TR-398 Issue 4

WiFi Performance Test Plan

Mon Sep 02 15:28:01 PDT 2024

Test Setup Information	
Device Under Test	[hidden]
Operator	Ben Greear
Estimated Run Time	1.8 h
Actual Run Time	53.013 m

Objective

The TR-398 Issue 4 WiFi Performance test plan by the Broadband forum provides a comprehensive set of tests to qualify the performance of WiFi access points (APs) designed for residential and small office environments. Radio performance, Throughput, Connection Stability, Airtime Fairness, AP Co-existence, Mu_MIMO Performance, Spatial Consistency, Long-term Stability and Mesh performance are some of the test areas covered in this test plan. The test plan is designed for service providers deploying in home WiFi APs to qualify the APs in the lab before deployment and for equipment makers to test during the development of the APs. Candela Technologies offers a fully automated TR-398 test system. The user can select from the list of tests available. Most tests can run fully automated, though some require user interaction. Measurements are made and compared to the specified PASS/FAIL criteria in the TR-398 test plan and this report will show the summary PASS/FAIL results followed by more detailed results for each test.

Summary Results

Test	Result	Candela Score	Elapsed	Info
6.4.3 Downlink MU-MIMO Performance Test	BW / n/AC / AX / BE 2.4Ghz: Fail / Fail 5Ghz: Pass / Pass / Pass 6Ghz: Pass / Fail MLO	120	52.657 m	AC 5GHz Passed: 2 / 2 Single Throughput Sum: 997.57 Mbps MU-MIMO Throughput Sum: 835.75 Mbps AX 2.4GHz Passed: 1 / 2 Single Throughput Sum: 169.28 Mbps MU-MIMO Throughput Sum: 35.97 Mbps AX 5GHz Passed: 2 / 2 Single Throughput Sum: 1,386.41 Mbps MU-MIMO Throughput Sum: 1,098.75 Mbps AX 6GHz-160 Passed: 2 / 2 Single Throughput Sum: 2,866.59 Mbps MU-MIMO Throughput Sum: 1,589.36 Mbps BE 2.4GHz Passed: 1 / 2 Single Throughput Sum: 152.94 Mbps MU-MIMO Throughput Sum: 46.12 Mbps BE 5GHz Passed: 2 / 2 Single Throughput Sum: 1,644.88 Mbps MU-MIMO Throughput Sum: 1,125.56

Mbps
BE 6GHz Passed: 1 / 2
Single Throughput Sum: 5,206.64 Mbps
MU-MIMO Throughput Sum: 2,087.11
Mbps

6.4.3 Downlink MU-MIMO Performance Test

Summary

The Downlink MU-MIMO Performance Test intends to verify the performance of Wi-Fi device when Downlink MU-MIMO is applied. This best represents a typical deployment, where stations may only support 1x1 or 2x2 RF chain configurations. The test is only applicable to Wi-Fi devices supporting 802.11ac/ax Wave 2 and higher. The DUT SHALL support at least 802.11ac/ax MU-MIMO and at least 4 spatial streams.

Test setup

1. STA 1, STA 2 and STA 3 are configured to use one spatial stream.
2. STA are configured for 0 AAV attenuation.
3. STA antennas are located at different angles relative to the DUT, preferably more than 45 degrees apart.
4. Ethernet traffic is TCP set to maximum allowed speed.

DUT Configuration

1. 802.11ac Downlink MU-MIMO enable
2. 802.11ax 2.4 GHz Downlink MU-MIMO + OFDMA enabled.
3. 802.11ax 5 GHz Downlink MU-MIMO + OFDMA enabled.
4. 802.11ax 6 GHz Downlink MU-MIMO + OFDMA enabled.
5. 802.11be 2.4 GHz Downlink MU-MIMO + OFDMA enabled.
6. 802.11be 5 GHz Downlink MU-MIMO + OFDMA enabled.
7. 802.11be 6 GHz Downlink MU-MIMO + OFDMA enabled.

Test Procedure

1. For each of the DUT configurations above.
2. Associate STA 1 with DUT. Establish the LAN connection and wait for 10 seconds.
3. Measure the downlink TCP throughput of STA 1, using a test time of 120 seconds. Record this value as STA1_throughput_1.
4. Disassociate STA 1. Wait for 10 seconds. Associate STA 2 with DUT. Wait for 10 seconds. Measure the downlink TCP throughput of STA 2, using a test time of 120 seconds. Record this value as STA2_ throughput_1.
5. Disassociate STA 2. Wait for 10 seconds. Associate STA 3 with DUT. Wait for 10 seconds. Measure the downlink TCP throughput of STA 3, using a test time of 120 seconds. Record this value as STA3_throughput_1.
6. Associate STA 1 and STA 2 with DUT (STA 3 remains associated). Simultaneously measure the downlink TCP throughput of all STA, using a test time of 120 seconds. Record these value as STA1_throughput_2, STA2_throughput_2 and STA3_throughput_2.

Pass/Fail Criteria

1. The sum of STA1_throughput_2, STA2_throughput_2, and STA3_throughput_2 SHALL be at least 45% of the sum of STA1_throughput_1, STA2_throughput_1, and STA3_throughput_1.
2. The sum of STA1_throughput_1, STA2_throughput_1, and STA3_throughput_1 must be at least 100Mbps to catch testbed or DUT serious failures.

Candela Score

The Candela Score for MU-MIMO Test is MU-MIMO throughput / (Single STA Sum throughput x 0.45)

6.4.3 Downlink MU-MIMO Performance Test Results

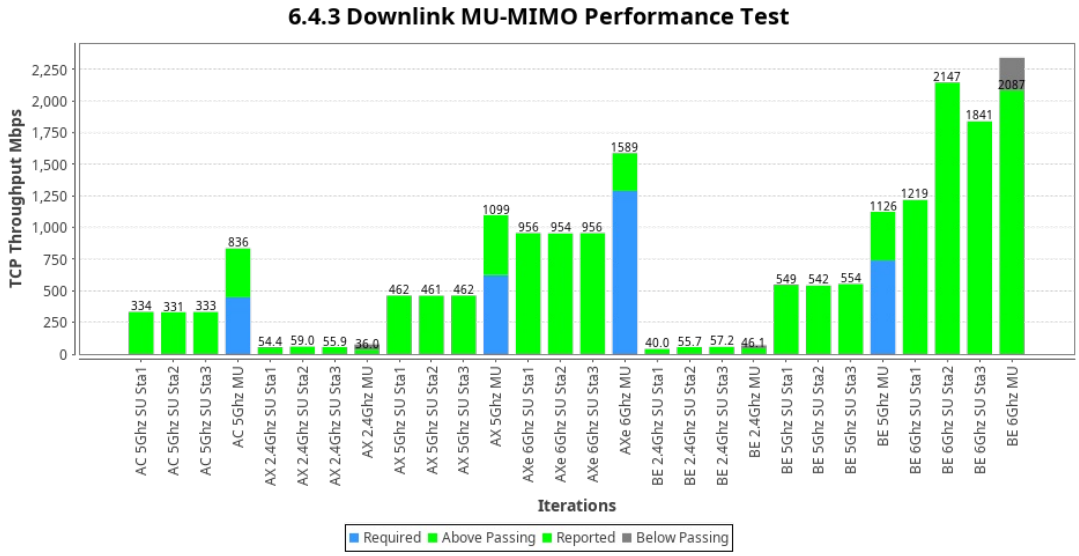
Type	Result	Value	P/F Value	Notes
AC 5Ghz	INFO			Setting DUT to have OFDMA enabled /home/greearb/ssh_remote.py --ip 192.168.101.212 --remote_args r5g set=ofdma:enabled Response: Hidden: Anonymize-AP is enabled.
AC 5Ghz	INFO			Setting DUT to have MUMIMO enabled /home/greearb/ssh_remote.py --ip 192.168.101.212 --remote_args r5g set=mumimo:enabled Response: Hidden: Anonymize-AP is enabled.
AC 5Ghz SU-MIMO Sta-1 Baseline	INFO			Download Rate: 333.51 Mbps STA-RSSI Data/Beacon: -33/-27 Rx-Rate: 433.3M Tx-Rate: 433.3M 802.11an-AC-80-1x1 36
AC 5Ghz SU-MIMO Sta-2 Baseline	INFO			Download Rate: 331.27 Mbps STA-RSSI Data/Beacon: -37/-31 Rx-Rate: 433.3M Tx-Rate: 433.3M 802.11an-AC-80-1x1 36
AC 5Ghz SU-MIMO Sta-3 Baseline	INFO			Download Rate: 332.79 Mbps STA-RSSI Data/Beacon: -33/-28 Rx-Rate: 433.3M Tx-Rate: 433.3M 802.11an-AC-80-1x1 36
AC 5Ghz MU-MIMO Sta1 - 3 Total	INFO			Total Download Rate: 835.75 Mbps Sta-1 Download Rate: 291.21 Mbps STA-RSSI Data/Beacon: -33/-27 Rx-Rate: 433.3M Tx-Rate: 433.3M 802.11an-AC-80-1x1 36 Sta-2 Download Rate: 292.51 Mbps STA-RSSI Data/Beacon: -37/-31 Rx-Rate: 433.3M Tx-Rate: 433.3M 802.11an-AC-80-1x1 36 Sta-3 Download Rate: 252.03 Mbps STA-RSSI Data/Beacon: -33/-29 Rx-Rate: 433.3M Tx-Rate: 433.3M 802.11an-AC-80-1x1 36
AC 5Ghz MU-MIMO-Throughput	PASS	836	449	Requires: 448.90 Mbps Reported: 835.75 Mbps
AC 5Ghz	NOTE			Not adding packet capture, anonymize_ap is enabled.
AX 2.4Ghz	INFO			Setting DUT to have OFDMA enabled /home/greearb/ssh_remote.py --ip 192.168.101.212 --remote_args r2g set=ofdma:enabled Response: Hidden: Anonymize-AP is enabled.
AX 2.4Ghz	INFO			Setting DUT to have MUMIMO enabled /home/greearb/ssh_remote.py --ip 192.168.101.212 --remote_args r2g set=mumimo:enabled Response: Hidden: Anonymize-AP is enabled.
AX 2.4Ghz SU-MIMO Sta-1 Baseline	INFO			Download Rate: 54.35 Mbps STA-RSSI Data/Beacon: -21/-21 Rx-Rate: 143.3M Tx-Rate: 29.2M 802.11bgn-AX-20-1x1 6
AX 2.4Ghz SU-MIMO Sta-2 Baseline	INFO			Download Rate: 58.99 Mbps STA-RSSI Data/Beacon: -21/-19 Rx-Rate: 143.3M Tx-Rate: 143.3M 802.11bgn-AX-20-1x1 6
AX 2.4Ghz SU-MIMO Sta-3 Baseline	INFO			Download Rate: 55.93 Mbps STA-RSSI Data/Beacon: -24/-30 Rx-Rate: 143.3M Tx-Rate: 29.2M 802.11bgn-AX-20-1x1 6

AX 2.4Ghz MU-MIMO Sta1 - 3 Total	INFO			Total Download Rate: 35.97 Mbps Sta-1 Download Rate: 11.22 Mbps STA-RSSI Data/Beacon: -20/-20 Rx-Rate: 129M Tx-Rate: 143.3M 802.11bgn-AX-20-1x1 6 Sta-2 Download Rate: 12.19 Mbps STA-RSSI Data/Beacon: -21/-19 Rx-Rate: 143.3M Tx-Rate: 143.3M 802.11bgn-AX-20-1x1 6 Sta-3 Download Rate: 12.56 Mbps STA-RSSI Data/Beacon: -23/-30 Rx-Rate: 143.3M Tx-Rate: 29.2M 802.11bgn-AX-20-1x1 6
AX 2.4Ghz MU-MIMO-Throughput	FAIL	36	76	Requires: 76.18 Mbps Reported: 35.97 Mbps
AX 2.4Ghz	NOTE			Not adding packet capture, anonymize_ap is enabled.
AX 5Ghz SU-MIMO Sta-1 Baseline	INFO			Download Rate: 462.43 Mbps STA-RSSI Data/Beacon: -32/-27 Rx-Rate: 600.4M Tx-Rate: 600.4M 802.11an-AX-80-1x1 36
AX 5Ghz SU-MIMO Sta-2 Baseline	INFO			Download Rate: 461.49 Mbps STA-RSSI Data/Beacon: -37/-31 Rx-Rate: 600.4M Tx-Rate: 600.4M 802.11an-AX-80-1x1 36
AX 5Ghz SU-MIMO Sta-3 Baseline	INFO			Download Rate: 462.49 Mbps STA-RSSI Data/Beacon: -33/-28 Rx-Rate: 600.4M Tx-Rate: 600.4M 802.11an-AX-80-1x1 36
AX 5Ghz MU-MIMO Sta1 - 3 Total	INFO			Total Download Rate: 1,098.75 Mbps Sta-1 Download Rate: 390.91 Mbps STA-RSSI Data/Beacon: -33/-27 Rx-Rate: 600.4M Tx-Rate: 600.4M 802.11an-AX-80-1x1 36 Sta-2 Download Rate: 388.23 Mbps STA-RSSI Data/Beacon: -37/-31 Rx-Rate: 540.3M Tx-Rate: 600.4M 802.11an-AX-80-1x1 36 Sta-3 Download Rate: 319.61 Mbps STA-RSSI Data/Beacon: -33/-28 Rx-Rate: 432.4M Tx-Rate: 600.4M 802.11an-AX-80-1x1 36
AX 5Ghz MU-MIMO-Throughput	PASS	1,099	624	Requires: 623.88 Mbps Reported: 1,098.75 Mbps
AX 5Ghz	NOTE			Not adding packet capture, anonymize_ap is enabled.
AXe 6Ghz	INFO			Setting DUT to have OFDMA enabled /home/greearb/ssh_remote.py --ip 192.168.101.212 --remote_args r6g set=ofdma:enabled Response: Hidden: Anonymize-AP is enabled.
AXe 6Ghz	INFO			Setting DUT to have MUMIMO enabled /home/greearb/ssh_remote.py --ip 192.168.101.212 --remote_args r6g set=mumimo:enabled Response: Hidden: Anonymize-AP is enabled.
AXe 6Ghz SU-MIMO Sta-1 Baseline	INFO			Download Rate: 956.36 Mbps STA-RSSI Data/Beacon: -42/-38 Rx-Rate: 1.201G Tx-Rate: 1.201G 802.11a-AX-160-1x1 37e
AXe 6Ghz SU-MIMO Sta-2 Baseline	INFO			Download Rate: 954.15 Mbps STA-RSSI Data/Beacon: -43/-40 Rx-Rate: 1.201G Tx-Rate: 1.201G 802.11a-AX-160-1x1 37e
AXe 6Ghz SU-MIMO Sta-3 Baseline	INFO			Download Rate: 956.08 Mbps STA-RSSI Data/Beacon: -43/-38 Rx-Rate: 1.201G Tx-Rate: 1.201G 802.11a-AX-160-1x1 37e

