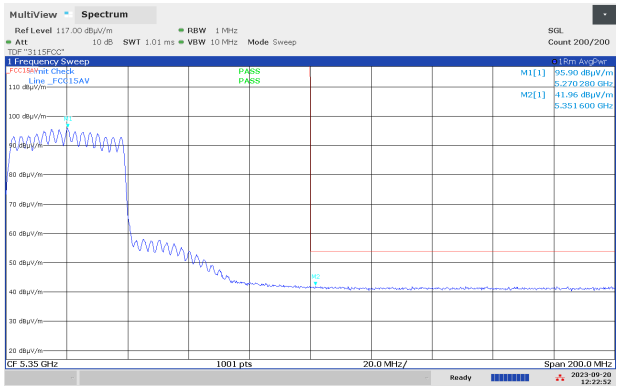
Band Edge, 5150 MHz, Ch046, 802.11ax MCS0 HT40 SISO, Av, Max



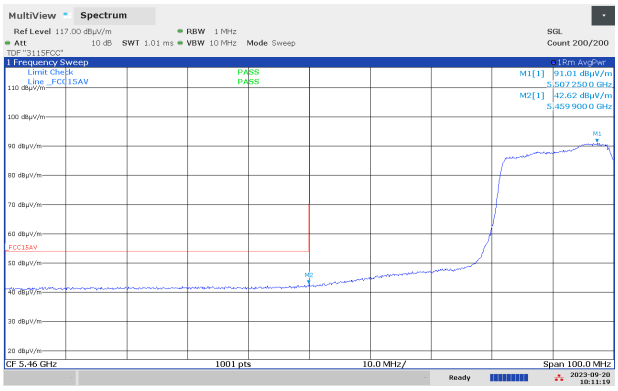
Band Edge, 5350 MHz, Ch054, 802.11ax MCS0 HT40 SISO, Av, Max



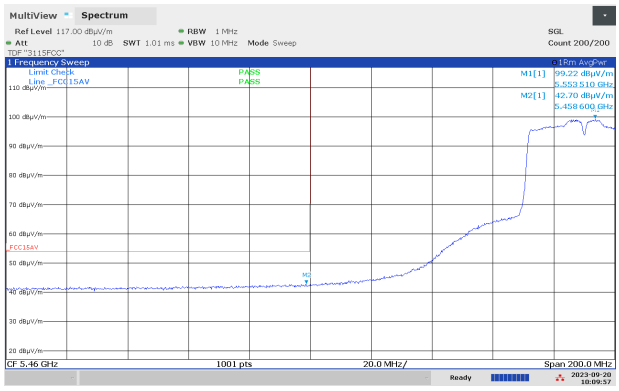
Band Edge, 5150 MHz, Ch046, 802.11ax MCS0 HT40 MIMO, Av, Max



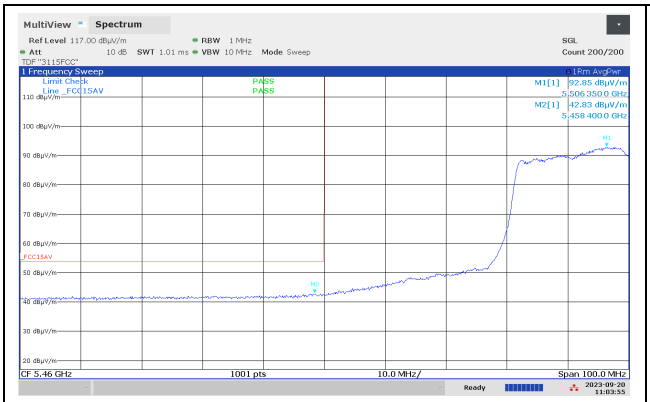
Band Edge, 5350 MHz, Ch054, 802.11ax MCS0 HT40 MIMO, Av, Max



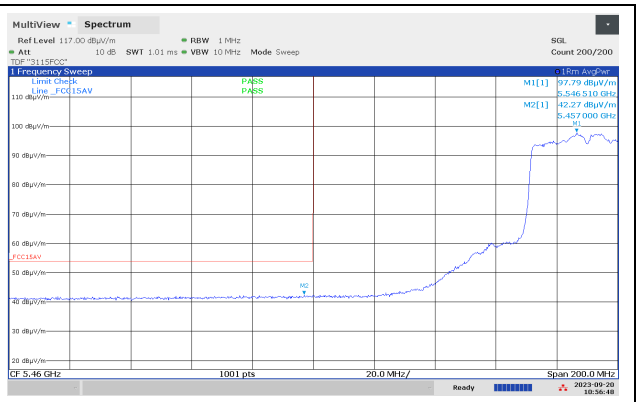
Band Edge, 5460 MHz, Ch102, 802.11n MCS0 HT40 SISO, Av, Max



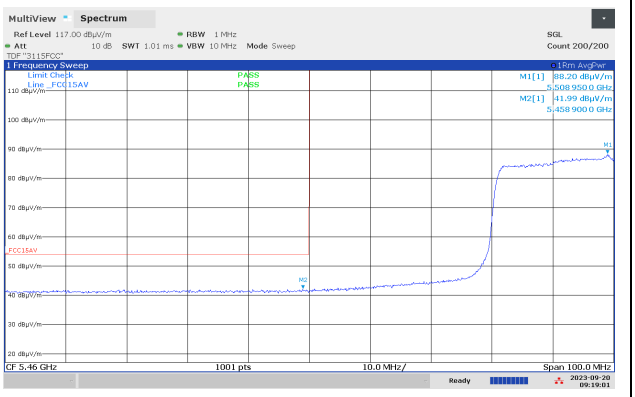
Band Edge, 5460 MHz, Ch110, 802.11n MCS0 HT40 SISO, Av, Max



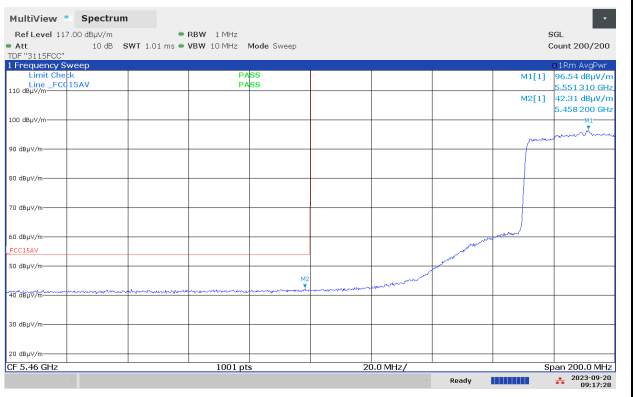
Band Edge, 5460 MHz, Ch102, 802.11n MCS8 HT40 MIMO, Av, Max



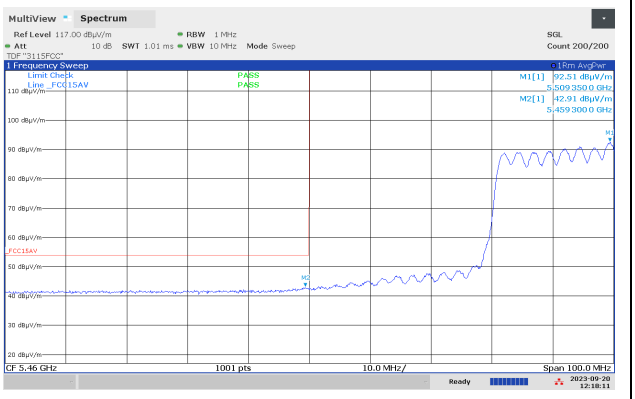
Band Edge, 5460 MHz, Ch110, 802.11n MCS8 HT40 MIMO, Av, Max



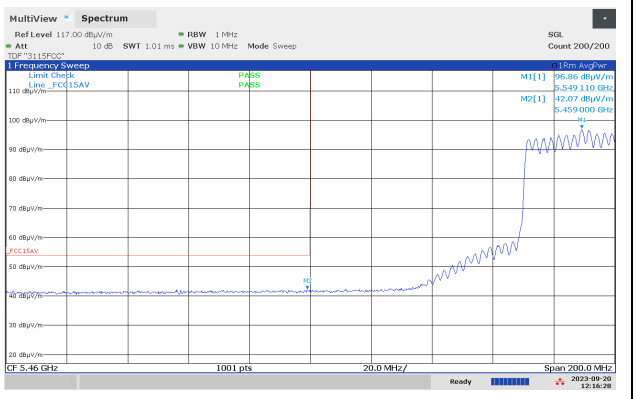
Band Edge, 5460 MHz, Ch102, 802.11ax MCS0 HT40 SISO, Av, Max



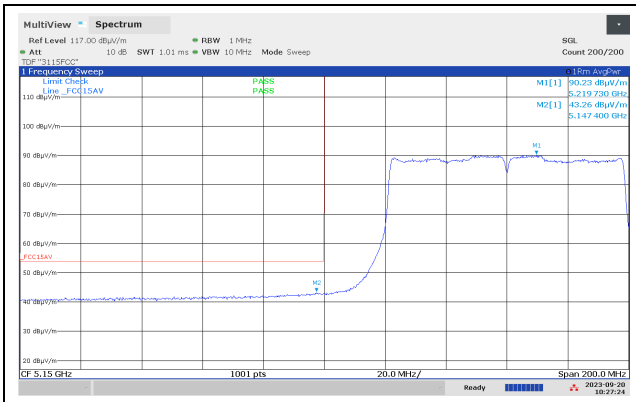
Band Edge, 5460 MHz, Ch110, 802.11ax MCS0 HT40 SISO, Av, Max



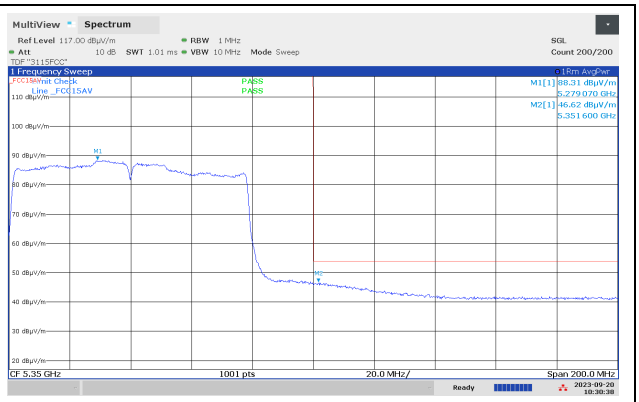
Band Edge, 5460 MHz, Ch102, 802.11ax MCS0 HT40 MIMO, Av, Max



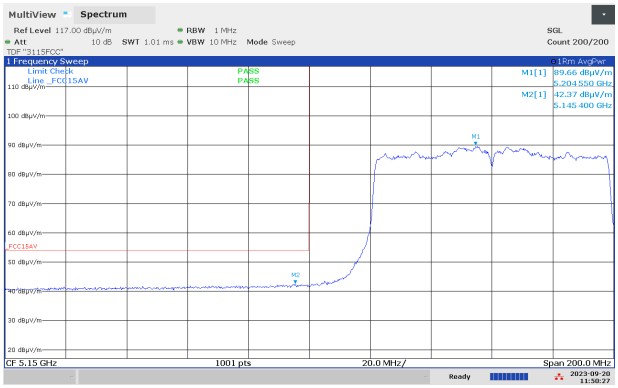
Band Edge, 5460 MHz, Ch110, 802.11ax MCS0 HT40 MIMO, Av, Max



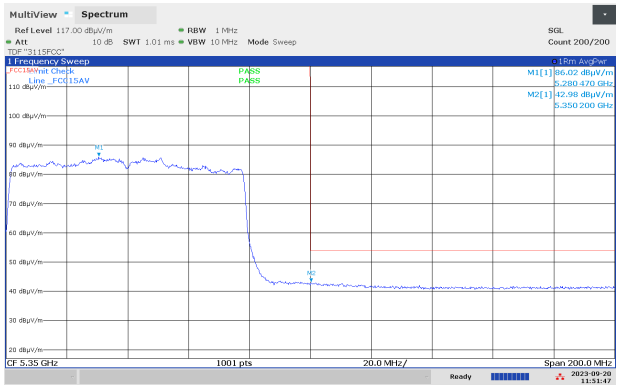
Band Edge, 5150 MHz, Ch042, 802.11ac MCS0 HT80 SISO, Av, Max



