Rate vs Range Test

Fri Jul 09 10:18:16 PDT 2021

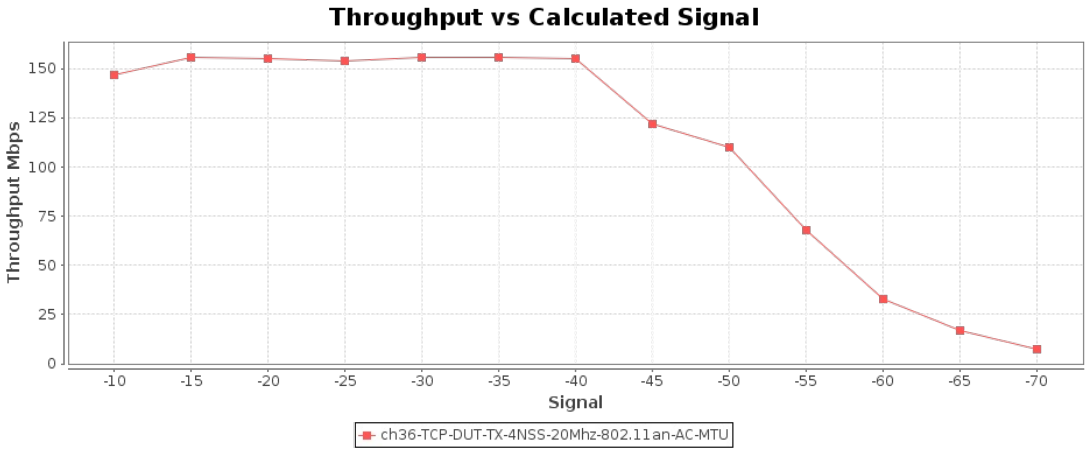
Test Setup Information				
Device Under Test	Name	advanced-02		
	Software Version	eap102-2021-06-25-pending-b6743c3.tar.g	Hardware Version	eap102
	Model Number	eap102	Serial Number	903cb39d6959
	SSIDs	ssid_wpa2_5g		
	Passwords	something		
	BSSIDs	90:3c:b3:9d:6a:01		
	Notes	[BLANK]		

Objective

This test measures the performance over distance of the Device Under Test. Distance is emulated using programmable attenuation and a throughput test is run at each distance/RSSI step and plotted on a chart. The test allows the user to plot RSSI curves both upstream and downstream for different types of traffic and different station types.

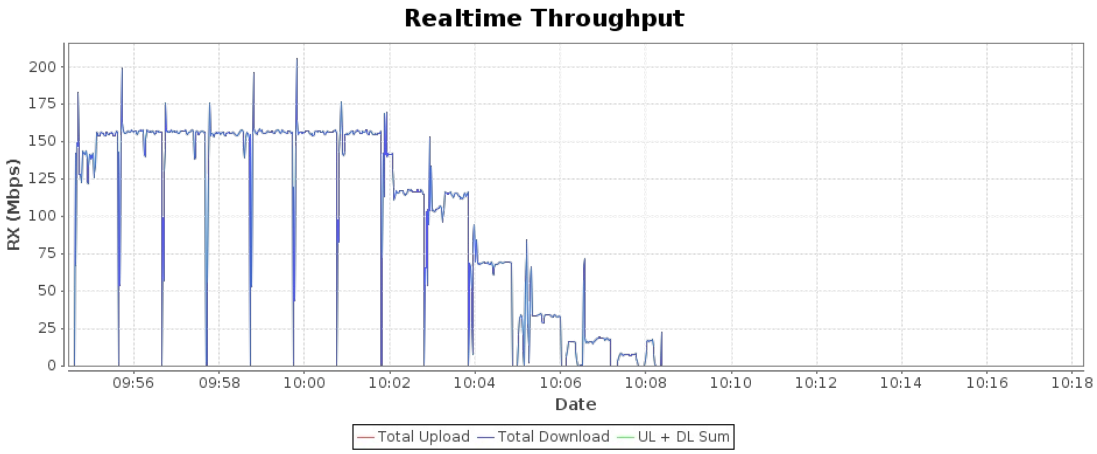
Throughput vs calculated RF Signal for each different traffic type. The signal is calculated based on the configured path-loss, transmit power, and attenuation.

CSV Data for Throughput vs Calculated Signal



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.

