Rate vs Range Test

Fri Jul 09 09:34:56 PDT 2021

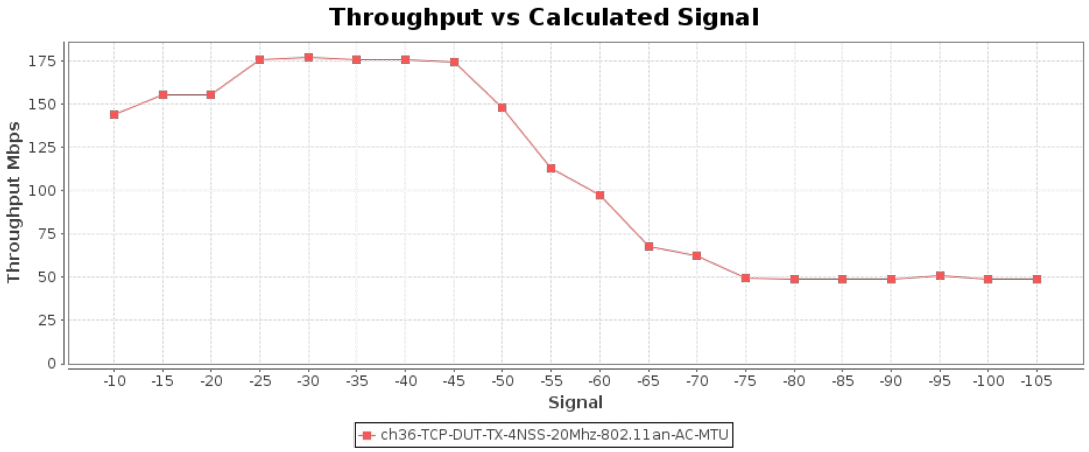
Test Setup Information				
Device Under Test	Name	advanced-02		
	Software Version	eap102-2021-06-25-pending-b6743c3.tar.g	Hardware Version	eap102
	Model Number	eap102	Serial Number	903cb39d6959
	SSIDs	ssid_wpa2_5g		
	Passwords	something		
	BSSIDs	90:3c:b3:9d:6a:01		
	Notes	[BLANK]		

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.

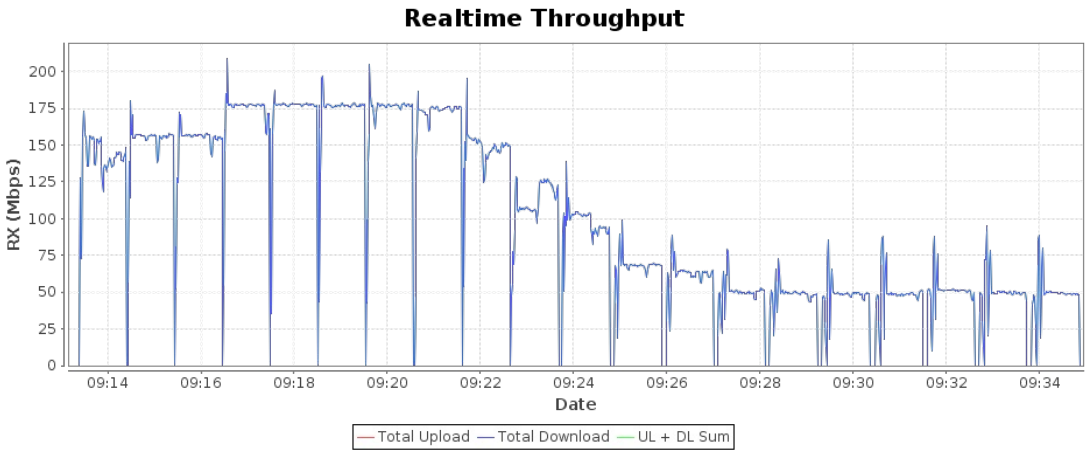
Throughput vs calculated RF Signal for each different traffic type. The signal is calculated based on the configured path-loss, transmit power, and attenuation.