AXe 6Ghz MU-MIMO Sta1 - 3 Total	INFO			Total Download Rate: 1,589.36 Mbps Sta-1 Download Rate: 535.36 Mbps STA-RSSI Data/Beacon: -42/-38 Rx-Rate: 720.6M Tx-Rate: 245M 802.11a-AX-160-1x1 37e Sta-2 Download Rate: 570.11 Mbps STA-RSSI Data/Beacon: -43/-40 Rx-Rate: 1.081G Tx-Rate: 1.201G 802.11a-AX-160-1x1 37e Sta-3 Download Rate: 483.90 Mbps STA-RSSI Data/Beacon: -43/-38 Rx-Rate: 1.081G Tx-Rate: 1.201G 802.11a-AX-160-1x1 37e
AXe 6Ghz MU-MIMO-Throughput	PASS	1,589	1,290	Requires: 1,289.97 Mbps Reported: 1,589.36 Mbps
AXe 6Ghz	NOTE			Not adding packet capture, anonymize_ap is enabled.
BE 2.4Ghz SU-MIMO Sta-1 Baseline	INFO			Download Rate: 40.04 Mbps STA-RSSI Data/Beacon: -20/-21 Rx-Rate: 143.3M Tx-Rate: 29.2M 802.11bgn-AX-20-1x1 6
BE 2.4Ghz SU-MIMO Sta-2 Baseline	INFO			Download Rate: 55.67 Mbps STA-RSSI Data/Beacon: -21/-20 Rx-Rate: 143.3M Tx-Rate: 143.3M 802.11bgn-AX-20-1x1 6
BE 2.4Ghz SU-MIMO Sta-3 Baseline	INFO			Download Rate: 57.23 Mbps STA-RSSI Data/Beacon: -24/-30 Rx-Rate: 143.3M Tx-Rate: 143.3M 802.11bgn-AX-20-1x1 6
BE 2.4Ghz MU-MIMO Sta1 - 3 Total	INFO			Total Download Rate: 46.12 Mbps Sta-1 Download Rate: 13.89 Mbps STA-RSSI Data/Beacon: -20/-21 Rx-Rate: 129M Tx-Rate: 143.3M 802.11bgn-AX-20-1x1 6 Sta-2 Download Rate: 15.97 Mbps STA-RSSI Data/Beacon: -21/-20 Rx-Rate: 143.3M Tx-Rate: 143.3M 802.11bgn-AX-20-1x1 6 Sta-3 Download Rate: 16.26 Mbps STA-RSSI Data/Beacon: -23/-30 Rx-Rate: 143.3M Tx-Rate: 143.3M 802.11bgn-AX-20-1x1 6
BE 2.4Ghz MU-MIMO-Throughput	FAIL	46	69	Requires: 68.82 Mbps Reported: 46.12 Mbps
BE 2.4Ghz	NOTE			Not adding packet capture, anonymize_ap is enabled.
BE 5Ghz SU-MIMO Sta-1 Baseline	INFO			Download Rate: 548.69 Mbps STA-RSSI Data/Beacon: -32/-27 Rx-Rate: 720.5M Tx-Rate: 720.5M 802.11an-BE-80-1x1 36
BE 5Ghz SU-MIMO Sta-2 Baseline	INFO			Download Rate: 542.27 Mbps STA-RSSI Data/Beacon: -37/-30 Rx-Rate: 720.5M Tx-Rate: 720.5M 802.11an-BE-80-1x1 36
BE 5Ghz SU-MIMO Sta-3 Baseline	INFO			Download Rate: 553.92 Mbps STA-RSSI Data/Beacon: -33/-28 Rx-Rate: 720.5M Tx-Rate: 720.5M 802.11an-BE-80-1x1 36
BE 5Ghz MU-MIMO Sta1 - 3 Total	INFO			Total Download Rate: 1,125.56 Mbps Sta-1 Download Rate: 389.65 Mbps STA-RSSI Data/Beacon: -33/-27 Rx-Rate: 600.4M Tx-Rate: 720.5M 802.11an-BE-80-1x1 36 Sta-2 Download Rate: 392.56 Mbps STA-RSSI Data/Beacon: -37/-31 Rx-Rate: 600.4M Tx-Rate: 720.5M 802.11an-BE-80-1x1 36 Sta-3 Download Rate: 343.35 Mbps

				STA-RSSI Data/Beacon: -33/-28 Rx-Rate: 480.3M Tx-Rate: 720.5M 802.11an-BE-80-1x1 36
BE 5Ghz MU-MIMO-Throughput	PASS	1,126	740	Requires: 740.20 Mbps Reported: 1,125.56 Mbps
BE 5Ghz	NOTE			Not adding packet capture, anonymize_ap is enabled.
BE 6Ghz SU-MIMO Sta-1 Baseline	INFO			Download Rate: 1,219.01 Mbps STA-RSSI Data/Beacon: -40/-37 Rx-Rate: 2.402G Tx-Rate: 2.594G 802.11a-BE-320-1x1 37e
BE 6Ghz SU-MIMO Sta-2 Baseline	INFO			Download Rate: 2,146.98 Mbps STA-RSSI Data/Beacon: -41/-37 Rx-Rate: 6M Tx-Rate: 576.4M 802.11a-BE-320-1x1 37e
BE 6Ghz SU-MIMO Sta-3 Baseline	INFO			Download Rate: 1,840.65 Mbps STA-RSSI Data/Beacon: -40/-33 Rx-Rate: 2.594G Tx-Rate: 2.882G 802.11a-BE-320-1x1 37e
BE 6Ghz MU-MIMO Sta1 - 3 Total	INFO			Total Download Rate: 2,087.11 Mbps Sta-1 Download Rate: 559.88 Mbps STA-RSSI Data/Beacon: -40/-37 Rx-Rate: 1.73G Tx-Rate: 2.882G 802.11a-BE-320-1x1 37e Sta-2 Download Rate: 931.82 Mbps STA-RSSI Data/Beacon: -38/-37 Rx-Rate: 576.4M Tx-Rate: 2.594G 802.11a-BE-320-1x1 37e Sta-3 Download Rate: 595.41 Mbps STA-RSSI Data/Beacon: -39/-34 Rx-Rate: 2.161G Tx-Rate: 2.882G 802.11a-BE-320-1x1 37e
BE 6Ghz MU-MIMO-Throughput	FAIL	2,087	2,343	Requires: 2,342.99 Mbps Reported: 2,087.11 Mbps
BE 6Ghz	NOTE			Not adding packet capture, anonymize_ap is enabled.

CSV Data for 6.4.3 Downlink MU-MIMO Performance Test



Collected CSV Data: CSV: 6.4.3 Downlink MU-MIMO Performance Test AC 5Ghz 3-station MU-MIMO Download

AC 5Ghz 3 station MU-MIMO Download Snapshot

								Last				

Port	Tx-Bps 1m	Rx-Bps 1m	Tx-Fail %	Tx Link-Rate	Rx Link-Rate	Mode	Channel	CX-Time (ms)	RSSI (dBm)	AP	IP	MAC
1.4.14 wlan0	2.68 Mbps	304.588 Mbps	0.115	433.3 Mbps	433.3 Mbps	802.11an-AC 80 1x1	36	101	-33	[hidden]	192.168.1.202	e4:60:17:65:83:8f
1.4.15 wlan4	1.386 Mbps	161.609 Mbps	0.043	433.3 Mbps	433.3 Mbps	802.11an-AC 80 1x1	36	102	-37	[hidden]	192.168.1.107	e4:60:17:66:21:5f
1.4.16 wlan8	1.881 Mbps	199.241 Mbps	0.068	433.3 Mbps	433.3 Mbps	802.11an-AC 80 1x1	36	171	-33	[hidden]	192.168.1.102	e4:60:17:66:21:5a

Port	Tx-Bps 1m	Rx-Bps 1m	Link-Rate	IP	MAC
1.3.2 eth2	547.594 Mbps	3.967 Mbps	10 Gbps	192.168.1.220	9c:69:b4:63:76:c4

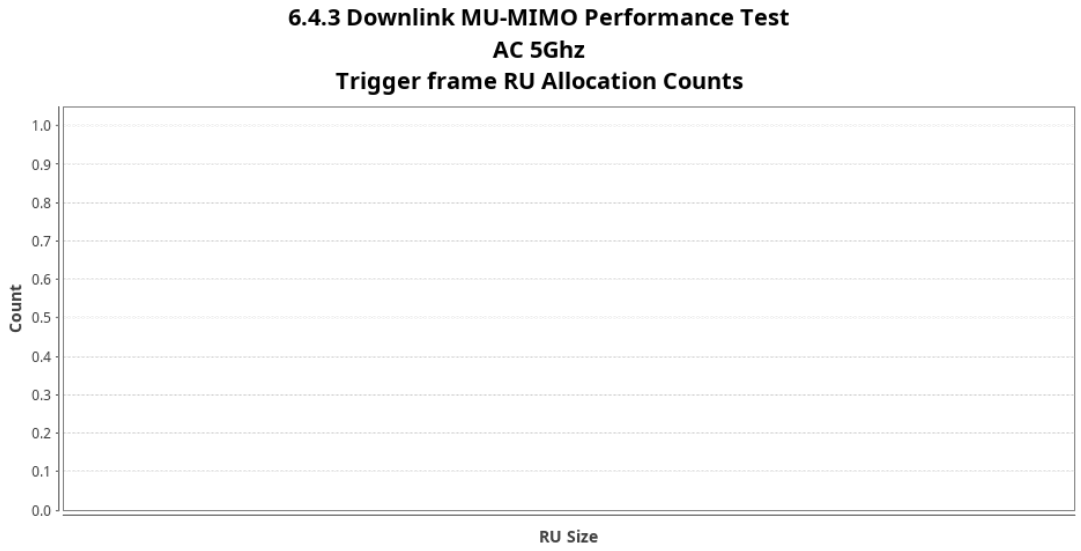
Endpoint	Tx-Bps 1m	Rx-Bps 1m	TxPkts	RxPkts	RX Latency (ms)	Round-Trip Latency (ms)	Jitter	Rx Packet Loss %	Rx OOO %
cv_tcp-3.2-4.wlan0--1.0.0-A	0 bps	291.219 Mbps	0	33594	1,448	1,448	1,092	0	0
cv_tcp-3.2-4.wlan0--1.0.0-B	292.007 Mbps	0 bps	33275	0	0	1,448	0	0	0
cv_tcp-3.2-4.wlan4--1.0.0-A	0 bps	292.547 Mbps	0	34195	1,411	1,411	498	0	0
cv_tcp-3.2-4.wlan4--1.0.0-B	293.721 Mbps	0 bps	33365	0	0	1,411	0	0	0
cv_tcp-3.2-4.wlan8--1.0.0-A	0 bps	218.883 Mbps	0	29709	1,536	1,536	358	0	0
cv_tcp-3.2-4.wlan8--1.0.0-B	221.898 Mbps	0 bps	29572	0	0	1,536	0	0	0

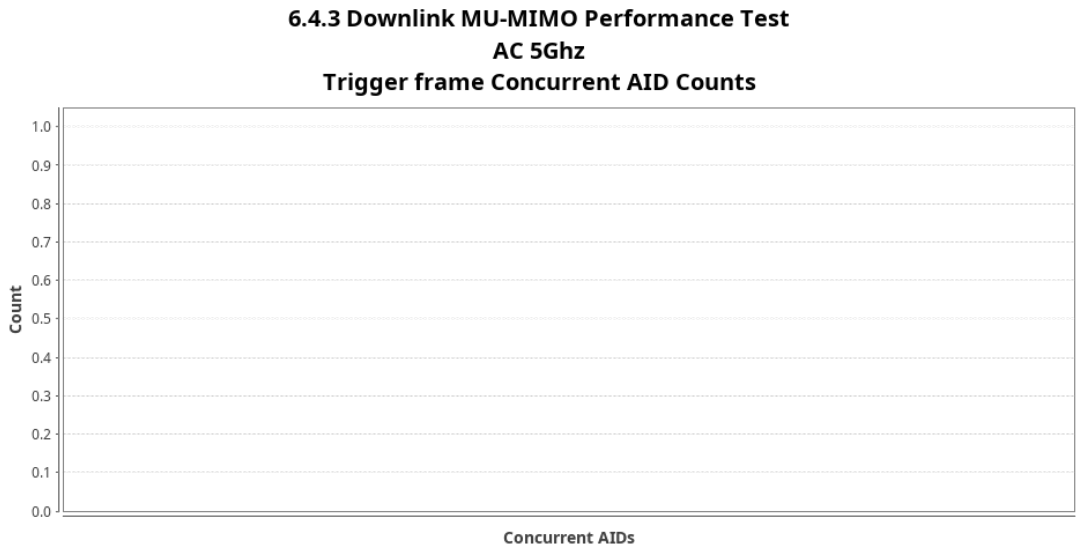
Trigger frame Bandwidth Report: Last few frames.

