Rate vs Range Test

Fri Jul 09 08:05:59 PDT 2021

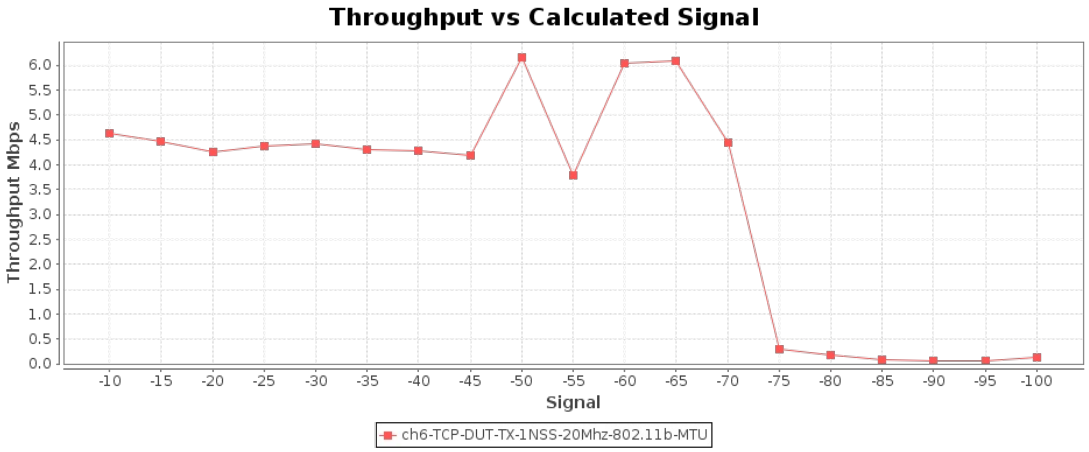
Test Setup Information				
Device Under Test	Name	advanced-02		
	Software Version	eap102-2021-06-25-pending-b6743c3.tar.g	Hardware Version	eap102
	Model Number	eap102	Serial Number	903cb39d6959
	SSIDs	ssid_wpa2_2g		
	Passwords	something		
	BSSIDs	90:3c:b3:9d:6b:01		
	Notes	[BLANK]		

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.

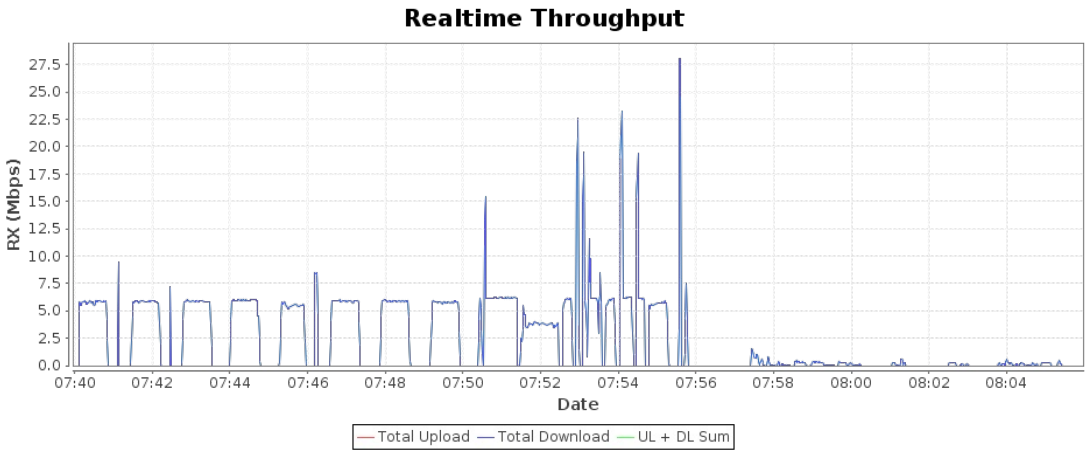
Throughput vs calculated RF Signal for each different traffic type. The signal is calculated based on the configured path-loss, transmit power, and attenuation.