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

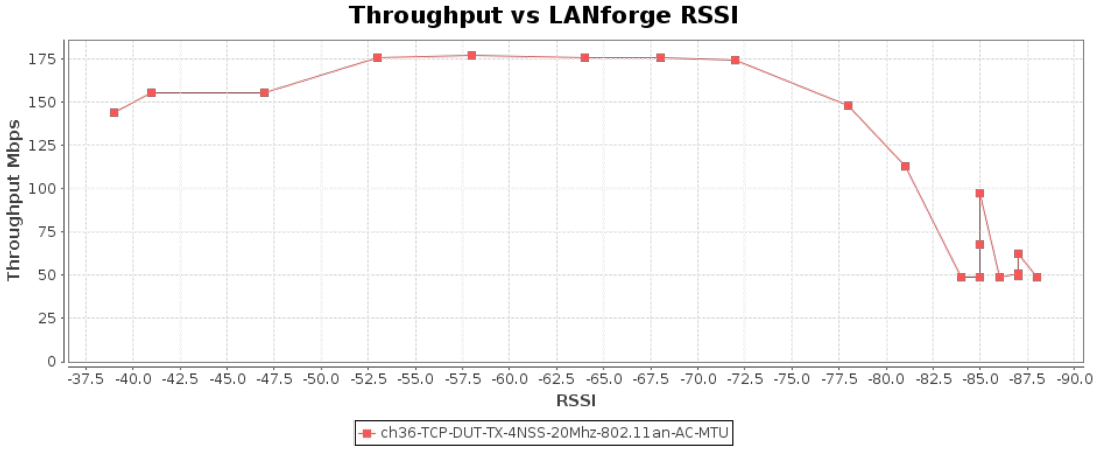


Test Information

Message
Starting Rate vs Range test with: 20 iterations.

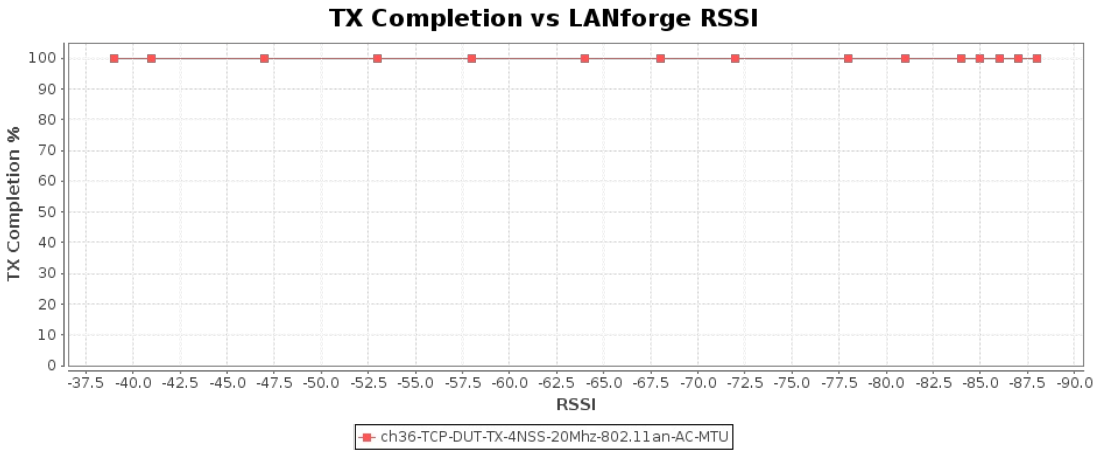
Throughput vs reported RSSI for each different traffic type. Please note that the LANforge RSSI may be similar to the remote Device Under Test RSSI but there is no guarantee of this. Differences in tx-power and RF splitter/combiners can cause different RSSI as reported by LANforge and the remote peer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

