

# RX-Sensitivity Test



Wed Nov 20 19:11:22 PST 2019

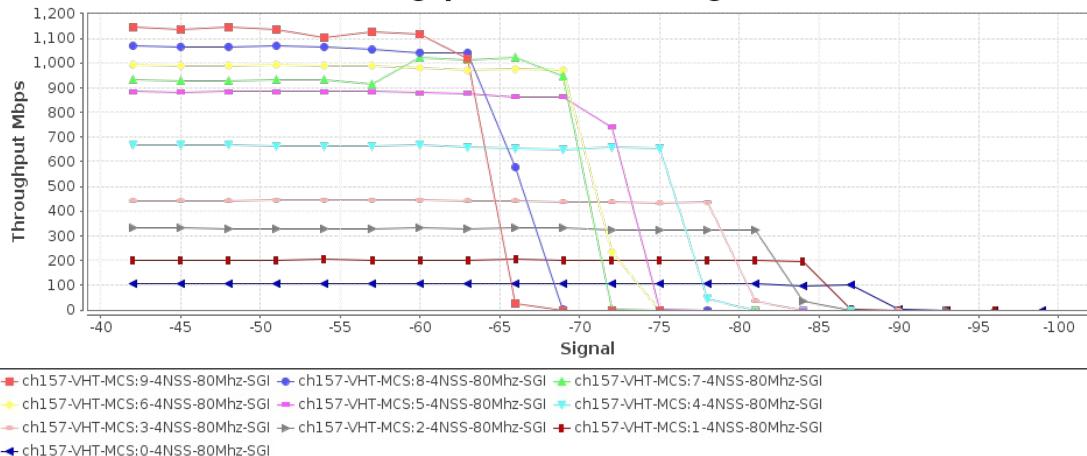
Test Setup Information		
Device Under Test	Name	APUT
	SSIDs	test_candela
	BSSIDs	
	Notes	[BLANK]

## Objective

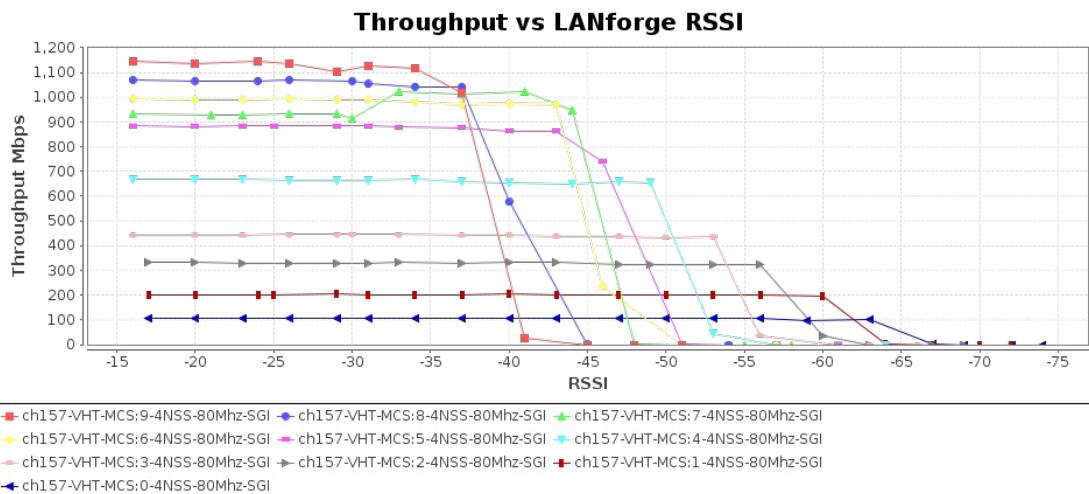
In the real-world the Device Under Test WiFi receiver is expected to handle stations at many different receive signal strengths and many different station transmit modulation and coding schemes (MCS rates). The Candela Receiver Sensitivity test provides an excellent way to test the DUT receiver for all combinations of station transmit power and MCS rates. It can report packet loss and throughput for all combinations. The test plots the receiver sensitivity curves and can provide a clear indication of problem patterns for certain combinations of Tx power and MCS rates. The expected behavior is for the DUT to achieve equal or better receiver sensitivity as defined by the spec for all RSSI and MCS settings. This test requires a special feature that is currently only supported by LANforge Wave-2 radios.

