

TR-398 Issue 4

WiFi Performance Test Plan

Wed Dec 06 15:36:04 PST 2023



Test Setup Information		
Device Under Test	Name	be800
	SSIDs	be800_2g be800_5g be800_6g TP-Link_F5F0_ML0
	Passwords	lanforge lanforge lanforge 91912022
	BSSIDs	40:ed:00:14:f5:f2 40:ed:00:14:f5:f3 52:ed:00:14:f5:f4
	Notes	[BLANK]
Operator	Ben Greeear	
Estimated Run Time	13 m	
Actual Run Time	20.396 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.

Add your notes below:

This DUT appears to have issues with more than 8 mcast stations. The higher RX MCS percentages indicate that it is doing mcast -> uni

Summary Results

Test	Result	Candela Score	Elapsed	Info
6.4.4 Multiple STA Multicast Test	2.4Ghz FAIL 5Ghz FAIL 6Ghz FAIL	88	20.23 m	N 2.4Ghz Passed 8 / 9 AC 5Ghz Passed 8 / 9 AX 2.4Ghz Passed 8 / 9 AX 5Ghz Passed 8 / 9 AX 6Ghz-160 Passed 8 / 9 BE 2.4Ghz Passed 8 / 9 BE 5Ghz Passed 8 / 9 BE 6Ghz Passed 8 / 9

6.4.4 Multiple STA Multicast Test

Summary

Multicast feature test intends to ensure that multicast works in the download direction with multiple STAs at different distances simultaneously. There are three sets of 3 stations, with each group at a different emulated distance. The different distances are to make sure the AP uses a reliable multicast encoding rate since there is no rate-control for multicast frames.

Test Procedure

1. Configure the system to emulate a 2-meter distance. This is the baseline '0' attenuation.
2. Establish the LAN connection.
3. Create 3 sets of 3 stations using 2.4Ghz N. Multicast transmitter speed is 500Kbps.
4. Group 1 is set to short distance, Group 2 is set to medium distance, and Group 3 is set to long distance.
The attenuations for 2.4Ghz are: 12, 30, 43
The attenuations for 5 Ghz are: 6, 24, 39
The attenuations for 6 Ghz are: 0, 15, 27
5. Create one UDP IPv4 multicast transmitter on the Ethernet port, configured to send at requested speed for the band and mode.
6. Create one UDP IPv4 multicast receiver on each station. The multicast receiver must use the same multicast IP and port as the transmitter so that it can receive traffic from the transmitter.
7. Start multicast transmitter and receivers. Wait for 30 seconds to allow IGMP to propagate.
8. Allow multicast endpoints to run for another 120 seconds, record each receiver's throughput over the last 120 seconds.
9. Stop multicast endpoints and disassociate stations.
10. Create or reconfigured the 3 sets of 3 stations to use 5Ghz AC mode and/or configure the AP for 5Ghz AC mode. Multicast transmitter speed is 3Mbps. Repeat steps 4 - 9 inclusive.
11. Create or reconfigured the 3 sets of 3 stations to use 2.4Ghz AX mode and/or configure the AP for 2.4Ghz AX mode. Multicast transmitter speed is 500Kbps. Repeat steps 4 - 9 inclusive.
12. Create or reconfigured the 3 sets of 3 stations to use 5Ghz AX mode and/or configure the AP for 5Ghz AX mode. Multicast transmitter speed is 3Mbps. Repeat steps 4 - 9 inclusive.
13. Create or reconfigured the 3 sets of 3 stations to use 6Ghz AX mode at 160Mhz bandwidth and/or configure the AP for 6Ghz AX mode at 160Mhz bandwidth. Multicast transmitter speed is 3Mbps. Repeat steps 4 - 9 inclusive.

Pass/Fail Criteria

1. For each configuration, each multicast receiver endpoint must receive at least 99% of the transmitted data rate.

Candela Score

The Candela Score for Multi STA Test is calculated as the percentage of passing sub-tests.

6.4.4 Multiple STA Multicast Test Results

Type	Result	Value	P/F Value	Notes
Multicast Assumptions	INFO			You may shift the attenuation by modifying the Attenuation Adjustment setting on the 'Advanced Configuration' screen.
N 2.4Ghz Close	FAIL	0	0.495	Requires: 0.495 Mbps Reported: 0 Mbps STA-RSSI Data/Beacon: -34/-34 Rx-Rate: 1M Tx-Rate: 52M 802.11bgn-20-2x2
N 2.4Ghz Close	PASS	0.500	0.495	Requires: 0.495 Mbps Reported: 0.500 Mbps STA-RSSI Data/Beacon: -36/-35 Rx-Rate: 144.4M Tx-Rate: 52M 802.11bgn-20-2x2

N 2.4Ghz Close	PASS	0.500	0.495	Requires: 0.495 Mbps Reported: 0.500 Mbps STA-RSSI Data/Beacon: -37/-36 Rx-Rate: 144.4M Tx-Rate: 52M 802.11bgn-20-2x2
N 2.4Ghz Medium	PASS	0.500	0.495	Requires: 0.495 Mbps Reported: 0.500 Mbps STA-RSSI Data/Beacon: -45/-44 Rx-Rate: 144.4M Tx-Rate: 26M 802.11bgn-20-2x2
N 2.4Ghz Medium	PASS	0.500	0.495	Requires: 0.495 Mbps Reported: 0.500 Mbps STA-RSSI Data/Beacon: -45/-44 Rx-Rate: 144.4M Tx-Rate: 52M 802.11bgn-20-2x2
N 2.4Ghz Medium	PASS	0.500	0.495	Requires: 0.495 Mbps Reported: 0.500 Mbps STA-RSSI Data/Beacon: -46/-45 Rx-Rate: 144.4M Tx-Rate: 26M 802.11bgn-20-2x2
N 2.4Ghz Far	PASS	0.500	0.495	Requires: 0.495 Mbps Reported: 0.500 Mbps STA-RSSI Data/Beacon: -66/-67 Rx-Rate: 65M Tx-Rate: 26M 802.11bgn-20-2x2
N 2.4Ghz Far	PASS	0.500	0.495	Requires: 0.495 Mbps Reported: 0.500 Mbps STA-RSSI Data/Beacon: -65/-67 Rx-Rate: 58.5M Tx-Rate: 26M 802.11bgn-20-2x2
N 2.4Ghz Far	PASS	0.500	0.495	Requires: 0.495 Mbps Reported: 0.500 Mbps STA-RSSI Data/Beacon: -65/-67 Rx-Rate: 39M Tx-Rate: 26M 802.11bgn-20-2x2
AC 5Ghz Close	FAIL	0	2.970	Requires: 2.970 Mbps Reported: 0 Mbps STA-RSSI Data/Beacon: -41/-41 Rx-Rate: 6M Tx-Rate: 234M 802.11an-AC-160-2x2
AC 5Ghz Close	PASS	3.000	2.970	Requires: 2.970 Mbps Reported: 3.000 Mbps STA-RSSI Data/Beacon: -44/-41 Rx-Rate: 866.7M Tx-Rate: 234M 802.11an-AC-160-2x2
AC 5Ghz Close	PASS	3.000	2.970	Requires: 2.970 Mbps Reported: 3.000 Mbps STA-RSSI Data/Beacon: -43/-41 Rx-Rate: 866.7M Tx-Rate: 234M 802.11an-AC-160-2x2
AC 5Ghz Medium	PASS	3.000	2.970	Requires: 2.970 Mbps Reported: 3.000 Mbps STA-RSSI Data/Beacon: -59/-56 Rx-Rate: 520M Tx-Rate: 234M 802.11an-AC-160-2x2
AC 5Ghz Medium	PASS	3.000	2.970	Requires: 2.970 Mbps Reported: 3.000 Mbps STA-RSSI Data/Beacon: -59/-56 Rx-Rate: 520M Tx-Rate: 234M 802.11an-AC-160-2x2
AC 5Ghz Medium	PASS	3.000	2.970	Requires: 2.970 Mbps Reported: 3.000 Mbps STA-RSSI Data/Beacon: -59/-56 Rx-Rate: 520M Tx-Rate: 234M 802.11an-AC-160-2x2
AC 5Ghz Far	PASS	3.000	2.970	Requires: 2.970 Mbps Reported: 3.000 Mbps STA-RSSI Data/Beacon: -76/-73 Rx-Rate: 130M Tx-Rate: 26M 802.11an-AC-160-2x2
AC 5Ghz Far	PASS	3.000	2.970	Requires: 2.970 Mbps Reported: 3.000 Mbps STA-RSSI Data/Beacon: -76/-72 Rx-Rate: 130M Tx-Rate: 26M 802.11an-AC-80-2x2
AC 5Ghz Far	PASS	3.000	2.970	Requires: 2.970 Mbps Reported: 3.000 Mbps STA-RSSI Data/Beacon: -76/-73 Rx-Rate: 130M Tx-Rate: 26M 802.11an-AC-160-2x2
AX 2.4Ghz Close	FAIL	0	0.495	Requires: 0.495 Mbps Reported: 0 Mbps STA-RSSI Data/Beacon: -34/-34 Rx-Rate: 1M Tx-Rate: 58.5M 802.11bgn-AX-20-2x2
AX 2.4Ghz Close	PASS	0.500	0.495	Requires: 0.495 Mbps Reported: 0.500 Mbps STA-RSSI Data/Beacon: -39/-35 Rx-Rate: 286.7M Tx-Rate: 58.5M 802.11bgn-AX-20-2x2
AX 2.4Ghz Close	PASS	0.500	0.495	Requires: 0.495 Mbps Reported: 0.500 Mbps STA-RSSI Data/Beacon: -39/-36 Rx-Rate: 286.7M Tx-Rate: 58.5M 802.11bgn-AX-20-2x2

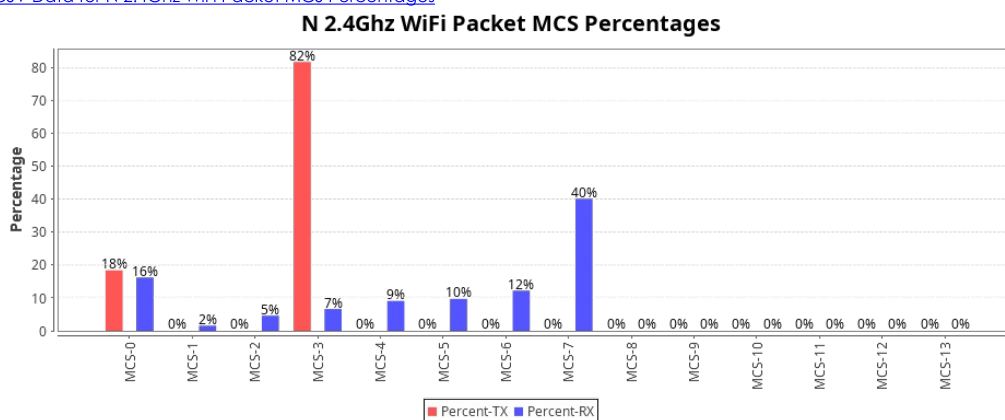
AX 2.4Ghz Medium	PASS	0.500	0.495	Requires: 0.495 Mbps Reported: 0.500 Mbps STA-RSSI Data/Beacon: -47/-44 Rx-Rate: 286.7M Tx-Rate: 29.2M 802.11bgn-AX-20-2x2
AX 2.4Ghz Medium	PASS	0.500	0.495	Requires: 0.495 Mbps Reported: 0.500 Mbps STA-RSSI Data/Beacon: -47/-44 Rx-Rate: 286.7M Tx-Rate: 58.5M 802.11bgn-AX-20-2x2
AX 2.4Ghz Medium	PASS	0.500	0.495	Requires: 0.495 Mbps Reported: 0.500 Mbps STA-RSSI Data/Beacon: -48/-45 Rx-Rate: 286.7M Tx-Rate: 29.2M 802.11bgn-AX-20-2x2
AX 2.4Ghz Far	PASS	0.500	0.495	Requires: 0.495 Mbps Reported: 0.500 Mbps STA-RSSI Data/Beacon: -66/-67 Rx-Rate: 77.4M Tx-Rate: 29.2M 802.11bgn-AX-20-2x2
AX 2.4Ghz Far	PASS	0.499	0.495	Requires: 0.495 Mbps Reported: 0.499 Mbps STA-RSSI Data/Beacon: -66/-67 Rx-Rate: 172M Tx-Rate: 29.2M 802.11bgn-AX-20-2x2
AX 2.4Ghz Far	PASS	0.499	0.495	Requires: 0.495 Mbps Reported: 0.499 Mbps STA-RSSI Data/Beacon: -66/-67 Rx-Rate: 103.2M Tx-Rate: 29.2M 802.11bgn-AX-20-2x2
AX 5Ghz Close	FAIL	0	2.970	Requires: 2.970 Mbps Reported: 0 Mbps STA-RSSI Data/Beacon: -42/-41 Rx-Rate: 648.5M Tx-Rate: 245M 802.11an-AX-160-2x2
AX 5Ghz Close	PASS	3.000	2.970	Requires: 2.970 Mbps Reported: 3.000 Mbps STA-RSSI Data/Beacon: -45/-41 Rx-Rate: 1.081G Tx-Rate: 245M 802.11an-AX-160-2x2
AX 5Ghz Close	PASS	3.000	2.970	Requires: 2.970 Mbps Reported: 3.000 Mbps STA-RSSI Data/Beacon: -45/-41 Rx-Rate: 1.201G Tx-Rate: 245M 802.11an-AX-160-2x2
AX 5Ghz Medium	PASS	3.000	2.970	Requires: 2.970 Mbps Reported: 3.000 Mbps STA-RSSI Data/Beacon: -59/-56 Rx-Rate: 720.6M Tx-Rate: 245M 802.11an-AX-160-2x2
AX 5Ghz Medium	PASS	2.999	2.970	Requires: 2.970 Mbps Reported: 2.999 Mbps STA-RSSI Data/Beacon: -59/-56 Rx-Rate: 648.5M Tx-Rate: 245M 802.11an-AX-160-2x2
AX 5Ghz Medium	PASS	3.000	2.970	Requires: 2.970 Mbps Reported: 3.000 Mbps STA-RSSI Data/Beacon: -60/-56 Rx-Rate: 864.8M Tx-Rate: 245M 802.11an-AX-160-2x2
AX 5Ghz Far	PASS	3.000	2.970	Requires: 2.970 Mbps Reported: 3.000 Mbps STA-RSSI Data/Beacon: -76/-73 Rx-Rate: 216.1M Tx-Rate: 29.2M 802.11an-AX-160-2x2
AX 5Ghz Far	PASS	3.000	2.970	Requires: 2.970 Mbps Reported: 3.000 Mbps STA-RSSI Data/Beacon: -75/-72 Rx-Rate: 137.6M Tx-Rate: 29.2M 802.11an-AX-80-2x2
AX 5Ghz Far	PASS	3.000	2.970	Requires: 2.970 Mbps Reported: 3.000 Mbps STA-RSSI Data/Beacon: -76/-73 Rx-Rate: 216.1M Tx-Rate: 29.2M 802.11an-AX-160-2x2
AXe 6Ghz Close	FAIL	0	2.970	Requires: 2.970 Mbps Reported: 0 Mbps STA-RSSI Data/Beacon: -52/-51 Rx-Rate: 7.3M Tx-Rate: 490M 802.11a-AX-160-2x2
AXe 6Ghz Close	PASS	3.000	2.970	Requires: 2.970 Mbps Reported: 3.000 Mbps STA-RSSI Data/Beacon: -41/-51 Rx-Rate: 2.402G Tx-Rate: 490M 802.11a-AX-160-2x2
AXe 6Ghz Close	PASS	3.000	2.970	Requires: 2.970 Mbps Reported: 3.000 Mbps STA-RSSI Data/Beacon: -41/-51 Rx-Rate: 2.402G Tx-Rate: 490M 802.11a-AX-160-2x2
AXe 6Ghz Medium	PASS	3.000	2.970	Requires: 2.970 Mbps Reported: 3.000 Mbps STA-RSSI Data/Beacon: -56/-66 Rx-Rate: 1.921G Tx-Rate: 29.2M 802.11a-AX-160-2x2

