

RX-Sensitivity Test



Sat Jun 01 09:22:52 PDT 2019

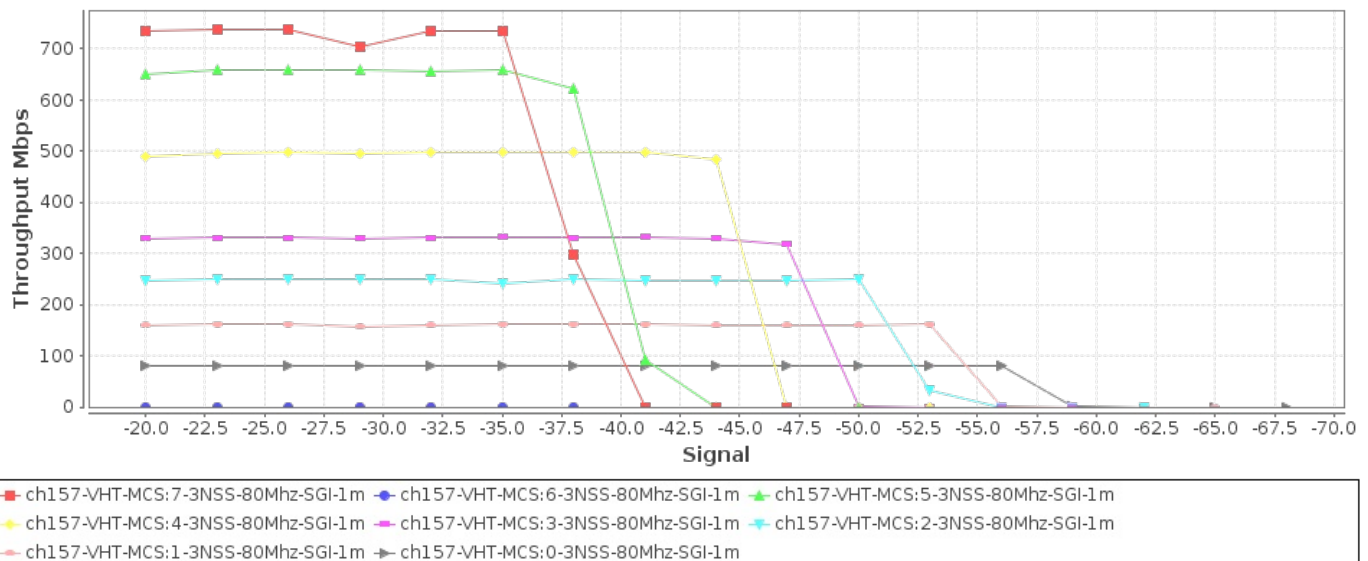
Test Setup Information				
Device Under Test	Name	APUT		
	Software Version	v5.62.1		
	Model Number	AP640	Serial Number	234-23-sd-35
	SSIDs	labap		
	BSSIDs	78:d2:94:bf:16:43		
Operator	John Smith@awesomeAP.com			

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 achieved 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.