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

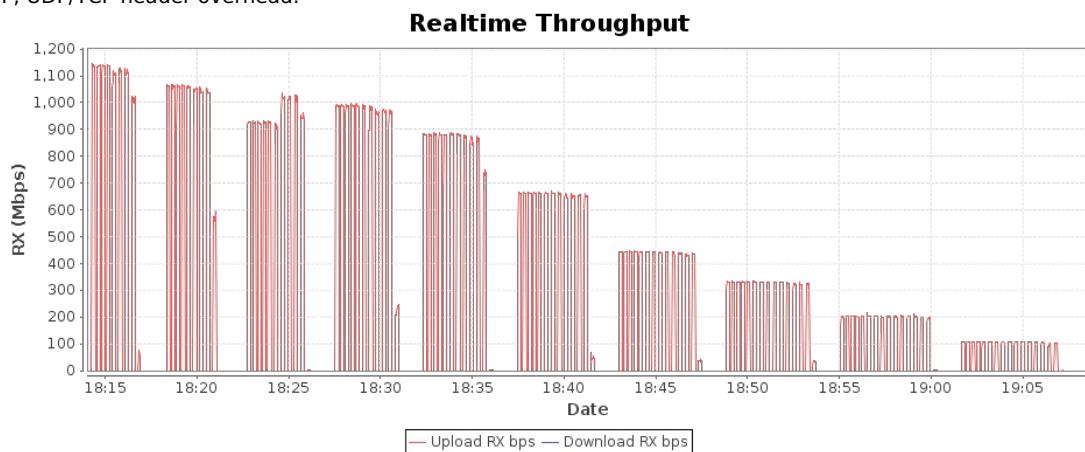
Throughput vs Calculated Signal



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.



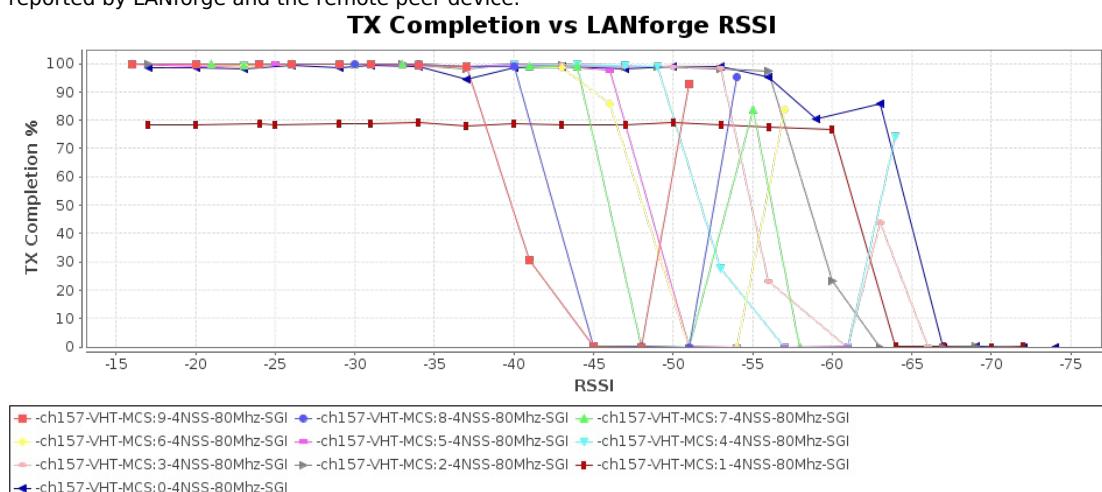
Realtime Graph shows summary download and upload RX bps of connections created by this test. Goodput does not include Ethernet, IP, UDP/TCP header overhead.



## Test Information

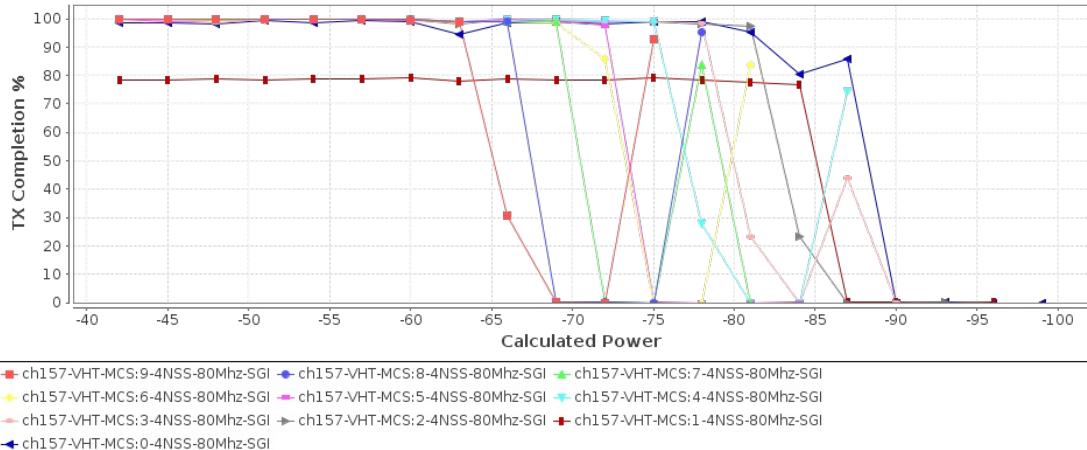
Message
Starting RX Sensitivity test with: 10 iterations.