AXe 6Ghz Medium	PASS	3.000	2.970	Requires: 2.970 Mbps Reported: 3.000 Mbps STA-RSSI Data/Beacon: -56/-66 Rx-Rate: 1.921G Tx-Rate: 29.2M 802.11a-AX-160-2x2
AXe 6Ghz Medium	PASS	3.000	2.970	Requires: 2.970 Mbps Reported: 3.000 Mbps STA-RSSI Data/Beacon: -56/-66 Rx-Rate: 1.921G Tx-Rate: 29.2M 802.11a-AX-160-2x2
AXe 6Ghz Far	PASS	3.000	2.970	Requires: 2.970 Mbps Reported: 3.000 Mbps STA-RSSI Data/Beacon: -72/-80 Rx-Rate: 576.4M Tx-Rate: 29.2M 802.11a-AX-160-2x2
AXe 6Ghz Far	PASS	3.000	2.970	Requires: 2.970 Mbps Reported: 3.000 Mbps STA-RSSI Data/Beacon: -72/-80 Rx-Rate: 432.3M Tx-Rate: 29.2M 802.11a-AX-160-2x2
AXe 6Ghz Far	PASS	3.000	2.970	Requires: 2.970 Mbps Reported: 3.000 Mbps STA-RSSI Data/Beacon: -72/-81 Rx-Rate: 576.4M Tx-Rate: 29.2M 802.11a-AX-160-2x2
BE 2.4Ghz Close	FAIL	0	0.495	Requires: 0.495 Mbps Reported: 0 Mbps STA-RSSI Data/Beacon: -35/-34 Rx-Rate: 1M Tx-Rate: 68.8M 802.11bgn-BE-20-2x2
BE 2.4Ghz Close	PASS	0.500	0.495	Requires: 0.495 Mbps Reported: 0.500 Mbps STA-RSSI Data/Beacon: -40/-35 Rx-Rate: 344.1M Tx-Rate: 68.8M 802.11bgn-BE-20-2x2
BE 2.4Ghz Close	PASS	0.500	0.495	Requires: 0.495 Mbps Reported: 0.500 Mbps STA-RSSI Data/Beacon: -41/-36 Rx-Rate: 344.1M Tx-Rate: 68.8M 802.11bgn-BE-20-2x2
BE 2.4Ghz Medium	PASS	0.500	0.495	Requires: 0.495 Mbps Reported: 0.500 Mbps STA-RSSI Data/Beacon: -49/-44 Rx-Rate: 309.6M Tx-Rate: 34.4M 802.11bgn-BE-20-2x2
BE 2.4Ghz Medium	PASS	0.500	0.495	Requires: 0.495 Mbps Reported: 0.500 Mbps STA-RSSI Data/Beacon: -48/-44 Rx-Rate: 309.6M Tx-Rate: 34.4M 802.11bgn-BE-20-2x2
BE 2.4Ghz Medium	PASS	0.500	0.495	Requires: 0.495 Mbps Reported: 0.500 Mbps STA-RSSI Data/Beacon: -49/-45 Rx-Rate: 309.6M Tx-Rate: 34.4M 802.11bgn-BE-20-2x2
BE 2.4Ghz Far	PASS	0.500	0.495	Requires: 0.495 Mbps Reported: 0.500 Mbps STA-RSSI Data/Beacon: -67/-67 Rx-Rate: 114.7M Tx-Rate: 34.4M 802.11bgn-BE-20-2x2
BE 2.4Ghz Far	PASS	0.500	0.495	Requires: 0.495 Mbps Reported: 0.500 Mbps STA-RSSI Data/Beacon: -66/-67 Rx-Rate: 172M Tx-Rate: 34.4M 802.11bgn-BE-20-2x2
BE 2.4Ghz Far	PASS	0.500	0.495	Requires: 0.495 Mbps Reported: 0.500 Mbps STA-RSSI Data/Beacon: -67/-67 Rx-Rate: 103.2M Tx-Rate: 34.4M 802.11bgn-BE-20-2x2
BE 5Ghz Close	FAIL	0	2.970	Requires: 2.970 Mbps Reported: 0 Mbps STA-RSSI Data/Beacon: -41/-41 Rx-Rate: 6M Tx-Rate: 288.2M 802.11an-BE-160-2x2
BE 5Ghz Close	PASS	3.000	2.970	Requires: 2.970 Mbps Reported: 3.000 Mbps STA-RSSI Data/Beacon: -45/-41 Rx-Rate: 1.081G Tx-Rate: 288.2M 802.11an-BE-160-2x2
BE 5Ghz Close	PASS	3.000	2.970	Requires: 2.970 Mbps Reported: 3.000 Mbps STA-RSSI Data/Beacon: -45/-41 Rx-Rate: 1.081G Tx-Rate: 288.2M 802.11an-BE-160-2x2
BE 5Ghz Medium	PASS	2.999	2.970	Requires: 2.970 Mbps Reported: 2.999 Mbps STA-RSSI Data/Beacon: -59/-56 Rx-Rate: 720.6M Tx-Rate: 288.2M 802.11an-BE-160-2x2
BE 5Ghz Medium	PASS	3.000	2.970	Requires: 2.970 Mbps Reported: 3.000 Mbps STA-RSSI Data/Beacon: -59/-56 Rx-Rate: 648.5M Tx-Rate: 288.2M 802.11an-BE-160-2x2

BE 5Ghz Medium	PASS	3.000	2.970	Requires: 2.970 Mbps Reported: 3.000 Mbps STA-RSSI Data/Beacon: -59/-56 Rx-Rate: 720.6M Tx-Rate: 288.2M 802.11a-BE-160-2x2
BE 5Ghz Far	PASS	3.000	2.970	Requires: 2.970 Mbps Reported: 3.000 Mbps STA-RSSI Data/Beacon: -76/-73 Rx-Rate: 216.1M Tx-Rate: 34.4M 802.11a-BE-160-2x2
BE 5Ghz Far	PASS	3.000	2.970	Requires: 2.970 Mbps Reported: 3.000 Mbps STA-RSSI Data/Beacon: -75/-73 Rx-Rate: 103.2M Tx-Rate: 34.4M 802.11a-BE-160-2x2
BE 5Ghz Far	PASS	3.000	2.970	Requires: 2.970 Mbps Reported: 3.000 Mbps STA-RSSI Data/Beacon: -76/-73 Rx-Rate: 216.1M Tx-Rate: 34.4M 802.11a-BE-160-2x2
BE 6Ghz Close	FAIL	0	2.970	Requires: 2.970 Mbps Reported: 0 Mbps STA-RSSI Data/Beacon: -48/-51 Rx-Rate: 4.804G Tx-Rate: 1.153G 802.11a-BE-320-2x2
BE 6Ghz Close	PASS	3.000	2.970	Requires: 2.970 Mbps Reported: 3.000 Mbps STA-RSSI Data/Beacon: -43/-51 Rx-Rate: 5.187G Tx-Rate: 1.153G 802.11a-BE-320-2x2
BE 6Ghz Close	PASS	3.000	2.970	Requires: 2.970 Mbps Reported: 3.000 Mbps STA-RSSI Data/Beacon: -43/-51 Rx-Rate: 5.187G Tx-Rate: 1.153G 802.11a-BE-320-2x2
BE 6Ghz Medium	PASS	3.000	2.970	Requires: 2.970 Mbps Reported: 3.000 Mbps STA-RSSI Data/Beacon: -56/-65 Rx-Rate: 3.843G Tx-Rate: 34.4M 802.11a-BE-320-2x2
BE 6Ghz Medium	PASS	3.000	2.970	Requires: 2.970 Mbps Reported: 3.000 Mbps STA-RSSI Data/Beacon: -55/-66 Rx-Rate: 3.843G Tx-Rate: 34.4M 802.11a-BE-320-2x2
BE 6Ghz Medium	PASS	2.999	2.970	Requires: 2.970 Mbps Reported: 2.999 Mbps STA-RSSI Data/Beacon: -56/-66 Rx-Rate: 3.843G Tx-Rate: 34.4M 802.11a-BE-320-2x2
BE 6Ghz Far	PASS	3.000	2.970	Requires: 2.970 Mbps Reported: 3.000 Mbps STA-RSSI Data/Beacon: -68/-79 Rx-Rate: 1.153G Tx-Rate: 34.4M 802.11a-BE-320-2x2
BE 6Ghz Far	PASS	2.999	2.970	Requires: 2.970 Mbps Reported: 2.999 Mbps STA-RSSI Data/Beacon: -68/-79 Rx-Rate: 1.153G Tx-Rate: 34.4M 802.11a-BE-320-2x2
BE 6Ghz Far	PASS	3.000	2.970	Requires: 2.970 Mbps Reported: 3.000 Mbps STA-RSSI Data/Beacon: -68/-79 Rx-Rate: 1.729G Tx-Rate: 34.4M 802.11a-BE-320-2x2

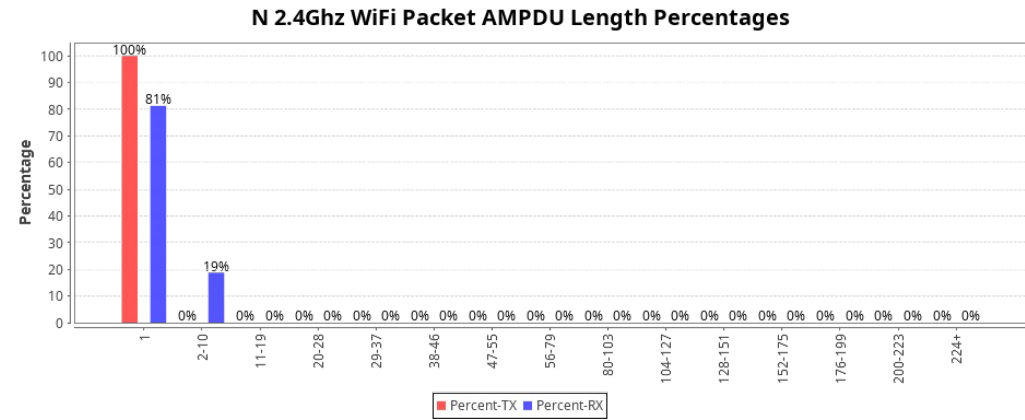
Histogram for WiFi MCS for packets sent and received by the wifi radios in the test.