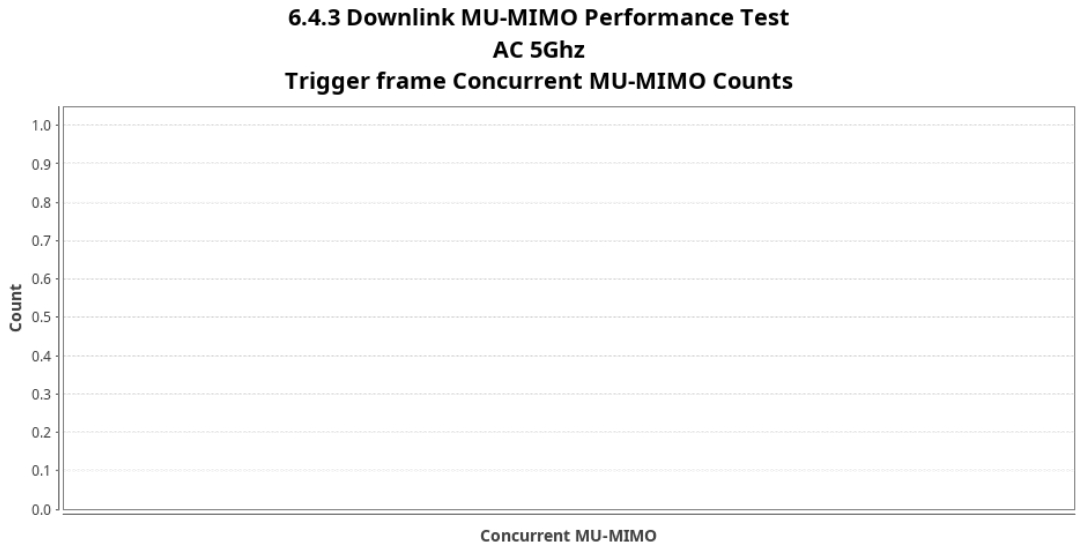
Each row shows the reported bandwidth allocation. Each cell in the row indicates the AID (station identifier) and its respective bandwidth. Duplicated (same bandwidth allocation) sequences of frames are skipped, with only the last one being reported.

BSRP frames are currently skipped.

Frame	MU-MIMO SS	Dups	Type	0-8	9-17	18-26	27-36	37-45	46-54	55-63	64-73	74-82	83-91	92-100	101-110	111-119	120-128	129-137	138-147







Full OFDMA Trigger Packet Capture HTML report: AC 5Ghz

Collected CSV Data: CSV: 6.4.3 Downlink MU-MIMO Performance Test AX 2.4Ghz 3-station MU-MIMO Download

AX 2.4Ghz 3 station MU-MIMO Download Snapshot

Port	Tx-Bps 1m	Rx-Bps 1m	Tx-Fail %	Tx Link-Rate	Rx Link-Rate	Mode	Channel	Last CX-Time (ms)	RSSI (dBm)	AP	IP	MAC
1.4.14 wlan0	216.647 Kbps	10.712 Mbps	0.66	143.3 Mbps	129 Mbps	802.11bgn-AX 20 1x1	6	85	-20	[hidden]	192.168.1.202	e4:60:17:65:83:8f
1.4.15 wlan4	223.7 Kbps	11.156 Mbps	0.209	143.3 Mbps	143.3 Mbps	802.11bgn-AX 20 1x1	6	92	-21	[hidden]	192.168.1.107	e4:60:17:66:21:5f
1.4.16 wlan8	219.081 Kbps	11.349 Mbps	0.036	29.2 Mbps	143.3 Mbps	802.11bgn-AX 20 1x1	6	55	-23	[hidden]	192.168.1.102	e4:60:17:66:21:5a

Port	Tx-Bps 1m	Rx-Bps 1m	Link-Rate	IP	MAC
1.3.2 eth2	35.151 Mbps	479.243 Kbps	10 Gbps	192.168.1.220	9c:69:b4:63:76:c4

Endpoint	Tx-Bps 1m	Rx-Bps 1m	TxPkts	RxPkts	RX Latency (ms)	Round-Trip Latency (ms)	Jitter	Rx Packet Loss %	Rx OOO %
cv_tcp-3.2-4.wlan0--1.0.0-A	0 bps	11.166 Mbps	0	1292	44,645	44,645	9,340	21.840	0
cv_tcp-3.2-4.wlan0--1.0.0-B	13.398 Mbps	0 bps	1685	0	0	44,645	0	0	0
cv_tcp-3.2-4.wlan4--1.0.0-A	0 bps	12.067 Mbps	0	1409	45,638	45,638	2,006	23.005	0
cv_tcp-3.2-4.wlan4--1.0.0-B	14.768 Mbps	0 bps	1830	0	0	45,638	0	0	0
cv_tcp-3.2-4.wlan8--1.0.0-A	0 bps	12.479 Mbps	0	1453	47,568	47,568	7,277	24.323	0
cv_tcp-3.2-4.wlan8--1.0.0-B	15.703 Mbps	0 bps	1920	0	0	47,568	0	0	0

Trigger frame Bandwidth Report: Last few frames.

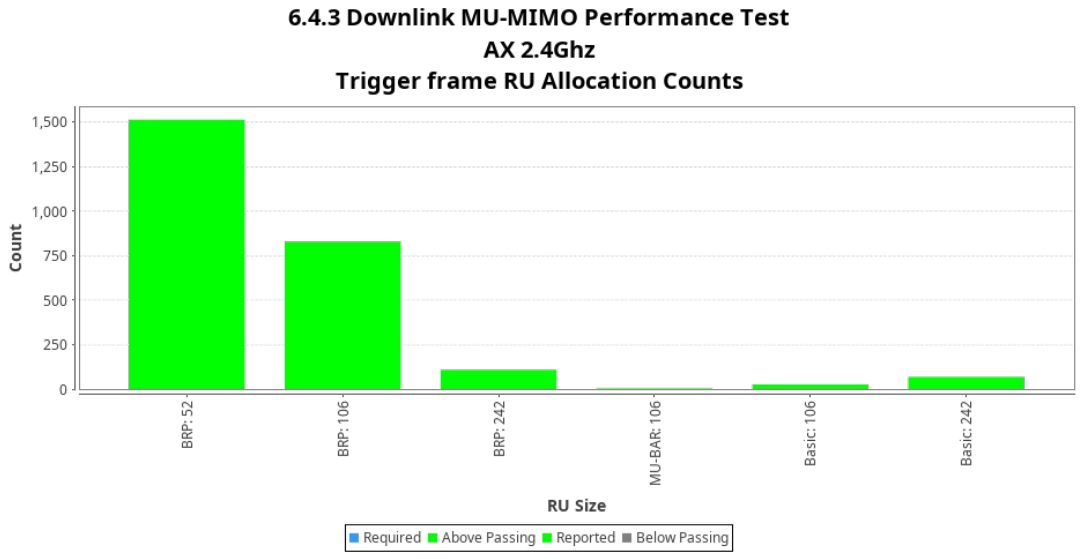
Each row shows the reported bandwidth allocation. Each cell in the row indicates the AID (station identifier) and its respective bandwidth. Duplicated (same bandwidth allocation) sequences of frames are skipped, with only the last one being reported.

BSRP frames are currently skipped.

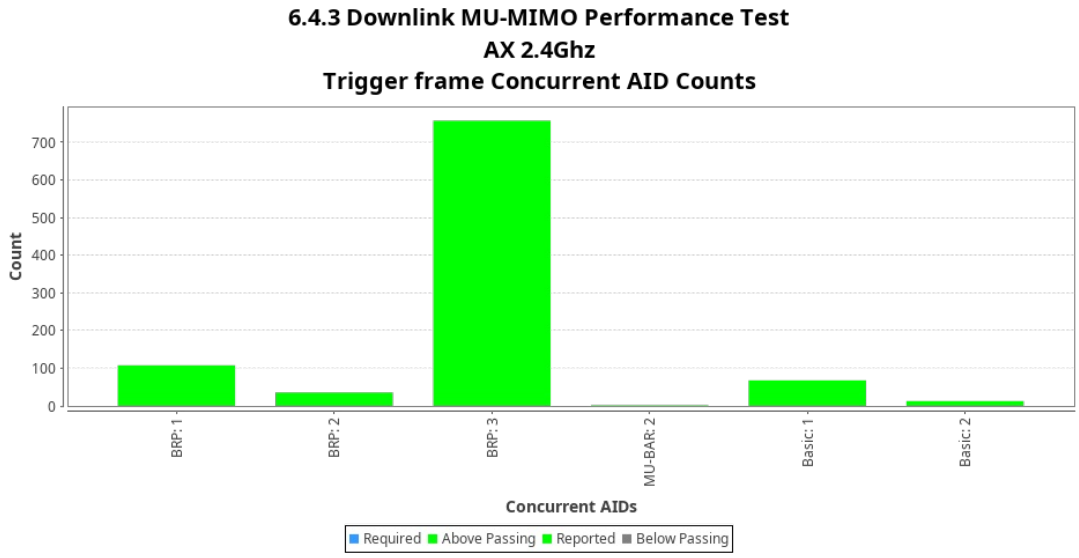
Frame	MU-MIMO SS	Dups	Type	0-8	9-17	18-26	27-36	37-45	46-54	55-63	64-73	74-82	83-91	92-100	101-110	111-119	120-128	129-137	138-147
32074	1	0	Basic	2 106 tones -1 3 106 tones	-1														
32076	1	1	BRP	1 52 tones 2 52 tones -1 3 106 tones	-1														
32133	1	0	Basic	1 242 tones	-1														
32135	1	0	BRP	2 52 tones 1 52 tones -1 3 106 tones	-1														
32196	1	1	BRP	1 52 tones 2 52 tones -1 3 106 tones	-1														
				1 52 3 52 2 106															

32300	1	4	BRP	tones	tones	-1	tones	-1
32434	1	0	BRP	2 242 tones				-1
32453	1	0	BRP	3 52 tones	1 52 tones	-1	2 106 tones	-1
32487	1	0	BRP	1 52 tones	2 52 tones	-1	3 106 tones	-1
32523	1	0	BRP	2 52 tones	1 52 tones	-1	3 106 tones	-1
32601	1	0	BRP	1 52 tones	3 52 tones	-1	2 106 tones	-1
32657	1	3	BRP	2 52 tones	1 52 tones	-1	3 106 tones	-1
32796	1	2	BRP	3 52 tones	2 52 tones	-1	1 106 tones	-1
32839	1	2	BRP	2 52 tones	3 52 tones	-1	1 106 tones	-1
32972	1	0	BRP	3 52 tones	2 52 tones	-1	1 106 tones	-1
32975	1	0	BRP	1 52 tones	3 52 tones	-1	2 106 tones	-1
33048	1	0	BRP	1 52 tones	2 52 tones	-1	3 106 tones	-1
33136	1	2	BRP	1 52 tones	3 52 tones	-1	2 106 tones	-1
33208	1	0	BRP	1 52 tones	3 52 tones	-1	2 106 tones	-1