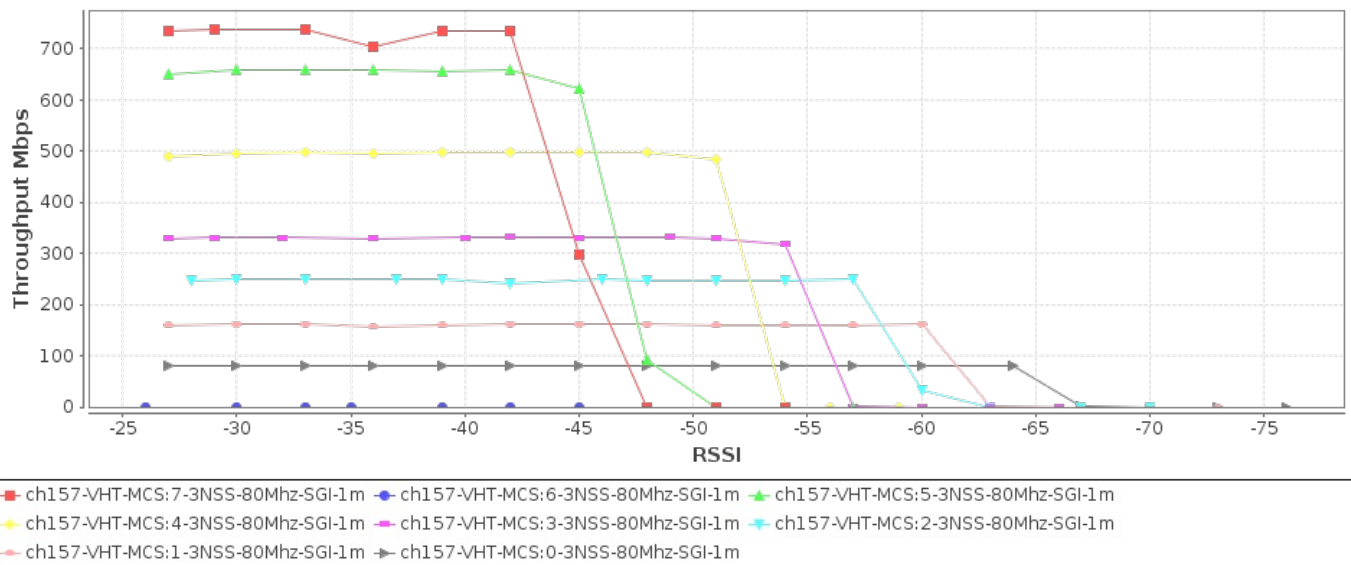
Throughput vs calculated RF Signal for each different traffic type. The signal is calculated based on the configured path-loss, transmit power, and attenuation.

Throughput vs Calculated Signal



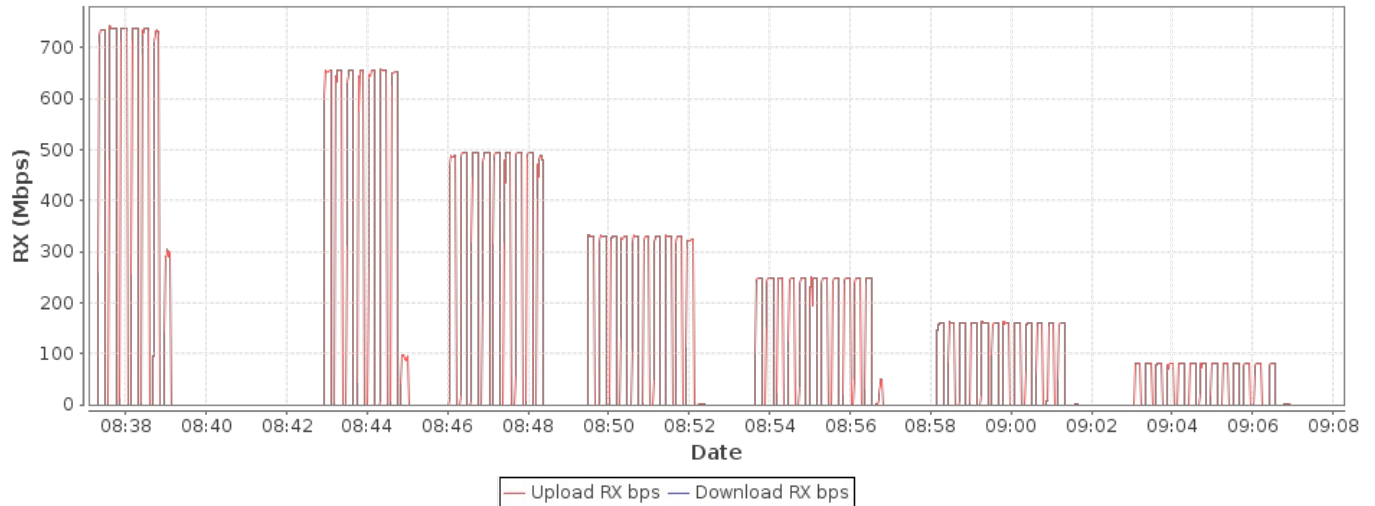
Throughput vs reported RSSI for each different traffic type. Please note that the LANforge RSSI may be similar to the remote Device Under Test RSSI but there is no guarantee of this. Differences in tx-power and RF splitter/combiners can cause different RSSI as reported by LANforge and the remote peer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