CSV Data for Realtime Throughput

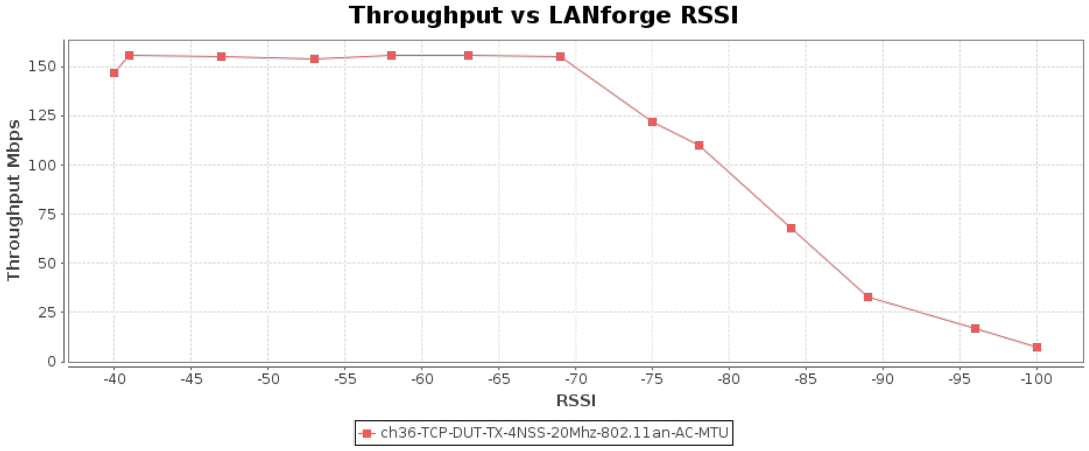


Test Information

Message
Starting Rate vs Range test with: 20 iterations.

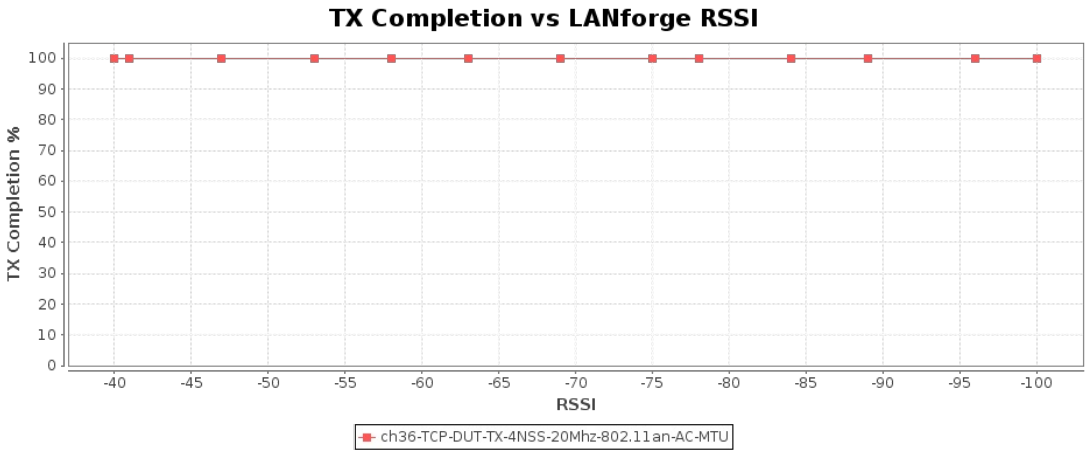
Throughput vs reported RSSI for each different traffic type. Please note that the LANforge RSSI may be similar to the remote Device Under Test RSSI but there is no guarantee of this. Differences in tx-power and RF splitter/combiners can cause different RSSI as reported by LANforge and the remote peer device.