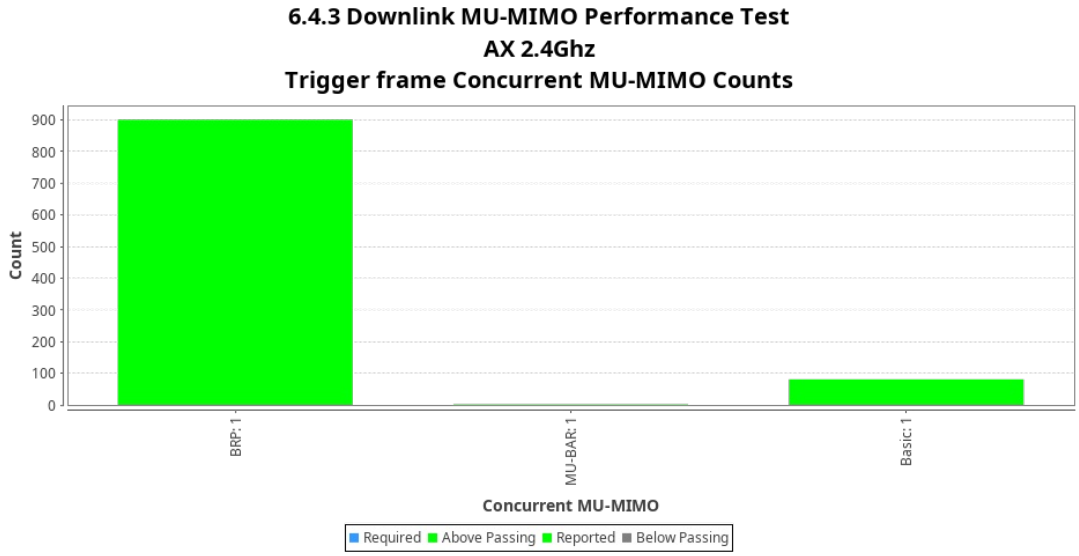
CSV Data for 6.4.3 Downlink MU-MIMO Performance Test AX 2.4Ghz Trigger frame RU Allocation Counts



CSV Data for 6.4.3 Downlink MU-MIMO Performance Test AX 2.4Ghz Trigger frame Concurrent AID Counts



CSV Data for 6.4.3 Downlink MU-MIMO Performance Test AX 2.4Ghz Trigger frame Concurrent MU-MIMO Counts



Full OFDMA Trigger Packet Capture HTML report: AX 2.4Ghz

Collected CSV Data: CSV: 6.4.3 Downlink MU-MIMO Performance Test AX 5Ghz 3-station MU-MIMO Download

AX 5Ghz 3 station MU-MIMO Download Snapshot

Port	Tx-Bps 1m	Rx-Bps 1m	Tx-Fail %	Tx Link-Rate	Rx Link-Rate	Mode	Channel	Last CX-Time (ms)	RSSI (dBm)	AP	IP	MAC
1.4.14 wlan0	2.767 Mbps	394.03 Mbps	0.371	600.4 Mbps	600.4 Mbps	802.11an-AX 80 1x1	36	110	-33	[hidden]	192.168.1.202	e4:60:17:65:83:8f
1.4.15 wlan4	2.809 Mbps	405.072 Mbps	0.165	600.4 Mbps	540.3 Mbps	802.11an-AX 80 1x1	36	113	-37	[hidden]	192.168.1.107	e4:60:17:66:21:5f
1.4.16 wlan8	2.409 Mbps	325.866 Mbps	0.038	600.4 Mbps	432.4 Mbps	802.11an-AX 80 1x1	36	123	-33	[hidden]	192.168.1.102	e4:60:17:66:21:5a

Port	Tx-Bps 1m	Rx-Bps 1m	Link-Rate	IP	MAC
1.3.2 eth2	883.159 Mbps	5.129 Mbps	10 Gbps	192.168.1.220	9c:69:b4:63:76:c4

Endpoint	Tx-Bps 1m	Rx-Bps 1m	TxPkts	RxPkts	RX Latency (ms)	Round-Trip Latency (ms)	Jitter	Rx Packet Loss %	Rx OOO %
cv_tcp-3.2-4.wlan0--1.0.0-A	0 bps	391.224 Mbps	0	45128	1,004	1,004	411	0	0
cv_tcp-3.2-4.wlan0--1.0.0-B	391.279 Mbps	0 bps	45370	0	0	1,004	0	0	0
cv_tcp-3.2-4.wlan4--1.0.0-A	0 bps	388.494 Mbps	0	45350	1,083	1,083	531	0	0
cv_tcp-3.2-4.wlan4--1.0.0-B	388.301 Mbps	0 bps	45145	0	0	1,083	0	0	0
cv_tcp-3.2-4.wlan8--1.0.0-A	0 bps	319.705 Mbps	0	37530	1,445	1,445	1,350	0	0
cv_tcp-3.2-4.wlan8--1.0.0-B	319.681 Mbps	0 bps	37220	0	0	1,445	0	0	0

Trigger frame Bandwidth Report: Last few frames.

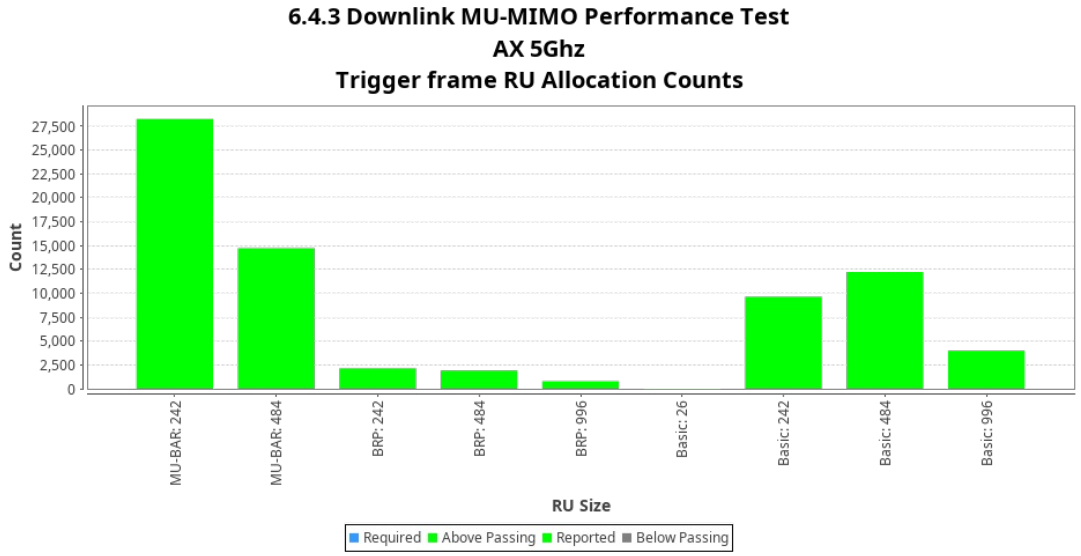
Each row shows the reported bandwidth allocation. Each cell in the row indicates the AID (station identifier) and its respective bandwidth. Duplicated (same bandwidth allocation) sequences of frames are skipped, with only the last one being reported.

BSRP frames are currently skipped.

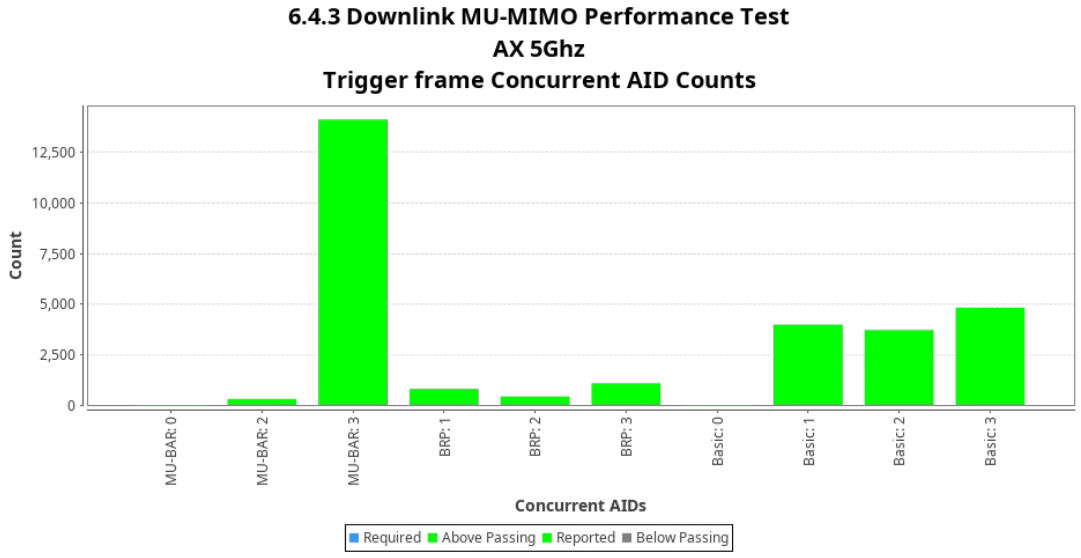
Frame	MU-MIMO SS	Dups	Type	0-8	9-17	18-26	27-36	37-45	46-54	55-63	64-73	74-82	83-91	92-100	101-110	111-119	120-128	129-137	138-147
55686	1	0	Basic	3 996 tones				-1											
55689	1	0	BRP	4 484 tones		3 484 tones		-1											
55690	1	2	MU-BAR	3 484 tones		2 242 tones	4 242 tones	-1											
55695	1	1	Basic	4 484 tones		3 484 tones		-1											
55699	1	0	Basic	3 996 tones				-1											
55701	1	0	BRP	2 996 tones				-1											
55702	1	0	MU-BAR	4 484 tones		2 242 tones	3 242 tones	-1											
55704	1	0	Basic	4 996 tones				-1											
55706	1	0	Basic	4 484 tones		3 484 tones		-1											
55708	1	2	MU-BAR	4 484 tones		2 242 tones	3 242 tones	-1											
55714	1	2	MU-BAR	3 484 tones		2 242 tones	4 242 tones	-1											
55719	1	0	Basic	3 996 tones				-1											
55722	1	0	Basic	4 996 tones				-1											
55725	1	0	BRP	4 484		3 484 tones		-1											

				tones			
55728	1	0	Basic	2 484 tones	3 484 tones		-1
55730	1	0	Basic	2 484 tones	4 242 tones	3 242 tones	-1
55732	1	0	Basic	4 996 tones			-1
55734	1	0	MU-BAR	4 484 tones	2 242 tones	3 242 tones	-1
55736	1	0	MU-BAR	4 484 tones	2 242 tones	3 242 tones	-1

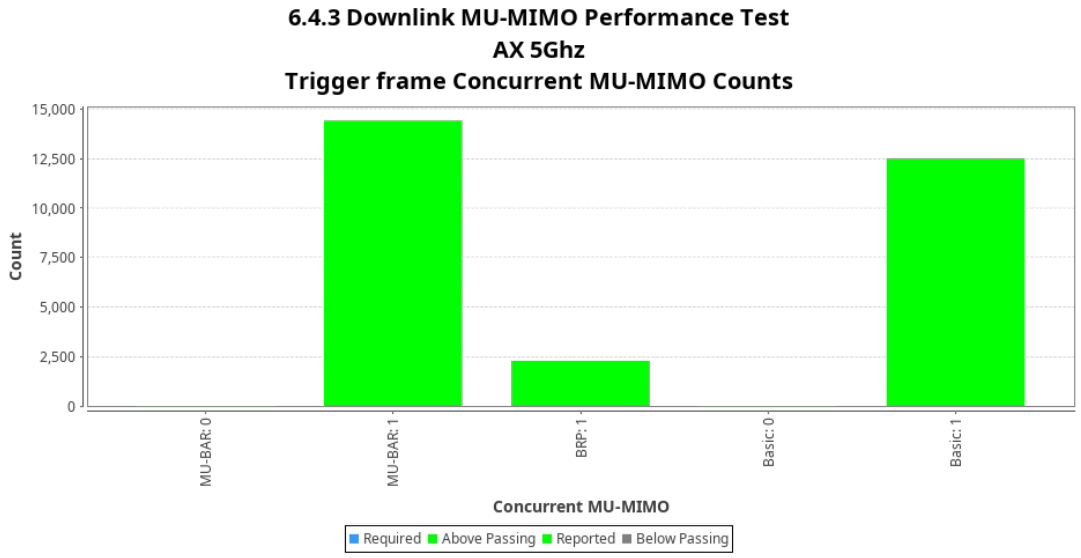
CSV Data for 6.4.3 Downlink MU-MIMO Performance Test AX 5Ghz Trigger frame RU Allocation Counts



CSV Data for 6.4.3 Downlink MU-MIMO Performance Test AX 5Ghz Trigger frame Concurrent AID Counts



CSV Data for 6.4.3 Downlink MU-MIMO Performance Test AX 5Ghz Trigger frame Concurrent MU-MIMO Counts



Full OFDMA Trigger Packet Capture HTML report: AX 5Ghz

Collected CSV Data: CSV: 6.4.3 Downlink MU-MIMO Performance Test AXe 6Ghz 3-station MU-MIMO Download