CSV Data for Throughput vs LANforge RSSI



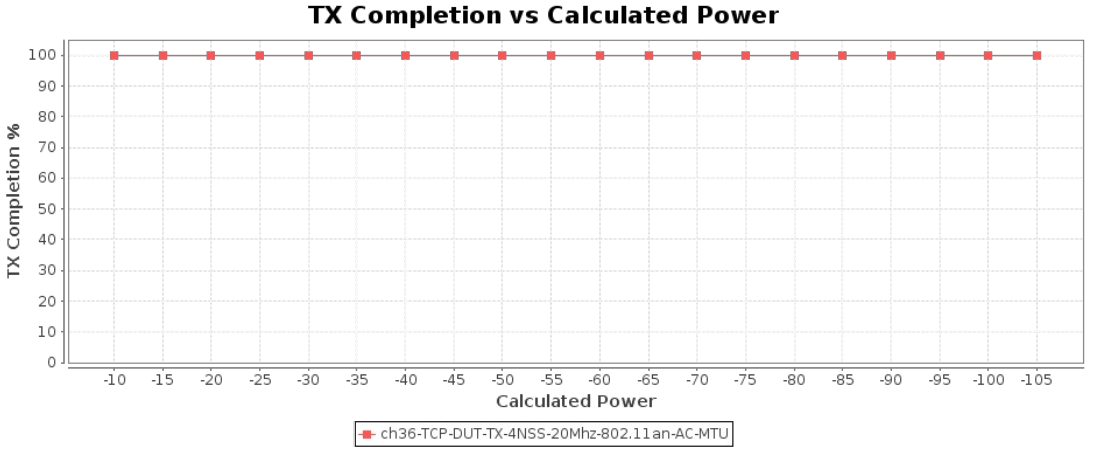
TX Completion vs LANforge RSSI for each MCS Encoding Rate. Please note that the LANforge RSSI may be similar to the remote Device Under Test RSSI but there is no guarantee of this. Differences in tx-power and RF splitter/combiners can cause different RSSI as reported by LANforge and the remote peer device.