CSV Data for Throughput vs LANforge RSSI



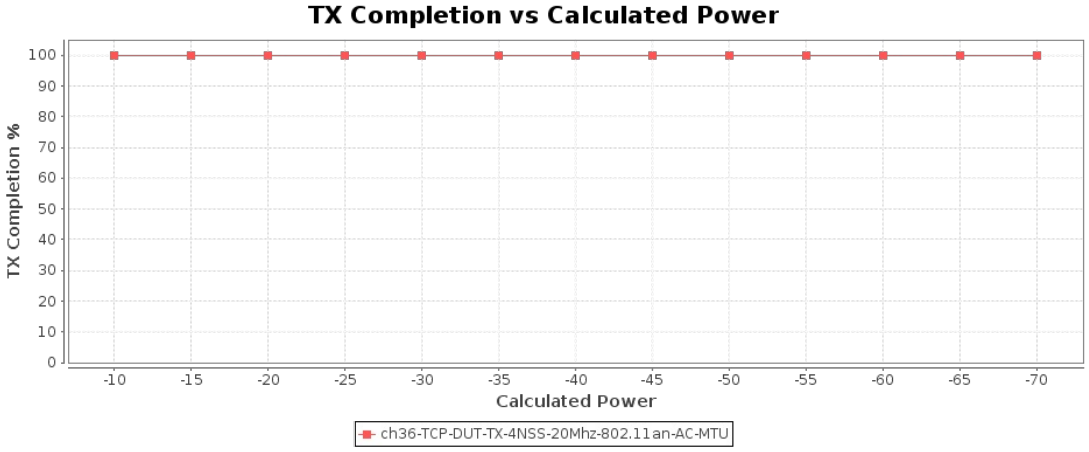
TX Completion vs LANforge RSSI for each MCS Encoding Rate. Please note that the LANforge RSSI may be similar to the remote Device Under Test RSSI but there is no guarantee of this. Differences in tx-power and RF splitter/combiners can cause different RSSI as reported by LANforge and the remote peer device.

CSV Data for TX Completion vs LANforge RSSI



TX Completion vs Calculated Signal Power for each MCS Encoding Rate.

CSV Data for TX Completion vs Calculated Power



Channel	Frequency	Security	NSS	Cfg-Mode	Bandwidth	Pkt	Traffic-Type	Direction	Atten	Rotation	Duration	Offered-1m	Rx-Bps	Rx-Bps-1m	Rx-Bps-LL	Rx-Bps-3s	RSSI	Tx-Failed	Tx-Failed%	Tx-Rate	Rx-Rate	Rpt-Mode	Rpt-Mode-Brief
36	5180	WPA2	4	802.11an-AC	20	MTU	TCP	DUT-TX	0	NA	60	146.82 Mbps	146.795 Mbps	146.776 Mbps	152.423 Mbps	156.154 Mbps	-40	0 / 783763	0	173.3 Mbps	192.7 Mbps	802.11an-AC	802.11ac
36	5180	WPA2	4	802.11an-AC	20	MTU	TCP	DUT-TX	5.0	NA	60	155.599 Mbps	155.522 Mbps	155.6 Mbps	161.587 Mbps	157.29 Mbps	-41	0 / 810081	0	173.3 Mbps	192.7 Mbps	802.11an-AC	802.11ac
36	5180	WPA2	4	802.11an-AC	20	MTU	TCP	DUT-TX	10.0	NA	60	155.333 Mbps	155.292 Mbps	155.393 Mbps	161.372 Mbps	156.205 Mbps	-47	0 / 790796	0	173.3 Mbps	192.7 Mbps	802.11an-AC	802.11ac
36	5180	WPA2	4	802.11an-AC	20	MTU	TCP	DUT-TX	15.0	NA	60	153.961 Mbps	154.189 Mbps	154.178 Mbps	160.11 Mbps	152.549 Mbps	-53	0 / 797719	0	156 Mbps	192.7 Mbps	802.11an-AC	802.11ac
36	5180	WPA2	4	802.11an-AC	20	MTU	TCP	DUT-TX	20.0	NA	60	155.415 Mbps	155.403 Mbps	155.456 Mbps	161.437 Mbps	143.558 Mbps	-58	0 / 808738	0	115.6 Mbps	192.7 Mbps	802.11an-AC	802.11ac
36	5180	WPA2	4	802.11an-AC	20	MTU	TCP	DUT-TX	25.0	NA	60	155.833 Mbps	155.908 Mbps	155.948 Mbps	161.948 Mbps	155.529 Mbps	-63	0 / 804476	0	173.3 Mbps	192.7 Mbps	802.11an-AC	802.11ac
36	5180	WPA2	4	802.11an-AC	20	MTU	TCP	DUT-TX	30.0	NA	60	154.917 Mbps	154.977 Mbps	154.968 Mbps	160.93 Mbps	156.495 Mbps	-69	0 / 830044	0	173.3 Mbps	192.7 Mbps	802.11an-AC	802.11ac
36	5180	WPA2	4	802.11an-AC	20	MTU	TCP	DUT-TX	35.0	NA	60	121.769 Mbps	121.911 Mbps	121.815 Mbps	126.499 Mbps	115.484 Mbps	-75	0 / 637088	0	144.4 Mbps	144.4 Mbps	802.11an-AC	802.11ac
36	5180	WPA2	4	802.11an-AC	20	MTU	TCP	DUT-TX	40.0	NA	60	109.862 Mbps	109.866 Mbps	109.898 Mbps	114.124 Mbps	115.673 Mbps	-78	0 / 575735	0	78 Mbps	144.4 Mbps	802.11an-AC	802.11ac
36	5180	WPA2	4	802.11an-AC	20	MTU	TCP	DUT-TX	45.0	NA	60	69.791 Mbps	68.046 Mbps	68.063 Mbps	70.681 Mbps	68.569 Mbps	-84	0 / 363446	0	115.6 Mbps	86.7 Mbps	802.11an-AC	802.11ac
36	5180	WPA2	4	802.11an-AC	20	MTU	TCP	DUT-TX	50.0	NA	60	34.615 Mbps	32.539 Mbps	33.212 Mbps	34.488 Mbps	32.443 Mbps	-89	0 / 187115	0	28.9 Mbps	43.3 Mbps	802.11an-AC	802.11ac
36	5180	WPA2	4	802.11an-AC	20	MTU	TCP	DUT-TX	55.0	NA	60	19.524 Mbps	16.286 Mbps	16.632 Mbps	17.264 Mbps	17.33 Mbps	-96	0 / 98741	0	28.9 Mbps	28.9 Mbps	802.11an-AC	802.11ac
36	5180	WPA2	4	802.11an-AC	20	MTU	TCP	DUT-TX	60.0	NA	60	10.237 Mbps	6.852 Mbps	7.317 Mbps	7.581 Mbps	22.397 Mbps	-100	0 / 54282	0	19.5 Mbps	13 Mbps	802.11an-AC	802.11ac
36	5180	WPA2	4	802.11an-AC	20	MTU	TCP	DUT-TX	65.0	NA	60	0 bps	0 bps	0 bps	0 bps	0 bps	0	0 / 38	0	0 Mbps	0 bps	802.11an-AC	802.11ac
36	5180	WPA2	4	802.11an-AC	20	MTU	TCP	DUT-TX	70.0	NA	60	0 bps	0 bps	0 bps	0 bps	0 bps	0	0 / 33	0	0 Mbps	0 bps	802.11an-AC	802.11ac
36	5180	WPA2	4	802.11an-AC	20	MTU	TCP	DUT-TX	75.0	NA	60	0 bps	0 bps	0 bps	0 bps	0 bps	0	0 / 31	0	0 Mbps	0 bps	802.11an-AC	802.11ac