AXe 6Ghz 3 station MU-MIMO Download Snapshot

Port	Tx-Bps 1m	Rx-Bps 1m	Tx-Fail %	Tx Link-Rate	Rx Link-Rate	Mode	Channel	Last CX-Time (ms)	RSSI (dBm)	AP	IP	MAC
1.4.14 wlan0	1.764 Mbps	396.604 Mbps	0.379	245 Mbps	720.6 Mbps	802.11a-AX 160 1x1	227	107	-42	[hidden]	192.168.1.202	e4:60:17:65:83:8f
1.4.15 wlan4	1.615 Mbps	432.953 Mbps	0.083	1200.9 Mbps	1.081 Gbps	802.11a-AX 160 1x1	227	106	-43	[hidden]	192.168.1.107	e4:60:17:66:21:5f
1.4.16 wlan8	1.952 Mbps	363.92 Mbps	0.566	1200.9 Mbps	1.081 Gbps	802.11a-AX 160 1x1	227	129	-43	[hidden]	192.168.1.102	e4:60:17:66:21:5a

Port	Tx-Bps 1m	Rx-Bps 1m	Link-Rate	IP	MAC
1.3.2 eth2	1.652 Gbps	5.739 Mbps	10 Gbps	192.168.1.220	9c:69:b4:63:76:c4

Endpoint	Tx-Bps 1m	Rx-Bps 1m	TxPkts	RxPkts	RX Latency (ms)	Round-Trip Latency (ms)	Jitter	Rx Packet Loss %	Rx OOO %
cv_tcp-3.2-4.wlan0--1.0.0-A	0 bps	536.312 Mbps	0	61721	821	821	437	0	0
cv_tcp-3.2-4.wlan0--1.0.0-B	536.017 Mbps	0 bps	61695	0	0	821	0	0	0
cv_tcp-3.2-4.wlan4--1.0.0-A	0 bps	570.124 Mbps	0	67591	998	998	1,369	0	0
cv_tcp-3.2-4.wlan4--1.0.0-B	570.194 Mbps	0 bps	66440	0	0	998	0	0	0

cv_tcp-3.2-4.wlan8--1.0.0-A	0 bps	482.82 Mbps	0	58078	1,213	1,213	634	0	0
cv_tcp-3.2-4.wlan8--1.0.0-B	486.362 Mbps	0 bps	55880	0	0	1,213	0	0	0

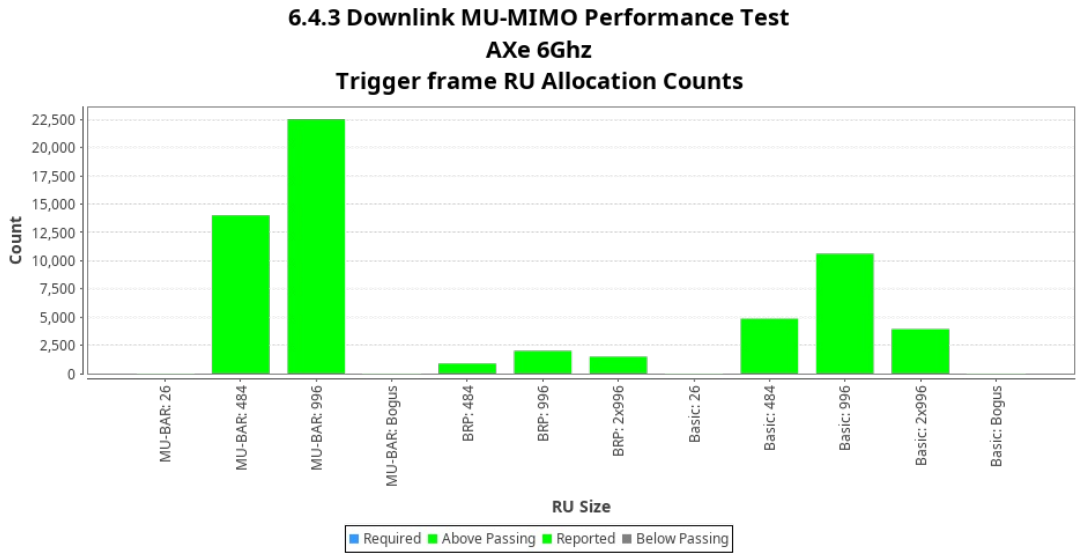
Trigger frame Bandwidth Report: Last few frames.

Each row shows the reported bandwidth allocation. Each cell in the row indicates the AID (station identifier) and its respective bandwidth. Duplicated (same bandwidth allocation) sequences of frames are skipped, with only the last one being reported.

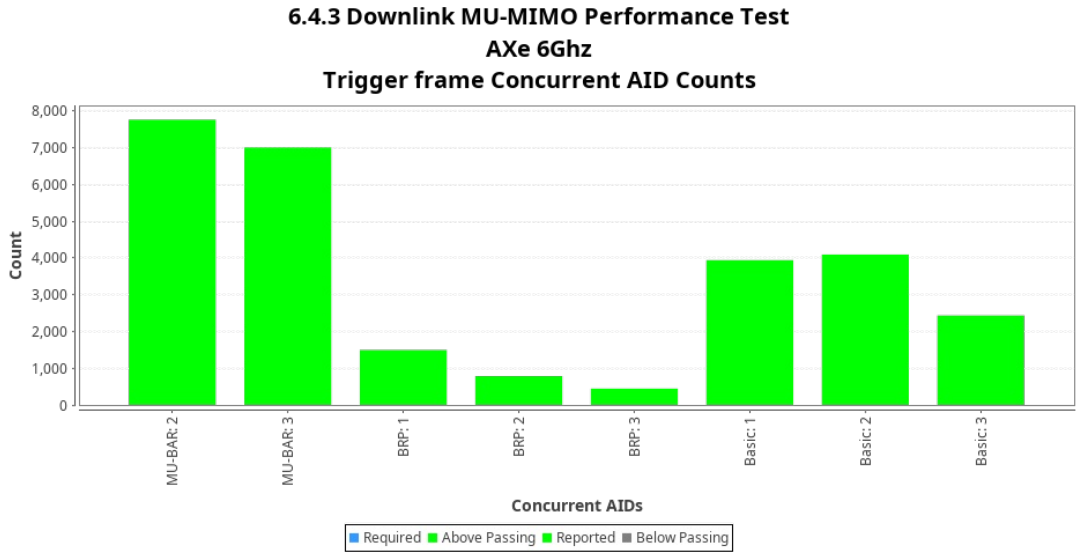
BSRP frames are currently skipped.

Frame	MU-MIMO SS	Dups	Type	0-8	9-17	18-26	27-36	37-45	46-54	55-63	64-73	74-82	83-91	92-100	101-110	111-119	120-128	129-137	138-147
47787	1	0	BRP	3 996 tones				2 996 tones				-1							
47788	1	0	MU-BAR	2 996 tones				3 484 tones		4 484 tones		-1							
47789	1	0	Basic	2 996 tones				4 996 tones				-1							
47791	1	2	MU-BAR	2 996 tones				3 484 tones		4 484 tones		-1							
47794	1	0	Basic	3 1992 tones								-1							
47796	1	0	MU-BAR	2 996 tones				3 484 tones		4 484 tones		-1							
47797	1	0	Basic	2 996 tones				4 996 tones				-1							
47799	1	0	MU-BAR	2 996 tones				4 484 tones		3 484 tones		-1							
47801	1	0	Basic	2 1992 tones								-1							
47803	1	0	Basic	3 996 tones				2 996 tones				-1							
47805	1	0	Basic	3 996 tones				4 996 tones				-1							
47808	1	0	BRP	4 1992 tones								-1							
47809	1	2	MU-BAR	2 996 tones				4 484 tones		3 484 tones		-1							
47813	1	0	Basic	2 996 tones				4 996 tones				-1							
47815	1	0	Basic	4 1992 tones								-1							
47821	1	0	BRP	3 996 tones				2 996 tones				-1							
47822	1	2	MU-BAR	2 996 tones				4 484 tones		3 484 tones		-1							
47825	1	0	Basic	3 996 tones				2 484 tones		4 484 tones		-1							
47827	1	0	Basic	2 996 tones				3 996 tones				-1							

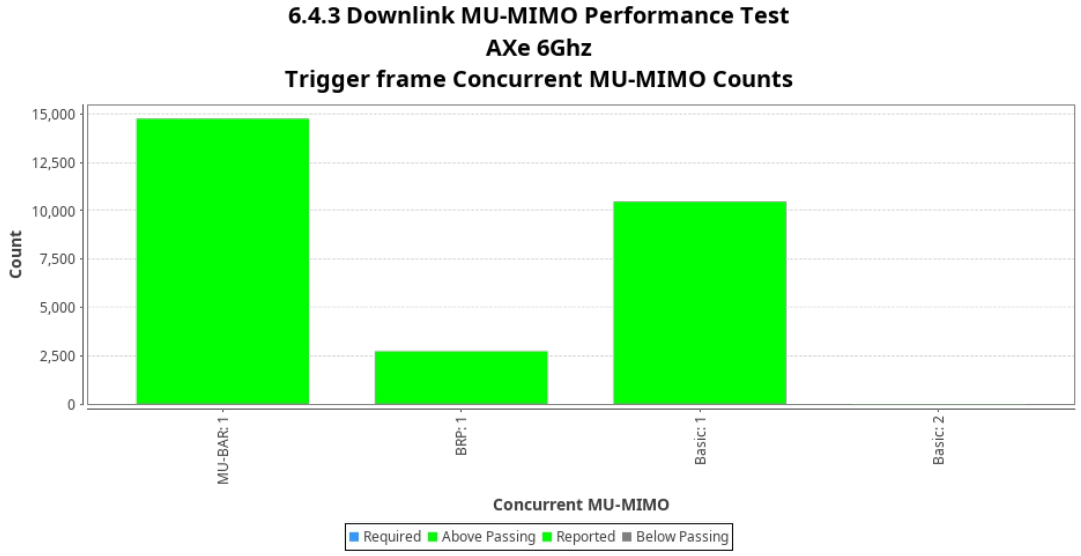
CSV Data for 6.4.3 Downlink MU-MIMO Performance Test AXe 6Ghz Trigger frame RU Allocation Counts



CSV Data for 6.4.3 Downlink MU-MIMO Performance Test AXe 6Ghz Trigger frame Concurrent AID Counts



CSV Data for 6.4.3 Downlink MU-MIMO Performance Test AXe 6Ghz Trigger frame Concurrent MU-MIMO Counts



Full OFDMA Trigger Packet Capture HTML report: AXe 6Ghz

Collected CSV Data: CSV: 6.4.3 Downlink MU-MIMO Performance Test BE 2.4Ghz 3-station MU-MIMO Download

BE 2.4Ghz 3 station MU-MIMO Download Snapshot

Port	Tx-Bps 1m	Rx-Bps 1m	Tx-Fail %	Tx Link-Rate	Rx Link-Rate	Mode	Channel	Last CX-Time (ms)	RSSI (dBm)	AP	IP	MAC
1.4.14 wlan0	236.103 Kbps	12.816 Mbps	0.66	143.3 Mbps	129 Mbps	802.11bgn-AX 20 1x1	6	66	-20	[hidden]	192.168.1.202	e4:60:17:65:83:8f
1.4.15 wlan4	202.964 Kbps	12.979 Mbps	0.304	143.3 Mbps	143.3 Mbps	802.11bgn-AX 20 1x1	6	90	-21	[hidden]	192.168.1.107	e4:60:17:66:21:5f
1.4.16 wlan8	212.265 Kbps	12.975 Mbps	0.04	143.3 Mbps	143.3 Mbps	802.11bgn-AX 20 1x1	6	86	-23	[hidden]	192.168.1.102	e4:60:17:66:21:5a

Port	Tx-Bps 1m	Rx-Bps 1m	Link-Rate	IP	MAC
1.3.2 eth2	40.995 Mbps	482.55 Kbps	10 Gbps	192.168.1.220	9c:69:b4:63:76:c4

Endpoint	Tx-Bps 1m	Rx-Bps 1m	TxPkts	RxPkts	RX Latency (ms)	Round-Trip Latency (ms)	Jitter	Rx Packet Loss %	Rx OOO %
cv_tcp-3.2-4.wlan0--1.0.0-A	0 bps	13.939 Mbps	0	1602	39,165	39,165	8,967	10.358	0
cv_tcp-3.2-4.wlan0--1.0.0-B	14.869 Mbps	0 bps	1815	0	0	39,165	0	0	0
cv_tcp-3.2-4.wlan4--1.0.0-A	0 bps	16.018 Mbps	0	1868	41,548	41,548	4,899	15.475	0
cv_tcp-3.2-4.wlan4--1.0.0-B	17.637 Mbps	0 bps	2210	0	0	41,548	0	0	0
cv_tcp-3.2-4.wlan8--1.0.0-A	0 bps	16.237 Mbps	0	1917	38,066	38,066	4,460	17.371	0
cv_tcp-3.2-4.wlan8--1.0.0-B	19.87 Mbps	0 bps	2320	0	0	38,066	0	0	0

Trigger frame Bandwidth Report: Last few frames.