Throughput vs LANforge RSSI



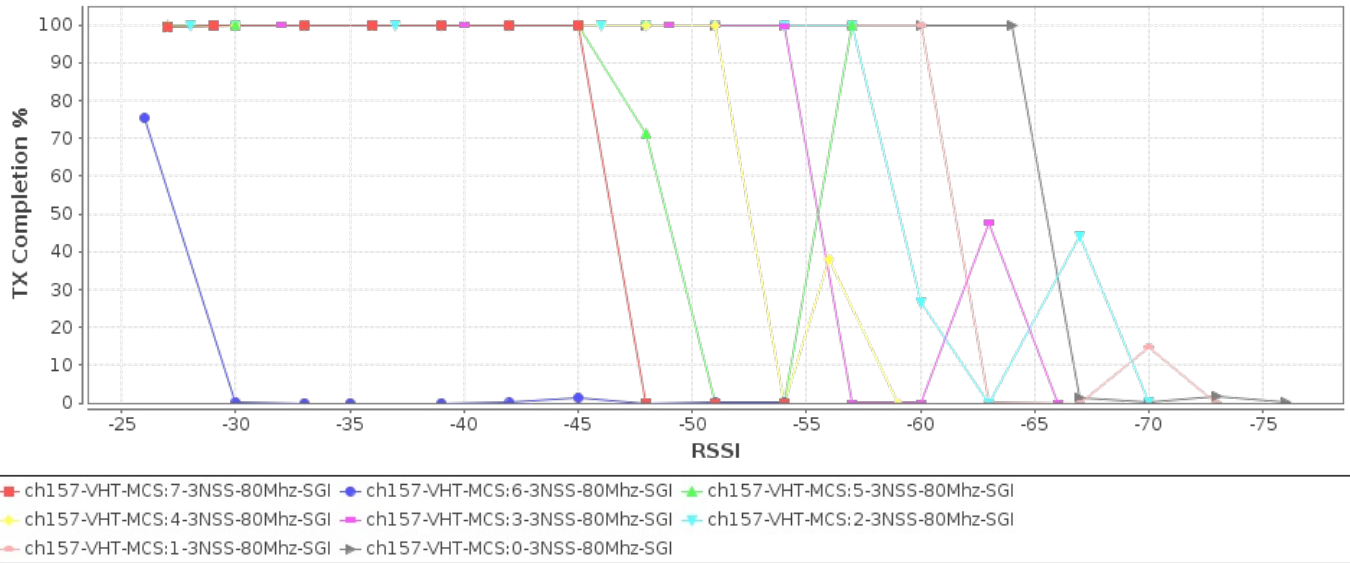
Realtime Graph shows summary download and upload RX bps of connections created by this test.

Realtime Throughput



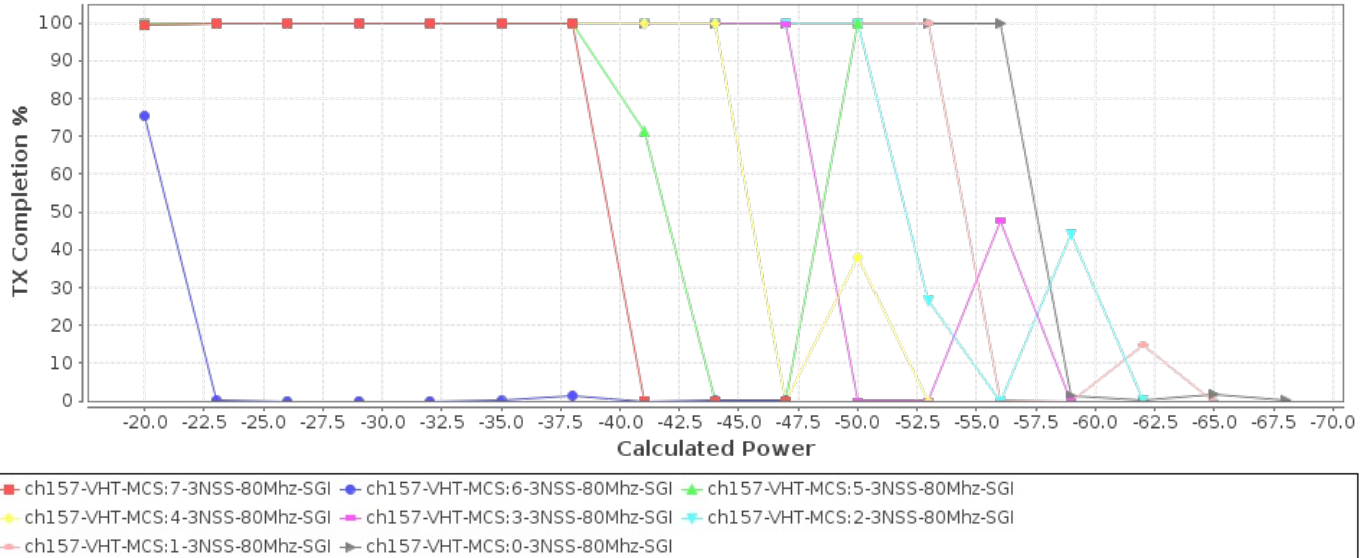
TX Completion vs LANforge RSSI for each MCS Encoding Rate. Please note that the LANforge RSSI may be similar to the remote Device Under Test RSSI but there is no guarantee of this. Differences in tx-power and RF splitter/combiners can cause different RSSI as reported by LANforge and the remote peer device.