[CSV Data for N 2.4Ghz WiFi Packet MCS Percentages](#)



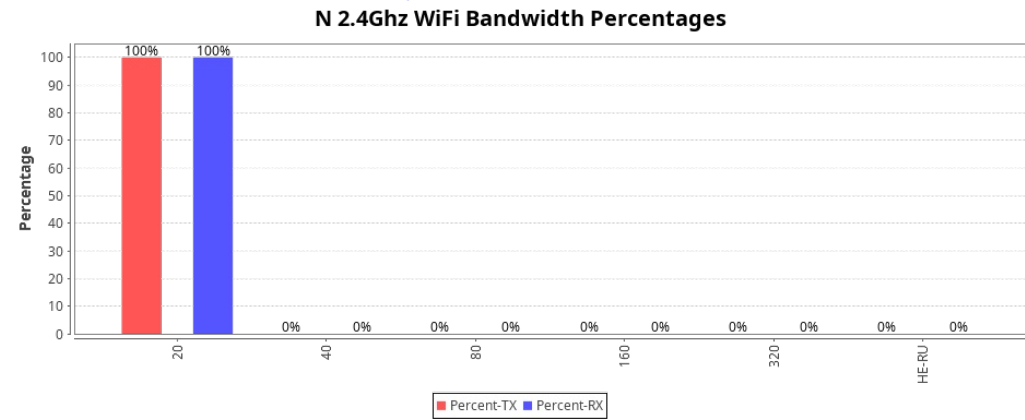
Block-Ack allows a series of frames to be sent in one transmit opportunity. This series of packets is known as a series of AMPDU frames. Having more frames in each AMPDU series normally improves throughput, but may increase latency or decrease airtime fairness. This histogram provides some visibility into the AMPDU chain length used in this test.

[CSV Data for N 2.4Ghz WiFi Packet AMPDU Length Percentages](#)

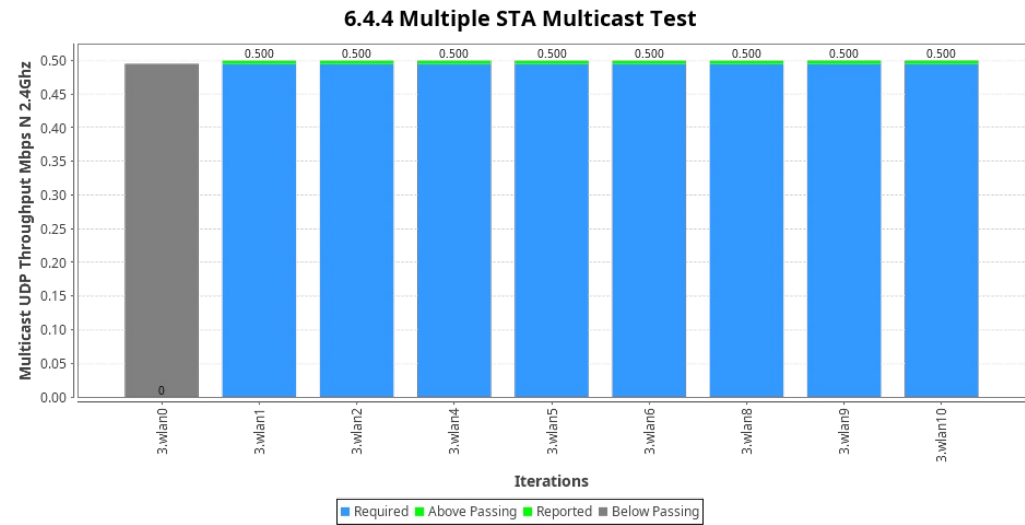


Histogram for WiFi bandwidths for packets sent and received by the wifi radios in the test.

[CSV Data for N 2.4Ghz WiFi Bandwidth Percentages](#)



[CSV Data for 6.4.4 Multiple STA Multicast Test](#)



[Collected CSV Data: CSV: 6.4.4 Multiple STA Multicast Test 2.4Ghz N](#)

Multicast Snapshot 2.4Ghz N



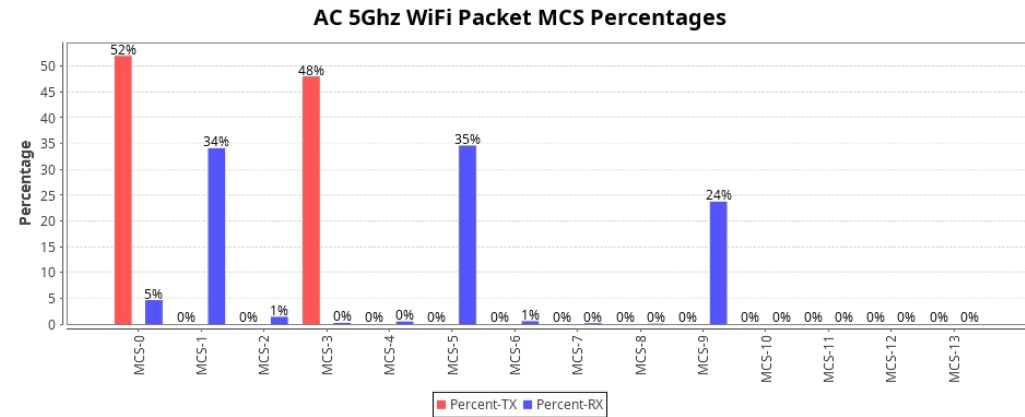
Port	Tx-Bps 1m	Rx-Bps 1m	Tx-Fail %	Tx Link-Rate	Rx Link-Rate	Mode	Channel	Last CX-Time (ms)	RSSI (dBm)	AP	IP	MAC
1.3.28 wlan0	9 bps	280 bps	11.538	52 Mbps	1 Mbps	802.11bgn 20 2x2	6	1,605	-34	40:ED:00:14:F5:F2	192.168.0.114	e4:60:17:64:e0:33
1.3.29 wlan1	47 bps	514.406 Kbps	12.903	52 Mbps	144.4 Mbps	802.11bgn 20 2x2	6	819	-36	40:ED:00:14:F5:F2	192.168.0.147	e4:60:17:65:34:7f
1.3.30 wlan2	9 bps	514.38 Kbps	0	52 Mbps	144.4 Mbps	802.11bgn 20 2x2	6	453	-37	40:ED:00:14:F5:F2	192.168.0.194	e4:60:17:64:e0:83
1.3.31 wlan4	9 bps	514.388 Kbps	19.355	26 Mbps	144.4 Mbps	802.11bgn 20 2x2	6	202	-45	40:ED:00:14:F5:F2	192.168.0.175	e4:60:17:65:35:4c
1.3.32 wlan5	57 bps	514.397 Kbps	7.407	52 Mbps	144.4 Mbps	802.11bgn 20 2x2	6	98	-45	40:ED:00:14:F5:F2	192.168.0.190	e4:60:17:65:35:5b
1.3.33 wlan6	9 bps	514.38 Kbps	3.846	26 Mbps	144.4 Mbps	802.11bgn 20 2x2	6	125	-46	40:ED:00:14:F5:F2	192.168.0.130	e4:60:17:65:35:1f
1.3.34 wlan8	9 bps	514.206 Kbps	22.581	26 Mbps	65 Mbps	802.11bgn 20 2x2	6	78	-66	40:ED:00:14:F5:F2	192.168.0.169	e4:60:17:65:33:e4
1.3.35 wlan9	11 bps	514.513 Kbps	14.706	26 Mbps	58.5 Mbps	802.11bgn 20 2x2	6	67	-65	40:ED:00:14:F5:F2	192.168.0.195	e4:60:17:65:33:fd
1.3.36 wlan10	9 bps	514.388 Kbps	41.86	26 Mbps	39 Mbps	802.11bgn 20 2x2	6	83	-65	40:ED:00:14:F5:F2	192.168.0.247	e4:60:17:65:34:e3

Port	Tx-Bps 1m	Rx-Bps 1m	Link-Rate	IP	MAC
1.3.2 eth2	515.568 Kbps	356 bps	10 Gbps	192.168.0.56	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 %
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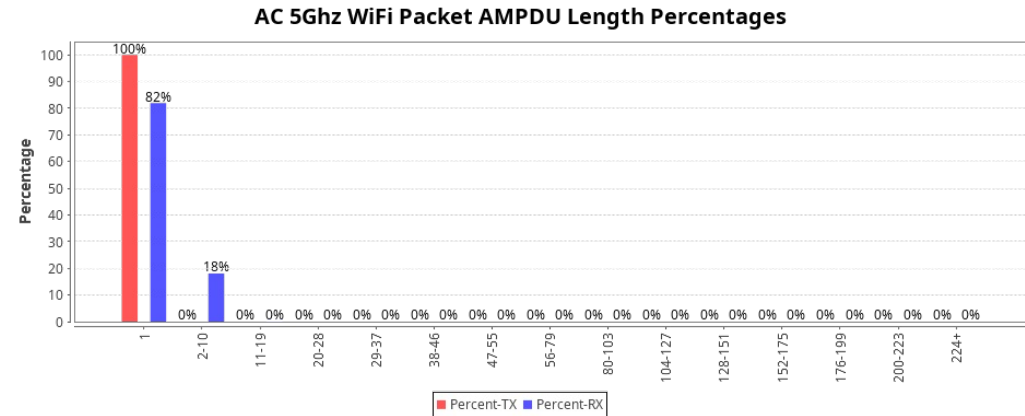
Histogram for WiFi MCS for packets sent and received by the wifi radios in the test.

[CSV Data for AC 5Ghz WiFi Packet MCS Percentages](#)



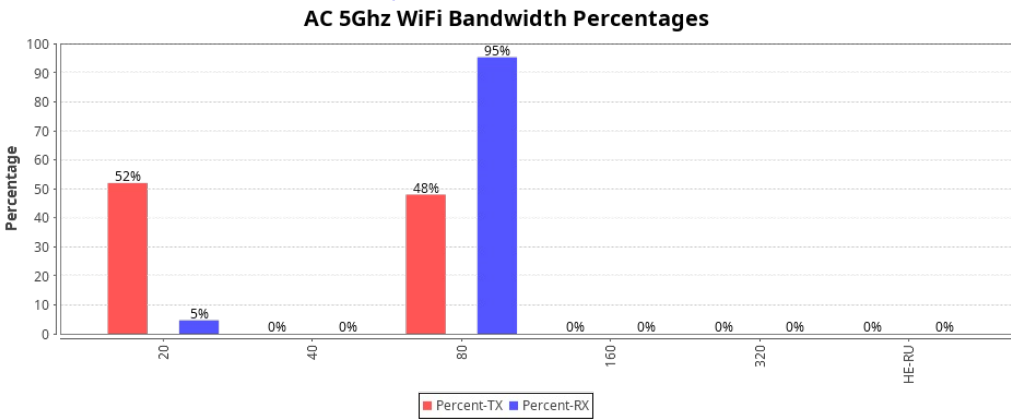
Block-Ack allows a series of frames to be sent in one transmit opportunity. This series of packets is known as a series of AMPDU frames. Having more frames in each AMPDU series normally improves throughput, but may increase latency or decrease airtime fairness. This histogram provides some visibility into the AMPDU chain length used in this test.

[CSV Data for AC 5Ghz WiFi Packet AMPDU Length Percentages](#)

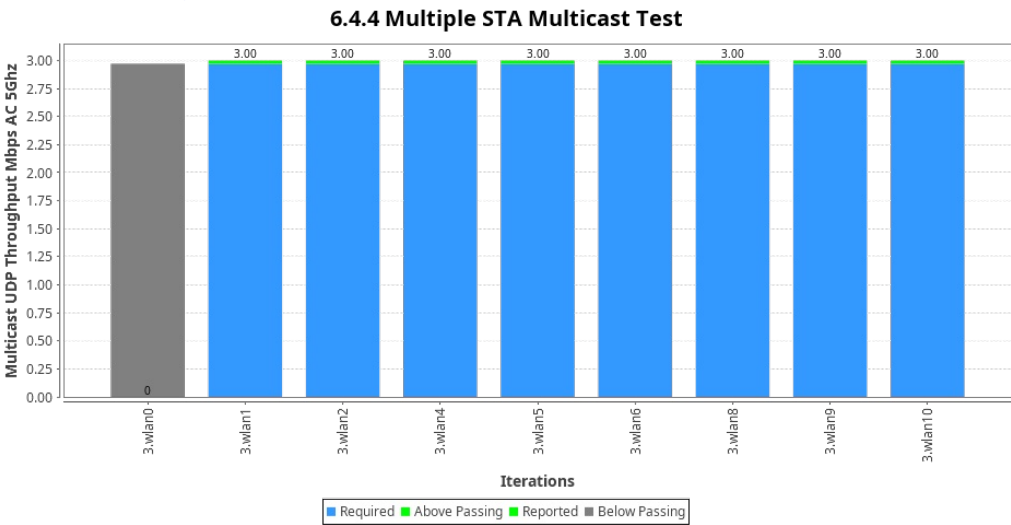


Histogram for WiFi bandwidths for packets sent and received by the wifi radios in the test.