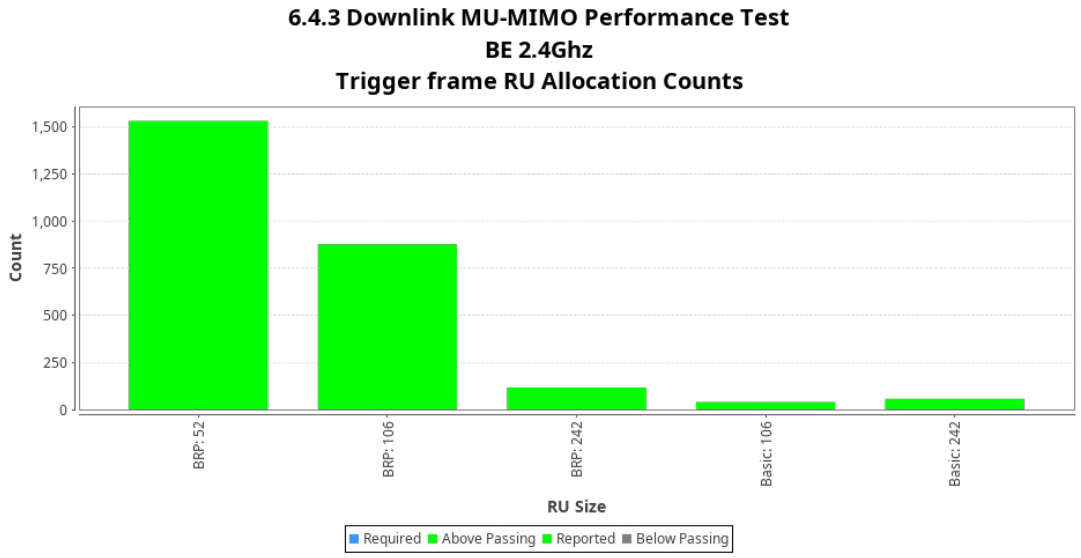
Each row shows the reported bandwidth allocation. Each cell in the row indicates the AID (station identifier) and its respective bandwidth. Duplicated (same bandwidth allocation) sequences of frames are skipped, with only the last one being reported.

BSRP frames are currently skipped.

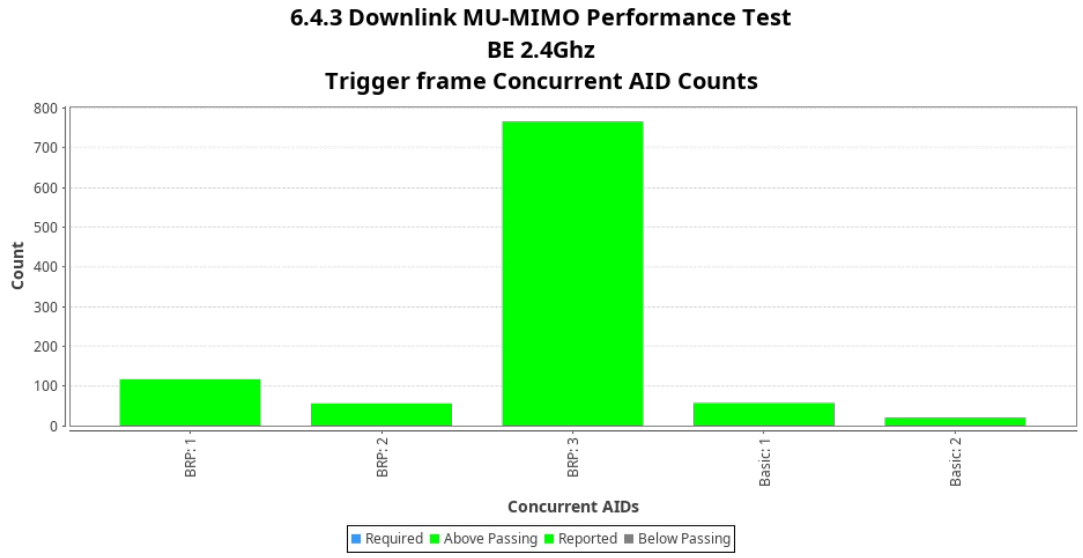
Frame	MU-MIMO SS	Dups	Type	0-8	9-17	18-26	27-36	37-45	46-54	55-63	64-73	74-82	83-91	92-100	101-110	111-119	120-128	129-137	138-147
38116	1	2	BRP	2 242 tones	-1														
38143	1	0	BRP	1 106 tones	-1	3 106 tones	-1												
38205	1	0	BRP	1 52 tones	2 52 tones	-1	3 106 tones	-1											
38217	1	0	Basic	1 242 tones	-1														

38265	1	2	BRP	1 52 tones	2 52 tones	-1	3 106 tones	-1
38409	1	2	BRP	2 242 tones				-1
38431	1	0	BRP	1 106 tones		-1	3 106 tones	-1
38455	1	0	BRP	2 242 tones				-1
38493	1	0	BRP	1 106 tones		-1	3 106 tones	-1
38509	1	0	BRP	2 242 tones				-1
38539	1	0	BRP	1 52 tones	2 52 tones	-1	3 106 tones	-1
38599	1	2	BRP	3 52 tones	1 52 tones	-1	2 106 tones	-1
38747	1	0	BRP	1 52 tones	3 52 tones	-1	2 106 tones	-1
38772	1	1	BRP	2 242 tones				-1
38790	1	0	BRP	3 52 tones	1 52 tones	-1	2 106 tones	-1
38822	1	0	BRP	2 52 tones	3 52 tones	-1	1 106 tones	-1
38882	1	0	Basic	2 242 tones				-1
38902	1	2	BRP	1 52 tones	3 52 tones	-1	2 106 tones	-1
39048	1	0	BRP	1 52 tones	3 52 tones	-1	2 106 tones	-1

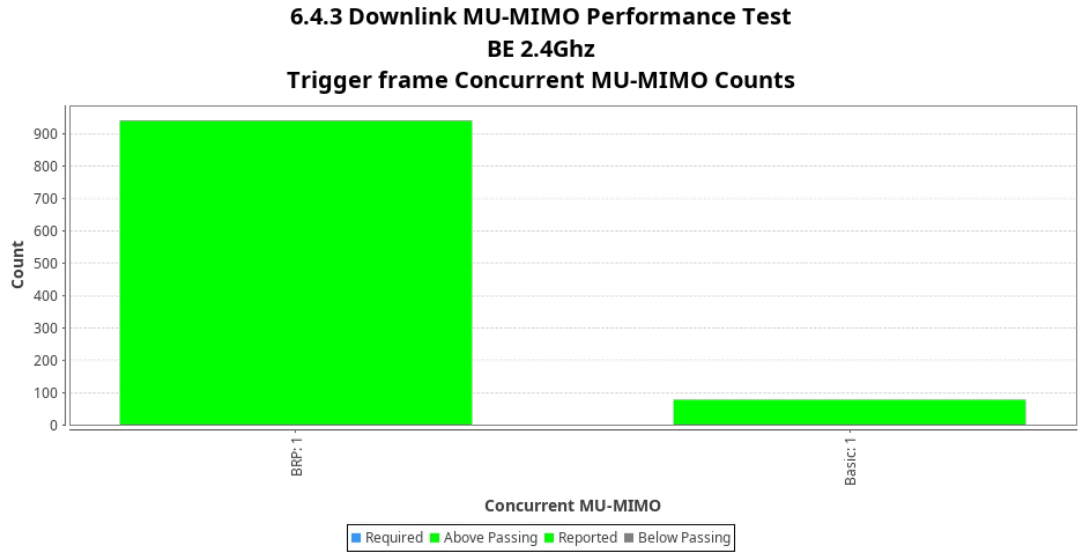
CSV Data for 6.4.3 Downlink MU-MIMO Performance Test BE 2.4Ghz Trigger frame RU Allocation Counts



CSV Data for 6.4.3 Downlink MU-MIMO Performance Test BE 2.4Ghz Trigger frame Concurrent AID Counts



CSV Data for 6.4.3 Downlink MU-MIMO Performance Test BE 2.4Ghz Trigger frame Concurrent MU-MIMO Counts



Full OFDMA Trigger Packet Capture HTML report: BE 2.4Ghz

Collected CSV Data: CSV: 6.4.3 Downlink MU-MIMO Performance Test BE 5Ghz 3-station MU-MIMO Download

BE 5Ghz 3 station MU-MIMO Download Snapshot

Port	Tx-Bps 1m	Rx-Bps 1m	Tx-Fail %	Tx Link-Rate	Rx Link-Rate	Mode	Channel	Last CX-Time (ms)	RSSI (dBm)	AP	IP	MAC
1.4.14 wlan0	916.67 Kbps	220.193 Mbps	1.172	720.5 Mbps	600.4 Mbps	802.11an-BE 80 1x1	36	121	-33	[hidden]	192.168.1.202	e4:60:17:65:83:8f
1.4.15 wlan4	823.309 Kbps	228.842 Mbps	3.219	720.5 Mbps	600.4 Mbps	802.11an-BE 80 1x1	36	115	-37	[hidden]	192.168.1.107	e4:60:17:66:21:5f
1.4.16 wlan8	1.611 Mbps	344.027 Mbps	0.363	720.5 Mbps	480.3 Mbps	802.11an-BE 80 1x1	36	103	-33	[hidden]	192.168.1.102	e4:60:17:66:21:5a

Port	Tx-Bps 1m	Rx-Bps 1m	Link-Rate	IP	MAC
1.3.2 eth2	898.27 Mbps	2.98 Mbps	10 Gbps	192.168.1.220	9c:69:b4:63:76:c4

Endpoint	Tx-Bps 1m	Rx-Bps 1m	TxPkts	RxPkts	RX Latency (ms)	Round-Trip Latency (ms)	Jitter	Rx Packet Loss %	Rx OOO %
cv_tcp-3.2-4.wlan0--1.0.0-A	0 bps	389.067 Mbps	0	46074	2,519	2,519	1,392	0	0
cv_tcp-3.2-4.wlan0--1.0.0-B	389.225 Mbps	0 bps	45615	0	0	2,519	0	0	0
cv_tcp-3.2-4.wlan4--1.0.0-A	0 bps	392.416 Mbps	0	45715	1,558	1,558	312	0	0
cv_tcp-3.2-4.wlan4--1.0.0-B	392.392 Mbps	0 bps	45905	0	0	1,558	0	0	0
cv_tcp-3.2-4.wlan8--1.0.0-A	0 bps	344.23 Mbps	0	40448	2,905	2,905	999	0	0
cv_tcp-3.2-4.wlan8--1.0.0-B	344.125 Mbps	0 bps	40440	0	0	2,905	0	0	0

Trigger frame Bandwidth Report: Last few frames.

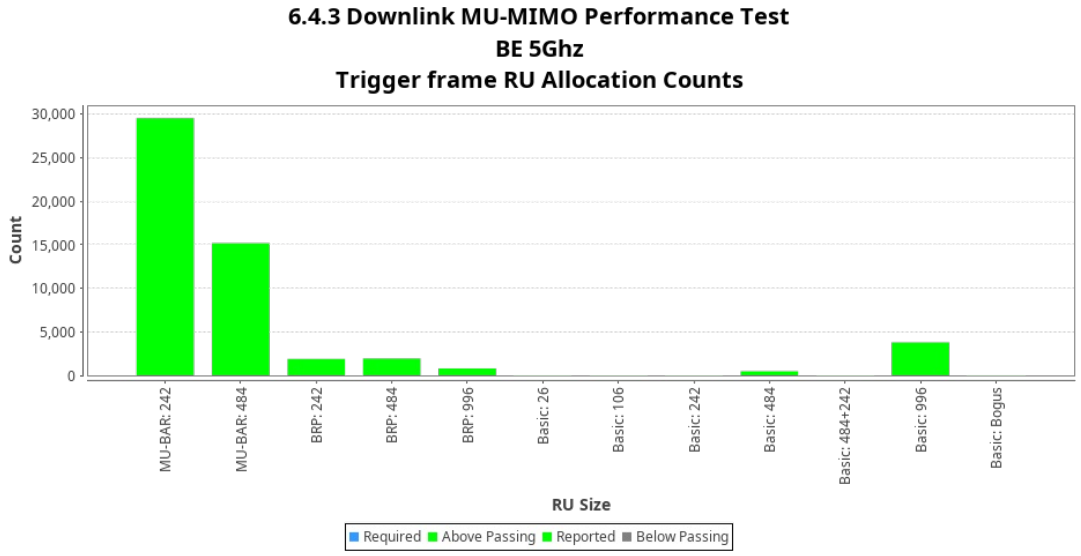
Each row shows the reported bandwidth allocation. Each cell in the row indicates the AID (station identifier) and its respective bandwidth. Duplicated (same bandwidth allocation) sequences of frames are skipped, with only the last one being reported.

BSRP frames are currently skipped.