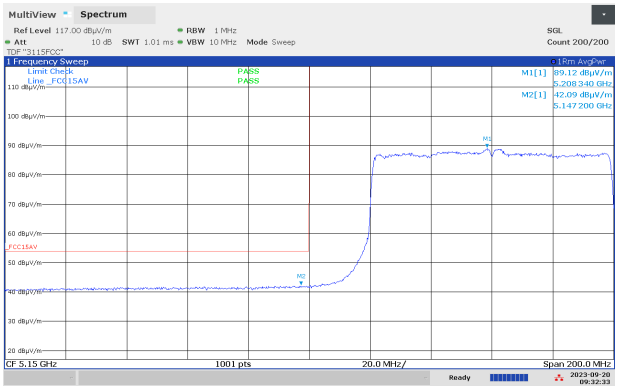
Band Edge, 5350 MHz, Ch058, 802.11ac MCS0 HT80 SISO, Av, Max



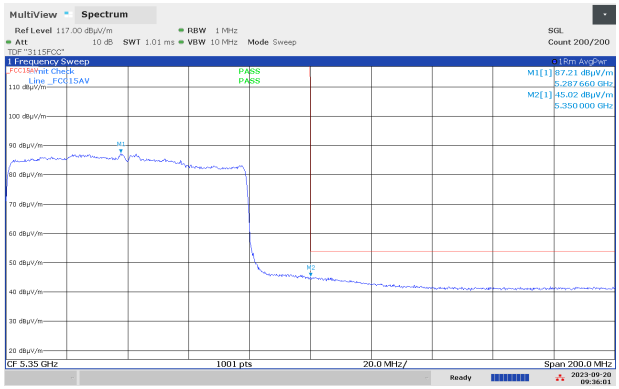
Band Edge, 5150 MHz, Ch042, 802.11ac MCS0 HT80 MIMO, Av, Max



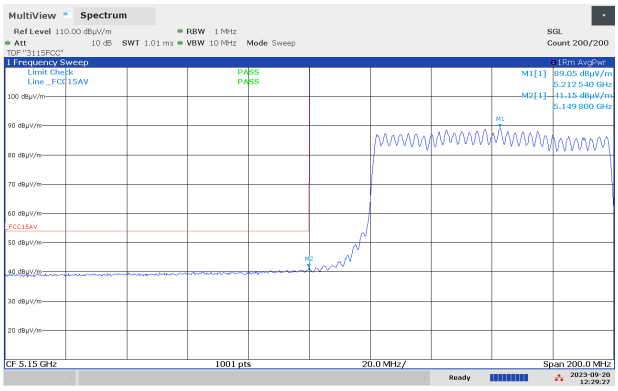
Band Edge, 5350 MHz, Ch058, 802.11ac MCS0 HT80 MIMO, Av, Max



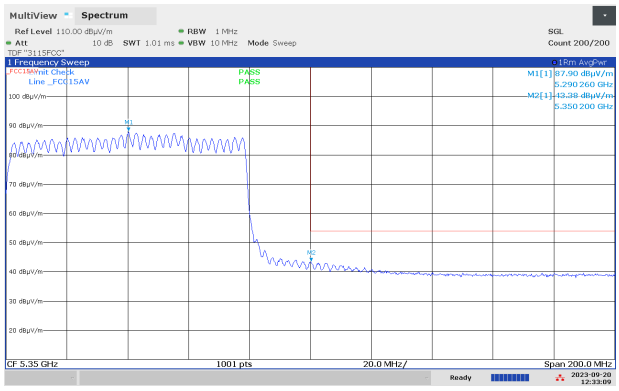
Band Edge, 5150 MHz, Ch042, 802.11ax MCS0 HT80 SISO, Av, Max



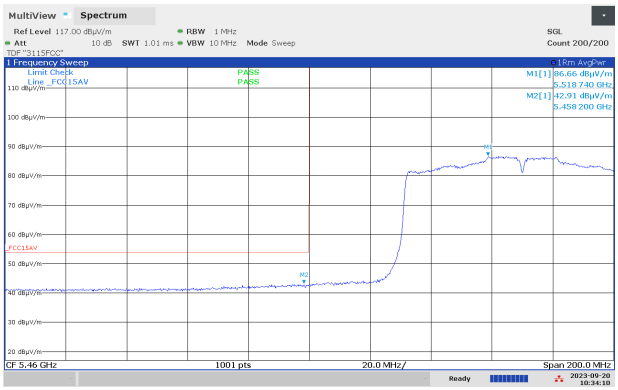
Band Edge, 5350 MHz, Ch058, 802.11ax MCS0 HT80 SISO, Av, Max



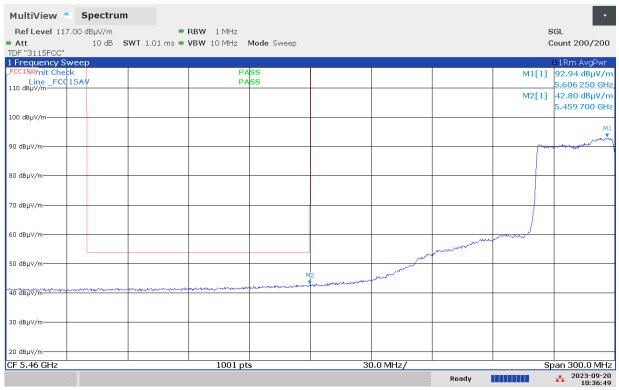
Band Edge, 5150 MHz, Ch042, 802.11ax MCS0 HT80 MIMO, Av, Max



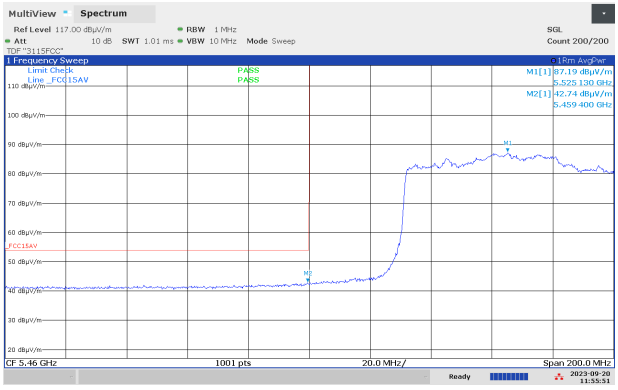
Band Edge, 5350 MHz, Ch058, 802.11ax MCS0 HT80 MIMO, Av, Max



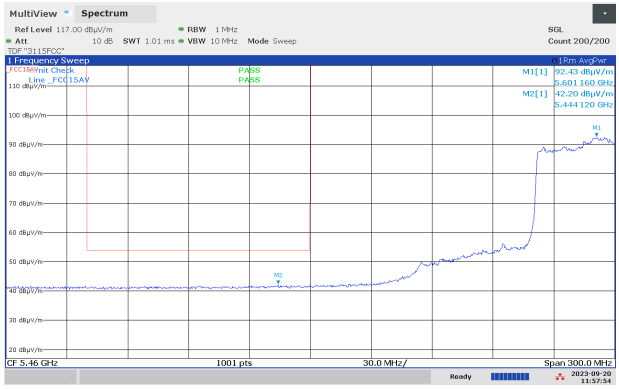
Band Edge, 5460 MHz, Ch106, 802.11ac MCS0 HT80 SISO, Av, Max PL10



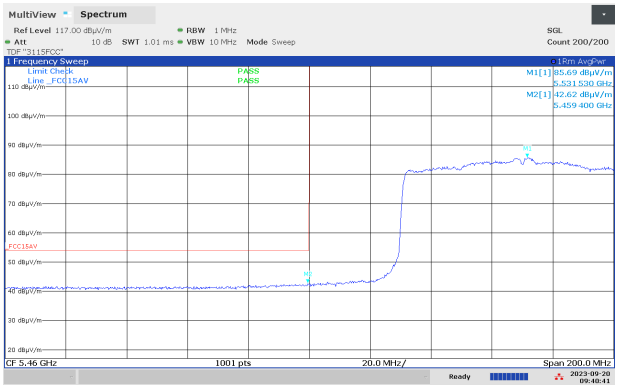
Band Edge, 5460 MHz, Ch122, 802.11ac MCS0 HT80 SISO, Av, Max



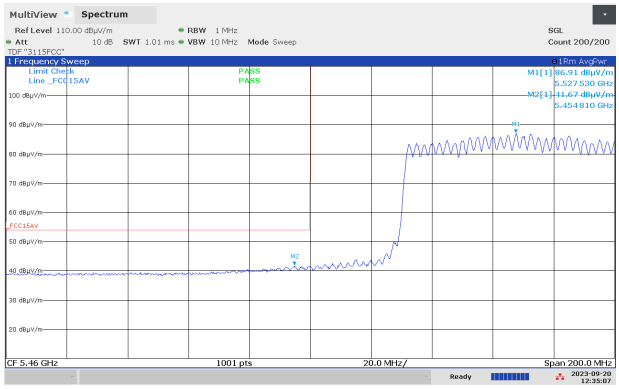
Band Edge, 5460 MHz, Ch106, 802.11ac MCS0 HT80 MIMO, Av, Max



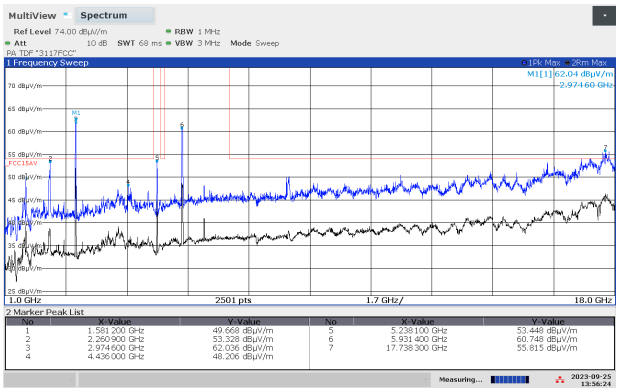
Band Edge, 5460 MHz, Ch122, 802.11ac MCS0 HT80 MIMO, Av, Max



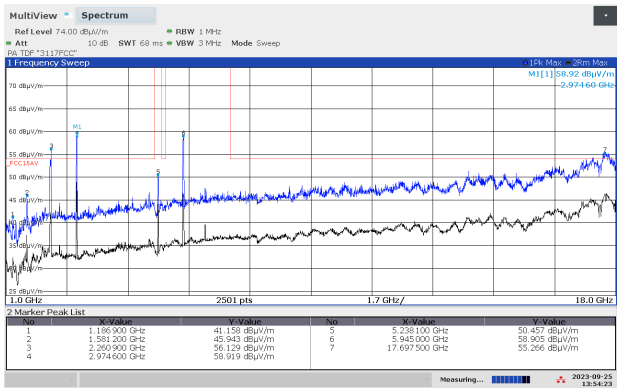
Band Edge, 5460 MHz, Ch106, 802.11ax MCS0 HT80 SISO, Av, Max



