Dataplane Test

Fri Aug 08 04:34:36 PDT 2025

| Test Setup Information		
Device Under Test	Name	TPLink_3C7E
	Software Version	1.2.3 Build 20250314 rel.45415(5553)
	SSIDs	TP-Link_3C7E TP-Link_3C7E_5G TP-Link_3C7E_6G TP-Link_3C7E_MLO
	Passwords	25520545 25520545 25520545 25520545
	BSSIDs	8c:90:2d:0d:3c:80 8c:90:2d:0d:3c:81 8c:90:2d:0d:3c:82
	Notes	[BLANK]

Objective

The Candela WiFi data plane test is designed to conduct an automatic testing of all combinations of station types, MIMO types, Channel Bandwidths, Traffic types, Traffic direction, Frame sizes etc… It will run a quick throughput test at every combination of these test variables and plot all the results in a set of charts to compare performance. The user is allowed to define an intended load as a percentage of the max theoretical PHY rate for every test combination. The expected behavior is that for every test combination the achieved throughput should be at least 70% of the theoretical max PHY rate under ideal test conditions. This test provides a way to go through hundreds of combinations in a fully automated fashion and very easily find patterns and problem areas which can be further debugged using more specific testing.

Test Results

| Type	Result	Value	P/F Value	Notes

Throughput for each different traffic type. The throughput data shown is the average throughput for the related reporting interval (1-minute for normal and -LL, 3-seconds for -3s). Datasets with names containing '-LL'will include the IP, TCP, UDP and Ethernet header bytes in their calculation. For Armageddon traffic only, low-level throughput includes the Ethernet FCS and preamble. Other datasets report 'goodput' for the protocol. If 'Show Opposite Traffic' is enabled, download is represented by brown and upload is represented by purple, with the varying shades signifying 3s, 1m, and low-level throughput results.

[CSV Data for Throughput vs Loops](#)
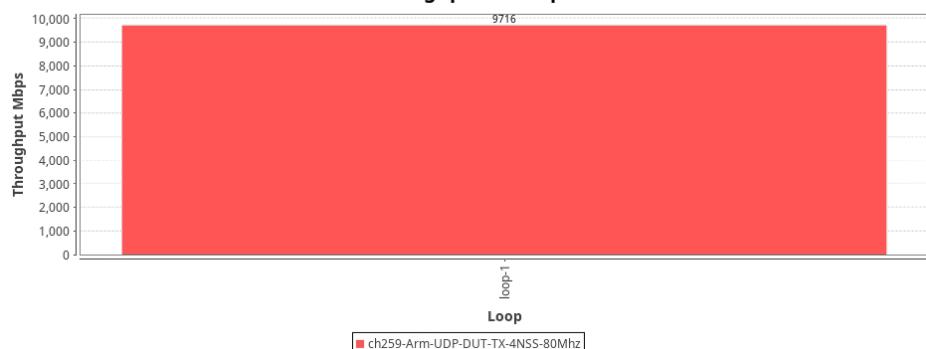
Pps throughput for each different traffic type. The values are estimated packets-per-second over the DUT, but some protocols such as TCP make this difficult to know for certain, so the value is extrapolated.

RX Pps vs Loops
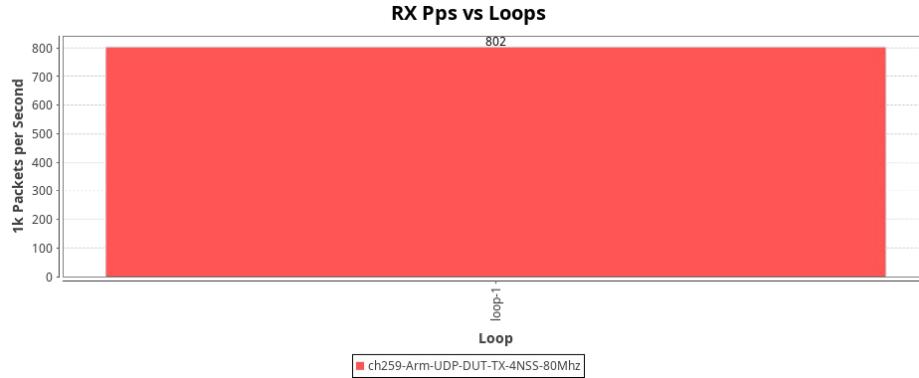
Latency for each different traffic type. If opposite-direction traffic is non-zero, then round-trip time will be reported. Otherwise, one-way latency will be reported.