TX Completion vs LANforge RSSI



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

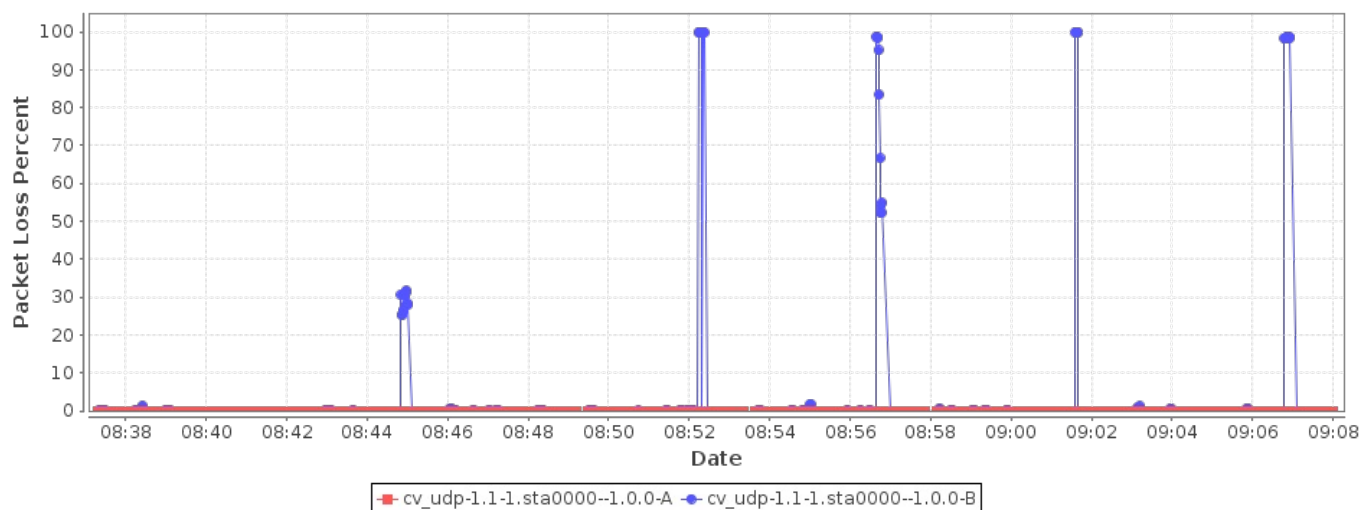
TX Completion vs Calculated Power



Channel	Preamble	MCS	NSS	Bandwidth	SGI	Atten	Tx-Power	Duration	Tx-Failed	Tx-Failed%	Tx-Rate	Rx-Bps-1m	Rx-Bps-3s	Theoretical	RSSI	Retries	Mode
157	VHT	7	3	80	ON	0	17	10	2368 / 601586	0.394	975 Mbps	733713140	734664962	975000000	-27	1	802.11an-AC
157	VHT	7	3	80	ON	30	17	10	0 / 601520	0	975 Mbps	739083277	737360589	975000000	-29	1	802.11an-AC
157	VHT	7	3	80	ON	60	17	10	0 / 593451	0	975 Mbps	737030653	737509893	975000000	-33	1	802.11an-AC
157	VHT	7	3	80	ON	90	17	10	64 / 604780	0.011	975 Mbps	705385136	737321874	975000000	-36	1	802.11an-AC
157	VHT	7	3	80	ON	120	17	10	0 / 611653	0	975 Mbps	736213577	737554272	975000000	-39	1	802.11an-AC
157	VHT	7	3	80	ON	150	17	10	0 / 624274	0	975 Mbps	734757295	733463021	975000000	-42	1	802.11an-AC
157	VHT	7	3	80	ON	180	17	10	252 / 247060	0.102	24 Mbps	297568145	297643122	975000000	-45	1	802.11an-AC
157	VHT	7	3	80	ON	210	17	10	111360 / 111320	100	195 Mbps	0	0	975000000	-48	1	802.11an-AC
157	VHT	7	3	80	ON	240	17	10	112386 / 112312	100	195 Mbps	0	0	975000000	-51	1	802.11an-AC
157	VHT	7	3	80	ON	270	17	10	107264 / 107250	100	195 Mbps	0	0	975000000	-54	1	802.11an-AC
157	VHT	6	3	80	ON	0	17	10	46807 / 190056	24.628	195 Mbps	0	0	877500000	-26	1	802.11an-AC
157	VHT	6	3	80	ON	30	17	10	84416 / 84481	99.923	195 Mbps	0	0	877500000	-30	1	802.11an-AC
157	VHT	6	3	80	ON	60	17	10	76288 / 76230	100	195 Mbps	0	0	877500000	-33	1	802.11an-AC