Band Edge, 5460 MHz, Ch106, 802.11ax MCS0 HT80 MIMO, Av, Max



Radiated Emissions 1-18 GHz, Ch048, 802.11n MCS0, Ant 0, HP



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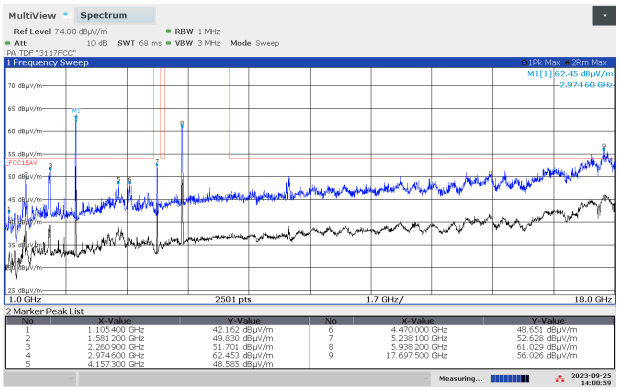
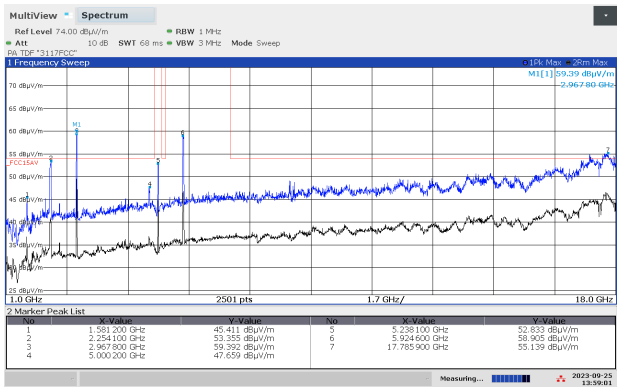


Radiated Emissions 1-18 GHz, Ch048, 802.11n MCS0, Ant 1, HP



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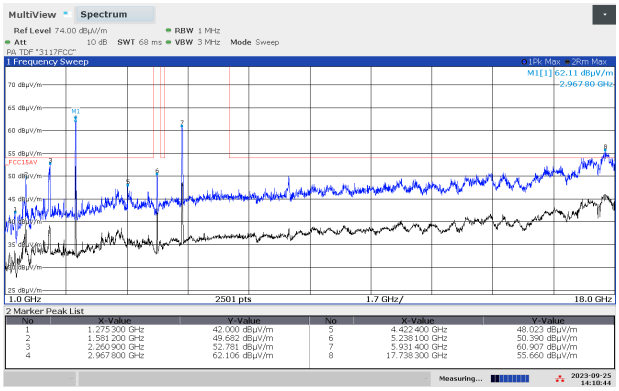
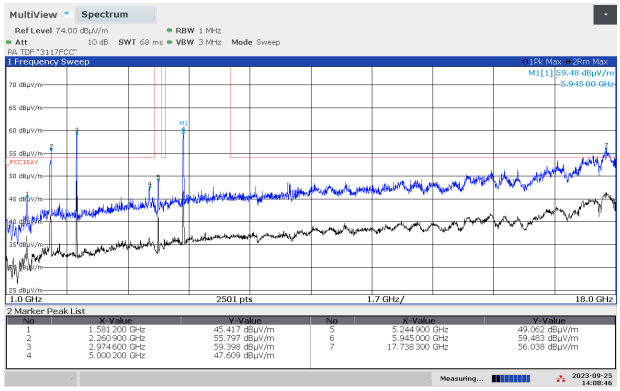


Radiated Emissions 1-18 GHz, Ch048, 802.11n MCS8, MIMO, HP



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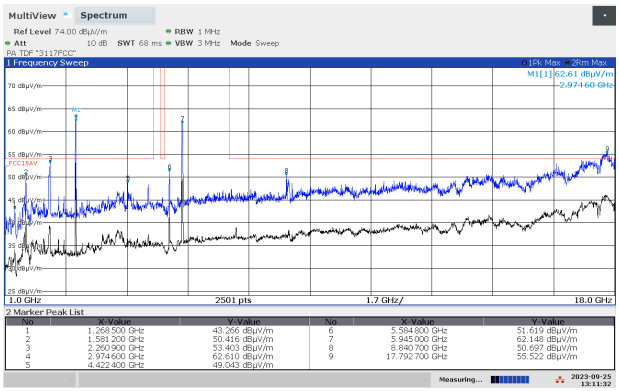
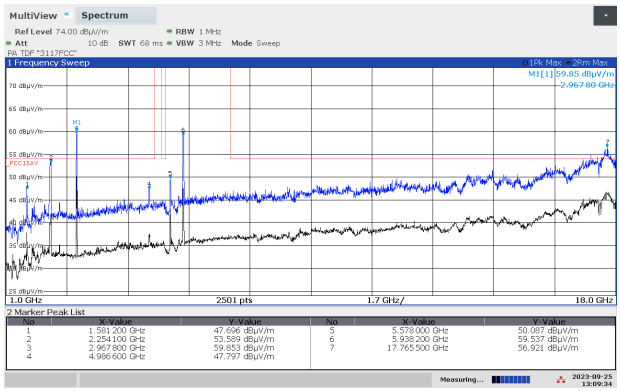


Radiated Emissions 1-18 GHz, Ch116, 802.11a 6M, Ant 0, HP



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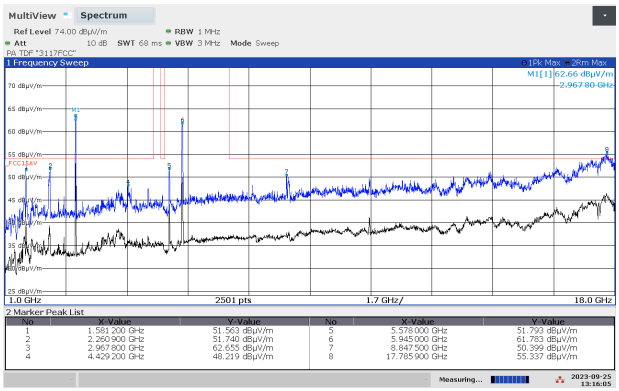
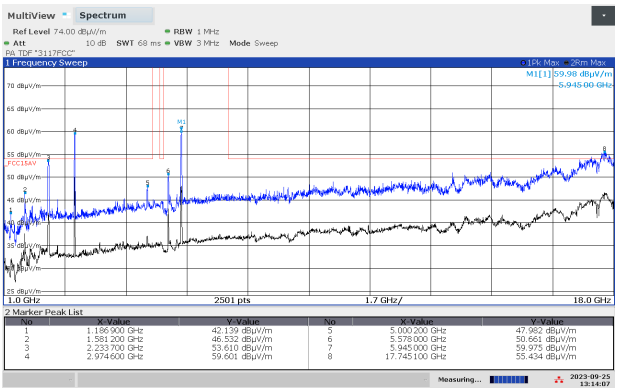


Radiated Emissions 1-18 GHz, Ch116, 802.11a 6M, Ant 1, HP



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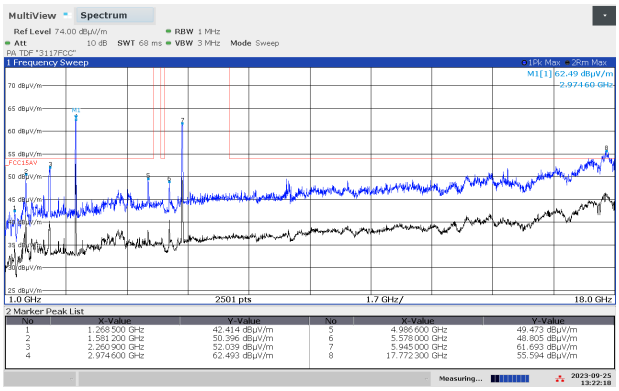
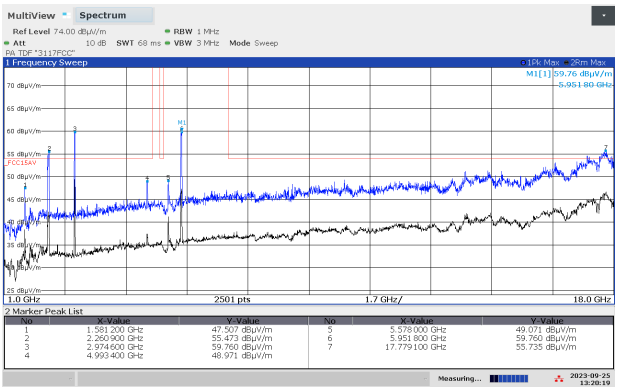


Radiated Emissions 1-18 GHz, Ch116, 802.11n MCS8, MIMO, HP



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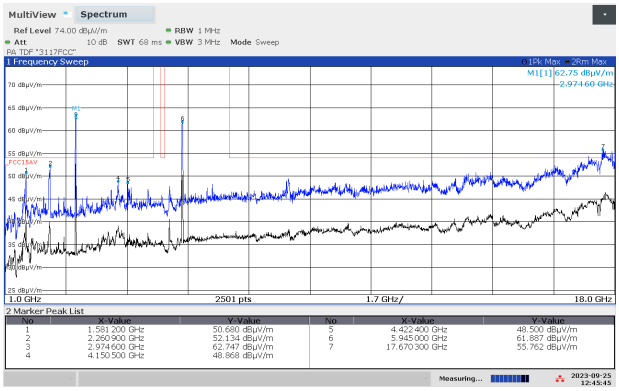
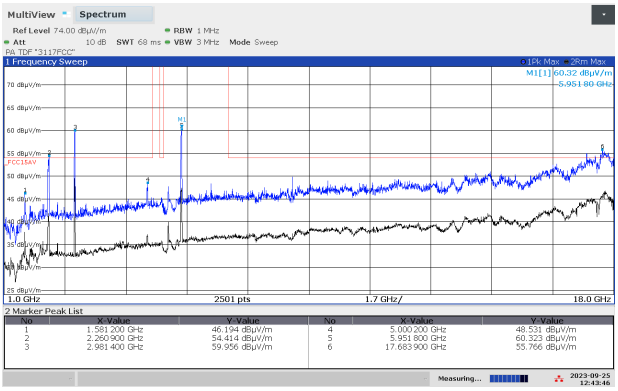


Radiated Emissions 1-18 GHz, Ch116, 802.11ax MCS0, Ant 0, HP



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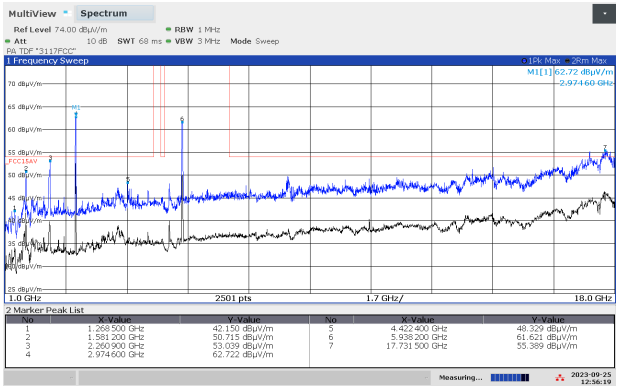
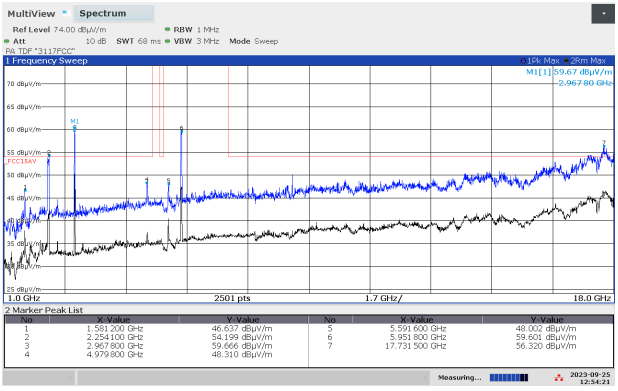