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.



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

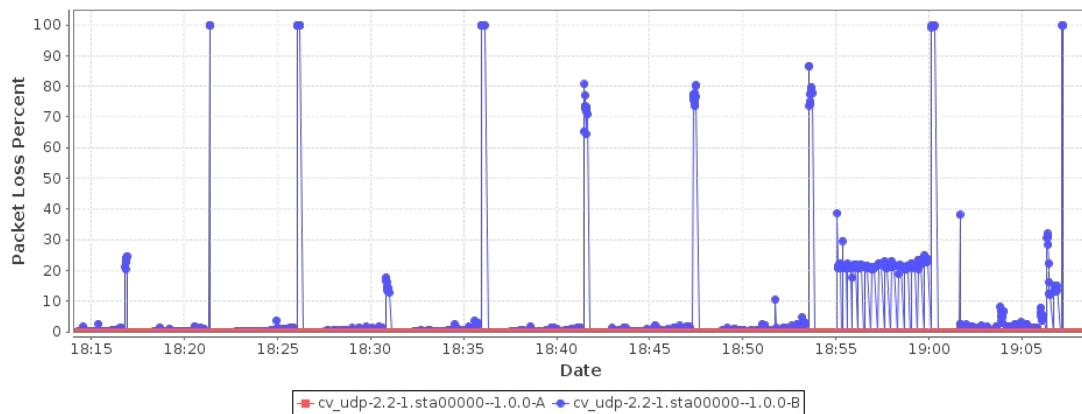
## TX Completion vs Calculated Power



Channel	Preamble	MCS	NSS	Bandwidth	SGI	Atten	Rotation	Tx-Power	Duration	Tx-Failed	Tx-Failed%	Tx-Rate	Rx-Bps-1m	Rx-Bps-3s	Theoretical	RSSI	Retries	Mode
157	VHT	9	4	80	ON	200	NA	15	10	576 / 986259	0.058	1733.3 Mbps	1146645345	1139425834	1733200000	-16	1	802.11an-AC
157	VHT	9	4	80	ON	230	NA	15	10	832 / 975170	0.085	1733.3 Mbps	1136926223	1140814728	1733200000	-20	1	802.11an-AC
157	VHT	9	4	80	ON	260	NA	15	10	2240 / 984317	0.228	1733.3 Mbps	1145861140	1139403637	1733200000	-24	1	802.11an-AC
157	VHT	9	4	80	ON	290	NA	15	10	640 / 974988	0.066	1733.3 Mbps	1136441025	1136227232	1733200000	-26	1	802.11an-AC
157	VHT	9	4	80	ON	320	NA	15	10	1121 / 955932	0.117	1733.3 Mbps	1102459336	1112177776	1733200000	-29	1	802.11an-AC
157	VHT	9	4	80	ON	350	NA	15	10	1056 / 959379	0.11	1733.3 Mbps	1128382253	1117796856	1733200000	-31	1	802.11an-AC
157	VHT	9	4	80	ON	380	NA	15	10	5761 / 95786	0.602	1733.3 Mbps	1118762398	1110774936	1733200000	-34	1	802.11an-AC
157	VHT	9	4	80	ON	410	NA	15	10	9616 / 876329	1.097	1733.3 Mbps	1016410638	1022256181	1733200000	-37	1	802.11an-AC
157	VHT	9	4	80	ON	440	NA	15	10	48418 / 69850	69.317	21.7 Mbps	25093604	0	1733200000	-41	1	802.11an-AC
157	VHT	9	4	80	ON	470	NA	15	10	63552 / 63581	99.954	21.7 Mbps	0	0	1733200000	-45	1	802.11an-AC
157	VHT	9	4	80	ON	500	NA	15	10	63040 / 63030	100	21.7 Mbps	0	0	1733200000	-48	1	802.11an-AC
157	VHT	9	4	80	ON	530	NA	15	10	53952 / 766539	7.038	21.7 Mbps	0	0	1733200000	-51	1	802.11an-AC
157	VHT	8	4	80	ON	200	NA	15	10	1344 / 919341	0.146	1560 Mbps	1069330748	1062004792	1560000000	-16	1	802.11an-AC
157	VHT	8	4	80	ON	230	NA	15	10	1408 / 909398	0.155	1560 Mbps	1066885890	1061966056	1560000000	-20	1	802.11an-AC
157	VHT	8	4	80	ON	260	NA	15	10	3456 / 920753	0.375	1560 Mbps	1066626654	1060324914	1560000000	-24	1	802.11an-AC
157	VHT	8	4	80	ON	290	NA	15	10	640 / 910294	0.07	1560 Mbps	1070016540	1062796845	1560000000	-26	1	802.11an-AC
157	VHT	8	4	80	ON	320	NA	15	10	1024 / 915020	0.112	1560 Mbps	1065959129	1060144584	1560000000	-30	1	802.11an-AC