CSV Data for AC 5Ghz WiFi Bandwidth Percentages



CSV Data for 6.4.4 Multiple STA Multicast Test



Collected CSV Data: CSV: 6.4.4 Multiple STA Multicast Test 5Ghz AC

Multicast Snapshot 5Ghz AC

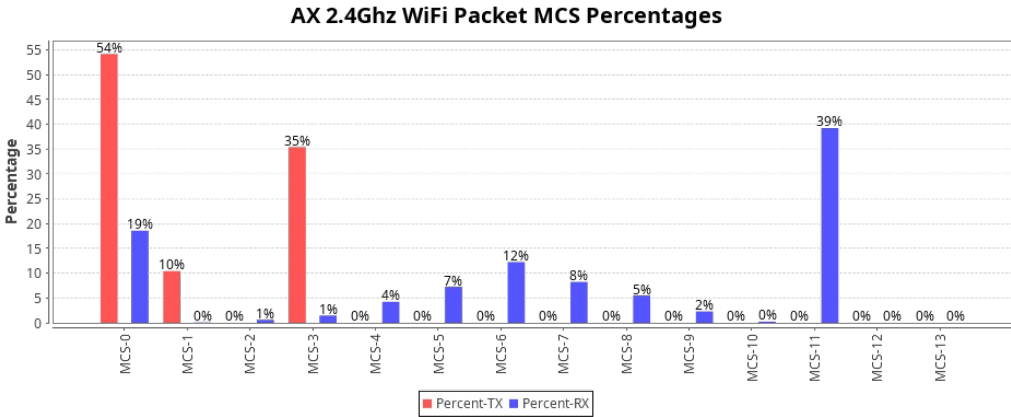
Port	Tx-Bps 1m	Rx-Bps 1m	Tx-Fail %	Tx Link-Rate	Rx Link-Rate	Mode	Channel	Last CX-Time (ms)	RSSI (dBm)	AP	IP	MAC
1.3.28 wlan0	11 bps	261 bps	0	234 Mbps	6 Mbps	802.11an-AC 160 2x2	36	75	-41	40:ED:00:14:F5:F3	192.168.0.114	e4:60:17:64:e0:33
1.3.29 wlan1	11 bps	3.086 Mbps	0	234 Mbps	866.7 Mbps	802.11an-AC 160 2x2	36	82	-44	40:ED:00:14:F5:F3	192.168.0.147	e4:60:17:65:34:7f
1.3.30 wlan2	9 bps	3.086 Mbps	0	234 Mbps	866.7 Mbps	802.11an-AC 160 2x2	36	84	-43	40:ED:00:14:F5:F3	192.168.0.194	e4:60:17:64:e0:83
1.3.31 wlan4	9 bps	3.086 Mbps	11.538	234 Mbps	520 Mbps	802.11an-AC 160 2x2	36	81	-59	40:ED:00:14:F5:F3	192.168.0.175	e4:60:17:65:35:4c
1.3.32 wlan5	19 bps	3.086 Mbps	0	234 Mbps	520 Mbps	802.11an-AC 160 2x2	36	72	-59	40:ED:00:14:F5:F3	192.168.0.190	e4:60:17:65:35:5b
1.3.33 wlan6	9 bps	3.086 Mbps	4.348	234 Mbps	520 Mbps	802.11an-AC 160 2x2	36	76	-59	40:ED:00:14:F5:F3	192.168.0.130	e4:60:17:65:35:1f
1.3.34 wlan8	9 bps	3.086 Mbps	4.167	26 Mbps	130 Mbps	802.11an-AC 160 2x2	36	184	-76	40:ED:00:14:F5:F3	192.168.0.169	e4:60:17:65:33:e4
1.3.35 wlan9	19 bps	3.086 Mbps	4.167	26 Mbps	130 Mbps	802.11an-AC 80 2x2	36	92	-76	40:ED:00:14:F5:F3	192.168.0.195	e4:60:17:65:33:fd
1.3.36 wlan10	9 bps	3.086 Mbps	0	26 Mbps	130 Mbps	802.11an-AC 160 2x2	36	86	-76	40:ED:00:14:F5:F3	192.168.0.247	e4:60:17:65:34:e3

Port	Tx-Bps 1m	Rx-Bps 1m	Link-Rate	IP	MAC
1.3.2.eth2	3.094 Mbps	412 bps	10 Gbps	192.168.0.56	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 %
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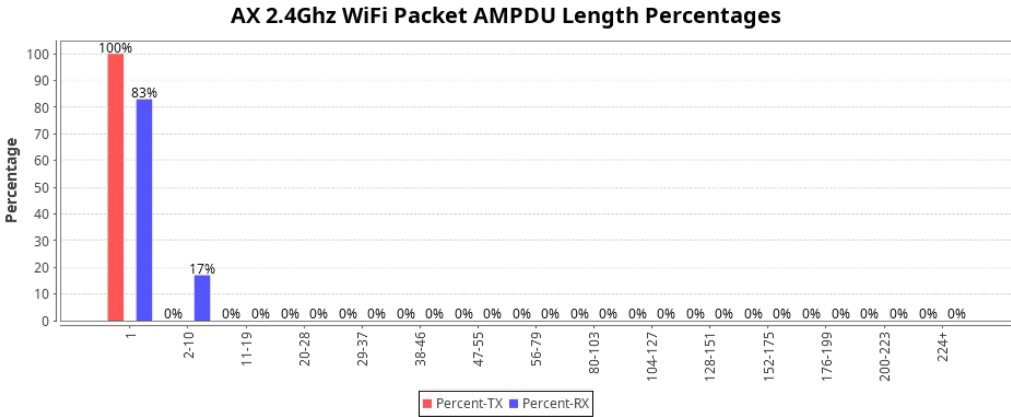
Histogram for WiFi MCS for packets sent and received by the wifi radios in the test.

[CSV Data for AX 2.4Ghz WiFi Packet MCS Percentages](#)



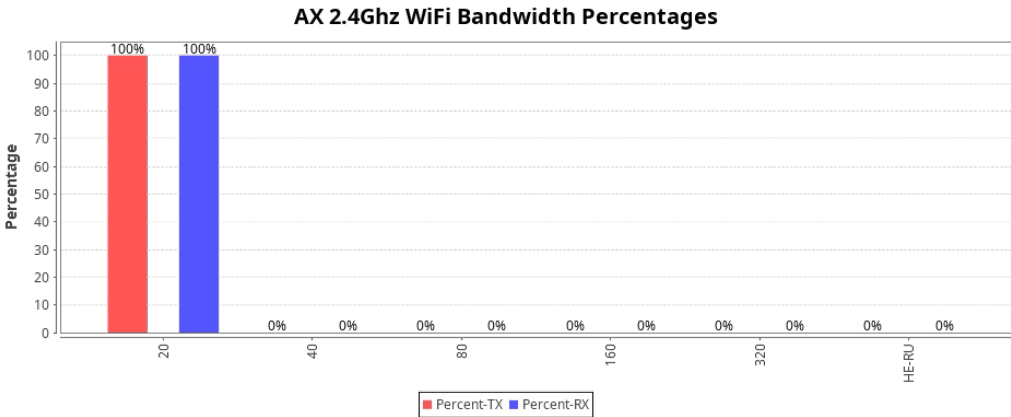
Block-Ack allows a series of frames to be sent in one transmit opportunity. This series of packets is known as a series of AMPDU frames. Having more frames in each AMPDU series normally improves throughput, but may increase latency or decrease airtime fairness. This histogram provides some visibility into the AMPDU chain length used in this test.

[CSV Data for AX 2.4Ghz WiFi Packet AMPDU Length Percentages](#)



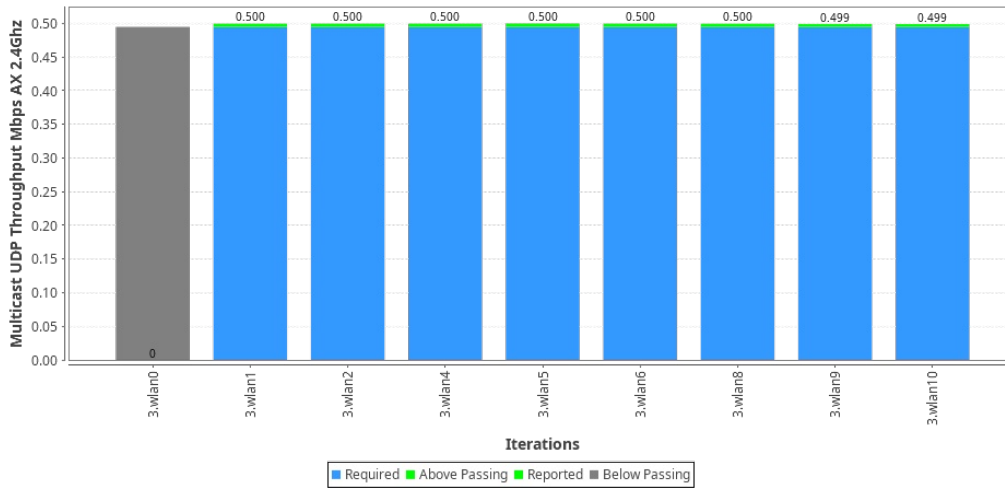
Histogram for WiFi bandwidths for packets sent and received by the wifi radios in the test.

[CSV Data for AX 2.4Ghz WiFi Bandwidth Percentages](#)



[CSV Data for 6.4.4 Multiple STA Multicast Test](#)

6.4.4 Multiple STA Multicast Test



Collected CSV Data: [CSV: 6.4.4 Multiple STA Multicast Test 2.4Ghz AX](#)

Multicast Snapshot 2.4Ghz AX

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
1.3.28 wlan0	24 bps	278 bps	3.846	58.5 Mbps	1 Mbps	802.11bgn-AX 20 2x2	6	82	-34	40:ED:00:14:F5:F2	192.168.0.114	e4:60:17:64:e0:33
1.3.29 wlan1	19 bps	514.474 Kbps	4.167	58.5 Mbps	286.7 Mbps	802.11bgn-AX 20 2x2	6	84	-39	40:ED:00:14:F5:F2	192.168.0.147	e4:60:17:65:34:7f
1.3.30 wlan2	18 bps	514.638 Kbps	14.286	58.5 Mbps	286.7 Mbps	802.11bgn-AX 20 2x2	6	96	-39	40:ED:00:14:F5:F2	192.168.0.194	e4:60:17:64:e0:83
1.3.31 wlan4	9 bps	514.652 Kbps	75.758	29.2 Mbps	286.7 Mbps	802.11bgn-AX 20 2x2	6	77	-47	40:ED:00:14:F5:F2	192.168.0.175	e4:60:17:65:35:4c
1.3.32 wlan5	18 bps	514.62 Kbps	17.241	58.5 Mbps	286.7 Mbps	802.11bgn-AX 20 2x2	6	85	-47	40:ED:00:14:F5:F2	192.168.0.190	e4:60:17:65:35:5b
1.3.33 wlan6	9 bps	514.48 Kbps	77.67	29.2 Mbps	286.7 Mbps	802.11bgn-AX 20 2x2	6	102	-48	40:ED:00:14:F5:F2	192.168.0.130	e4:60:17:65:35:1f
1.3.34 wlan8	18 bps	514.136 Kbps	80.672	29.2 Mbps	77.4 Mbps	802.11bgn-AX 20 2x2	6	110	-66	40:ED:00:14:F5:F2	192.168.0.169	e4:60:17:65:33:e4
1.3.35 wlan9	9 bps	514.101 Kbps	80.315	29.2 Mbps	172 Mbps	802.11bgn-AX 20 2x2	6	119	-66	40:ED:00:14:F5:F2	192.168.0.195	e4:60:17:65:33:fd
1.3.36 wlan10	18 bps	513.917 Kbps	84.354	29.2 Mbps	103.2 Mbps	802.11bgn-AX 20 2x2	6	117	-66	40:ED:00:14:F5:F2	192.168.0.247	e4:60:17:65:34:e3

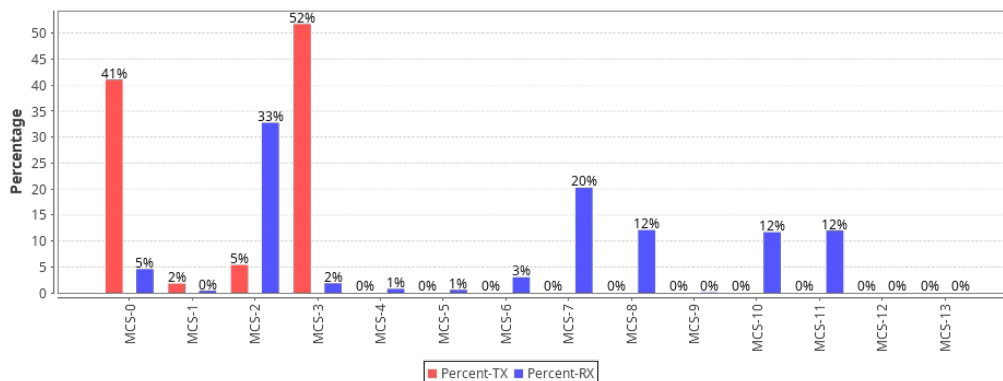
Port	Tx-Bps 1m	Rx-Bps 1m	Link-Rate	IP	MAC
1.3.2 eth2	378.809 Kbps	953 bps	10 Gbps	192.168.0.56	9c:69:b4:63:76:c4

Endpoint	Tx-Bps 1m	Rx-Bps 1m	TxPkts	RxPkts	RX Latency (ms)	Round-Trip Latency (ms)	Jitter	Rx Packet Loss %	Rx OOO %
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Histogram for WiFi MCS for packets sent and received by the wifi radios in the test.