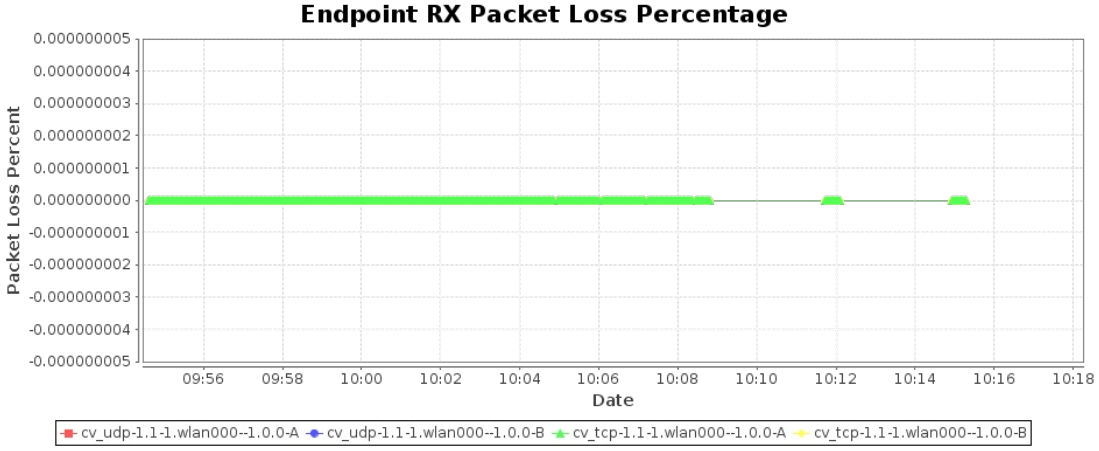
Brief csv report, may be imported into third-party tools.