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

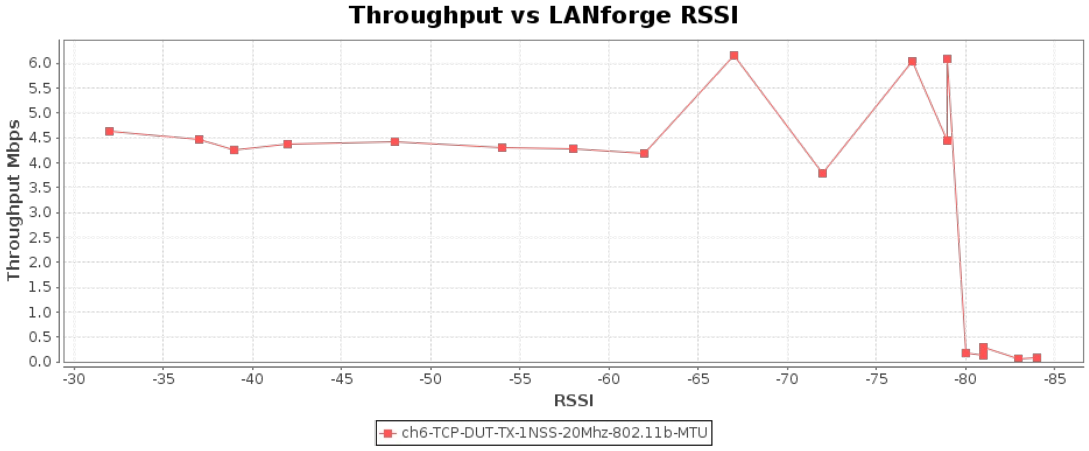


Test Information

Message
Starting Rate vs Range test with: 20 iterations.

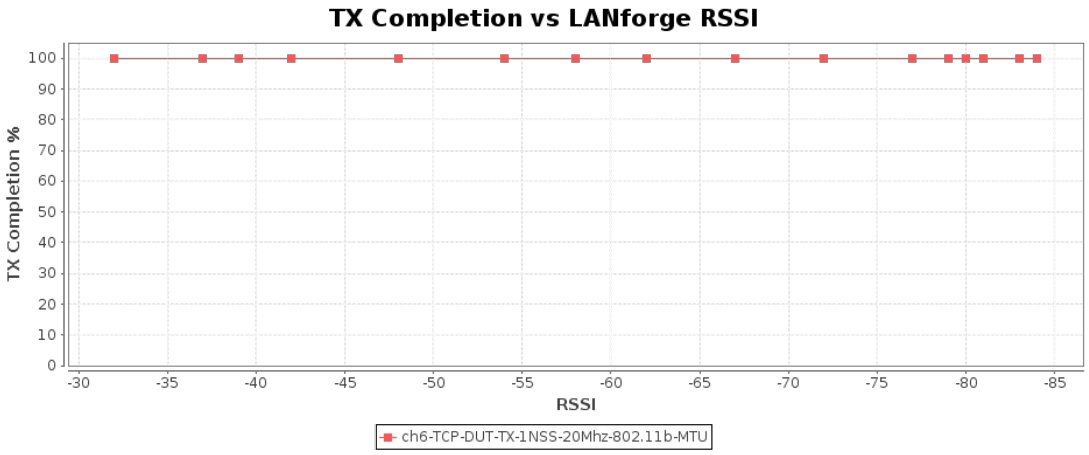
Throughput vs reported RSSI for each different traffic type. Please note that the LANforge RSSI may be similar to the remote Device Under Test RSSI but there is no guarantee of this. Differences in tx-power and RF splitter/combiners can cause different RSSI as reported by LANforge and the remote peer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