157	VHT	8	4	80	ON	350	NA	15	10	915 / 897914	0.102	1560 Mbps	1053093095	1053054532	1560000000	-31	1	802.11an-AC
157	VHT	8	4	80	ON	380	NA	15	10	1742 / 890883	0.196	1560 Mbps	1043426857	10340428237	1560000000	-34	1	802.11an-AC
157	VHT	8	4	80	ON	410	NA	15	10	8787 / 897075	0.98	1560 Mbps	1041386421	1037887160	1560000000	-37	1	802.11an-AC
157	VHT	8	4	80	ON	440	NA	15	10	4519 / 496629	0.911	1560 Mbps	576320474	588792101	1560000000	-40	1	802.11an-AC
157	VHT	8	4	80	ON	470	NA	15	10	62783 / 62810	99.957	21.7 Mbps	1172	0	1560000000	-45	1	802.11an-AC
157	VHT	8	4	80	ON	500	NA	15	10	62913 / 62921	99.987	21.7 Mbps	0	0	1560000000	-48	1	802.11an-AC
157	VHT	8	4	80	ON	530	NA	15	10	63552 / 63470	100	21.7 Mbps	0	0	1560000000	-51	1	802.11an-AC
157	VHT	8	4	80	ON	560	NA	15	10	28801 / 605169	4.759	21.7 Mbps	0	0	1560000000	-54	1	802.11an-AC
157	VHT	7	4	80	ON	200	NA	15	10	576 / 793216	0.073	1300 Mbps	933183325	926874248	1300000000	-16	1	802.11an-AC
157	VHT	7	4	80	ON	230	NA	15	10	2304 / 790791	0.291	1300 Mbps	928691160	925384810	1300000000	-21	1	802.11an-AC
157	VHT	7	4	80	ON	260	NA	15	10	5248 / 789584	0.665	1300 Mbps	926893970	917780128	1300000000	-23	1	802.11an-AC
157	VHT	7	4	80	ON	290	NA	15	10	768 / 799041	0.096	1300 Mbps	930717982	927260717	1300000000	-26	1	802.11an-AC
157	VHT	7	4	80	ON	320	NA	15	10	640 / 792074	0.081	1300 Mbps	931354588	925127317	1300000000	-29	1	802.11an-AC
157	VHT	7	4	80	ON	350	NA	15	10	1169 / 778800	0.15	1300 Mbps	911306022	904095072	1300000000	-30	1	802.11an-AC
157	VHT	7	4	80	ON	380	NA	15	10	2752 / 877262	0.314	1300 Mbps	1023963760	1024378090	1300000000	-33	1	802.11an-AC
157	VHT	7	4	80	ON	410	NA	15	10	7262 / 871818	0.833	1300 Mbps	101087265	999047488	1300000000	-37	1	802.11an-AC
157	VHT	7	4	80	ON	440	NA	15	10	7652 / 889837	0.86	1300 Mbps	1022738975	1024274418	1300000000	-41	1	802.11an-AC
157	VHT	7	4	80	ON	470	NA	15	10	9884 / 817374	1.209	1300 Mbps	947248920	937134552	1300000000	-44	1	802.11an-AC
157	VHT	7	4	80	ON	500	NA	15	10	126110 / 126392	99.777	21.7 Mbps	267907	71272	1300000000	-48	1	802.11an-AC
157	VHT	7	4	80	ON	530	NA	15	10	120576 / 120560	100	21.7 Mbps	0	0	1300000000	-51	1	802.11an-AC
157	VHT	7	4	80	ON	560	NA	15	10	96513 / 589016	16.385	21.7 Mbps	0	0	1300000000	-55	1	802.11an-AC
157	VHT	7	4	80	ON	590	NA	15	10	165696 / 165660	100	21.7 Mbps	0	0	1300000000	-58	1	802.11an-AC