Radiated Emissions 1-18 GHz, Ch116, 802.11ax MCS0, Ant 1, HP



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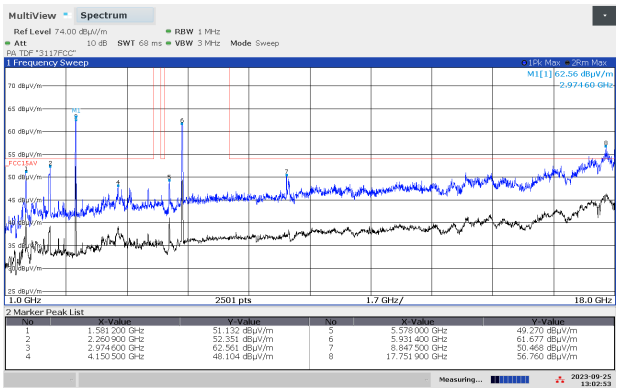
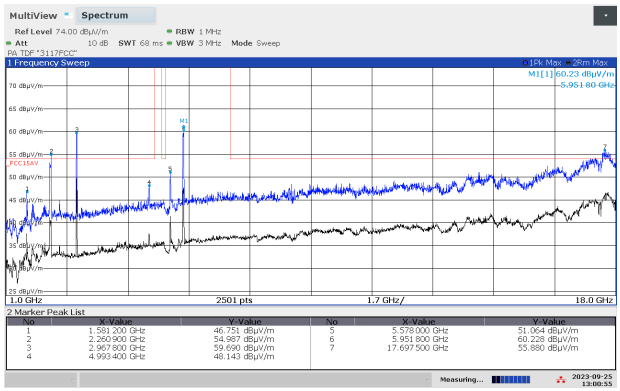


Radiated Emissions 1-18 GHz, Ch116, 802.11ax MCS0, MIMO, HP



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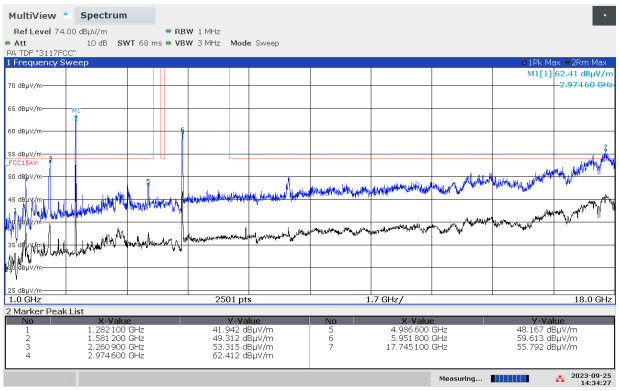
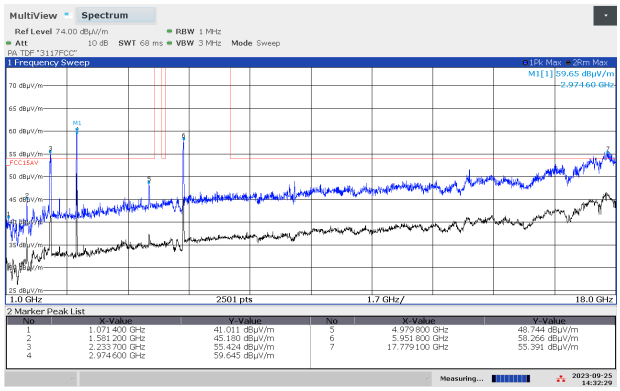


Radiated Emissions 1-18 GHz, Ch157, 802.11a 6M, Ant 0, HP



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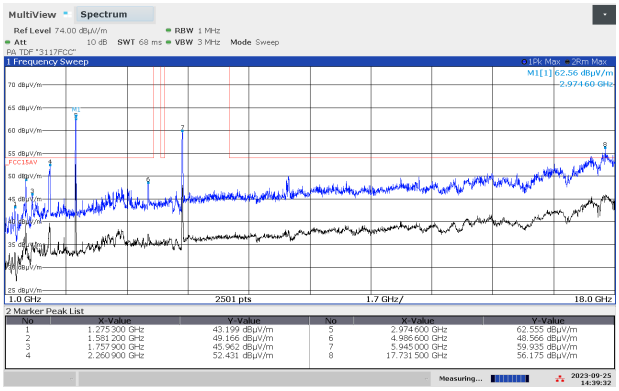
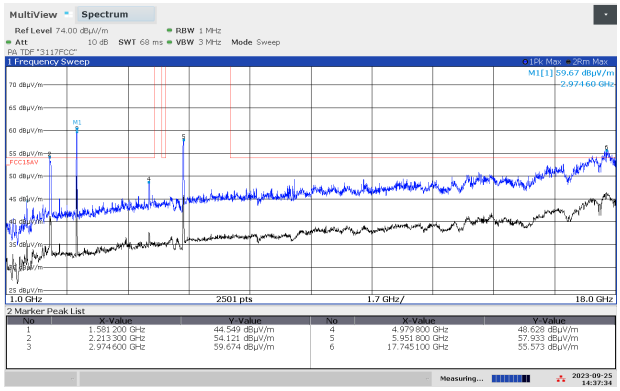


Radiated Emissions 1-18 GHz, Ch157, 802.11a 6M, Ant 1, HP



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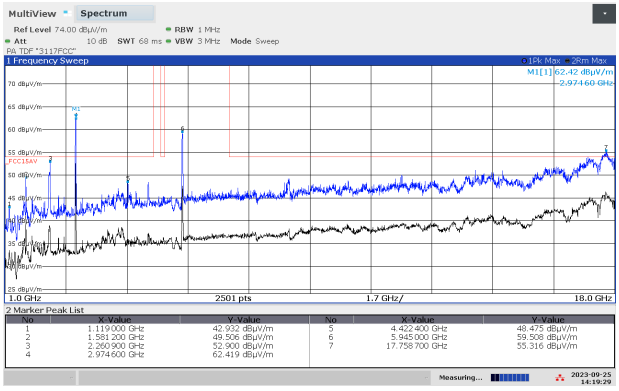
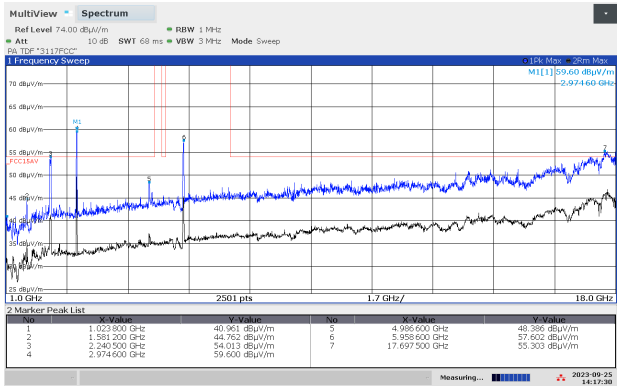


Radiated Emissions 1-18 GHz, Ch157, 802.11n MCS8, MIMO, HP



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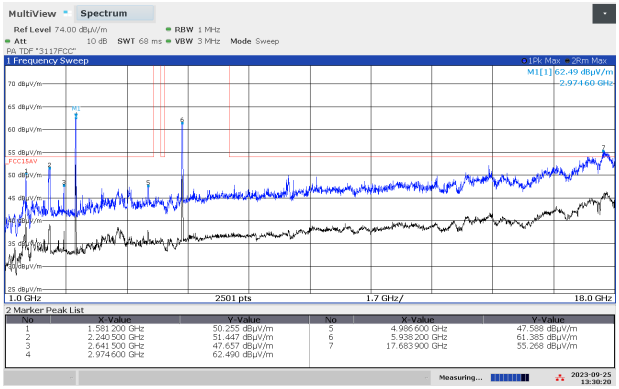
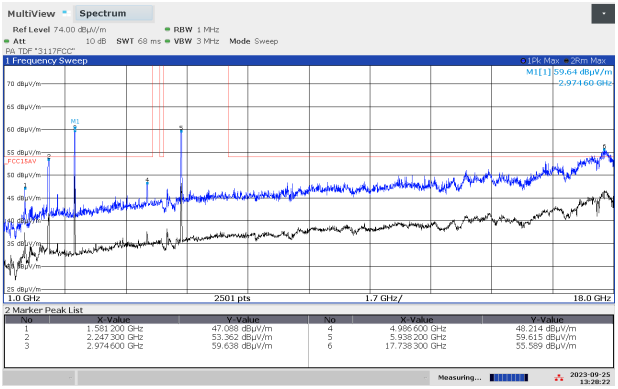


Radiated Emissions 1-18 GHz, Ch110, 802.11n MCS8 HT40, MIMO, HP



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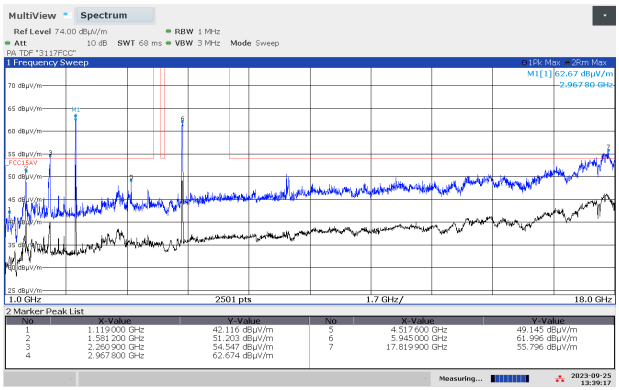
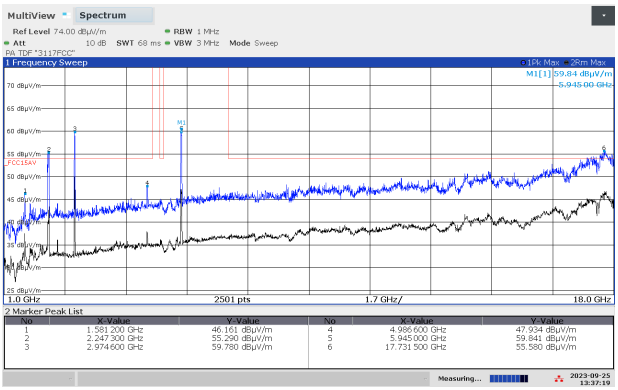


Radiated Emissions 1-18 GHz, Ch106, 802.11ac MCS0 HT80, MIMO, HP



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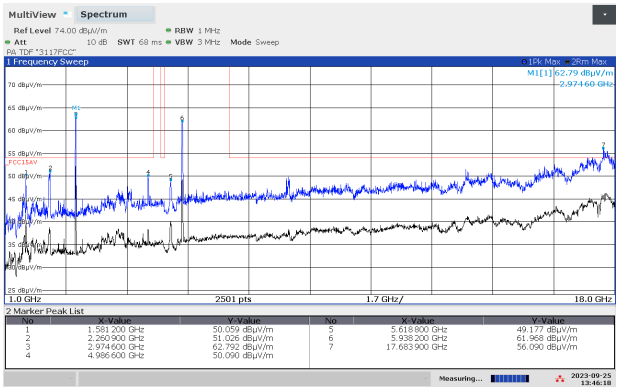
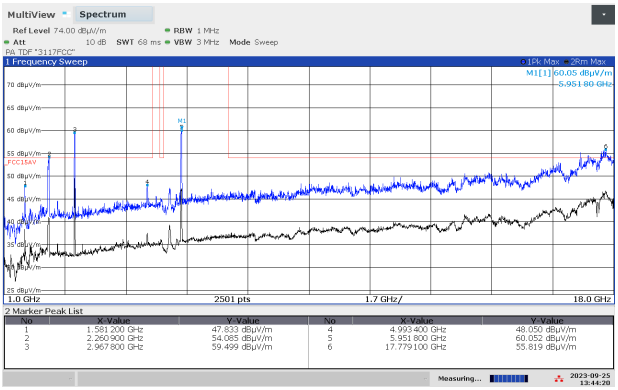


Radiated Emissions 1-18 GHz, Ch122, 802.11ac MCS0 HT80, MIMO, HP



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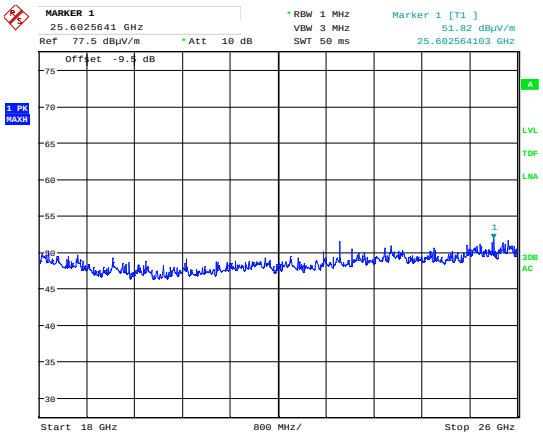