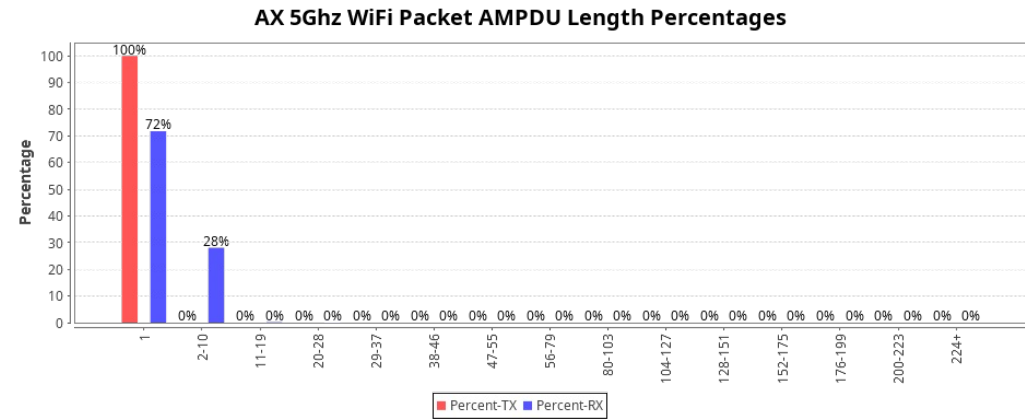
[CSV Data for AX 5Ghz WiFi Packet MCS Percentages](#)

AX 5Ghz WiFi Packet MCS Percentages



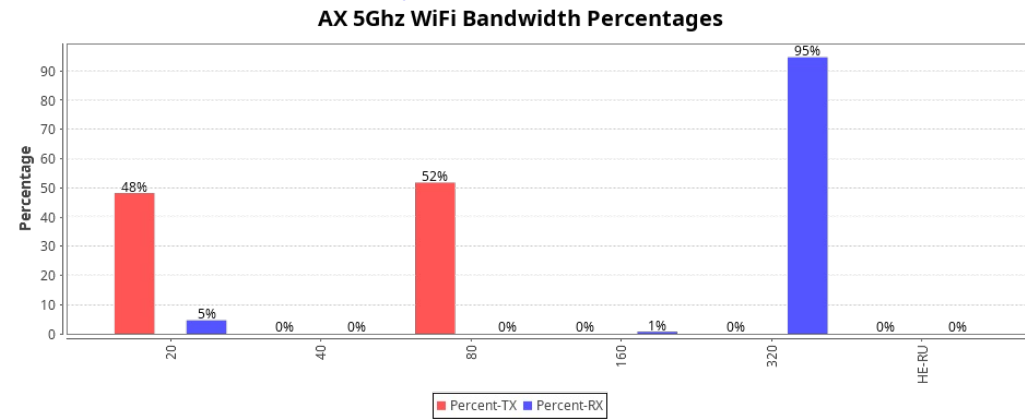
Block-Ack allows a series of frames to be sent in one transmit opportunity. This series of packets is known as a series of AMPDU frames. Having more frames in each AMPDU series normally improves throughput, but may increase latency or decrease airtime fairness. This histogram provides some visibility into the AMPDU chain length used in this test.

[CSV Data for AX 5Ghz WiFi Packet AMPDU Length Percentages](#)

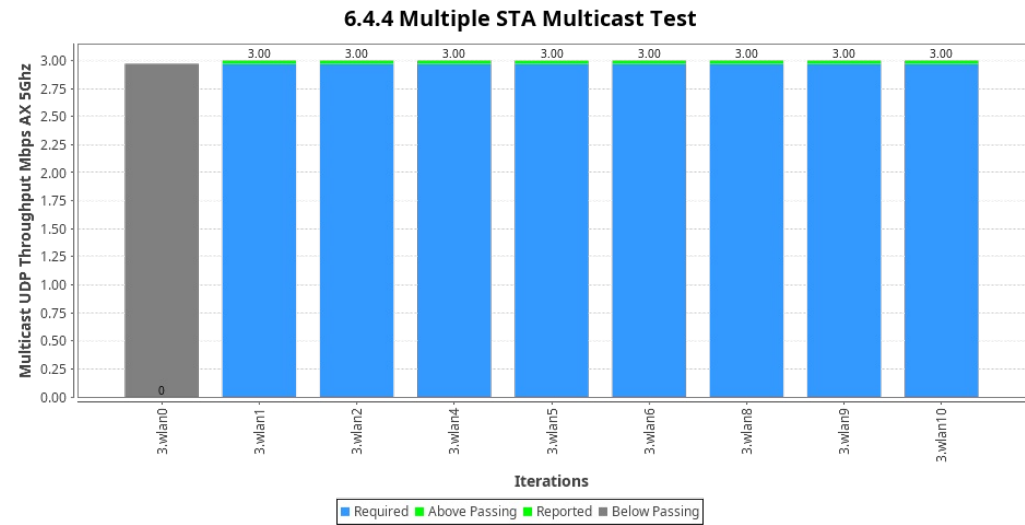


Histogram for WiFi bandwidths for packets sent and received by the wifi radios in the test.

[CSV Data for AX 5Ghz WiFi Bandwidth Percentages](#)



[CSV Data for 6.4.4 Multiple STA Multicast Test](#)



[Collected CSV Data: CSV: 6.4.4 Multiple STA Multicast Test 5Ghz AX](#)

Multicast Snapshot 5Ghz AX



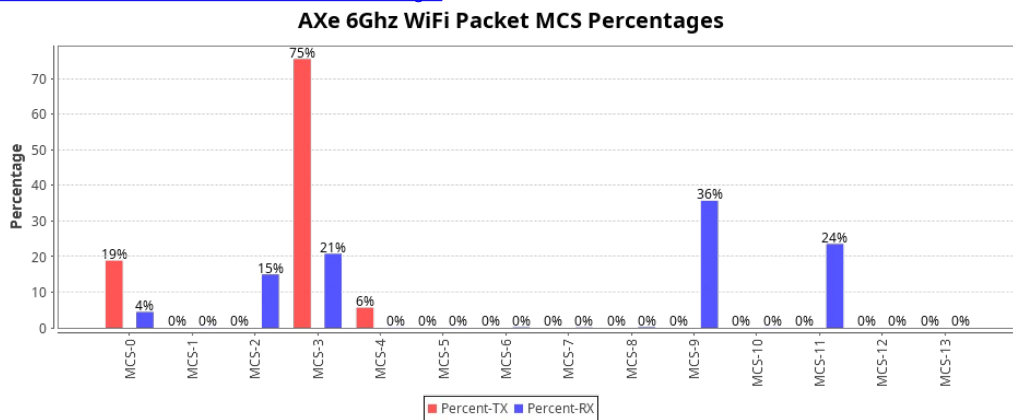
Port	Tx-Bps 1m	Rx-Bps 1m	Tx-Fail %	Tx Link-Rate	Rx Link-Rate	Mode	Channel	Last CX-Time (ms)	RSSI (dBm)	AP	IP	MAC
1.3.28 wlan0	61 bps	282 bps	0	245 Mbps	648.5 Mbps	802.11an-AX 160 2x2	36	102	-42	40:ED:00:14:F5:F3	192.168.0.114	e4:60:17:64:e0:33
1.3.29 wlan1	11 bps	3.086 Mbps	3.333	245 Mbps	1.081 Gbps	802.11an-AX 160 2x2	36	81	-45	40:ED:00:14:F5:F3	192.168.0.147	e4:60:17:65:34:7f
1.3.30 wlan2	9 bps	3.086 Mbps	0	245 Mbps	1.201 Gbps	802.11an-AX 160 2x2	36	83	-45	40:ED:00:14:F5:F3	192.168.0.194	e4:60:17:64:e0:83
1.3.31 wlan4	9 bps	3.086 Mbps	4.167	245 Mbps	720.6 Mbps	802.11an-AX 160 2x2	36	82	-59	40:ED:00:14:F5:F3	192.168.0.175	e4:60:17:65:35:4c
1.3.32 wlan5	9 bps	3.086 Mbps	4.167	245 Mbps	648.5 Mbps	802.11an-AX 160 2x2	36	84	-59	40:ED:00:14:F5:F3	192.168.0.190	e4:60:17:65:35:5b
1.3.33 wlan6	9 bps	3.086 Mbps	0	245 Mbps	864.8 Mbps	802.11an-AX 160 2x2	36	84	-60	40:ED:00:14:F5:F3	192.168.0.130	e4:60:17:65:35:1f
1.3.34 wlan8	9 bps	3.085 Mbps	75.862	29.2 Mbps	216.1 Mbps	802.11an-AX 160 2x2	36	89	-76	40:ED:00:14:F5:F3	192.168.0.169	e4:60:17:65:33:e4
1.3.35 wlan9	9 bps	3.086 Mbps	74.737	29.2 Mbps	137.6 Mbps	802.11an-AX 80 2x2	36	106	-75	40:ED:00:14:F5:F3	192.168.0.195	e4:60:17:65:33:fd
1.3.36 wlan10	19 bps	3.086 Mbps	74.227	29.2 Mbps	216.1 Mbps	802.11an-AX 160 2x2	36	106	-76	40:ED:00:14:F5:F3	192.168.0.247	e4:60:17:65:34:e3

Port	Tx-Bps 1m	Rx-Bps 1m	Link-Rate	IP	MAC
1.3.2 eth2	3.095 Mbps	3.14 Kbps	10 Gbps	192.168.0.56	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 %
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Histogram for WiFi MCS for packets sent and received by the wifi radios in the test.

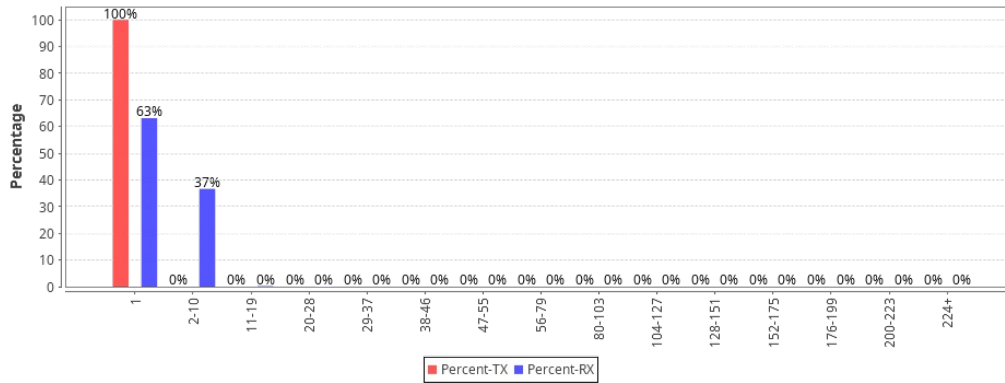
[CSV Data for AXe 6Ghz WiFi Packet MCS Percentages](#)



Block-Ack allows a series of frames to be sent in one transmit opportunity. This series of packets is known as a series of AMPDU frames. Having more frames in each AMPDU series normally improves throughput, but may increase latency or decrease airtime fairness. This histogram provides some visibility into the AMPDU chain length used in this test.

[CSV Data for AXe 6Ghz WiFi Packet AMPDU Length Percentages](#)

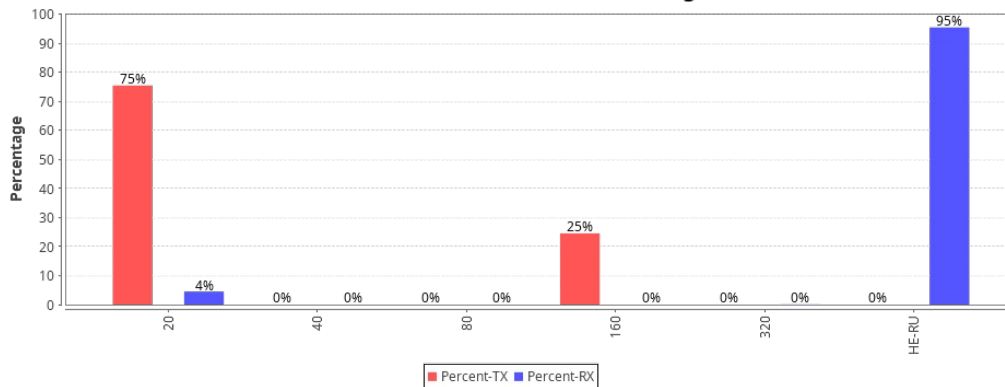
AXe 6Ghz WiFi Packet AMPDU Length Percentages



Histogram for WiFi bandwidths for packets sent and received by the wifi radios in the test.

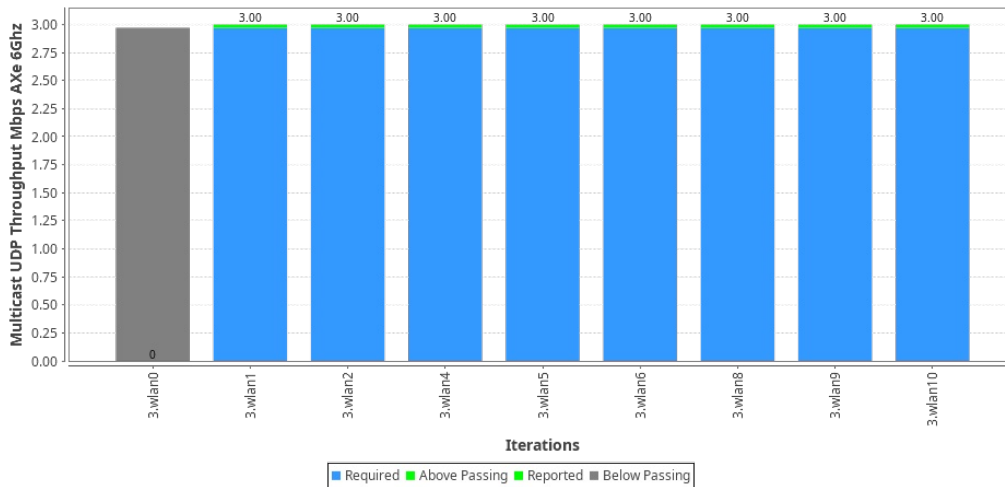
[CSV Data for AXe 6Ghz WiFi Bandwidth Percentages](#)

AXe 6Ghz WiFi Bandwidth Percentages



[CSV Data for 6.4.4 Multiple STA Multicast Test](#)

6.4.4 Multiple STA Multicast Test



[Collected CSV Data: CSV: 6.4.4 Multiple STA Multicast Test 6Ghz AXe](#)