157	VHT	6	4	80	ON	200	NA	15	10	1728 / 847222	0.204	1170.2 Mbps	9911696589	987920597	1170000000	-16	1	802.11an-AC
157	VHT	6	4	80	ON	230	NA	15	10	3264 / 848544	0.385	1170.2 Mbps	990593549	984456234	1170000000	-20	1	802.11an-AC
157	VHT	6	4	80	ON	260	NA	15	10	6336 / 846053	0.749	1170.2 Mbps	991341128	98961072	1170000000	-23	1	802.11an-AC
157	VHT	6	4	80	ON	290	NA	15	10	1344 / 860319	0.156	1170.2 Mbps	991575541	988418914	1170000000	-26	1	802.11an-AC
157	VHT	6	4	80	ON	320	NA	15	10	2112 / 846780	0.249	1170.2 Mbps	991475551	986362666	1170000000	-29	1	802.11an-AC
157	VHT	6	4	80	ON	350	NA	15	10	1641 / 847825	0.194	1170.2 Mbps	987335651	989124981	1170000000	-31	1	802.11an-AC
157	VHT	6	4	80	ON	380	NA	15	10	2682 / 840312	0.319	1170.2 Mbps	980936319	976569117	1170000000	-34	1	802.11an-AC
157	VHT	6	4	80	ON	410	NA	15	10	7878 / 829964	0.949	1170.2 Mbps	968198500	965406373	1170000000	-37	1	802.11an-AC
157	VHT	6	4	80	ON	440	NA	15	10	6738 / 835678	0.806	1170.2 Mbps	975526364	971248970	1170000000	-40	1	802.11an-AC
157	VHT	6	4	80	ON	470	NA	15	10	10896 / 836881	1.302	1170.2 Mbps	970751420	967726122	1170000000	-43	1	802.11an-AC
157	VHT	6	4	80	ON	500	NA	15	10	32697 / 232320	14.074	1170.2 Mbps	234327471	247956776	1170000000	-46	1	802.11an-AC
157	VHT	6	4	80	ON	530	NA	15	10	1655001 / 1653500	100	21.7 Mbps	0	0	1170000000	-51	1	802.11an-AC
157	VHT	6	4	80	ON	560	NA	15	10	168201 / 168190	100	21.7 Mbps	0	0	1170000000	-54	1	802.11an-AC
157	VHT	6	4	80	ON	590	NA	15	10	66624 / 407814	16.337	21.7 Mbps	0	0	1170000000	-57	1	802.11an-AC
157	VHT	5	4	80	ON	200	NA	15	10	768 / 754667	0.102	1040 Mbps	883269418	880290496	1040000000	-16	1	802.11an-AC
157	VHT	5	4	80	ON	230	NA	15	10	6144 / 755988	0.813	1040 Mbps	881490081	87883701	1040000000	-20	1	802.11an-AC
157	VHT	5	4	80	ON	260	NA	15	10	3648 / 754820	0.483	1040 Mbps	883317738	878773642	1040000000	-23	1	802.11an-AC
157	VHT	5	4	80	ON	290	NA	15	10	1344 / 761005	0.177	1040 Mbps	883190586	880694128	1040000000	-25	1	802.11an-AC
157	VHT	5	4	80	ON	320	NA	15	10	1536 / 754723	0.204	1040 Mbps	884017901	881782626	1040000000	-29	1	802.11an-AC
157	VHT	5	4	80	ON	350	NA	15	10	960 / 755041	0.127	1040 Mbps	883106843	882166530	1040000000	-31	1	802.11an-AC
157	VHT	5</																