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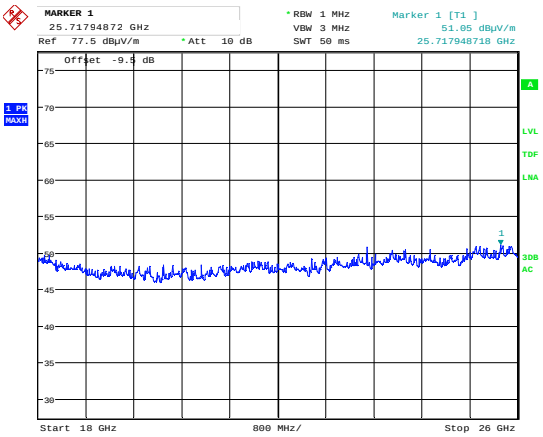
Emissions 18-26 GHz, Ch048, 802.11n MCS0 Ant 0, HP, @1m



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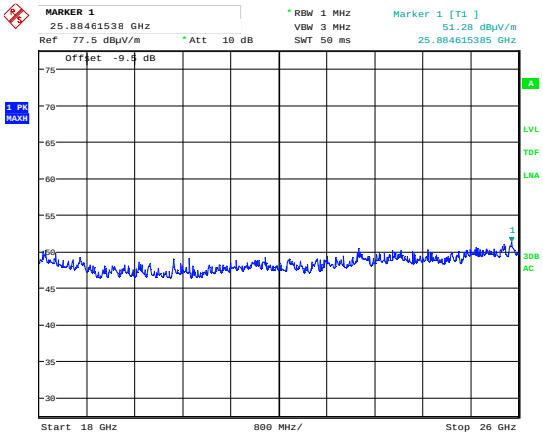
VP



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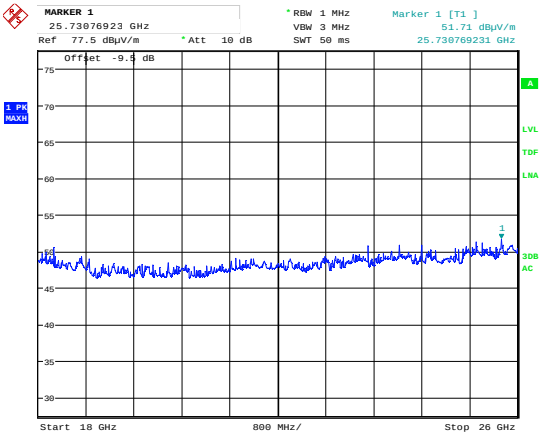
Emissions 18-26 GHz, Ch048, 802.11n MCS0 Ant 1, HP, @1m



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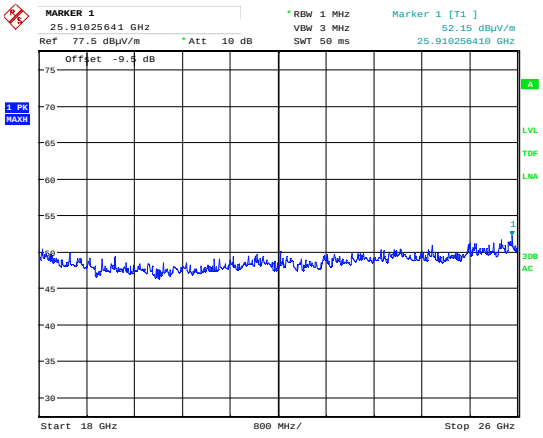

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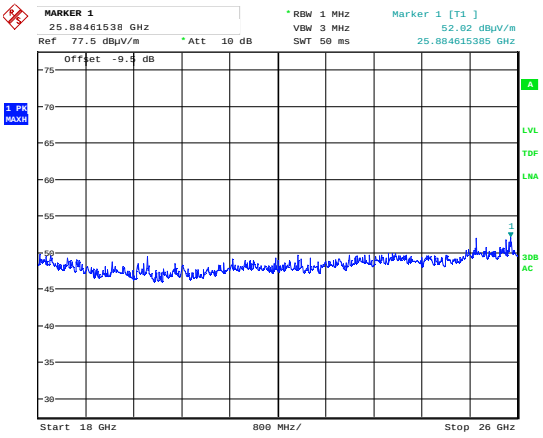
Emissions 18-26 GHz, Ch048, 802.11n MCS8 MIMO, HP, @1m



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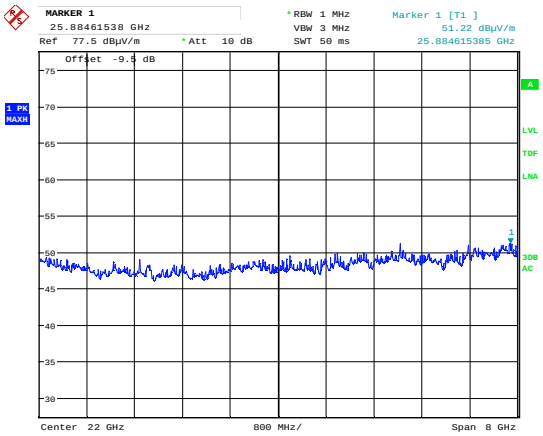

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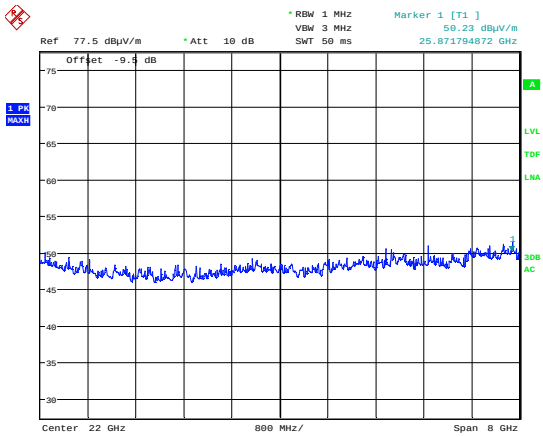
Emissions 18-26 GHz, Ch116, 802.11a 6M, Ant0, HP, @1m



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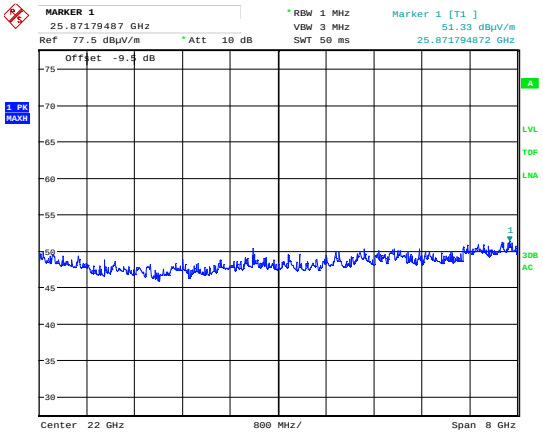

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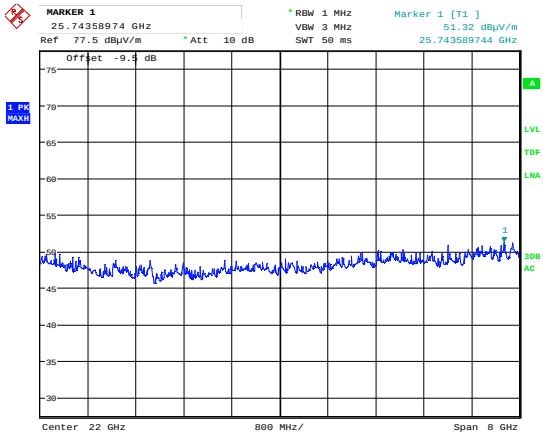
Emissions 18-26 GHz, Ch116, 802.11a 6M, Ant1, HP, @1m



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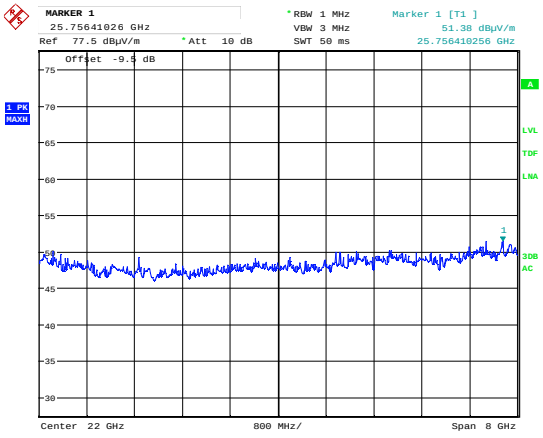
VP



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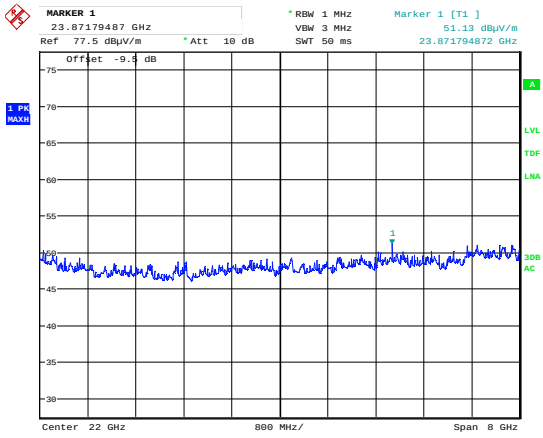
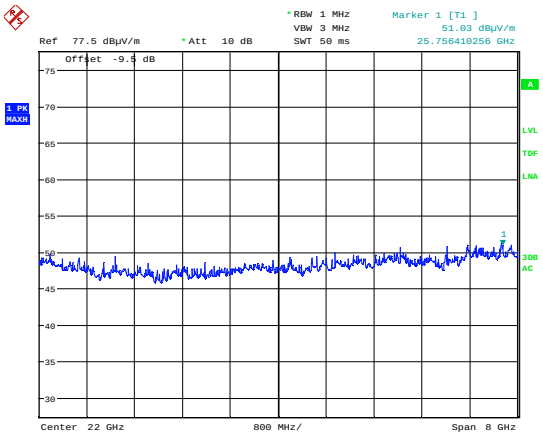
Emissions 18-26 GHz, Ch116, 802.11n MCS0, Ant0, HP, @1m

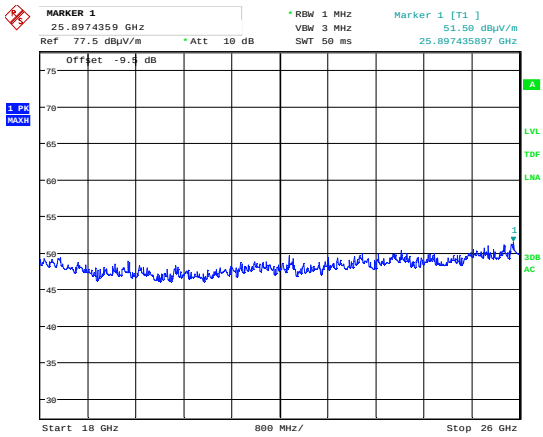


Date: 2.OCT.2023 13:51:21

VP



Emissions 18-26 GHz, Ch116, 802.11n MCS0, Ant1, HP, @1m



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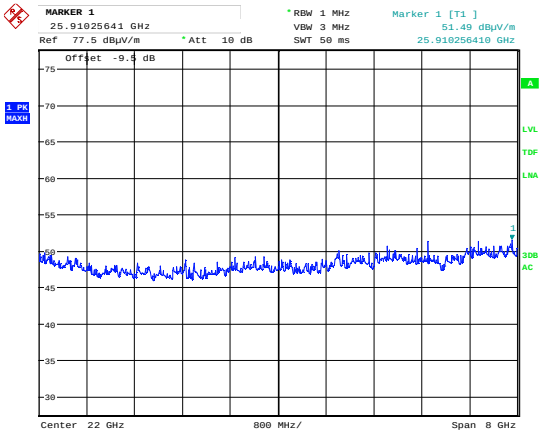
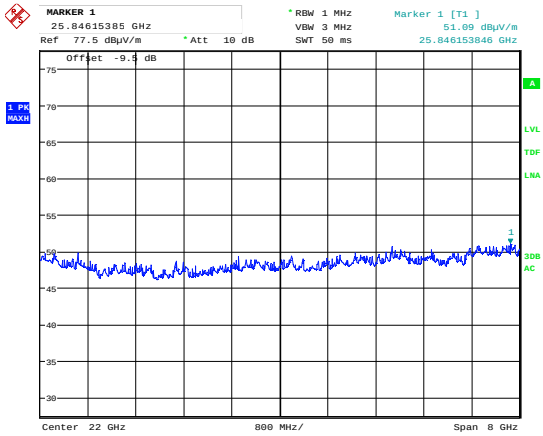