Multicast Snapshot 6Ghz AXe

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
1.3.28 wlan0	24 bps	5.938 Kbps	0	490 Mbps	7.3 Mbps	802.11a-AX 160 2x2	259	87	-52	52:ED:00:14:F5:F4	192.168.0.114	e4:60:17:64:e0:33
1.3.29 wlan1	45 bps	2.604 Mbps	8.824	490 Mbps	2.402 Gbps	802.11a-AX 160	259	121	-41	52:ED:00:14:F5:F4	192.168.0.147	e4:60:17:65:34:7f

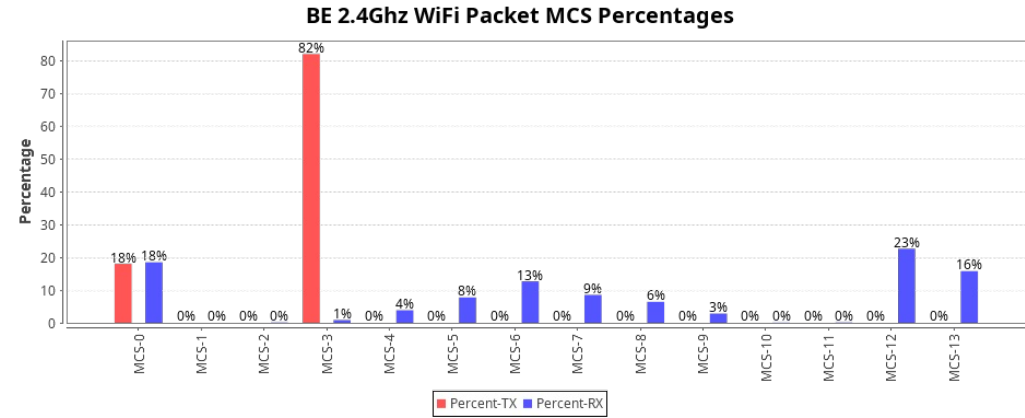
						2x2						
1.3.30 wlan2	19 bps	2.603 Mbps	0	490 Mbps	2.402 Gbps	802.11a- AX 160 2x2	259	95	-41	52:ED:00:14:F5:F4	192.168.0.194	e4:60:17:64:e0:83
1.3.31 wlan4	203 bps	2.602 Mbps	0	29.2 Mbps	1.921 Gbps	802.11a- AX 160 2x2	259	89	-56	52:ED:00:14:F5:F4	192.168.0.175	e4:60:17:65:35:4c
1.3.32 wlan5	204 bps	2.605 Mbps	2.326	29.2 Mbps	1.921 Gbps	802.11a- AX 160 2x2	259	90	-56	52:ED:00:14:F5:F4	192.168.0.190	e4:60:17:65:35:5b
1.3.33 wlan6	206 bps	2.606 Mbps	2.703	29.2 Mbps	1.921 Gbps	802.11a- AX 160 2x2	259	106	-56	52:ED:00:14:F5:F4	192.168.0.130	e4:60:17:65:35:1f
1.3.34 wlan8	19 bps	2.585 Mbps	21.622	29.2 Mbps	576.4 Mbps	802.11a- AX 160 2x2	259	112	-72	52:ED:00:14:F5:F4	192.168.0.169	e4:60:17:65:33:e4
1.3.35 wlan9	69 bps	2.613 Mbps	53.571	29.2 Mbps	432.3 Mbps	802.11a- AX 160 2x2	259	106	-72	52:ED:00:14:F5:F4	192.168.0.195	e4:60:17:65:33:fd
1.3.36 wlan10	90 bps	2.597 Mbps	25.49	29.2 Mbps	576.4 Mbps	802.11a- AX 160 2x2	259	99	-72	52:ED:00:14:F5:F4	192.168.0.247	e4:60:17:65:34:e3

Port	Tx-Bps 1m	Rx-Bps 1m	Link-Rate	IP	MAC
1.3.2 eth2	3.094 Mbps	471 bps	10 Gbps	192.168.0.56	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 %
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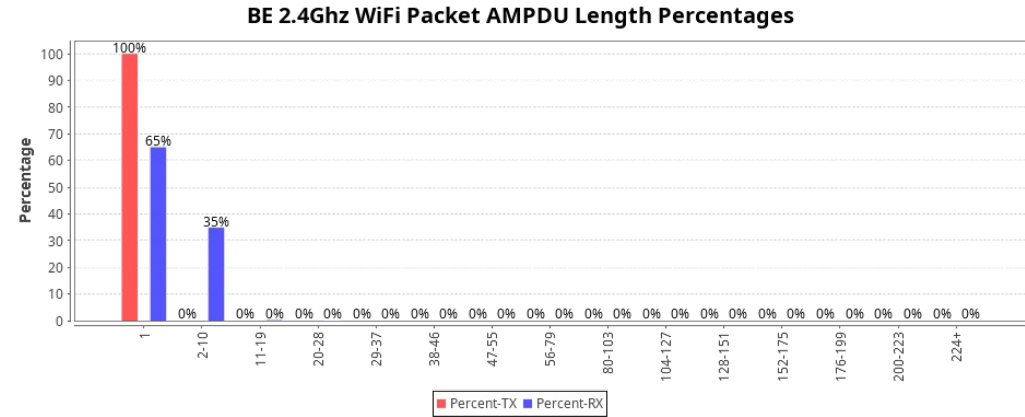
Histogram for WiFi MCS for packets sent and received by the wifi radios in the test.

[CSV Data for BE 2.4Ghz WiFi Packet MCS Percentages](#)



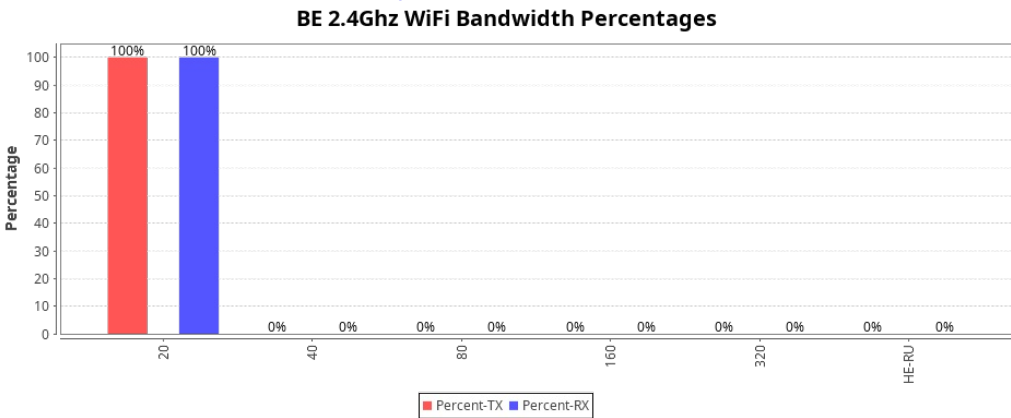
Block-Ack allows a series of frames to be sent in one transmit opportunity. This series of packets is known as a series of AMPDU frames. Having more frames in each AMPDU series normally improves throughput, but may increase latency or decrease airtime fairness. This histogram provides some visibility into the AMPDU chain length used in this test.

[CSV Data for BE 2.4Ghz WiFi Packet AMPDU Length Percentages](#)

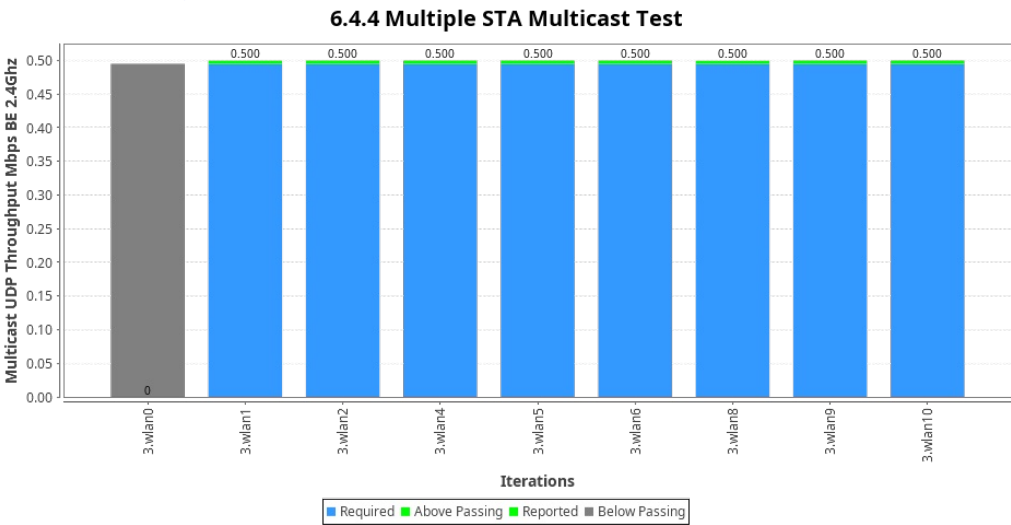


Histogram for WiFi bandwidths for packets sent and received by the wifi radios in the test.

CSV Data for BE 2.4Ghz WiFi Bandwidth Percentages



CSV Data for 6.4.4 Multiple STA Multicast Test



Collected CSV Data: CSV: 6.4.4 Multiple STA Multicast Test 2.4Ghz BE

Multicast Snapshot 2.4Ghz BE

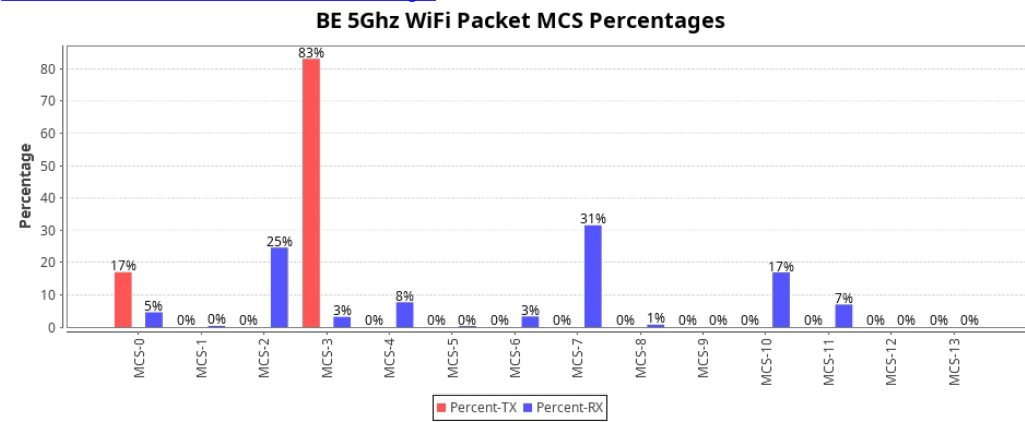
Port	Tx-Bps 1m	Rx-Bps 1m	Tx-Fail %	Tx Link-Rate	Rx Link-Rate	Mode	Channel	Last CX-Time (ms)	RSSI (dBm)	AP	IP	MAC
1.3.28 wlan0	11 bps	261 bps	0	68.8 Mbps	1 Mbps	802.11bgn-BE 20 2x2	6	97	-35	40:ED:00:14:F5:F2	192.168.0.114	e4:60:17:64:e0:33
1.3.29 wlan1	11 bps	514.597 Kbps	4.348	68.8 Mbps	344.1 Mbps	802.11bgn-BE 20 2x2	6	79	-40	40:ED:00:14:F5:F2	192.168.0.147	e4:60:17:65:34:7f
1.3.30 wlan2	11 bps	514.547 Kbps	4.167	68.8 Mbps	344.1 Mbps	802.11bgn-BE 20 2x2	6	118	-41	40:ED:00:14:F5:F2	192.168.0.194	e4:60:17:64:e0:83
1.3.31 wlan4	11 bps	514.546 Kbps	38.889	34.4 Mbps	309.6 Mbps	802.11bgn-BE 20 2x2	6	103	-49	40:ED:00:14:F5:F2	192.168.0.175	e4:60:17:65:35:4c
1.3.32 wlan5	11 bps	514.578 Kbps	37.143	34.4 Mbps	309.6 Mbps	802.11bgn-BE 20 2x2	6	77	-48	40:ED:00:14:F5:F2	192.168.0.190	e4:60:17:65:35:5b
1.3.33 wlan6	11 bps	514.57 Kbps	18.519	34.4 Mbps	309.6 Mbps	802.11bgn-BE 20 2x2	6	88	-49	40:ED:00:14:F5:F2	192.168.0.130	e4:60:17:65:35:1f
1.3.34 wlan8	11 bps	514.191 Kbps	65.625	34.4 Mbps	114.7 Mbps	802.11bgn-BE 20 2x2	6	88	-67	40:ED:00:14:F5:F2	192.168.0.169	e4:60:17:65:33:e4
1.3.35 wlan9	285 bps	347.996 Kbps	55.932	34.4 Mbps	172 Mbps	802.11bgn-BE 20 2x2	6	89	-66	40:ED:00:14:F5:F2	192.168.0.195	e4:60:17:65:33:fd
1.3.36 wlan10	11 bps	514.384 Kbps	66.129	34.4 Mbps	103.2 Mbps	802.11bgn-BE 20 2x2	6	102	-67	40:ED:00:14:F5:F2	192.168.0.247	e4:60:17:65:34:e3

Port	Tx-Bps 1m	Rx-Bps 1m	Link-Rate	IP	MAC
1.3.2 eth2	466.324 Kbps	908 bps	10 Gbps	192.168.0.56	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 %
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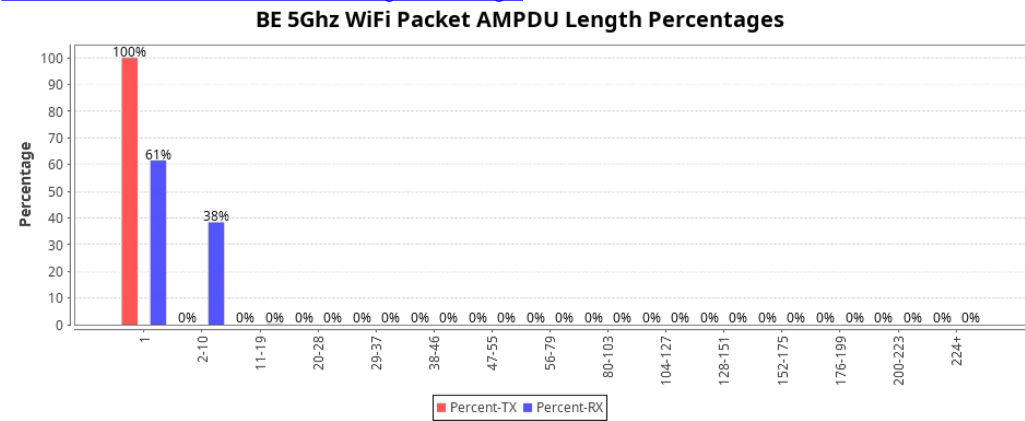
Histogram for WiFi MCS for packets sent and received by the wifi radios in the test.