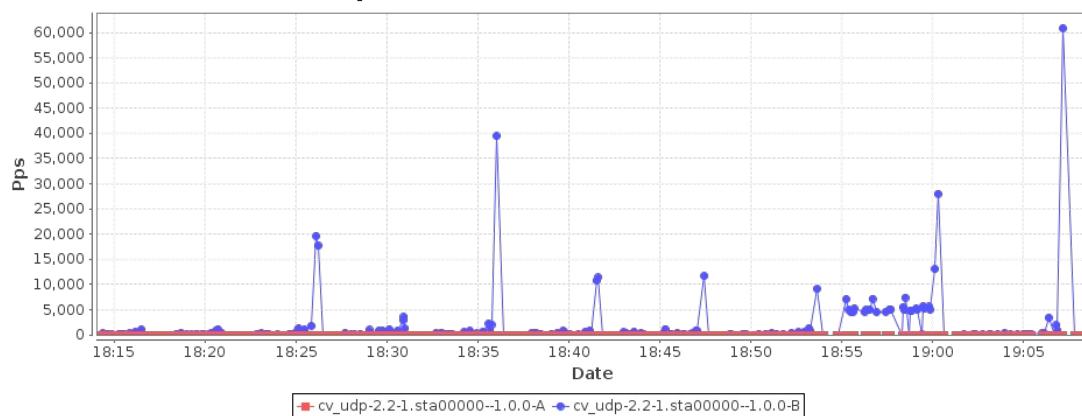
157	VHT	4	4	80	ON	320	NA	15	10	960 / 569654	0.169	780 Mbps	661889342	659581962	780000000	-29	1	802.11an-AC
157	VHT	4	4	80	ON	350	NA	15	10	384 / 567272	0.068	780 Mbps	662469231	662443352	780000000	-31	1	802.11an-AC
157	VHT	4	4	80	ON	380	NA	15	10	1152 / 568734	0.203	780 Mbps	666184784	666191184	780000000	-34	1	802.11an-AC
157	VHT	4	4	80	ON	410	NA	15	10	6243 / 569691	1.096	780 Mbps	660654660	653769805	780000000	-37	1	802.11an-AC
157	VHT	4	4	80	ON	440	NA	15	10	1728 / 557543	0.31	780 Mbps	652549592	641768304	780000000	-40	1	802.11an-AC
157	VHT	4	4	80	ON	470	NA	15	10	2091 / 567821	0.368	780 Mbps	651451296	650619053	780000000	-44	1	802.11an-AC
157	VHT	4	4	80	ON	500	NA	15	10	3027 / 562081	0.539	780 Mbps	658237678	652941784	780000000	-47	1	802.11an-AC
157	VHT	4	4	80	ON	530	NA	15	10	5520 / 562150	0.982	780 Mbps	654383590	652505904	780000000	-49	1	802.11an-AC
157	VHT	4	4	80	ON	560	NA	15	10	101841 / 140910	72.274	780 Mbps	46008705	47880613	780000000	-53	1	802.11an-AC
157	VHT	4	4	80	ON	590	NA	15	10	166848 / 166760	100	21.7 Mbps	0	0	780000000	-57	1	802.11an-AC
157	VHT	4	4	80	ON	620	NA	15	10	167232 / 167200	100	21.7 Mbps	0	0	780000000	-61	1	802.11an-AC
157	VHT	4	4	80	ON	650	NA	15	10	72384 / 282074	25.661	21.7 Mbps	0	0	780000000	-64	1	802.11an-AC
157	VHT	3	4	80	ON	200	NA	15	10	960 / 378986	0.253	520 Mbps	442932518	441511114	520000000	-16	1	802.11an-AC
157	VHT	3	4	80	ON	230	NA	15	10	1920 / 379252	0.506	520 Mbps	443075256	441576368	520000000	-20	1	802.11an-AC
157	VHT	3	4	80	ON	260	NA	15	10	4992 / 380897	1.311	520 Mbps	443155896	440776944	520000000	-23	1	802.11an-AC
157	VHT	3	4	80	ON	290	NA	15	10	960 / 379801	0.253	520 Mbps	444090610	441978597	520000000	-26	1	802.11an-AC
157	VHT	3	4	80	ON	320	NA	15	10	576 / 378841	0.152	520 Mbps	445088552	442099250	520000000	-29	1	802.11an-AC
157	VHT	3	4	80	ON	350	NA	15	10	768 / 378841	0.203	520 Mbps	444585312	442517840	520000000	-30	1	802.11an-AC
157	VHT	3	4	80	ON	380	NA	15	10	768 / 378620	0.203	520 Mbps	443850778	441776874	520000000	-33	1	802.11an-AC
157	VHT	3	4	80	ON	410	NA	15	10	4992 / 381393	1.309	520 Mbps	441847279	440894861	520000000	-37	1	802.11an-AC
157	VHT	3	4	80	ON	440	NA	15	10	1152 / 379060	0.304	520 Mbps	442520941	442110450	520000000	-40	1	802.11an-AC
157	VHT	3	4	80	ON	470	NA	15	10	1920 / 378841	0.507	520 Mbps	438263793	427756517	520000000	-43	1	802.11an-AC
157	VHT	3	4	80	ON	500	NA	15	10	3363 / 374917	0.897	520 Mbps	436756358	428462202	520000000	-47	1	802.11an-AC
157	VHT	3	4	80	ON	530	NA	15	10	4230 / 372505	1.136	520 Mbps	432272033	428682850	520000000	-50	1	802.11an-AC
157	VHT	3	4	80	ON	560	NA	15	10	5697 / 377498	1.509	520 Mbps	435935368	434726725	520000000	-53	1	802.11an-AC
157	VHT	3	4	80	ON	590	NA	15	10	102366 / 133282	76.804	520 Mbps	36083772	36918818	520000000	-56	1	802.11an-AC
157	VHT	3	4	80	ON	620	NA	15	10	165120 / 165110	100	21.7 Mbps	0	0	520000000	-61	1	802.11an-AC
157	VHT	3	4	80	ON	650	NA	15	10	167040 / 297636	56.122	21.7 Mbps	0	0	520000000	-63	1	802.11an-AC
157	VHT	3	4	80	ON	680	NA	15	10	167616 / 167637	99.987	21.7 Mbps	0	0	520000000	-66	1	802.11an-AC
157	VHT	2	4	80	ON	200	NA	15	10	768 / 283691	0.271	390.2 Mbps	331721980	329728000	390000000	-17	1	802.11an-AC
157	VHT	2	4	80	ON	230	NA	15	10	960 / 282796	0.339	390.2 Mbps	331732878	329712138	390000000	-20	1	802.11an-AC
157	VHT	2	4	80	ON	260	NA	15	10	2112 / 283625	0.745	390.2 Mbps	329500824	329436258	390000000	-23	1	802.11an-AC