Emissions 18-26 GHz, Ch116, 802.11n MCS8 MIMO, HP, @1m



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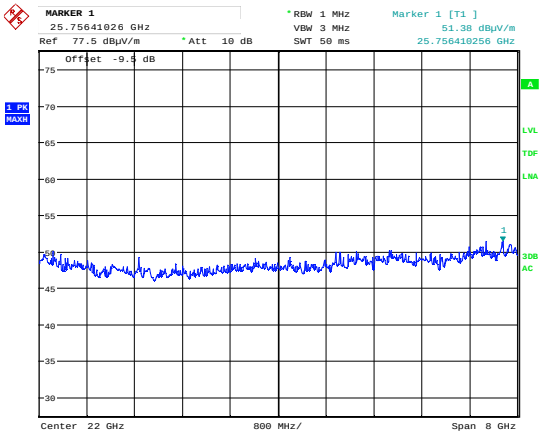
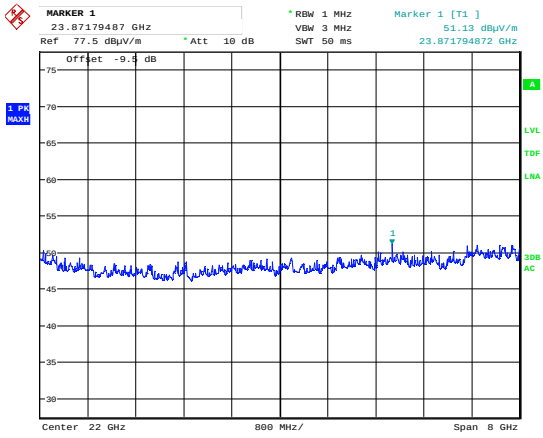


Emissions 18-26 GHz, Ch116, 802.11ax MCS0, Ant0, HP, @1m



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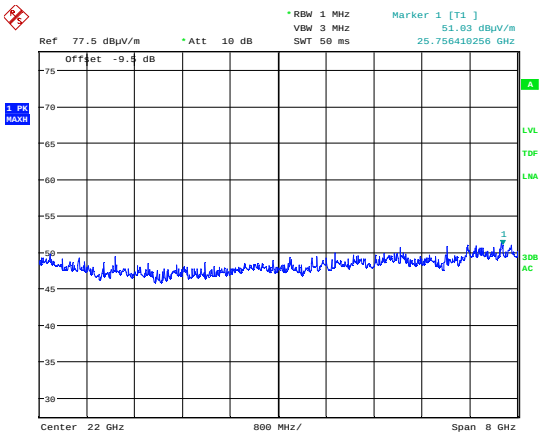
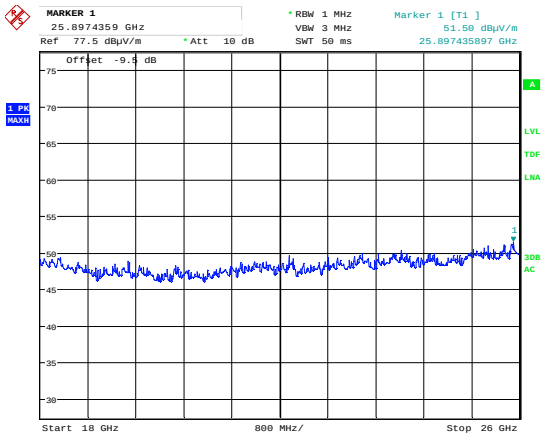


Emissions 18-26 GHz, Ch116, 802.11ax MCS0, Ant1, HP, @1m



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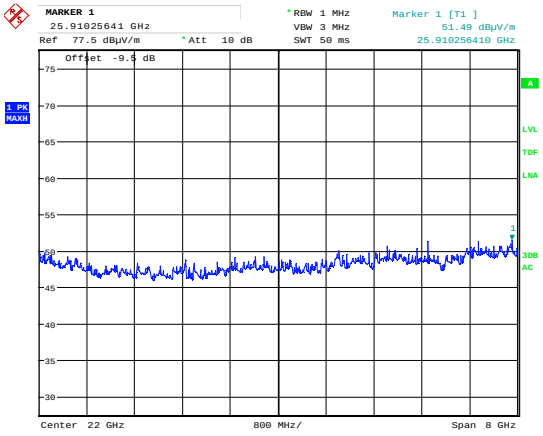
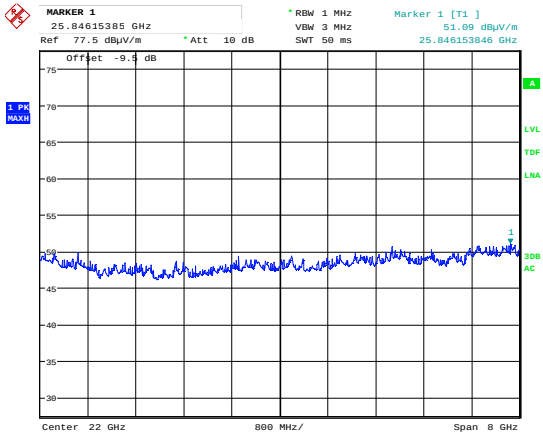


Emissions 18-26 GHz, Ch116, 802.11ax MCS0 MIMO, HP, @1m



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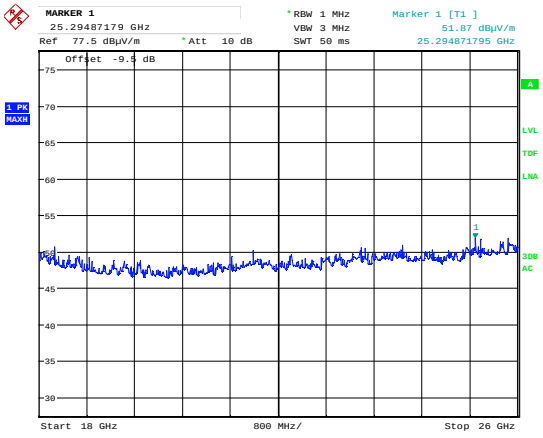
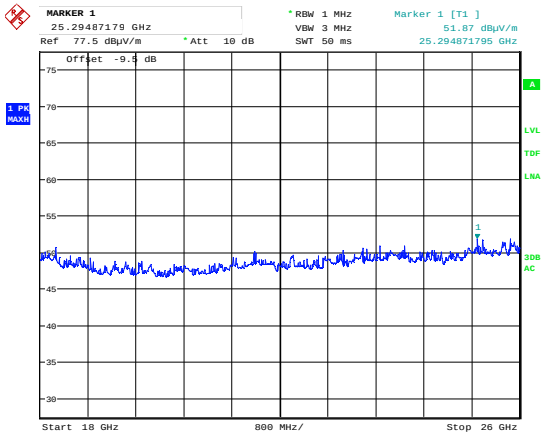


Emissions 18-26 GHz, Ch157, 802.11n MCS0, Ant0, HP, @1m



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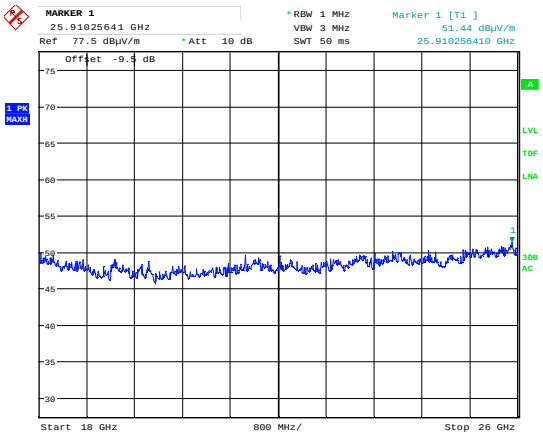

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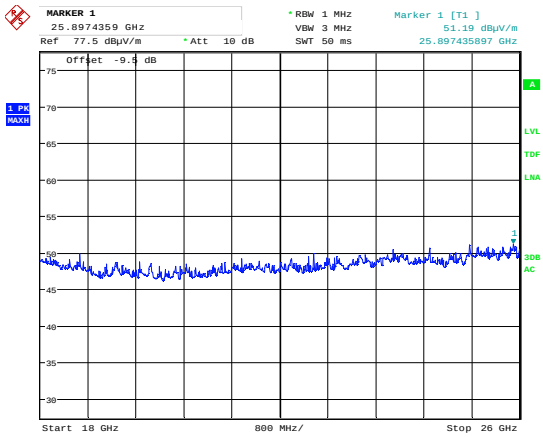
Emissions 18-26 GHz, Ch157, 802.11n MCS0, Ant1, HP, @1m



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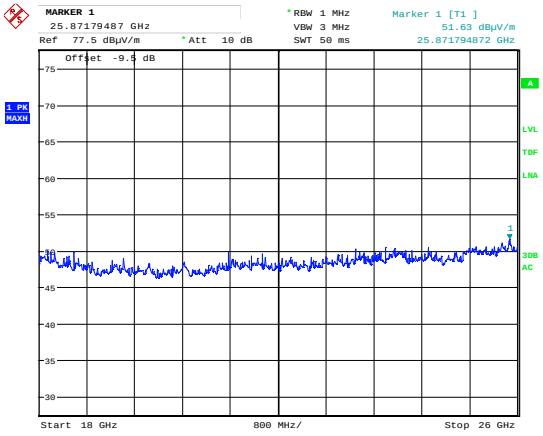
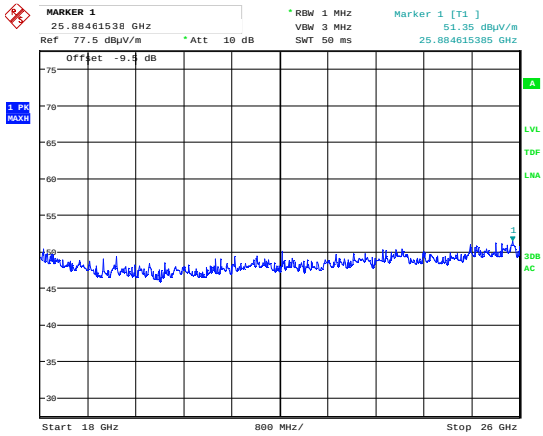