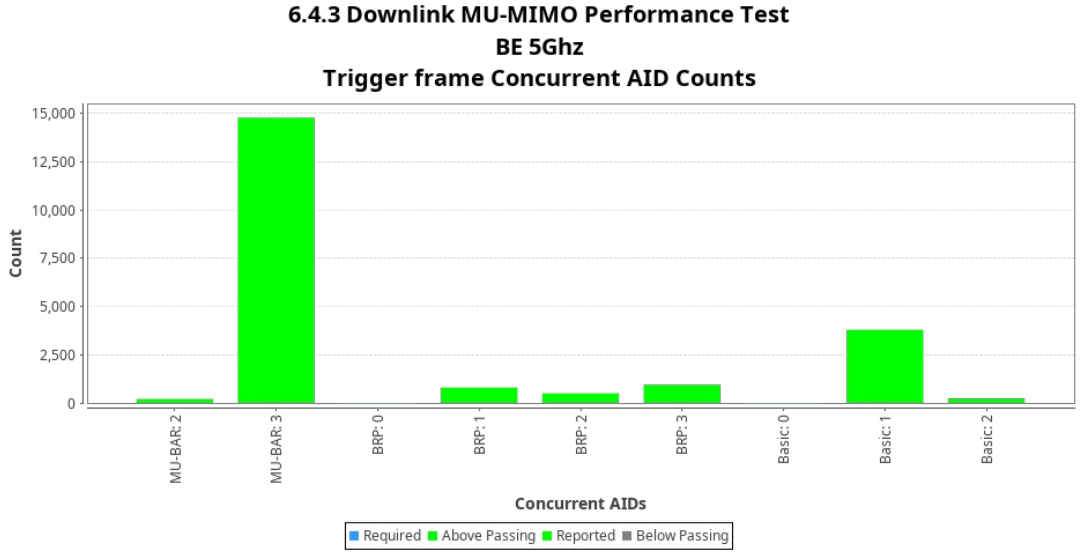
Frame	MU-MIMO SS	Dups	Type	0-8	9-17	18-26	27-36	37-45	46-54	55-63	64-73	74-82	83-91	92-100	101-110	111-119	120-128	129-137	138-147
71057	1	0	BRP	4 242	3 242	2 484		-1											
71058	1	2	MU-BAR	2 484		4 242	3 242	-1											
71067	1	0	Basic	4 996				-1											
71068	1	2	MU-BAR	2 484		4 242	3 242	-1											
71077	1	1	Basic	4 996				-1											
71079	1	8	MU-BAR	3 484		4 242	2 242	-1											
71113	1	0	BRP	4 242	3 242	2 484		-1											
71114	1	0	MU-BAR	2 484		4 242	3 242	-1											
71118	1	1	Basic	4 996				-1											
71128	1	0	BRP	2 996				-1											
71129	1	2	MU-BAR	3 484		4 242	2 242	-1											
71137	1	0	Basic	4 996				-1											
71147	1	5	MU-BAR	3 484		4 242	2 242	-1											

71160	1	1	Basic	4 996				-1
71170	1	0	BRP	4 242	2 242	3 484		-1
71171	1	6	MU-BAR	3 484		4 242	2 242	-1
71201	1	0	Basic	4 996				-1
71209	1	2	MU-BAR	3 484		4 242	2 242	-1
71223	1	0	MU-BAR	3 484		4 242	2 242	-1

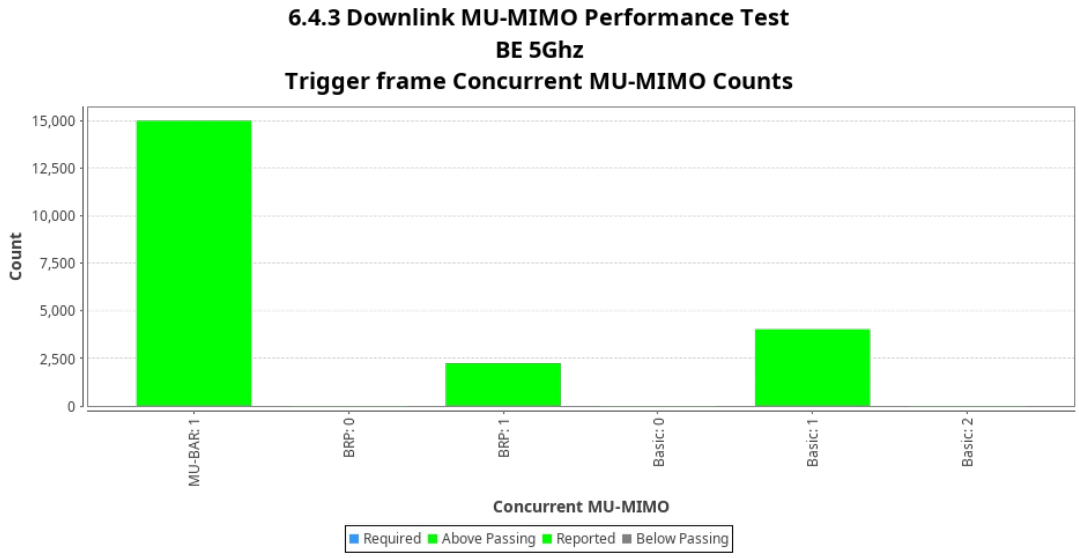
CSV Data for 6.4.3 Downlink MU-MIMO Performance Test BE 5Ghz Trigger frame RU Allocation Counts



CSV Data for 6.4.3 Downlink MU-MIMO Performance Test BE 5Ghz Trigger frame Concurrent AID Counts



CSV Data for 6.4.3 Downlink MU-MIMO Performance Test BE 5Ghz Trigger frame Concurrent MU-MIMO Counts



Full OFDMA Trigger Packet Capture HTML report: BE 5Ghz

Collected CSV Data: CSV: 6.4.3 Downlink MU-MIMO Performance Test BE 6Ghz 3-station MU-MIMO Download

BE 6Ghz 3 station MU-MIMO Download Snapshot

Port	Tx-Bps 1m	Rx-Bps 1m	Tx-Fail %	Tx Link-Rate	Rx Link-Rate	Mode	Channel	Last CX-Time (ms)	RSSI (dBm)	AP	IP	MAC
1.4.14 wlan0	1.235 Mbps	396.409 Mbps	7.305	2882.3 Mbps	1.73 Gbps	802.11a-BE 320 1x1	227	85	-40	[hidden]	192.168.1.202	e4:60:17:65:83:8f
1.4.15 wlan4	1.928 Mbps	654.261 Mbps	1.274	2593.5 Mbps	576.4 Mbps	802.11a-BE 320 1x1	227	79	-38	[hidden]	192.168.1.107	e4:60:17:66:21:5f
1.4.16 wlan8	1.264 Mbps	434.155 Mbps	7.036	2882.3 Mbps	2.161 Gbps	802.11a-BE 320 1x1	227	88	-39	[hidden]	192.168.1.102	e4:60:17:66:21:5a

Port	Tx-Bps 1m	Rx-Bps 1m	Link-Rate	IP	MAC
1.3.2 eth2	2.101 Gbps	5.045 Mbps	10 Gbps	192.168.1.220	9c:69:b4:63:76:c4

Endpoint	Tx-Bps 1m	Rx-Bps 1m	TxPkts	RxPkts	RX Latency (ms)	Round-Trip Latency (ms)	Jitter	Rx Packet Loss %	Rx OOO %
cv_tcp-3.2-4.wlan0--1.0.0-A	0 bps	566.3 Mbps	0	66057	1,848	1,848	293	0	0
cv_tcp-3.2-4.wlan0--1.0.0-B	559.434 Mbps	0 bps	65385	0	0	1,848	0	0	0
cv_tcp-3.2-4.wlan4--1.0.0-A	0 bps	928.241 Mbps	0	108728	1,521	1,521	516	0	0
cv_tcp-3.2-4.wlan4--1.0.0-B	925.717 Mbps	0 bps	110165	0	0	1,521	0	0	0

cv_tcp-3.2-4.wlan8--1.0.0-A	0 bps	593.011 Mbps	0	70390	2,333	2,333	1,411	0	0
cv_tcp-3.2-4.wlan8--1.0.0-B	603.75 Mbps	0 bps	70120	0	0	2,333	0	0	0

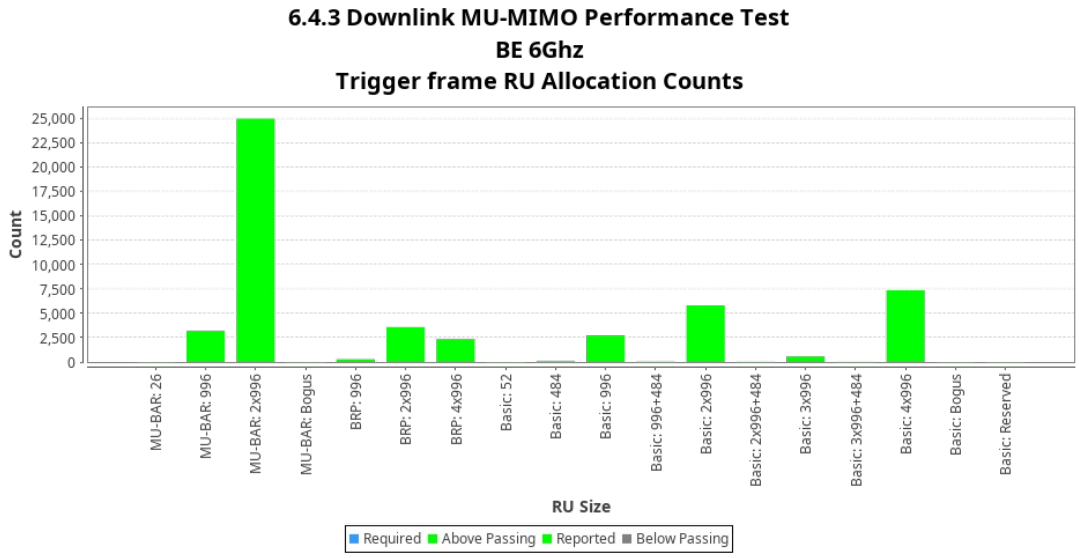
Trigger frame Bandwidth Report: Last few frames.

Each row shows the reported bandwidth allocation. Each cell in the row indicates the AID (station identifier) and its respective bandwidth. Duplicated (same bandwidth allocation) sequences of frames are skipped, with only the last one being reported.

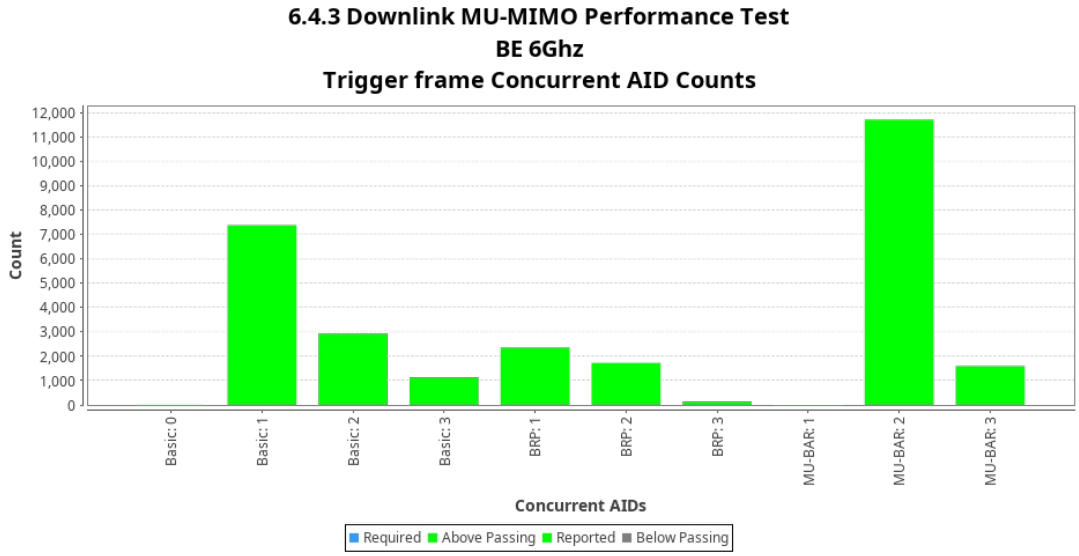
BSRP frames are currently skipped.