157	VHT	2	4	80	ON	290	NA	15	10	576 / 283833	0.203	390.2 Mbps	329753210	329669021	390000000	-26	1	802.11an-AC
157	VHT	2	4	80	ON	320	NA	15	10	960 / 282884	0.339	390.2 Mbps	329784003	329771496	390000000	-29	1	802.11an-AC
157	VHT	2	4	80	ON	350	NA	15	10	384 / 282557	0.136	390.2 Mbps	329773136	330090458	390000000	-31	1	802.11an-AC
157	VHT	2	4	80	ON	380	NA	15	10	768 / 283471	0.271	390.2 Mbps	332203089	329696344	390000000	-33	1	802.11an-AC
157	VHT	2	4	80	ON	410	NA	15	10	5760 / 286441	2.011	390.2 Mbps	330259008	327623872	390000000	-37	1	802.11an-AC
157	VHT	2	4	80	ON	440	NA	15	10	384 / 283251	0.136	390.2 Mbps	331274353	330173938	390000000	-40	1	802.11an-AC
157	VHT	2	4	80	ON	470	NA	15	10	1152 / 283101	0.407	390.2 Mbps	330838704	329515677	390000000	-43	1	802.11an-AC
157	VHT	2	4	80	ON	500	NA	15	10	2718 / 280497	0.969	390.2 Mbps	325456407	3231949736	390000000	-47	1	802.11an-AC
157	VHT	2	4	80	ON	530	NA	15	10	3279 / 278548	1.177	390.2 Mbps	322297889	318769557	390000000	-49	1	802.11an-AC
157	VHT	2	4	80	ON	560	NA	15	10	4704 / 277845	1.693	390.2 Mbps	321557420	321866818	390000000	-53	1	802.11an-AC
157	VHT	2	4	80	ON	590	NA	15	10	6993 / 285782	2.447	390.2 Mbps	324675726	323220797	390000000	-56	1	802.11an-AC
157	VHT	2	4	80	ON	620	NA	15	10	98637 / 128767	76.601	21.7 Mbps	35414639	33171829	390000000	-60	1	802.11an-AC
157	VHT	2	4	80	ON	650	NA	15	10	167232 / 167198	100	21.7 Mbps	0	0	390000000	-63	1	802.11an-AC
157	VHT	2	4	80	ON	680	NA	15	10	167424 / 167401	100	21.7 Mbps	0	0	390000000	-67	1	802.11an-AC
157	VHT	2	4	80	ON	710	NA	15	10	166848 / 166870	99.987	21.7 Mbps	0	0	390000000	-69	1	802.11an-AC
157	VHT	1	4	80	ON	200	NA	15	10	47104 / 218978	21.511	260 Mbps	201260587	199679312	260000000	-17	1	802.11an-AC
157	VHT	1	4	80	ON	230	NA	15	10	47061 / 218976	21.491	260 Mbps	202098667	200985445	260000000	-20	1	802.11an-AC
157	VHT	1	4	80	ON	260	NA	15	10	46331 / 219014	21.154	260 Mbps	202982234	201419077	260000000	-24	1	802.11an-AC
157	VHT	1	4	80	ON	290	NA	15	10	47371 / 219021	21.629	260 Mbps	201560416	200054429	260000000	-25	1	802.11an-AC
157	VHT	1	4	80	ON	320	NA	15	10	46610 / 219017	21.281	260 Mbps	203119621	207336600	260000000	-29	1	802.11an-AC
157	VHT	1	4	80	ON	350	NA	15	10	41952 / 199084	21.072	260 Mbps	202904817	202833018	260000000	-31	1	802.11an-AC
157	VHT	1	4	80	ON	380	NA	15	10	45945 / 219514	20.933	260 Mbps	202933193	202150050	260000000	-34	1	802.11an-AC
157	VHT	1	4	80	ON	410	NA	15	10	48228 / 218990	22.023	260 Mbps	199862051	199780885	260000000	-37	1	802.11an-AC
157	VHT	1	4	80	ON	440	NA	15	10	46817 / 218992	23.347	260 Mbps	203034517	202422242	260000000	-40	1	802.11an-AC
157	VHT	1	4	80	ON	470	NA	15	10	47121 / 219020	21.514	260 Mbps	202362389	200520820	260000000	-43	1	802.11an-AC
157	VHT	1	4	80	ON	500	NA	15	10	46938 / 219025	21.43	260 Mbps	202097669	200840760	260000000	-47	1	802.11an-AC
157	VHT	1	4	80	ON	530	NA	15	10	46236 / 220878	20.933	260 Mbps	202985769	202516570	260000000	-50	1	802.11an-AC
157	VHT	1	4	80	ON	560	NA	15	10	47004 / 218979	21.465	260 Mbps	201499481	200649778	260000000	-53	1	802.11an-AC
157	VHT	1	4	80	ON	590	NA	15	10	49426 / 219535	22.514	260 Mbps	199559414	199086512	260000000	-56	1	802.11an-AC
157	VHT	1	4	80	ON	620	NA	15	10	51334 / 219022	23.347	260 Mbps	197333438	196853952	260000000	-60	1	802.11an-AC
157	VHT	1	4	80	ON	650	NA	15	10	192422 / 192917	99.743	21.7 Mbps	890290	519528	260000000	-64	1	