Date: 2.OCT.2023 14:47:58

Emissions 18-26 GHz, Ch157, 802.11n MCS8 MIMO, HP, @1m



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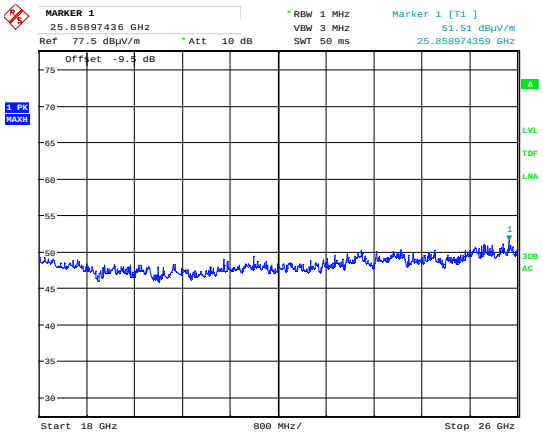
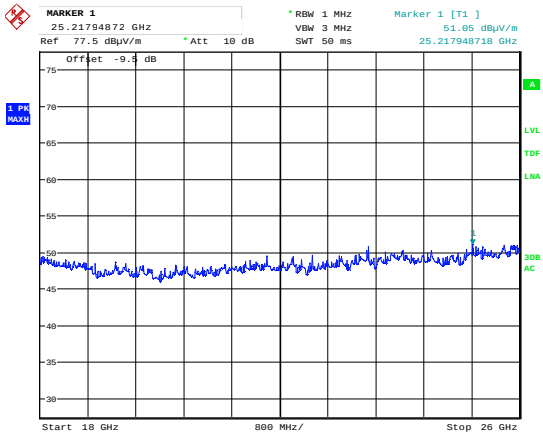


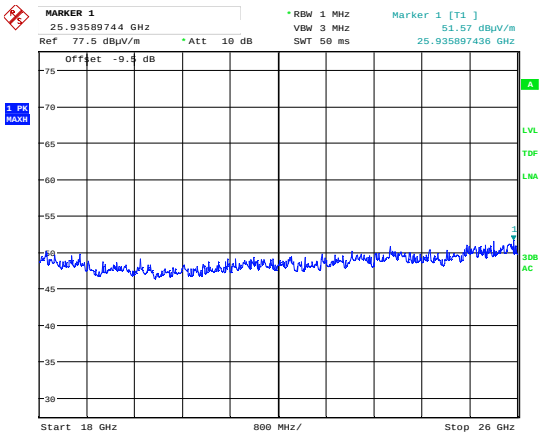
Date: 2.OCT.2023 14:10:16

Emissions 18-26 GHz, Ch110, 802.11n MCS8 HT40 MIMO, HP, @1m

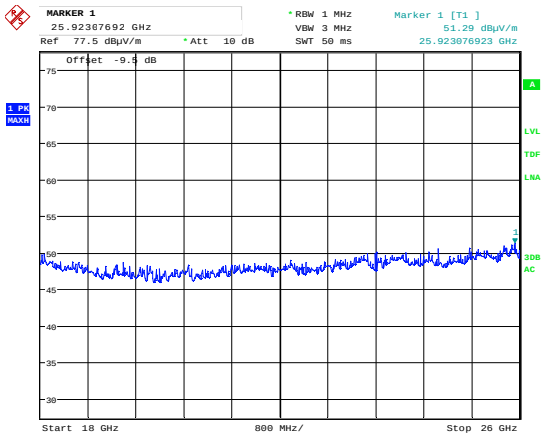


Date: 2.OCT.2023 14:07:15

VP



Emissions 18-26 GHz, Ch106, 802.11ac MCS0 HT80 MIMO, HP, @1m



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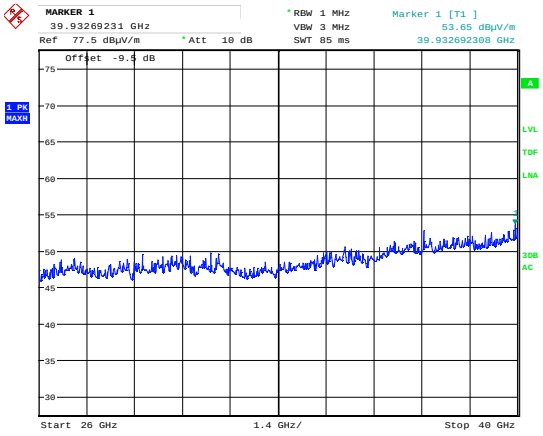
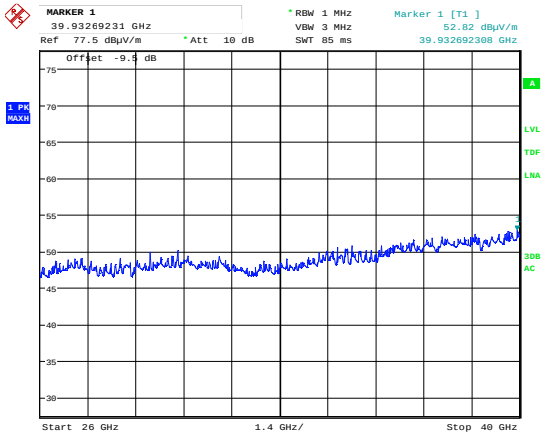


Emissions 26-40 GHz, Ch048, 802.11n MCS8 MIMO, HP, @1m



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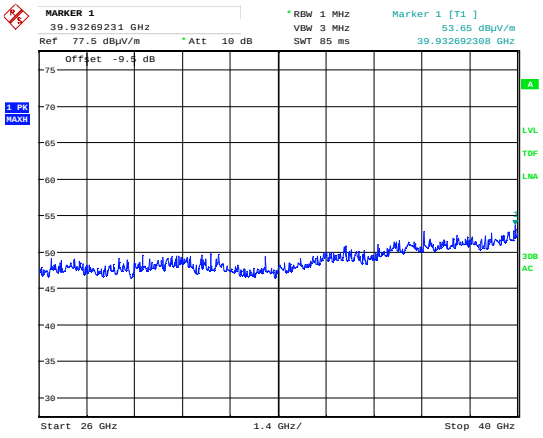
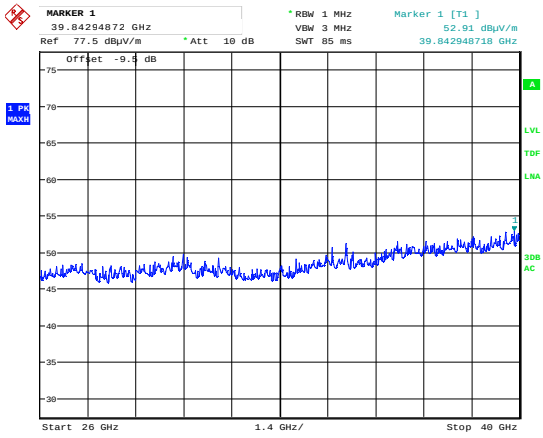


Emissions 26-40 GHz, Ch116, 802.11n MCS8 MIMO, HP, @1m



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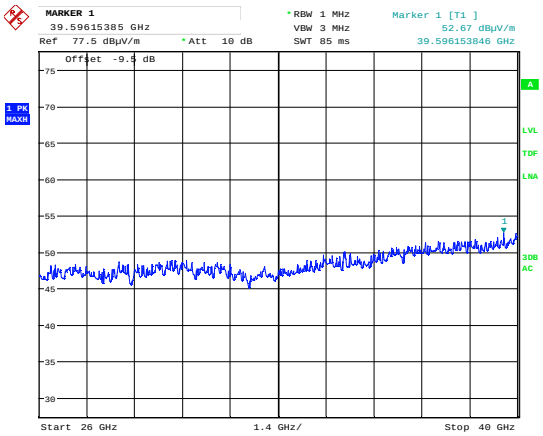

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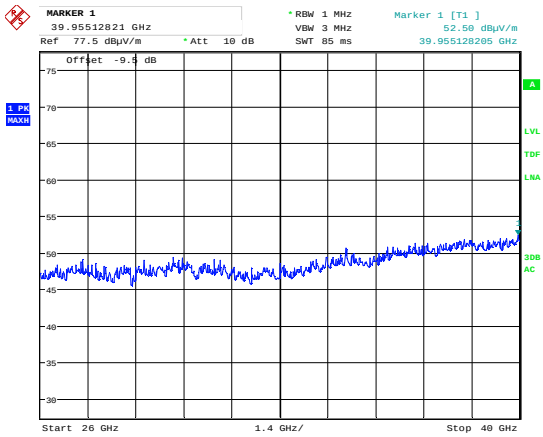
Emissions 26-40 GHz, Ch157, 802.11n MCS8 MIMO, HP, @1m



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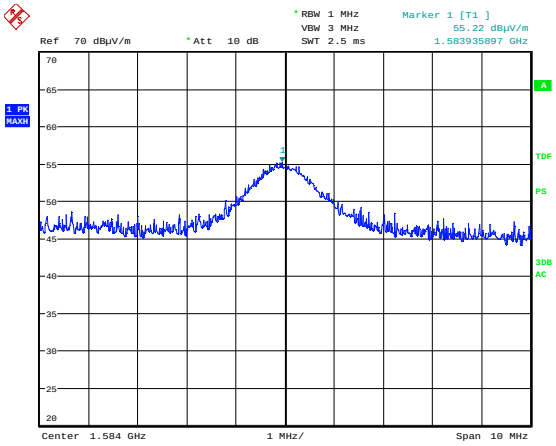
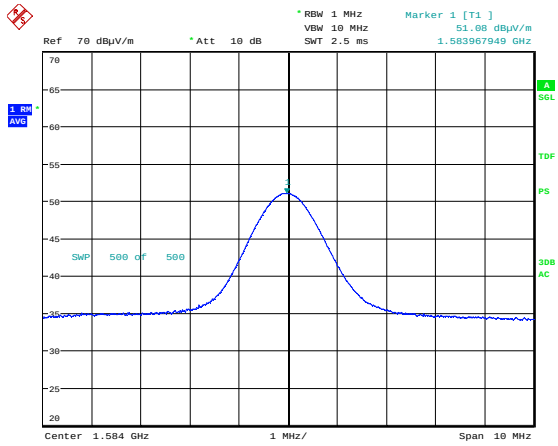
VP



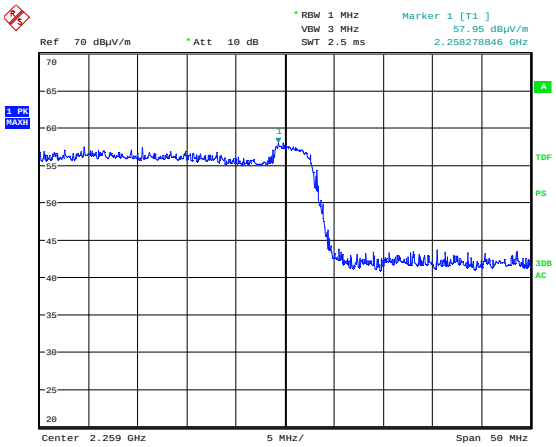
Date: 3.OCT.2023 12:29:13

Spurious 1584 MHz, HP, Pk



Date: 3.OCT.2023 12:32:22

Av



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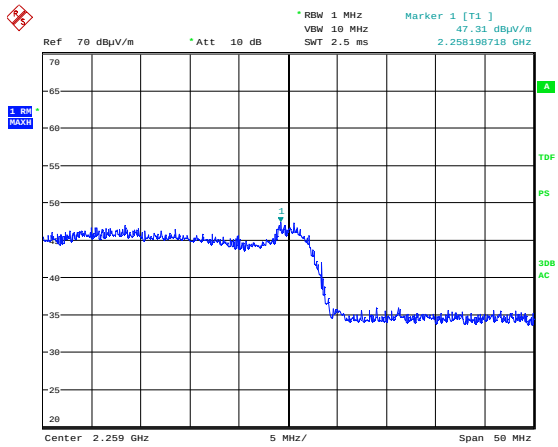
Spurious 2238 MHz, HP, Pk