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



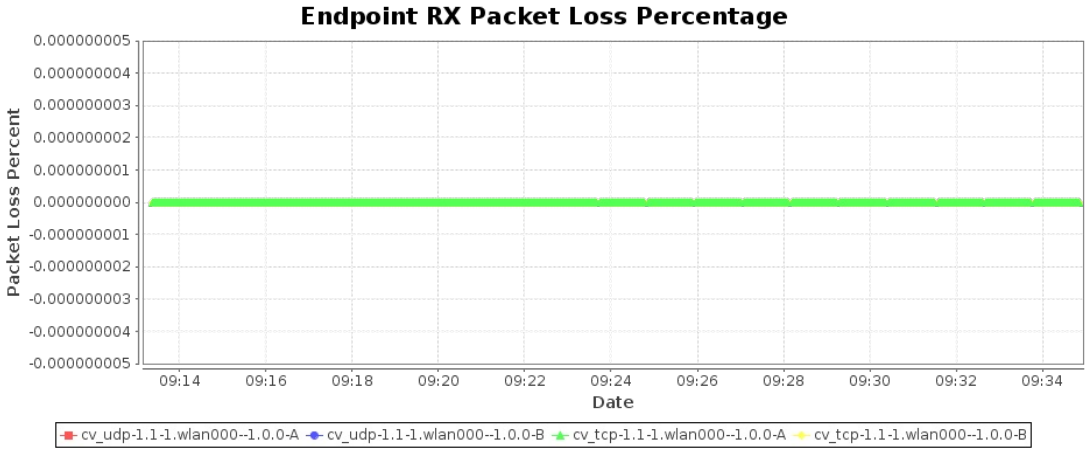
Channel	Frequency	Security	NSS	Cfg-Mode	Bandwidth	Pkt	Traffic-Type	Direction	Atten	Rotation	Duration	Offered-1m	Rx-Bps	Rx-Bps-1m	Rx-Bps-LL	Rx-Bps-3s	RSSI	Tx-Failed	Tx-Failed%	Tx-Rate	Rx-Rate	Rpt-Mode	Rpt-Mode-Brief
36	5180	WPA2	4	802.11an-AC	20	MTU	TCP	DUT-TX	0	NA	60	144.02 Mbps	144.119 Mbps	144.109 Mbps	149.653 Mbps	148.449 Mbps	-39	0 / 767179	0	144.4 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	155.538 Mbps	155.161 Mbps	155.573 Mbps	161.558 Mbps	156.201 Mbps	-41	0 / 791319	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	155.544 Mbps	155.497 Mbps	155.49 Mbps	161.472 Mbps	154.731 Mbps	-47	0 / 832788	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	175.635 Mbps	175.702 Mbps	175.729 Mbps	182.491 Mbps	169.178 Mbps	-53	0 / 937145	0	195 Mbps	216.7 Mbps	802.11an-AC	802.11ac
36	5180	WPA2	4	802.11an-AC	20	MTU	TCP	DUT-TX	20.0	NA	60	177.352 Mbps	177.497 Mbps	177.507 Mbps	184.336 Mbps	178.53 Mbps	-58	0 / 949232	0	234 Mbps	216.7 Mbps	802.11an-AC	802.11ac
36	5180	WPA2	4	802.11an-AC	20	MTU	TCP	DUT-TX	25.0	NA	60	176.18 Mbps	176.171 Mbps	176.233 Mbps	183.014 Mbps	177.606 Mbps	-64	0 / 894868	0	208 Mbps	216.7 Mbps	802.11an-AC	802.11ac
36	5180	WPA2	4	802.11an-AC	20	MTU	TCP	DUT-TX	30.0	NA	60	176.147 Mbps	176.2 Mbps	176.222 Mbps	183.002 Mbps	178.229 Mbps	-68	0 / 942873	0	216.7 Mbps	216.7 Mbps	802.11an-AC	802.11ac
36	5180	WPA2	4	802.11an-AC	20	MTU	TCP	DUT-TX	35.0	NA	60	174.853 Mbps	173.689 Mbps	174.866 Mbps	181.593 Mbps	174.445 Mbps	-72	0 / 959467	0	234 Mbps	216.7 Mbps	802.11an-AC	802.11ac
36	5180	WPA2	4	802.11an-AC	20	MTU	TCP	DUT-TX	40.0	NA	60	148.019 Mbps	148.507 Mbps	148.458 Mbps	154.168 Mbps	149.312 Mbps	-78	0 / 769848	0	104 Mbps	195 Mbps	802.11an-AC	802.11ac
36	5180	WPA2	4	802.11an-AC	20	MTU	TCP	DUT-TX	45.0	NA	60	113.016 Mbps	112.947 Mbps	112.999 Mbps	117.341 Mbps	122.606 Mbps	-81	0 / 593693	0	86.7 Mbps	173.3 Mbps	802.11an-AC	802.11ac
36	5180	WPA2	4	802.11an-AC	20	MTU	TCP	DUT-TX	50.0	NA	60	97.78 Mbps	97.728 Mbps	97.709 Mbps	101.465 Mbps	94.113 Mbps	-85	0 / 524894	0	117 Mbps	130 Mbps	802.11an-AC	802.11ac
36	5180	WPA2	4	802.11an-AC	20	MTU	TCP	DUT-TX	55.0	NA	60	67.714 Mbps	67.752 Mbps	67.776 Mbps	70.383 Mbps	68.277 Mbps	-85	0 / 360558	0	130 Mbps	86.7 Mbps	802.11an-AC	802.11ac
36	5180	WPA2	4	802.11an-AC	20	MTU	TCP	DUT-TX	60.0	NA	60	63.239 Mbps	62.61 Mbps	62.632 Mbps	65.039 Mbps	65.214 Mbps	-87	0 / 334671	0	58.5 Mbps	86.7 Mbps	802.11an-AC	802.11ac
36	5180	WPA2	4	802.11an-AC	20	MTU	TCP	DUT-TX	65.0	NA	60	49.784 Mbps	49.782 Mbps	49.811 Mbps	51.723 Mbps	49.995 Mbps	-87	0 / 274565	0	78 Mbps	65 Mbps	802.11an-AC	802.11ac
36	5180	WPA2	4	802.11an-AC	20	MTU	TCP	DUT-TX	70.0	NA	60	49.042 Mbps	49.015 Mbps	49.005 Mbps	50.887 Mbps	49.257 Mbps	-84	0 / 263183	0	65 Mbps	65 Mbps	802.11an-AC	802.11ac
36	5180	WPA2	4	802.11an-AC	20	MTU	TCP	DUT-TX	75.0	NA	60	48.578 Mbps	48.582 Mbps	48.656 Mbps	50.525 Mbps	48.608 Mbps	-85	0 / 273251	0	86.7 Mbps	65 Mbps	802.11an-AC	802.11ac
36	5180	WPA2	4	802.11an-AC	20	MTU	TCP	DUT-TX	80.0	NA	60	48.56 Mbps	48.504 Mbps	48.655 Mbps	50.523 Mbps	50.722 Mbps	-85	0 / 271809	0	58.5 Mbps	65 Mbps	802.11an-AC	802.11ac
36	5180	WPA2	4	802.11an-AC	20	MTU	TCP	DUT-TX	85.0	NA	60	51.484 Mbps	50.706 Mbps	50.72 Mbps	52.669 Mbps	49.399 Mbps	-87	0 / 271777	0	26 Mbps	65 Mbps	802.11an-AC	802.11ac
36	5180	WPA2	4	802.11an-AC	20	MTU	TCP	DUT-TX	90.0	NA	60	50.243 Mbps	49.214 Mbps	49.213 Mbps	51.104 Mbps	44.237 Mbps	-86	0 / 272734	0	78 Mbps	65 Mbps	802.11an-AC	802.11ac
36	5180	WPA2	4	802.11an-AC	20	MTU	TCP	DUT-TX	95.0	NA	60	49.023 Mbps	48.984 Mbps	49.15 Mbps	51.039 Mbps	48.45 Mbps	-88	0 / 271795	0	26 Mbps	65 Mbps	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	144.12	-35	-39
1	NA	5.00	155.16	-40	-41
2	NA	10.00	155.50	-45	-47
3	NA	15.00	175.70	-51	-53
4	NA	20.00	177.50	-56	-58
5	NA	25.00	176.17	-62	-64
6	NA	30.00	176.20	-66	-68
7	NA	35.00	173.69	-71	-72
8	NA	40.00	148.51	-75	-78
9	NA	45.00	112.95	-79	-81
10	NA	50.00	97.73	-81	-85
11	NA	55.00	67.75	-82	-85
12	NA	60.00	62.61	-84	-87
13	NA	65.00	49.78	-85	-87
14	NA	70.00	49.01	-83	-84
15	NA	75.00	48.58	-83	-85
16	NA	80.00	48.50	-84	-85
17	NA	85.00	50.71	-84	-87
18	NA	90.00	49.21	-83	-86
19	NA	95.00	48.98	-84	-88