CSV Data for Throughput vs LANforge RSSI



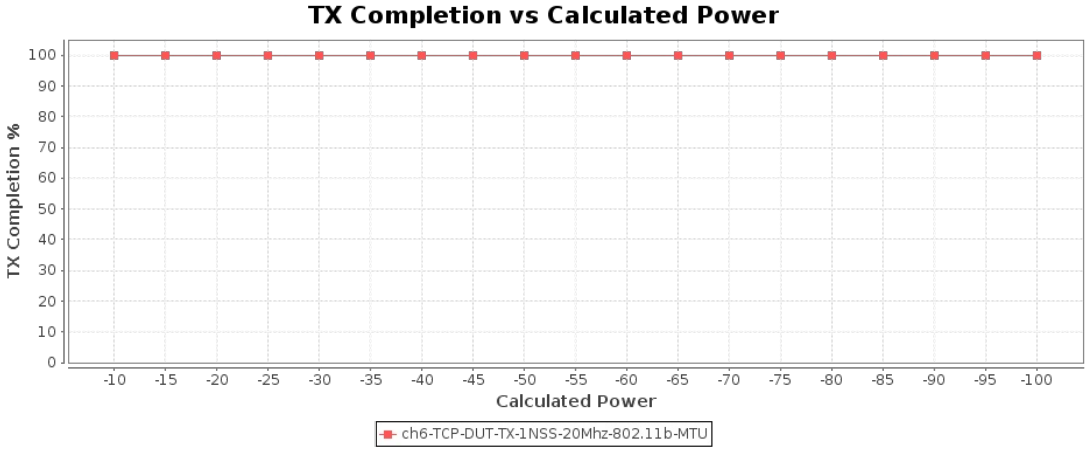
TX Completion vs LANforge RSSI for each MCS Encoding Rate. Please note that the LANforge RSSI may be similar to the remote Device Under Test RSSI but there is no guarantee of this. Differences in tx-power and RF splitter/combiners can cause different RSSI as reported by LANforge and the remote peer device.