Latency vs Loops
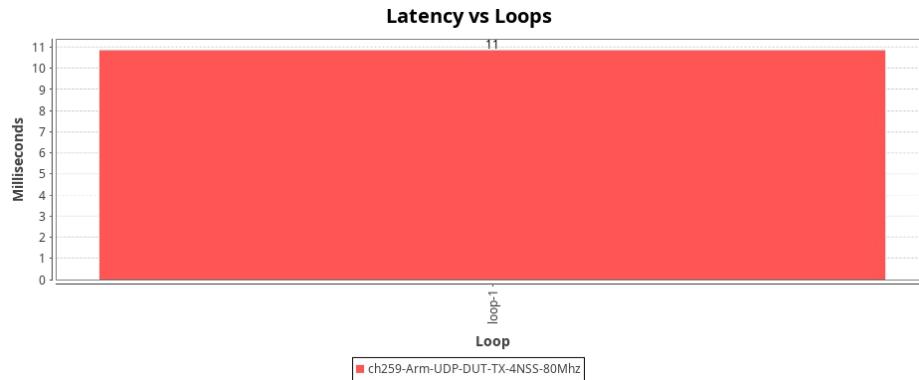

Throughput vs WiFi Link Rate (Phy Rate) for each different traffic type.

Throughput vs WiFi Link Rate

Realtime Graph shows summary download and upload RX Goodput rate of connections created by this test. Goodput does not include Ethernet, IP, UDP/TCP header overhead.

Realtime Throughput
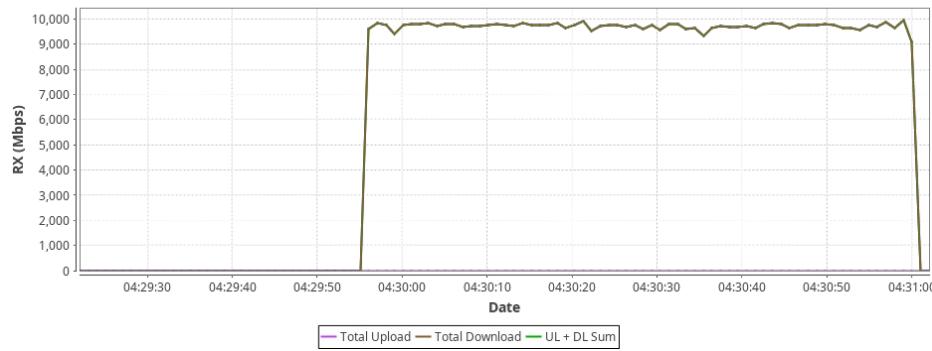
Realtime Link Graph shows summary download and upload RX rate for WiFi MLO Links.

CSV Data for Realtime MLO Link Throughput

Realtime MLO Link Throughput
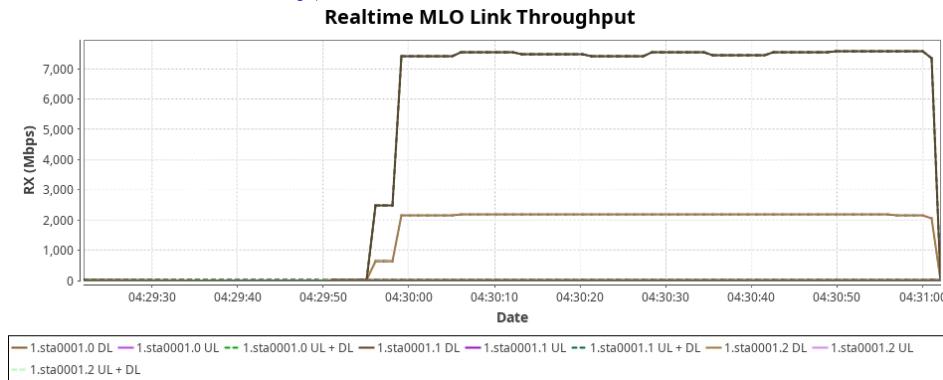
Histogram for WiFi MCS for packets sent and received by the wifi radios in the test.