### Endpoint RX Packet Loss Percentage



Loss Graph shows occurrences 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.

### Endpoint RX Packet Loss Per Second



### Test configuration and LANforge software version

Path Loss	20
Requested Speed	100%
Multi-Conn	1
Armageddon Multi-Pkt	1000
ToS	0
Duration:	10 sec (10 s)
Channels	AUTO
Spatial Streams	4
Bandwidth	80
Attenuator	1.1.1001
Attenuation	200..+30..850
Turntable Chamber	0
Turntable Angles	0..+45..359
Modes	Auto
Preamble	VHT
MCS	0 CCK, OFDM, HT, VHT, 1 CCK, OFDM, HT, VHT, 2 CCK, OFDM, HT, VHT, 3 CCK, OFDM, HT, VHT, 4 OFDM, HT, VHT, 5 OFDM, HT, VHT, 6 OFDM, HT, VHT, 7 OFDM, HT, VHT, 8 VHT, 9 VHT
SGI	ON
Retries	No Retry
Tx-Power	15
Upstream Port	1.2.2 eth2 Firmware: 0x80000c67, 1.1276.0 Resource: demo-lanforge
WiFi Port	1.1.6 sta00000 Firmware: 10.4b-ct-9984-xtH-012-0ee2f206b Resource: lf0313-07a4

Show Events	true
Auto Save Report	false
Build Date	Wed Nov 20 15:02:31 PST 2019
Build Version	5.4.1

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