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



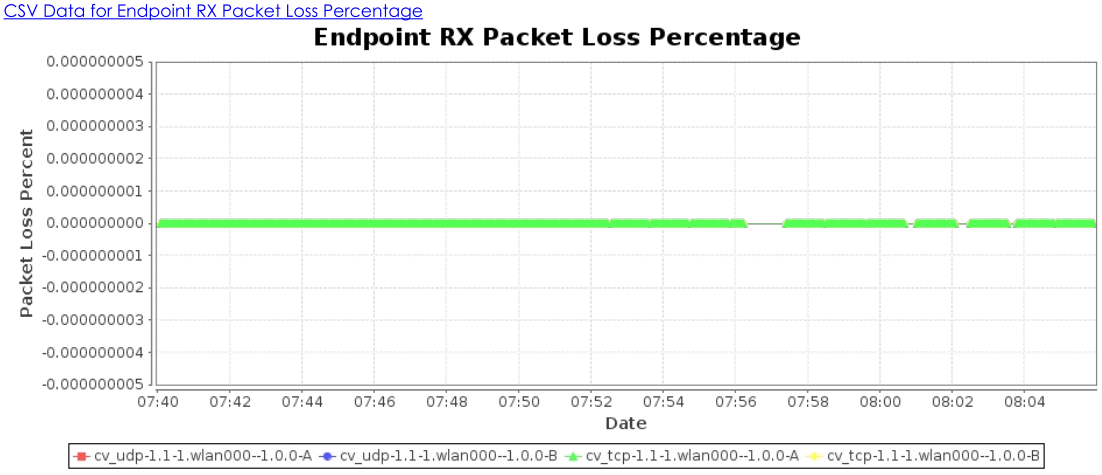
Channel	Frequency	Security	NSS	Cfg-Mode	Bandwidth	Pkt	Traffic-Type	Direction	Atten	Rotation	Duration	Offered-1m	Rx-Bps	Rx-Bps-1m	Rx-Bps-LL	Rx-Bps-3s	RSSI	Tx-Failed	Tx-Failed%	Tx-Rate	Rx-Rate	Rpt-Mode	Rpt-Mode-Brief
6	2437	WPA2	1	802.11b	20	MTU	TCP	DUT-TX	0	NA	60	7.602 Mbps	4.675 Mbps	4.644 Mbps	4.666 Mbps	14.304 Mbps	-32	0 / 43644	0	11 Mbps	11 Mbps	802.11b	802.11b
6	2437	WPA2	1	802.11b	20	MTU	TCP	DUT-TX	5.0	NA	60	7.635 Mbps	3.508 Mbps	4.465 Mbps	4.478 Mbps	7.172 Mbps	-37	0 / 44169	0	11 Mbps	11 Mbps	802.11b	802.11b
6	2437	WPA2	1	802.11b	20	MTU	TCP	DUT-TX	10.0	NA	60	7.737 Mbps	3.351 Mbps	4.265 Mbps	4.269 Mbps	0 bps	-39	0 / 42139	0	11 Mbps	11 Mbps	802.11b	802.11b
6	2437	WPA2	1	802.11b	20	MTU	TCP	DUT-TX	15.0	NA	60	7.858 Mbps	3.636 Mbps	4.384 Mbps	4.389 Mbps	0 bps	-42	0 / 42061	0	11 Mbps	11 Mbps	802.11b	802.11b
6	2437	WPA2	1	802.11b	20	MTU	TCP	DUT-TX	20.0	NA	60	7.66 Mbps	3.479 Mbps	4.43 Mbps	4.463 Mbps	11.106 Mbps	-48	0 / 39952	0	11 Mbps	11 Mbps	802.11b	802.11b
6	2437	WPA2	1	802.11b	20	MTU	TCP	DUT-TX	25.0	NA	60	7.844 Mbps	3.389 Mbps	4.316 Mbps	4.32 Mbps	0 bps	-54	0 / 42245	0	11 Mbps	11 Mbps	802.11b	802.11b
6	2437	WPA2	1	802.11b	20	MTU	TCP	DUT-TX	30.0	NA	60	7.78 Mbps	3.368 Mbps	4.293 Mbps	4.297 Mbps	0 bps	-58	0 / 42087	0	11 Mbps	11 Mbps	802.11b	802.11b
6	2437	WPA2	1	802.11b	20	MTU	TCP	DUT-TX	35.0	NA	60	7.688 Mbps	3.292 Mbps	4.193 Mbps	4.197 Mbps	0 bps	-62	0 / 41646	0	11 Mbps	11 Mbps	802.11b	802.11b
6	2437	WPA2	1	802.11b	20	MTU	TCP	DUT-TX	40.0	NA	60	7.747 Mbps	5.12 Mbps	6.167 Mbps	6.191 Mbps	6.197 Mbps	-67	0 / 33301	0	11 Mbps	11 Mbps	802.11b	802.11b
6	2437	WPA2	1	802.11b	20	MTU	TCP	DUT-TX	45.0	NA	60	4.193 Mbps	3.656 Mbps	3.791 Mbps	3.816 Mbps	3.783 Mbps	-72	0 / 19409	0	5.5 Mbps	11 Mbps	802.11b	802.11b
6	2437	WPA2	1	802.11b	20	MTU	TCP	DUT-TX	50.0	NA	60	9.21 Mbps	6.024 Mbps	6.03 Mbps	6.123 Mbps	5.949 Mbps	-77	0 / 31707	0	5.5 Mbps	11 Mbps	802.11b	802.11b
6	2437	WPA2	1	802.11b	20	MTU	TCP	DUT-TX	55.0	NA	60	8.45 Mbps	6.076 Mbps	6.081 Mbps	6.147 Mbps	6.083 Mbps	-79	0 / 33261	0	11 Mbps	11 Mbps	802.11b	802.11b
6	2437	WPA2	1	802.11b	20	MTU	TCP	DUT-TX	60.0	NA	60	7.689 Mbps	4.44 Mbps	4.437 Mbps	4.504 Mbps	2.621 Mbps	-79	0 / 37291	0	11 Mbps	11 Mbps	802.11b	802.11b
6	2437	WPA2	1	802.11b	20	MTU	TCP	DUT-TX	65.0	NA	60	298.102 Kbps	304.906 Kbps	287.075 Kbps	288.972 Kbps	104.533 Kbps	-81	0 / 1826	0	1 Mbps	1 Mbps	802.11b	802.11b
6	2437	WPA2	1	802.11b	20	MTU	TCP	DUT-TX	70.0	NA	60	178.607 Kbps	185.132 Kbps	179.767 Kbps	181.029 Kbps	50.397 Kbps	-80	0 / 1039	0	1 Mbps	1 Mbps	802.11b	802.11b
6	2437	WPA2	1	802.11b	20	MTU	TCP	DUT-TX	75.0	NA	60	87.255 Kbps	80.92 Kbps	81.125 Kbps	81.982 Kbps	0 bps	-84	0 / 524	0	1 Mbps	0 bps	802.11b	802.11b
6	2437	WPA2	1	802.11b	20	MTU	TCP	DUT-TX	80.0	NA	60	107.461 Kbps	63.856 Kbps	57.016 Kbps	58.566 Kbps	0 bps	-83	0 / 430	0	1 Mbps	0 bps	802.11b	802.11b
6	2437	WPA2	1	802.11b	20	MTU	TCP	DUT-TX	85.0	NA	60	226.504 Kbps	56.921 Kbps	56.457 Kbps	56.508 Kbps	0 bps	-83	0 / 828	0	1 Mbps	0 bps	802.11b	802.11b
6	2437	WPA2	1	802.11b	20	MTU	TCP	DUT-TX	90.0	NA	60	181.319 Kbps	125.94 Kbps	124.756 Kbps	126.961 Kbps	166.424 Kbps	-81	0 / 718	0	1 Mbps	1 Mbps	802.11b	802.11b
6	2437	WPA2	1	802.11b	20	MTU	TCP	DUT-TX	95.0	NA	60	280.742 Kbps	86.771 Kbps	85.006 Kbps	85.702 Kbps	0 bps	0	0 / 932	0	0 Mbps	0 bps	802.11b	802.11b