[CSV Data for BE 5Ghz WiFi Packet MCS Percentages](#)



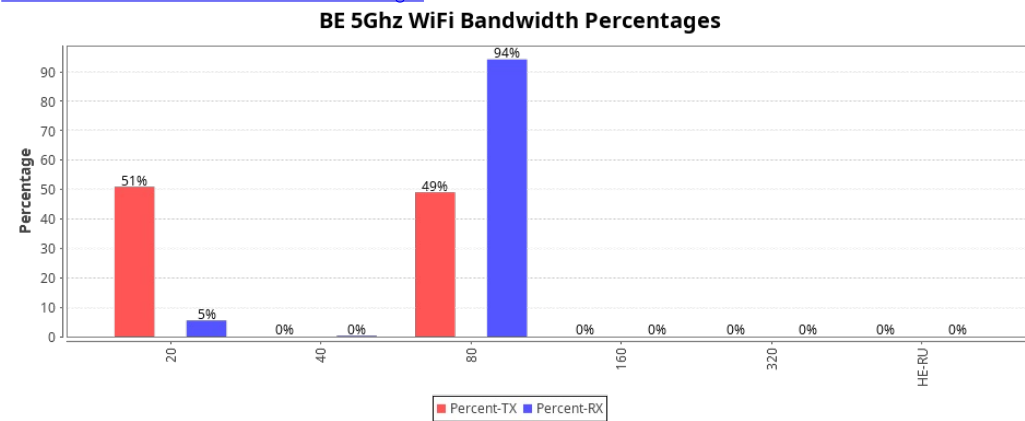
Block-Ack allows a series of frames to be sent in one transmit opportunity. This series of packets is known as a series of AMPDU frames. Having more frames in each AMPDU series normally improves throughput, but may increase latency or decrease airtime fairness. This histogram provides some visibility into the AMPDU chain length used in this test.

[CSV Data for BE 5Ghz WiFi Packet AMPDU Length Percentages](#)



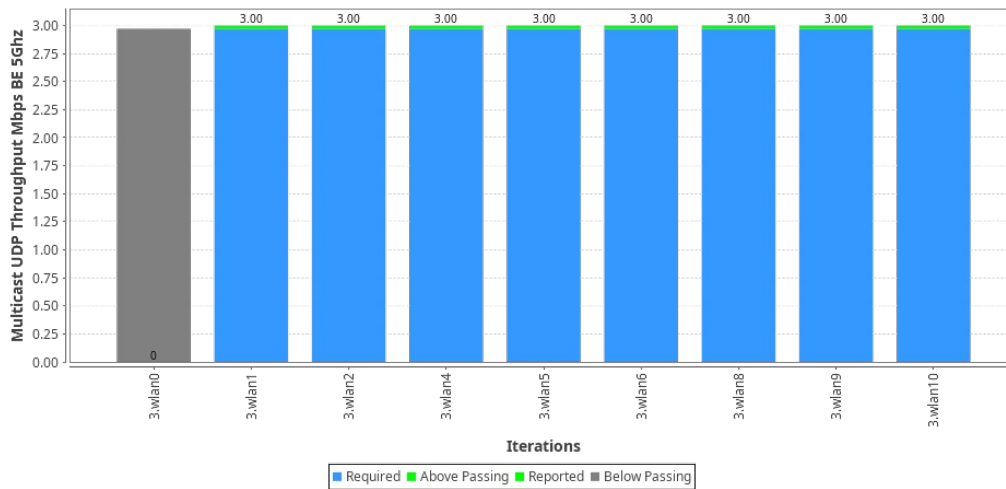
Histogram for WiFi bandwidths for packets sent and received by the wifi radios in the test.

[CSV Data for BE 5Ghz WiFi Bandwidth Percentages](#)



[CSV Data for 6.4.4 Multiple STA Multicast Test](#)

6.4.4 Multiple STA Multicast Test



Collected CSV Data: [CSV: 6.4.4 Multiple STA Multicast Test 5Ghz BE](#)

Multicast Snapshot 5Ghz BE

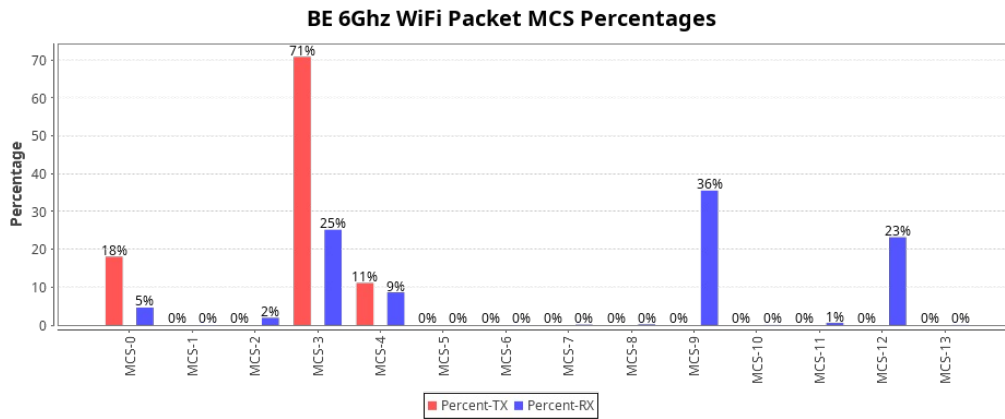
Port	Tx-Bps 1m	Rx-Bps 1m	Tx-Fail %	Tx Link-Rate	Rx Link-Rate	Mode	Channel	Last CX-Time (ms)	RSSI (dBm)	AP	IP	MAC
1.3.28 wlan0	19 bps	281 bps	0	288.2 Mbps	6 Mbps	802.11an-BE 160 2x2	36	92	-41	40:ED:00:14:F5:F3	192.168.0.114	e4:60:17:64:e0:33
1.3.29 wlan1	213 bps	2.09 Mbps	0	288.2 Mbps	1.081 Gbps	802.11an-BE 160 2x2	36	97	-45	40:ED:00:14:F5:F3	192.168.0.147	e4:60:17:65:34:7f
1.3.30 wlan2	11 bps	3.086 Mbps	0	288.2 Mbps	1.081 Gbps	802.11an-BE 160 2x2	36	85	-45	40:ED:00:14:F5:F3	192.168.0.194	e4:60:17:64:e0:83
1.3.31 wlan4	11 bps	3.085 Mbps	4.167	288.2 Mbps	720.6 Mbps	802.11an-BE 160 2x2	36	96	-59	40:ED:00:14:F5:F3	192.168.0.175	e4:60:17:65:35:4c
1.3.32 wlan5	11 bps	3.086 Mbps	0	288.2 Mbps	648.5 Mbps	802.11an-BE 160 2x2	36	94	-59	40:ED:00:14:F5:F3	192.168.0.190	e4:60:17:65:35:5b
1.3.33 wlan6	19 bps	3.086 Mbps	4	288.2 Mbps	720.6 Mbps	802.11an-BE 160 2x2	36	89	-59	40:ED:00:14:F5:F3	192.168.0.130	e4:60:17:65:35:1f
1.3.34 wlan8	11 bps	3.086 Mbps	0	34.4 Mbps	216.1 Mbps	802.11an-BE 160 2x2	36	92	-76	40:ED:00:14:F5:F3	192.168.0.169	e4:60:17:65:33:e4
1.3.35 wlan9	215 bps	2.084 Mbps	0	34.4 Mbps	103.2 Mbps	802.11an-BE 160 2x2	36	136	-75	40:ED:00:14:F5:F3	192.168.0.195	e4:60:17:65:33:fd
1.3.36 wlan10	11 bps	3.086 Mbps	0	34.4 Mbps	216.1 Mbps	802.11an-BE 160 2x2	36	89	-76	40:ED:00:14:F5:F3	192.168.0.247	e4:60:17:65:34:e3

Port	Tx-Bps 1m	Rx-Bps 1m	Link-Rate	IP	MAC
1.3.2 eth2	2.359 Mbps	1.491 Kbps	10 Gbps	192.168.0.56	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 %
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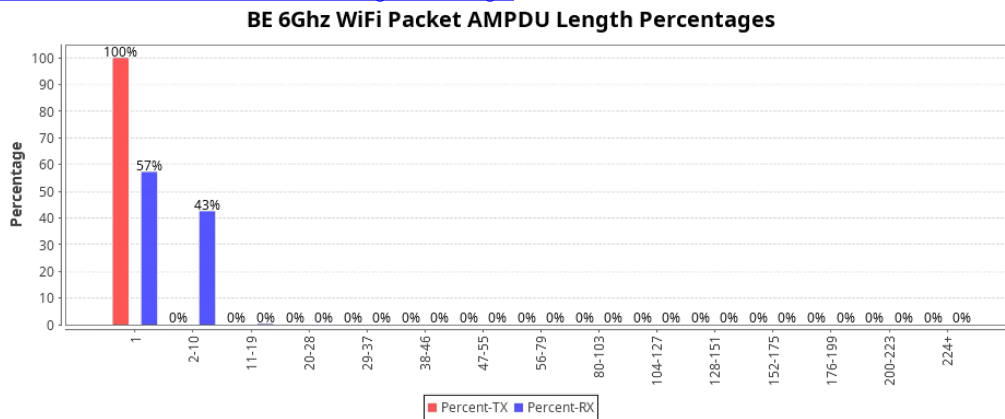
Histogram for WiFi MCS for packets sent and received by the wifi radios in the test.

[CSV Data for BE 6Ghz WiFi Packet MCS Percentages](#)



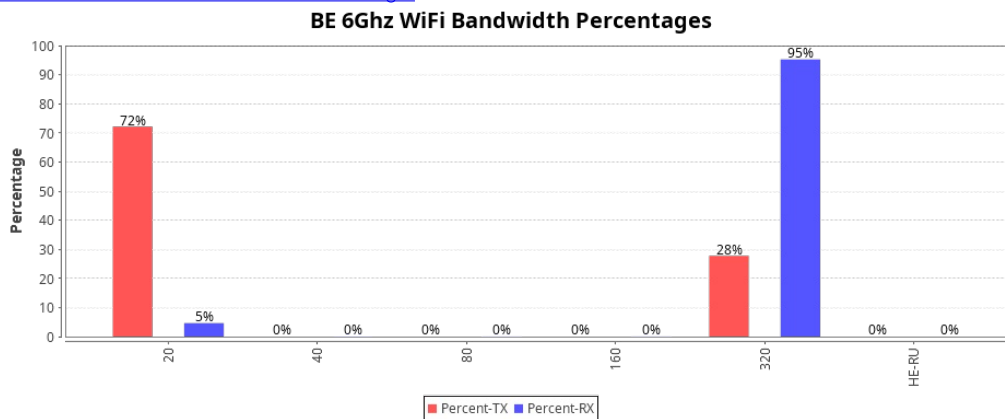
Block-Ack allows a series of frames to be sent in one transmit opportunity. This series of packets is known as a series of AMPDU frames. Having more frames in each AMPDU series normally improves throughput, but may increase latency or decrease airtime fairness. This histogram provides some visibility into the AMPDU chain length used in this test.

[CSV Data for BE 6Ghz WiFi Packet AMPDU Length Percentages](#)



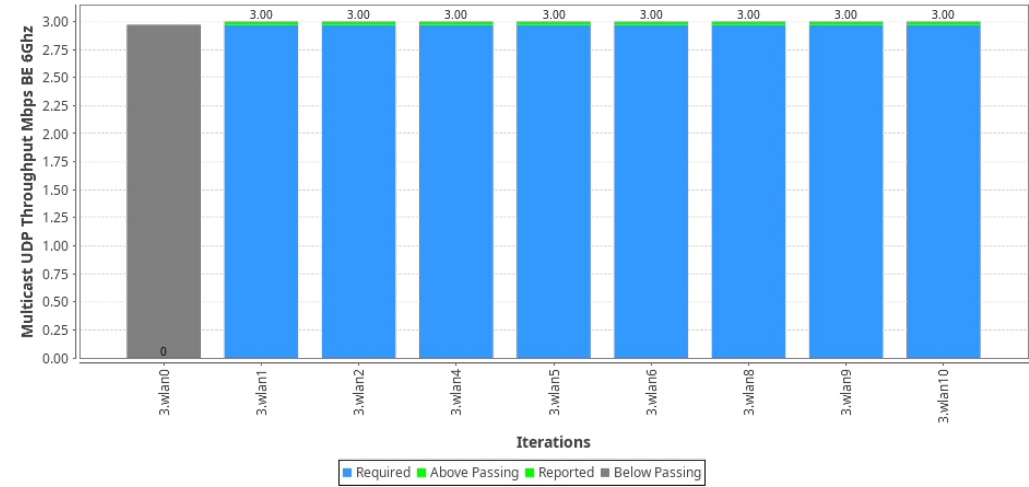
Histogram for WiFi bandwidths for packets sent and received by the wifi radios in the test.