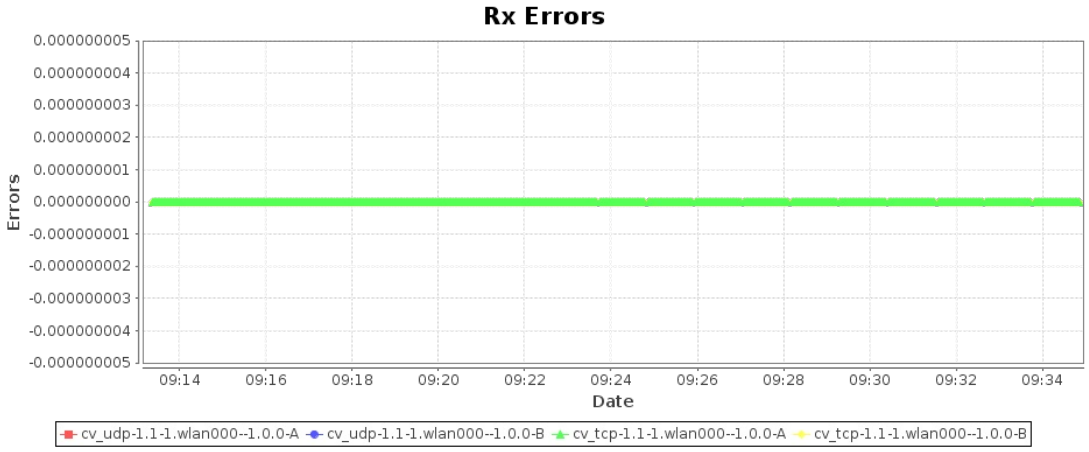
Packet Loss Percentage graph shows the percentage of lost packets as detected by the receiving endpoint due to packet gaps. If there is full packet loss, then this will not report any loss since there will be no gap to detect.

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	0
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