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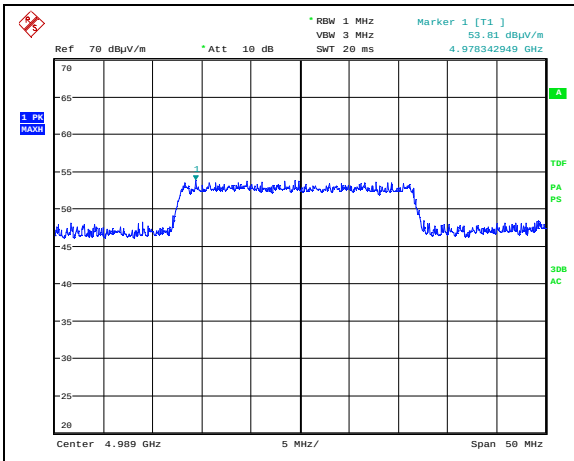
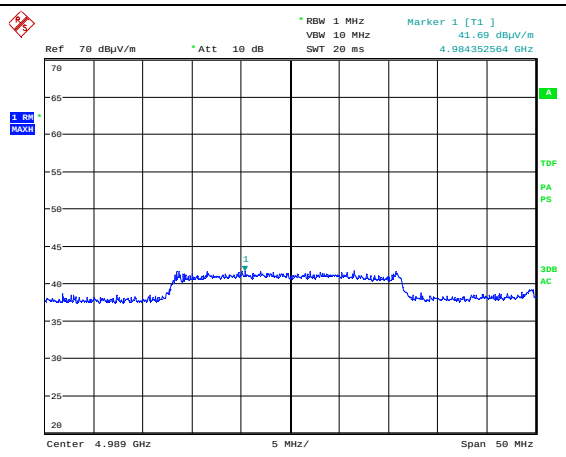


Spurious 4989 MHz, HP, Pk



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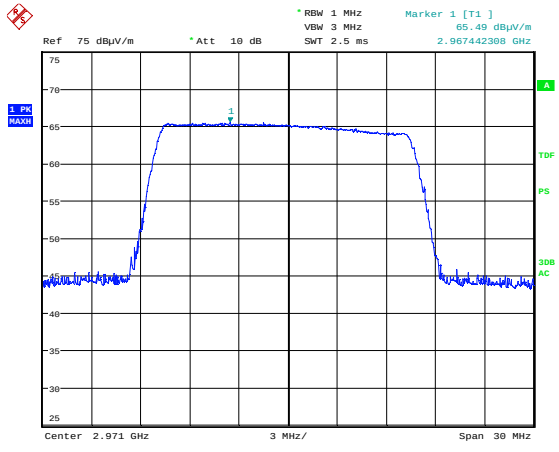
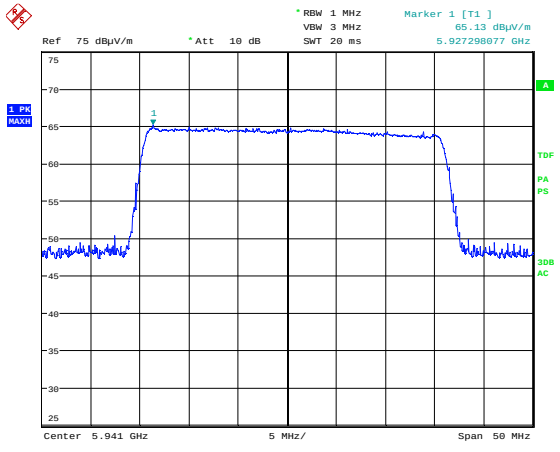


Spurious 2971 MHz, HP, Pk
Not in a Restricted Band



Spurious 5941 MHz, HP, Pk
Not in a Restricted Band

4 Measurement Uncertainty

Measurement Uncertainty Values		
Test Item		**Uncertainty**
Output Power		±0.5 dB
Power Spectral Density		±0.5 dB
Out of Band Emissions, Conducted	**< 3.6 GHz**	±0.6 dB
	> 3.6 GHz	±0.9 dB
Spurious Emissions, Radiated	**< 1 GHz**	±2.5 dB
	> 1 GHz	±2.2 dB
Emission Bandwidth		±4 %
Power Line Conducted Emissions		+2.9 / -4.1 dB
Spectrum Mask Measurements	**Frequency**	±5 %
	Amplitude	±1.0 dB
Frequency Error		±0.6 ppm
Temperature Uncertainty		±1 °C

All uncertainty values are expanded standard uncertainty to give a confidence level of 95%, based on coverage factor k=2

5 LIST OF TEST EQUIPMENT

To facilitate inclusion on each page of the test equipment used for related tests, each item of test equipment and ancillaries are identified (numbered) by the Test Laboratory.

No.	Model number	Description	Manufacturer	Ref. no.	Cal. date	Cal. Due
1	FSW43	Spectrum Analyzer	Rohde & Schwarz	LR 1690	2023-01	2024-01
2	ESU40	Measuring Receiver	Rohde & Schwarz	LR 1639	2023-01	2024-01
3	L01G18G1	LowPass Filter (1 GHz)	Microwave Circuits	LR 1768	COU	
4	VULB 9163	BiLog Antenna	Schwarzbech	LR 1616	2021-05	2024-05
5	317	Preamplifier	Sonoma Inst.	LR 1687	2023-08	2024-08
6	8449A	Pre-amplifier	Hewlett Packard	LR 1322	2023-08	2024-08
7	3115	Horn Antenna	EMCO	LR 1226	2022-11	2027-11
8	3117-PA	Horn Antenna +PreAmp	EMCO	LR 1717	2023-08	2024-08
9	Model 638	Antenna Horn	Narda	LR 1480	N/A	
10	N0452501	BandStop Filter (5.3 GHz)	Microwave Circuits	LR 1775	COU	
11	N0555983	BandStop Filter (5.5 GHz)	Microwave Circuits	LR 1774	COU	
12	N0257881	BandStop Filter (5.8 GHz)	Microwave Circuits	LR 1764	COU	
13	Model 87 V	Multimeter	Fluke	LR 1600	2022-03	2024-03
14	6812B	AC Power Source	Agilent	LR 1515	2022-11	2024-11
15	ENV216	Two Line V-Network	Rohde & Schwarz	LR 1665	2021-12	2023-12
16	ESCI3	Measuring Receiver	Rohde & Schwarz	N-4259	2023-11	2025-11
17	Model V637	Horn Antenna	Narda	LR 099	N/A	
18	JS4-20004000	Preamplifier	Miteq	LR 1591	2022-09 2023-12	2023-09 2024-12
19	ST18/SMA/N/36	RF Cable	Suhner	LR 1627	COU	
20	ST18/SMA/N/36	RF Cable	Suhner	LR 1627	COU	
21	SF102/1000MM	RF Cable	Suhner	SN 50113/2	COU	
22	SF102/2000MM	RF Cable	Suhner	SN 500100/2	COU	

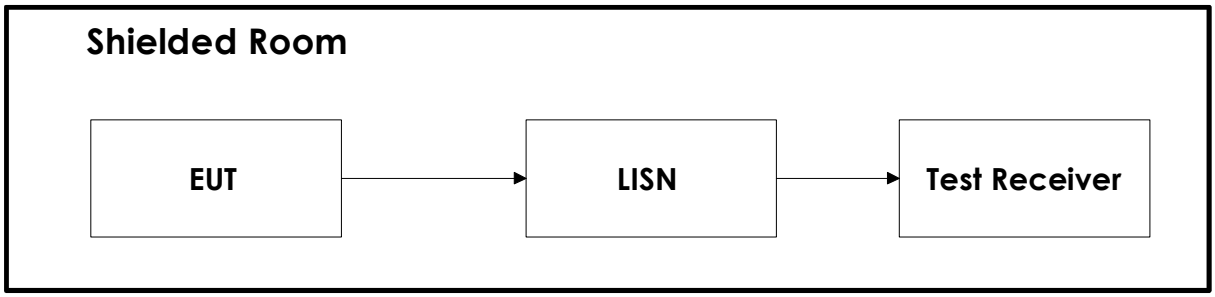
Note: COU – calibrate on use; N/A – Not Applicable

The software listed below has been used for one or more tests.

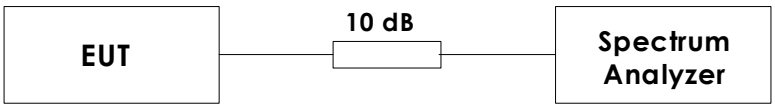
No.	Manufacturer	Name	Version	Comment
1	Rohde & Schwarz	EMC32	10.50.40	EMC test software
2	Nemko AS	RSPlot	1.0.8.0	Screen capture from R&S Spectrum Analyzers

6 BLOCK DIAGRAM

6.1 Power Line Conducted Emission

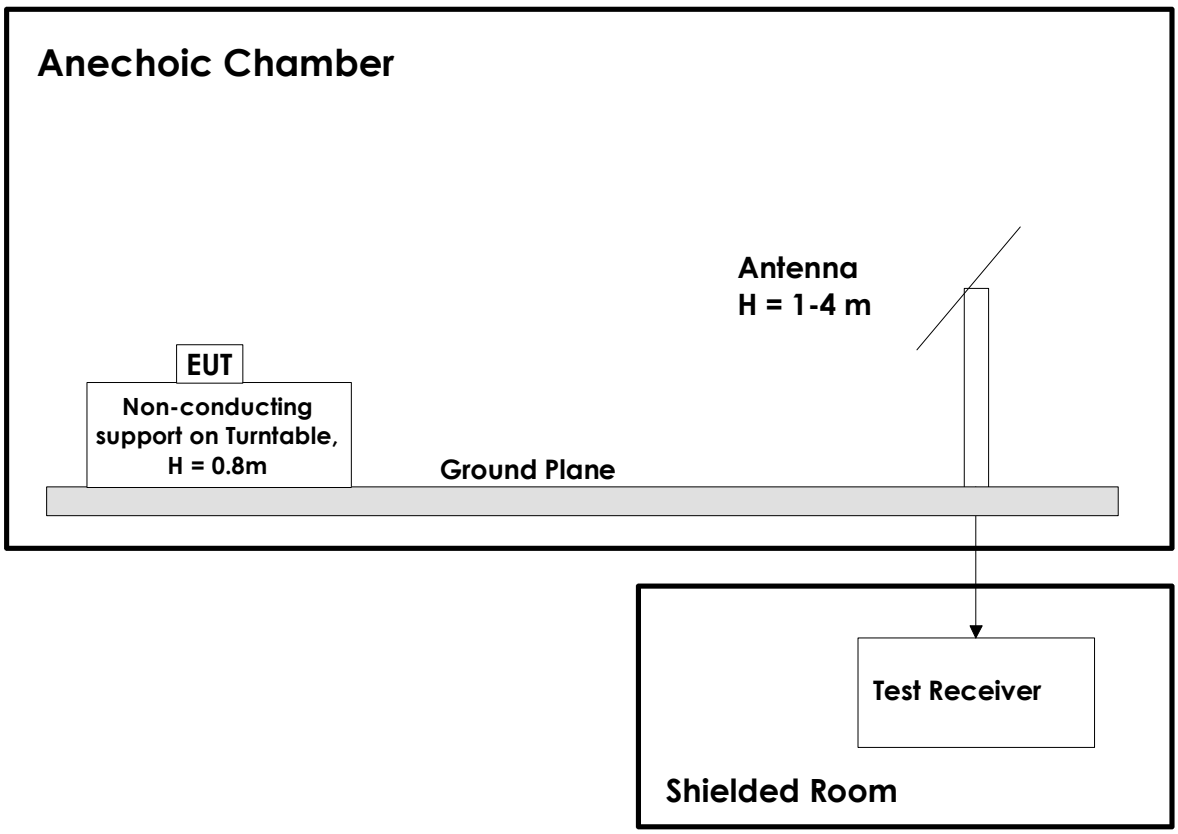


6.2 Conducted Tests



This test set-up is used for all Conducted tests. For the Frequency Stability test the EUT was placed in a climatic chamber.

6.3 Test Site Radiated Emission



This test setup is used for all radiated emissions tests. Measuring distance is 3m for all frequencies.

Emissions above 1 GHz are measured with a Spectrum Analyzer and Horn Antenna.

All measurements at 1GHz and above were performed with turntable height 1.5m and with the ground plane covered by absorbers.

A pre-amplifier is used for all measurements, and High-Pass filter is used for all harmonics.