CSV Data for WiFi Packet MCS Percentages

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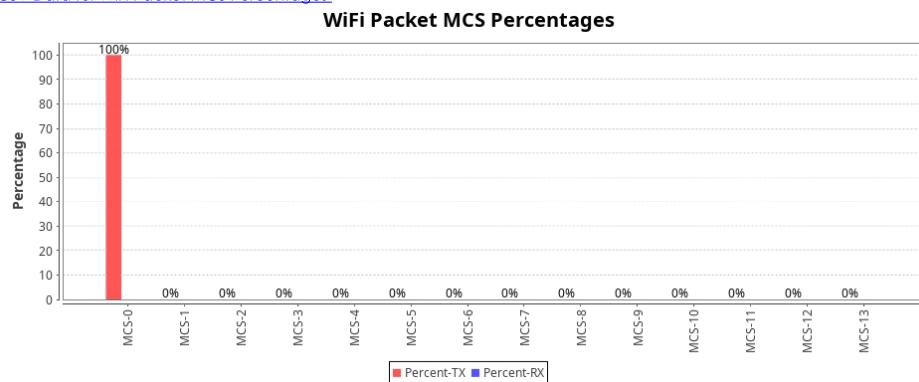
Block-Ack allows a series of frames to be sent in one transmit opportunity. This series of packets is known as a series of AMPDU frames. Having more frames in each AMPDU series normally improves throughput, but may increase latency or decrease airtime fairness. This histogram provides some visibility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

CSV Data for WiFi Packet AMPDU Length Percentages

WiFi Packet AMPDU Length Percentages
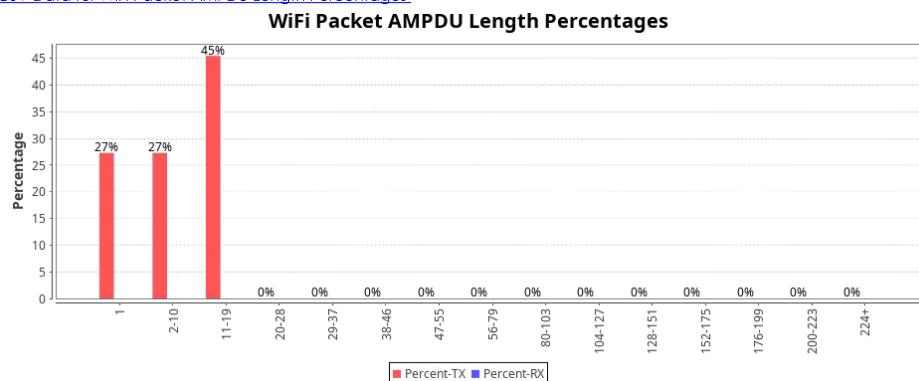
Histogram for WiFi bandwidths for packets sent and received by the wifi radios in the test.

WiFi Bandwidth Percentages
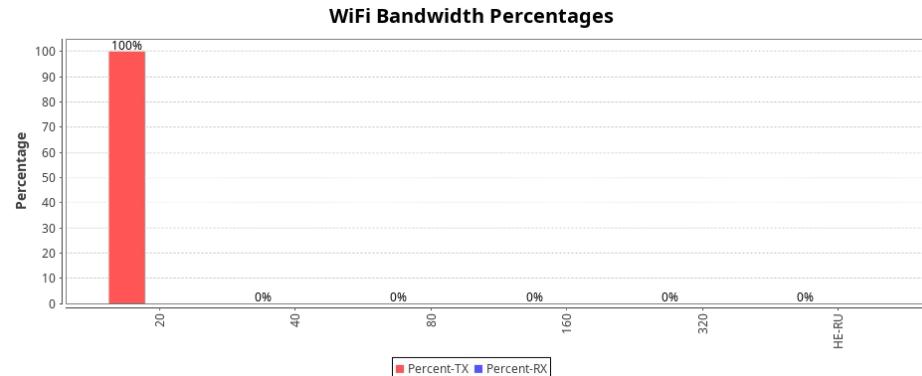
Test Information

Message
Starting dataplane test with: 1 iterations.

Constant values related to the table below.

Iteration-Duration	60s

CSV data focused on throughput. The values reported are gathered at the end of the test iteration before traffic is stopped. The test iterations consider 'Received' traffic to be received in the dominant direction. So, if the iteration is DUT-TX, then Received traffic is traffic received on the Station from the AP. If the iteration is DUT-RX, then Received traffic is received on Ethernet port from DUT and sent by the station. Columns starting with RSSI are from the perspective of the Station, so Tx-Rate is the Station transmit Phy Rate, and Rx-Rate is the Phy Rate received by the station. The Rx-Bps column shows the throughput average of the entire test duration. The Rx-Bps-1m/LL/3s and related columns show the throughput average from the previous report inveral of the test, 1-minute for -1m and -LL, 3-seconds for -3s. Rpt-Mode is negotiated mode, not necessarily Phy Rate mode.