[CSV Data for BE 6Ghz WiFi Bandwidth Percentages](#)



[CSV Data for 6.4.4 Multiple STA Multicast Test](#)

6.4.4 Multiple STA Multicast Test



Collected CSV Data: CSV: 6.4.4 Multiple STA Multicast Test 6Ghz BE

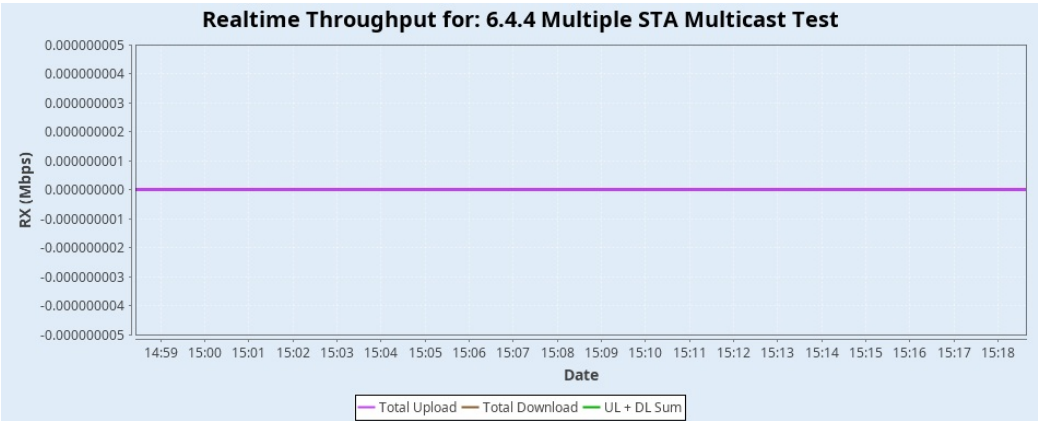
Multicast Snapshot 6Ghz BE

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
1.3.28 wlan0	60 bps	319 bps	3.704	1152.9 Mbps	4.804 Gbps	802.11a-BE 320 2x2	259	53	-48	52:ED:00:14:F5:F4	192.168.0.114	e4:60:17:64:e0:33
1.3.29 wlan1	9 bps	3.085 Mbps	0	1152.9 Mbps	5.187 Gbps	802.11a-BE 320 2x2	259	51	-43	52:ED:00:14:F5:F4	192.168.0.147	e4:60:17:65:34:7f
1.3.30 wlan2	9 bps	3.086 Mbps	0	1152.9 Mbps	5.187 Gbps	802.11a-BE 320 2x2	259	69	-43	52:ED:00:14:F5:F4	192.168.0.194	e4:60:17:64:e0:83
1.3.31 wlan4	9 bps	3.086 Mbps	4.167	34.4 Mbps	3.843 Gbps	802.11a-BE 320 2x2	259	57	-56	52:ED:00:14:F5:F4	192.168.0.175	e4:60:17:65:35:4c
1.3.32 wlan5	9 bps	3.086 Mbps	0	34.4 Mbps	3.843 Gbps	802.11a-BE 320 2x2	259	63	-55	52:ED:00:14:F5:F4	192.168.0.190	e4:60:17:65:35:5b
1.3.33 wlan6	9 bps	3.085 Mbps	0	34.4 Mbps	3.843 Gbps	802.11a-BE 320 2x2	259	67	-56	52:ED:00:14:F5:F4	192.168.0.130	e4:60:17:65:35:1f
1.3.34 wlan8	17 bps	3.086 Mbps	22.581	34.4 Mbps	1.153 Gbps	802.11a-BE 320 2x2	259	66	-68	52:ED:00:14:F5:F4	192.168.0.169	e4:60:17:65:33:e4
1.3.35 wlan9	19 bps	3.086 Mbps	47.917	34.4 Mbps	1.153 Gbps	802.11a-BE 320 2x2	259	52	-68	52:ED:00:14:F5:F4	192.168.0.195	e4:60:17:65:33:fd
1.3.36 wlan10	9 bps	3.086 Mbps	36.111	34.4 Mbps	1.729 Gbps	802.11a-BE 320 2x2	259	62	-68	52:ED:00:14:F5:F4	192.168.0.247	e4:60:17:65:34:e3

Port	Tx-Bps 1m	Rx-Bps 1m	Link-Rate	IP	MAC
1.3.2 eth2	3.094 Mbps	347 bps	10 Gbps	192.168.0.56	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 %
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Realtime Throughput for: 6.4.4 Multiple STA Multicast 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	20
Duration-60	20
Channel 2Ghz	AUTO
Channel 5Ghz	AUTO
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
UDP-Burst	true
UDP-GRO	true
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: ct523c-2103
Alien Upstream Port	1.1.2 eth2 Firmware: 0x80000c67, 1.1276.0 Resource: ct523c-0b0b
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	0
AX Rotation 5Ghz	0
Opposite-Speed:	20000
1 Gbps Throughput Limit:	925000000
Mcast Upstream Port	1.3.2 eth2 Firmware: 0x80000aef, 1.1876.0 Resource: ct523c-2103
Background Scan Module	simple
Background Short Interval	30
Background Long Interval	300
Background RSSI Threshold	-65
Mesh Settle Time:	60
Starting Low Atten:	30
Starting Max Atten:	70
AX Radio 0	1.3.wiphy0 Firmware: 86.fb5c9aeb.0 gl-c0-fm-c0-86.uc Resource: ct523c-2103
AX Radio 1	1.3.wiphy1 Firmware: 86.fb5c9aeb.0 gl-c0-fm-c0-86.uc Resource: ct523c-2103
AX Radio 2	1.3.wiphy2 Firmware: 86.fb5c9aeb.0 gl-c0-fm-c0-86.uc Resource: ct523c-2103
AX Radio 4	1.3.wiphy4 Firmware: 86.fb5c9aeb.0 gl-c0-fm-c0-86.uc Resource: ct523c-2103
AX Radio 5	1.3.wiphy5 Firmware: 86.fb5c9aeb.0 gl-c0-fm-c0-86.uc Resource: ct523c-2103
AX Radio 6	1.3.wiphy6 Firmware: 86.fb5c9aeb.0 gl-c0-fm-c0-86.uc Resource: ct523c-2103
AX Radio 8	1.3.wiphy8 Firmware: 86.fb5c9aeb.0 gl-c0-fm-c0-86.uc Resource: ct523c-2103
AX Radio 9	1.3.wiphy9 Firmware: 86.fb5c9aeb.0 gl-c0-fm-c0-86.uc Resource: ct523c-2103
AX Radio 10	1.3.wiphy10 Firmware: 86.fb5c9aeb.0 gl-c0-fm-c0-86.uc Resource: ct523c-2103

Attenuator 0	rss-i-0-2.4Ghz: -26 rss-i-0-5Ghz: -47 atten: 1.2.3343.0
Attenuator 1	rss-i-0-2.4Ghz: -26 rss-i-0-5Ghz: -47 atten: 1.2.3343.1
Attenuator 4	rss-i-0-2.4Ghz: -19 rss-i-0-5Ghz: -36 atten: 1.2.3342.0
Attenuator 5	rss-i-0-2.4Ghz: -19 rss-i-0-5Ghz: -36 atten: 1.2.3342.1
Attenuator 8	rss-i-0-2.4Ghz: -23 rss-i-0-5Ghz: -33 atten: 1.2.3340.0
Attenuator 9	rss-i-0-2.4Ghz: -23 rss-i-0-5Ghz: -33 atten: 1.2.3340.1
Attenuator 10	rss-i-0-2.4Ghz: -23 rss-i-0-5Ghz: -33 atten: 1.2.3340.2
Attenuator 11	rss-i-0-2.4Ghz: -23 rss-i-0-5Ghz: -33 atten: 1.2.3340.3
AX Attenuator 0	AX rss-i-0-2.4Ghz: -25 rss-i-0-5Ghz: -36 atten: 1.2.3348.0
AX Attenuator 1	AX rss-i-0-2.4Ghz: -25 rss-i-0-5Ghz: -36 atten: 1.2.3348.1
AX Attenuator 4	AX rss-i-0-2.4Ghz: -33 rss-i-0-5Ghz: -35 atten: 1.2.3348.2
AX Attenuator 5	AX rss-i-0-2.4Ghz: -33 rss-i-0-5Ghz: -35 atten: 1.2.3348.3
AX Attenuator 8	AX rss-i-0-2.4Ghz: -34 rss-i-0-5Ghz: -44 atten: 1.2.3300.0
AX Attenuator 9	AX rss-i-0-2.4Ghz: -34 rss-i-0-5Ghz: -44 atten: 1.2.3300.1
AX Attenuator 10	AX rss-i-0-2.4Ghz: -34 rss-i-0-5Ghz: -44 atten: 1.2.3300.2
AX Attenuator 11	AX rss-i-0-2.4Ghz: -34 rss-i-0-5Ghz: -44 atten: 1.2.3300.3
AX Attenuator 24	AX rss-i-0-2.4Ghz: -33 rss-i-0-5Ghz: -35 atten: 1.2.3300.2
AX Attenuator 26	AX rss-i-0-2.4Ghz: -33 rss-i-0-5Ghz: -35 atten: 1.2.3300.3
AX Attenuator 28	AX rss-i-0-2.4Ghz: -33 rss-i-0-5Ghz: -35 atten: 1.2.3300.2
AX Attenuator 30	AX rss-i-0-2.4Ghz: -33 rss-i-0-5Ghz: -35 atten: 1.2.3300.3
Mesh Attenuator 0	Mesh rss-i-0-2.4Ghz: -25 rss-i-0-5Ghz: -30 atten: 1.2.3340.0
Mesh Attenuator 1	Mesh rss-i-0-2.4Ghz: -25 rss-i-0-5Ghz: -30 atten: 1.2.3340.1
Mesh Attenuator 2	Mesh rss-i-0-2.4Ghz: -25 rss-i-0-5Ghz: -30 atten: 1.2.3340.2
Mesh Attenuator 3	Mesh rss-i-0-2.4Ghz: -25 rss-i-0-5Ghz: -30 atten: 1.2.3340.3
Mesh Attenuator 4	Mesh rss-i-0-2.4Ghz: -25 rss-i-0-5Ghz: -30 atten:
Mesh Attenuator 5	Mesh rss-i-0-2.4Ghz: -25 rss-i-0-5Ghz: -30 atten:
Mesh Attenuator 6	Mesh rss-i-0-2.4Ghz: -25 rss-i-0-5Ghz: -30 atten:
Mesh Attenuator 7	Mesh rss-i-0-2.4Ghz: -25 rss-i-0-5Ghz: -30 atten:
Mesh Attenuator 8	Mesh rss-i-0-2.4Ghz: -25 rss-i-0-5Ghz: -30 atten:
Mesh Attenuator 9	Mesh rss-i-0-2.4Ghz: -25 rss-i-0-5Ghz: -30 atten:
Mesh Attenuator 10	Mesh rss-i-0-2.4Ghz: -25 rss-i-0-5Ghz: -30 atten:
Mesh Attenuator 11	Mesh rss-i-0-2.4Ghz: -25 rss-i-0-5Ghz: -30 atten:
Mesh Attenuator 12	Mesh rss-i-0-2.4Ghz: -25 rss-i-0-5Ghz: -30 atten:
Mesh Attenuator 13	Mesh rss-i-0-2.4Ghz: -25 rss-i-0-5Ghz: -30 atten:
Mesh Attenuator 14	Mesh rss-i-0-2.4Ghz: -25 rss-i-0-5Ghz: -30 atten:
Mesh Attenuator 15	Mesh rss-i-0-2.4Ghz: -25 rss-i-0-5Ghz: -30 atten:
Mesh Attenuator 16	Mesh rss-i-0-2.4Ghz: -25 rss-i-0-5Ghz: -30 atten:
Mesh Attenuator 17	Mesh rss-i-0-2.4Ghz: -25 rss-i-0-5Ghz: -30 atten:
Mesh Attenuator 18	Mesh rss-i-0-2.4Ghz: -25 rss-i-0-5Ghz: -30 atten:
Mesh Attenuator 19	Mesh rss-i-0-2.4Ghz: -25 rss-i-0-5Ghz: -30 atten:
Mesh Attenuator 20	Mesh rss-i-0-2.4Ghz: -25 rss-i-0-5Ghz: -30 atten:
Mesh Attenuator 21	Mesh rss-i-0-2.4Ghz: -25 rss-i-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: ct523c-0b0b LANforge ver: 5.4.7 64bit Kernel-Version: 6.7.0-rc1+
Details for Resource: 1.3	Hostname: ct523c-2103 LANforge ver: 5.4.7 64bit Kernel-Version: 6.7.0-rc3+
Details for Resource: 1.4	Hostname: ct523c-ccbc LANforge ver: 5.4.7 64bit Kernel-Version: 6.7.0-rc3+
Show Events	true
Build Date	Wed Dec 6 02:36:02 PM PST 2023
Git Version	9c047f9ea34dce58a018a397c9e9eeb4a3120d1e

[CSV Data](#)

[META Information for TR-398 Issue 4](#)