Step Index	Position [Deg]	Attenuation [dB]	Throughput [Mbps]	Beacon RSSI [dBm]	Data RSSI [dBm]
0	NA	0	146.80	-36	-40

1	NA	5.00	155.52	-39	-41
2	NA	10.00	155.29	-45	-47
3	NA	15.00	154.19	-50	-53
4	NA	20.00	155.40	-55	-58
5	NA	25.00	155.91	-61	-63
6	NA	30.00	154.98	-67	-69
7	NA	35.00	121.91	-73	-75
8	NA	40.00	109.87	-76	-78
9	NA	45.00	68.05	-83	-84
10	NA	50.00	32.54	-87	-89
11	NA	55.00	16.29	-93	-96
12	NA	60.00	6.85	-97	-100
13	NA	65.00	0	0	0
14	NA	70.00	0	0	0
15	NA	75.00	0	0	0

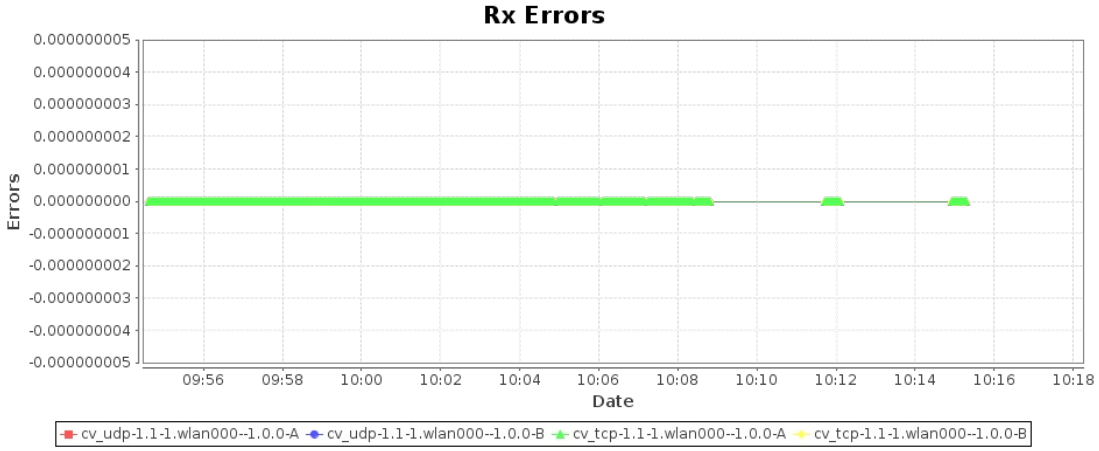
Packet Loss Percentage graph shows the percentage of lost packets as detected by the receiving endpoint due to packet gaps. If there is full packet loss, then this will not report any loss since there will be no gap to detect.

CSV Data for Endpoint RX Packet Loss Percentage



Error Graph shows occurances of packet errors.

CSV Data for Rx Errors



Test configuration and LANforge software version	
Path Loss	10
Requested Speed	85%
Requested Opposite Speed	0
Multi-Conn	1

Armageddon Multi-Pkt	1000
ToS	0
Duration:	1 min (1 m)
Settle Time:	1 sec (1 s)
Send Buffer Size:	OS Default
Receive Buffer Size:	OS Default
Channels	AUTO
Spatial Streams	AUTO
Bandwidth	AUTO
Attenuator-1	1.1.3034
Attenuation-1	0..+50..950
Attenuator-2	1.1.3059
Attenuation-2	0..+50..950
Turntable Chamber	0
Turntable Angles	0..+45..359
Modes	802.11an-AC
Packet Size	MTU
Security	AUTO
Traffic Type	TCP
Direction	DUT Transmit
Upstream Port	1.1.eth1 Firmware: 0. 6-1 Resource: ct523c-ccb0
WiFi Port	1.1.wlan000 Firmware: 10.4b-ct-9984-xtH-13-774502ee5 Resource: ct523c-ccb0
Outer Loop is Attenuation	false
Show Events	true
Auto Save Report	true
Build Date	Mon 07 Jun 2021 07:26:45 AM PDT
Build Version	5.4.3
Git Version	a02ee42f17056fc2425a66b79be72767ca431a0b

Key Performance Indicators CSV