Frame	MU-MIMO SS	Dups	Type	0-8	9-17	18-26	27-36	37-45	46-54	55-63	64-73	74-82	83-91	92-100	101-110	111-119	120-128	129-137	138-147
77951	1	1	Basic	4 4x996															
77956	1	0	BRP	2 4x996															
77957	1	1	MU-BAR	2 2x996								3 2x996							
77959	1	0	Basic	3 4x996															
77961	1	0	Basic	3 2x996								4 2x996							
77970	1	0	BRP	4 2x996								3 2x996							
77971	1	0	MU-BAR	4 2x996								3 2x996							
77975	1	0	Basic	2 4x996															
77977	1	0	Basic	4 4x996															
77979	1	0	Basic	2 4x996															
77982	1	0	BRP	3 4x996															
77983	1	0	MU-BAR	4 2x996								3 2x996							
77986	1	0	Basic	4 4x996															
77988	1	0	Basic	3 2x996								4 2x996							
78001	1	0	Basic	4 4x996															
78003	1	0	Basic	3 4x996															
78005	1	0	BRP	3 4x996															
78006	1	0	MU-BAR	4 996				3 996				2 2x996							
78007	1	0	MU-BAR	4 996				3 996				2 2x996							

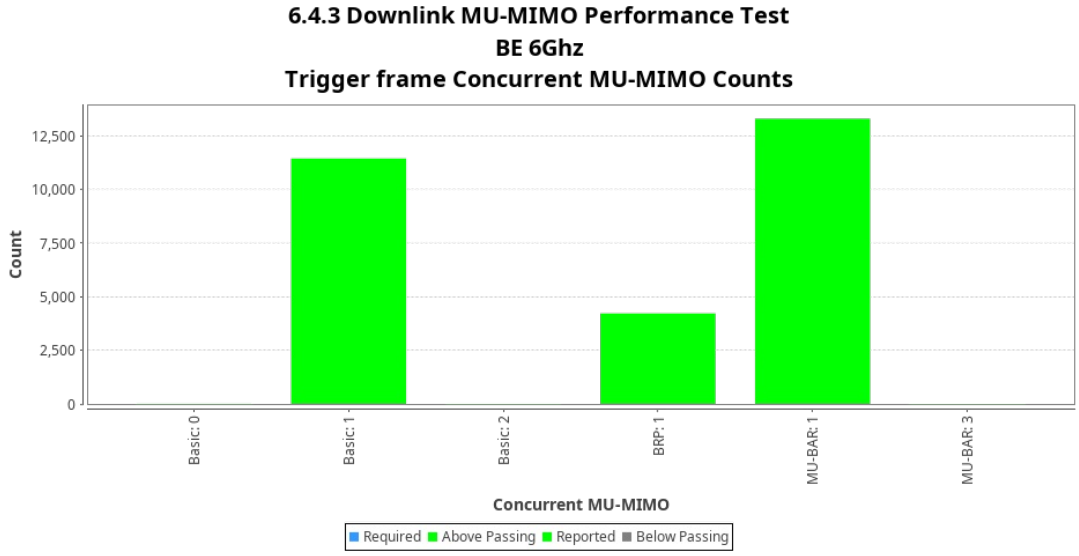
CSV Data for 6.4.3 Downlink MU-MIMO Performance Test BE 6Ghz Trigger frame RU Allocation Counts



CSV Data for 6.4.3 Downlink MU-MIMO Performance Test BE 6Ghz Trigger frame Concurrent AID Counts

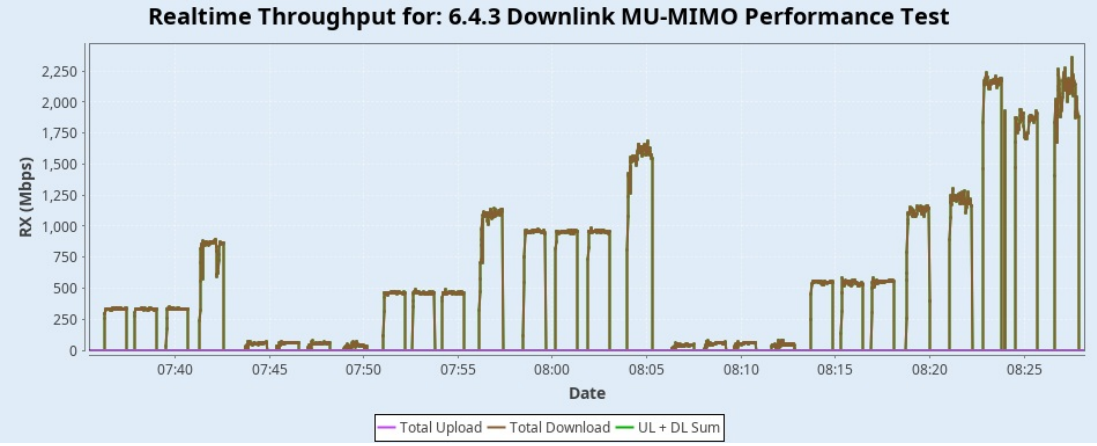


CSV Data for 6.4.3 Downlink MU-MIMO Performance Test BE 6Ghz Trigger frame Concurrent MU-MIMO Counts



Full OFDMA Trigger Packet Capture HTML report: BE 6Ghz

Realtime Throughput for: 6.4.3 Downlink MU-MIMO Performance Test



Key Performance Indicators CSV

Test configuration and LANforge software version	
Auto-Helper	true
Allow-11w (MFP/PMF)	false
SAE-PWE	2
Disable-MLO	true
Extra TxStatus	false
Extra RxStatus	false
TXS All	false
Skip 2.4Ghz Tests	false
Skip 5Ghz Tests	false
Duration-120	60
Duration-60	60
Channel 2GHz	AUTO
Channel 5GHz	AUTO
Channel 6GHz	227
Prefer Group 0	true
Prefer Group 1	false
Prefer Group 2	false
Calibrate against LANforge AP	true
Adjust UL Atten with DUT TxPower	false
Adjust UL Atten with STA TxPower	false
Attenuation Adjustment	0
Extra Download Path-loss	0
TX Power	20
DUT TX Power 2.4G	30
DUT TX Power 5G	30

LANforge Calibration TxPower-2.4G	20
LANforge Calibration TxPower-5G	20
Multi-Conn	10
Use-IPv6	false
UDP-Burst	false
UDP-GRO	false
Multiple Endpoints:	2
ToS	0
Pld Pattern	RANDOM_FIXED
UDP Send Buffer Size:	0
UDP Receive Buffer Size:	0
TCP Send Buffer Size:	0
TCP Receive Buffer Size:	0
Upstream Port	1.3.2 eth2 Firmware: 0x80000aef, 1.1876.0 Resource: 204-tr398-r3
Alien Upstream Port	1.1.2 eth2 Firmware: 0x80000c67, 1.1276.0 Resource: 204-tr398-mgr
Turn-Table Chamber	840B-Default-Chamber
Configured 2m 2.4GHz RSSI	-25
Configured 2m 5GHz RSSI	-30
Use Virtual AX Stations	false
Use AX Radios for AC tests	true
Virt-Sta Rotation 2.4GHz	0
Virt-Sta Rotation 5GHz	0
AX Rotation 2.4GHz	45
AX Rotation 5GHz	45
Opposite-Speed:	0
1Gbps Throughput Limit:	925000000
Reconfig AP	true
Enable 5g-160	false
Enable 6g-80	false
Multiplier	450000
Use NSS-2 for STA 1	false
Packet Capture	true
Re-configure Timer:	30
Virt-Sta Radio 1	1.4.wiphy0 Firmware: 92.67ce4588.0 gl-c0-fm-c0-92.uc Resource: 204-tr398-r4
AX Radio 0	1.4.wiphy0 Firmware: 92.67ce4588.0 gl-c0-fm-c0-92.uc Resource: 204-tr398-r4
AX Radio 4	1.4.wiphy4 Firmware: 92.67ce4588.0 gl-c0-fm-c0-92.uc Resource: 204-tr398-r4
AX Radio 8	1.4.wiphy8 Firmware: 92.67ce4588.0 gl-c0-fm-c0-92.uc Resource: 204-tr398-r4
Attenuator 0	rssi-0-2.4GHz: -26 rssi-0-5GHz: -47 atten: 1.2.3343.0
Attenuator 1	rssi-0-2.4GHz: -26 rssi-0-5GHz: -47 atten: 1.2.3343.1
Attenuator 4	rssi-0-2.4GHz: -19 rssi-0-5GHz: -36 atten: 1.2.3342.0

Attenuator 5	rssi-0-2.4GHz: -19 rssi-0-5GHz: -36 atten: 1.2.3342.1
Attenuator 8	rssi-0-2.4GHz: -23 rssi-0-5GHz: -33 atten: 1.2.3340.0
Attenuator 9	rssi-0-2.4GHz: -23 rssi-0-5GHz: -33 atten: 1.2.3340.1
AX Attenuator 0	AX rssi-0-2.4GHz: -29 rssi-0-5GHz: -36 atten: 1.2.7.2
AX Attenuator 1	AX rssi-0-2.4GHz: -29 rssi-0-5GHz: -36 atten: 1.2.7.3
AX Attenuator 4	AX rssi-0-2.4GHz: -31 rssi-0-5GHz: -37 atten: 1.2.3300.2
AX Attenuator 5	AX rssi-0-2.4GHz: -31 rssi-0-5GHz: -37 atten: 1.2.3300.3
AX Attenuator 8	AX rssi-0-2.4GHz: -29 rssi-0-5GHz: -38 atten: 1.2.7.0
AX Attenuator 9	AX rssi-0-2.4GHz: -29 rssi-0-5GHz: -38 atten: 1.2.7.1
AX Attenuator 12	AX rssi-0-2.4GHz: -35 rssi-0-5GHz: -46 atten: 1.2.3300.0
AX Attenuator 14	AX rssi-0-2.4GHz: -35 rssi-0-5GHz: -46 atten: 1.2.3300.1
AX Attenuator 16	AX rssi-0-2.4GHz: -35 rssi-0-5GHz: -46 atten: 1.2.3300.0
AX Attenuator 18	AX rssi-0-2.4GHz: 5 rssi-0-5GHz: -46 atten: 1.2.3300.1
AX Attenuator 20	AX rssi-0-2.4GHz: -35 rssi-0-5GHz: -46 atten: 1.2.3300.0
AX Attenuator 22	AX rssi-0-2.4GHz: -35 rssi-0-5GHz: -46 atten: 1.2.3300.1
AX Attenuator 24	AX rssi-0-2.4GHz: -31 rssi-0-5GHz: -43 atten: 1.2.3348.0
AX Attenuator 26	AX rssi-0-2.4GHz: -31 rssi-0-5GHz: -43 atten: 1.2.3348.1
AX Attenuator 28	AX rssi-0-2.4GHz: -26 rssi-0-5GHz: -27 atten: 1.2.3348.2
AX Attenuator 30	AX rssi-0-2.4GHz: -26 rssi-0-5GHz: -27 atten: 1.2.3348.2
Mesh Attenuator 0	Mesh rssi-0-2.4GHz: -25 rssi-0-5GHz: -30 atten: 1.2.3340.0
Mesh Attenuator 1	Mesh rssi-0-2.4GHz: -25 rssi-0-5GHz: -30 atten: 1.2.3340.1
Mesh Attenuator 2	Mesh rssi-0-2.4GHz: -25 rssi-0-5GHz: -30 atten: 1.2.3340.2
Mesh Attenuator 3	Mesh rssi-0-2.4GHz: -25 rssi-0-5GHz: -30 atten: 1.2.3340.3
Mesh Attenuator 4	Mesh rssi-0-2.4GHz: -25 rssi-0-5GHz: -30 atten:
Mesh Attenuator 5	Mesh rssi-0-2.4GHz: -25 rssi-0-5GHz: -30 atten:
Mesh Attenuator 6	Mesh rssi-0-2.4GHz: -25 rssi-0-5GHz: -30 atten:
Mesh Attenuator 7	Mesh rssi-0-2.4GHz: -25 rssi-0-5GHz: -30 atten:
Mesh Attenuator 8	Mesh rssi-0-2.4GHz: -25 rssi-0-5GHz: -30 atten:
Mesh Attenuator 9	Mesh rssi-0-2.4GHz: -25 rssi-0-5GHz: -30 atten:
Mesh Attenuator 10	Mesh rssi-0-2.4GHz: -25 rssi-0-5GHz: -30 atten:
Mesh Attenuator 11	Mesh rssi-0-2.4GHz: -25 rssi-0-5GHz: -30 atten:
Mesh Attenuator 12	Mesh rssi-0-2.4GHz: -25 rssi-0-5GHz: -30 atten:
Mesh Attenuator 13	Mesh rssi-0-2.4GHz: -25 rssi-0-5GHz: -30 atten:
Mesh Attenuator 14	Mesh rssi-0-2.4GHz: -25 rssi-0-5GHz: -30 atten:
Mesh Attenuator 15	Mesh rssi-0-2.4GHz: -25 rssi-0-5GHz: -30 atten:
Mesh Attenuator 16	Mesh rssi-0-2.4GHz: -25 rssi-0-5GHz: -30 atten:
Mesh Attenuator 17	Mesh rssi-0-2.4GHz: -25 rssi-0-5GHz: -30 atten:
Mesh Attenuator 18	Mesh rssi-0-2.4GHz: -25 rssi-0-5GHz: -30 atten:
Mesh Attenuator 19	Mesh rssi-0-2.4GHz: -25 rssi-0-5GHz: -30 atten:
Mesh Attenuator 20	Mesh rssi-0-2.4GHz: -25 rssi-0-5GHz: -30 atten:
Mesh Attenuator 21	Mesh rssi-0-2.4GHz: -25 rssi-0-5GHz: -30 atten:
Mesh Attenuator 22	Mesh rssi-0-2.4GHz: -25 rssi-0-5GHz: -30 atten:
Mesh Attenuator 23	Mesh rssi-0-2.4GHz: -25 rssi-0-5GHz: -30 atten:
Details for Resource: 1.1	Hostname: 204-tr398-mgr LANforge ver: 5.4.9 64bit Kernel-Version: 6.10.6+
	Hostname: 204-tr398-r3 LANforge ver: 5.4.9 64bit Kernel-

Details for Resource: 1.3	Version: 6.10.6+
Details for Resource: 1.4	Hostname: 204-tr398-r4 LANforge ver: 5.4.9 64bit Kernel-Version: 6.10.6+
Show Events	true
Build Date	Sun Sep 1 02:20:14 PM PDT 2024
Git Version	852389fa8447e9f63c2911117709a8bac5d9fb3a

CSV Data

META Information for TR-398 Issue 4

Generated by Candela Technologies LANforge network testing tool.

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