Channel	Frequency	Security	NSS	Cfg-Mode	Bandwidth	Pkt	Traffic-Type	Direction	Atten	Rotation	Tilt	Offered-1m	Rx-Bps	Rx-Bps-1m	Rx-Bps-LL	Rx-Bps-3s	Rx-Bps-1m-DL	Rx-Bps-1m-UL	Rx-Bps-LL-DL	Rx-Bps-LL-UL	Rx-Bps-3s-DL	Rx-Bps-3s-UL	RSSI	Tx-Failed	Tx-Failed%	Tx-Rate	Rx-Rate	Rpt-Mode	Rpt-Mode-Brief
259	6295	WPA3	4	AUTO	80	MTU	Arm-UDP	DUT-TX	NA	NA	NA	9.733 Gbps	9.694 Gbps	9.716 Gbps	9.87 Gbps	9.787 Gbps	9.716 Gbps	0 bps	9.87 Gbps	0 bps	9.787 Gbps	0 bps	-33	0 / 51004742	0	8.6 Mbps	10.374 Gbps	802.11an-BE	802.11be

CSV data focussed on TX and RX Link Rate and RSSI reports. The values reported are gathered at the end of the test iteration before traffic is stopped. The Phy Rate and RSSI are from the perspective of the Station, so Tx-MCS is MCS at which station is sending to the AP, and Rx-MCS is MCS at which the AP is sending to the station.

Channel	Frequency	Security	NSS	Cfg-Mode	Bandwidth	Pkt	Traffic-Type	Direction	Tx-Mode-Rpt	Tx-NSS-Rpt	Tx-MCS	Tx-BW-Rpt	Rx-Mode-Rpt	Rx-NSS-Rpt	Rx-MCS	Rx-BW-Rpt	RSSI dBm	Tx-Phy-Rate	Rx-Phy-Rate
259	6295	WPA3	4	AUTO	80	MTU	Arm-UDP	DUT-TX	EHT	4	2	80	OFDM	1	0	80	-33 [-38, -39, -42, -35]	432.3 MBit/s 80MHz EHT-MCS 2 EHT-NSS 4 EHT-GI 0	2882.3 MBit/s 80MHz EHT-MCS 13 EHT-NSS 4 EHT-GI 0

Brief csv report, may be imported into third-party tools.

Step Index	Position [Deg]	Tilt [Deg]	Attenuation [dB]	Throughput [Mbps]	Beacon RSSI [dBm]	Data RSSI [dBm]
0	NA	NA	0	9,693.56	0	-33

Throughput metrics csv report, may be imported into third-party tools.

Loop Iteration	Attenuation [dB]	Minimum Tput [Mbps]	Avg Throughput [Mbps]	Maximum Tput [Mbps]
0	0	9,693.56	9,693.56	9,693.56

Test configuration and LANforge software version	
AP Tx Power:	0
Path Loss	0
Requested Speed	10Gbps
Requested Opposite Speed	0Kbps
Multi-Conn	10
Multi-Cx	4
Armageddon Multi-Pkt	1000
Stop After Failures:	3
ToS	0
Station Bringup Wait:	30 sec (30 s)
First Byte Wait:	30 sec (30 s)
Duration:	1 min (1 m)
Settle Time:	1 sec (1 s)
Send Buffer Size:	OS Default
Receive Buffer Size:	OS Default
RvR Helper Script:	
P2P App:	
Channels	AUTO
Spatial Streams	AUTO
Bandwidth	AUTO
Attenuator-1	0
Attenuation-1	0..+50..950
Attenuator-2	0
Attenuation-2	0..+50..950
Turntable Chamber	0
Turntable Angles	0..+45..359
Modes	AUTO
Packet Size	MTU
Security	AUTO
Traffic Type	Arm-UDP
Direction	DUT Transmit
Upstream Port	1.1.eth2 Firmware: 0x80000aef, 1.1876.0 Resource: ct523c-3011
WiFi Port	1.1.sta0001 Resource: ct523c-3011
Continuous Traffic	false
Maximize Unused Attenuators	true
Admin Down Other Ports	true
Admin Down Test Ports	false
DUT Connects to Mgt Port	false
UDP-Burst	false
UDP-GRO	true
Use Iperf3	false
Modify Interop WiFi	false
No DHCP Lease Expected	false
No Station Expected	false
Pause on WiFi Errors	false

Outer Loop is Attenuation	false
Show Events	true
Auto Save Report	false
Ignore Upstream RSSI	false
Pass-Fail Tput Criteria	
Build Date	Fri Jul 25 06:42:47 PM PDT 2025
Build Version	5.5.1
Git Version	9448b77212e8b7890c3857eb4a231d6f501c1cb0

META Information for Dataplane Test

Candela
TECHNOLOGIES