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	4.67	-31	-32
1	NA	5.00	3.51	-36	-37
2	NA	10.00	3.35	-36	-39
3	NA	15.00	3.64	-40	-42
4	NA	20.00	3.48	-46	-48
5	NA	25.00	3.39	-52	-54
6	NA	30.00	3.37	-56	-58
7	NA	35.00	3.29	-61	-62
8	NA	40.00	5.12	-65	-67
9	NA	45.00	3.66	-71	-72
10	NA	50.00	6.02	-76	-77
11	NA	55.00	6.08	-80	-79
12	NA	60.00	4.44	-82	-79
13	NA	65.00	0.30	-83	-81
14	NA	70.00	0.19	-85	-80
15	NA	75.00	0.08	-84	-84
16	NA	80.00	0.06	-83	-83
17	NA	85.00	0.06	-82	-83
18	NA	90.00	0.13	-84	-81
19	NA	95.00	0.09	0	0

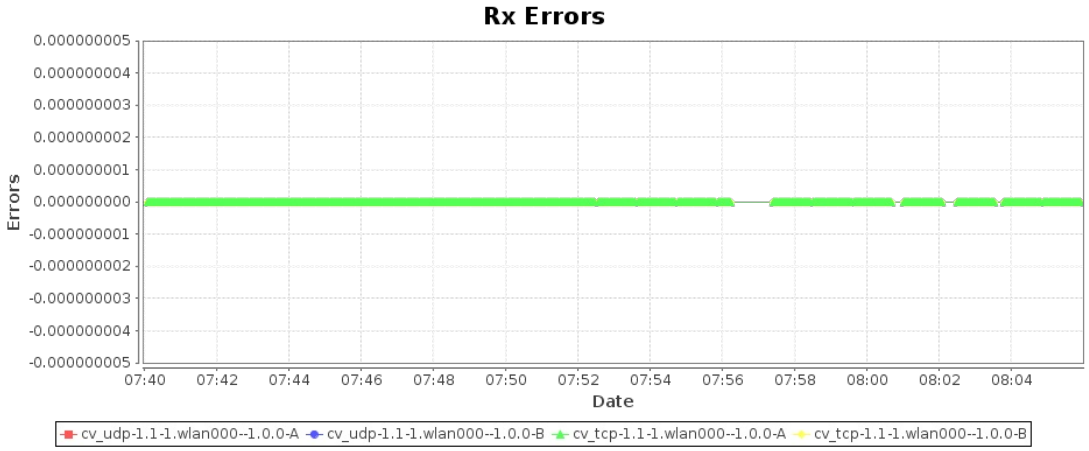
Packet Loss Percentage graph shows the percentage of lost packets as detected by the receiving endpoint due to packet gaps. If there is full packet loss, then this will not report any loss since there will be no gap to detect.

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	0
Attenuation-2	0..+50..950
Turntable Chamber	0
Turntable Angles	0..+45..359
Modes	802.11b
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