157	VHT	6	3	80	ON	90	17	10	62592 / 62590	100	195 Mbps	0	0	877500000	-35	1	802.11an-AC
157	VHT	6	3	80	ON	120	17	10	360448 / 360360	100	195 Mbps	0	0	877500000	-39	1	802.11an-AC
157	VHT	6	3	80	ON	150	17	10	438528 / 438643	99.974	195 Mbps	0	0	877500000	-42	1	802.11an-AC
157	VHT	6	3	80	ON	180	17	10	355713 / 360869	98.571	195 Mbps	0	0	877500000	-45	1	802.11an-AC
157	VHT	6	3	80	ON	210	17	10	510071 / 508313	100	195 Mbps	0	0	877500000	-48	1	802.11an-AC
157	VHT	6	3	80	ON	240	17	10	565378 / 565503	99.978	195 Mbps	0	0	877500000	-51	1	802.11an-AC
157	VHT	6	3	80	ON	270	17	10	359553 / 359591	99.989	195 Mbps	0	0	877500000	-54	1	802.11an-AC
157	VHT	5	3	80	ON	0	17	10	1792 / 531375	0.337	780 Mbps	649318033	654882794	780000000	-27	1	802.11an-AC
157	VHT	5	3	80	ON	30	17	10	0 / 530600	0	780 Mbps	659817702	655214424	780000000	-30	1	802.11an-AC
157	VHT	5	3	80	ON	60	17	10	128 / 546040	0.023	780 Mbps	658469200	654835088	780000000	-33	1	802.11an-AC
157	VHT	5	3	80	ON	90	17	10	0 / 543181	0	780 Mbps	657546438	655580453	780000000	-36	1	802.11an-AC
157	VHT	5	3	80	ON	120	17	10	0 / 531411	0	780 Mbps	656650402	655429645	780000000	-39	1	802.11an-AC
157	VHT	5	3	80	ON	150	17	10	0 / 541971	0	780 Mbps	657785104	655719458	780000000	-42	1	802.11an-AC
157	VHT	5	3	80	ON	180	17	10	0 / 538425	0	780 Mbps	622239599	652737562	780000000	-45	1	802.11an-AC
157	VHT	5	3	80	ON	210	17	10	29943 / 104502	28.653	195 Mbps	93087615	96072565	780000000	-48	1	802.11an-AC
157	VHT	5	3	80	ON	240	17	10	107776 / 107800	99.978	195 Mbps	0	0	780000000	-51	1	802.11an-AC

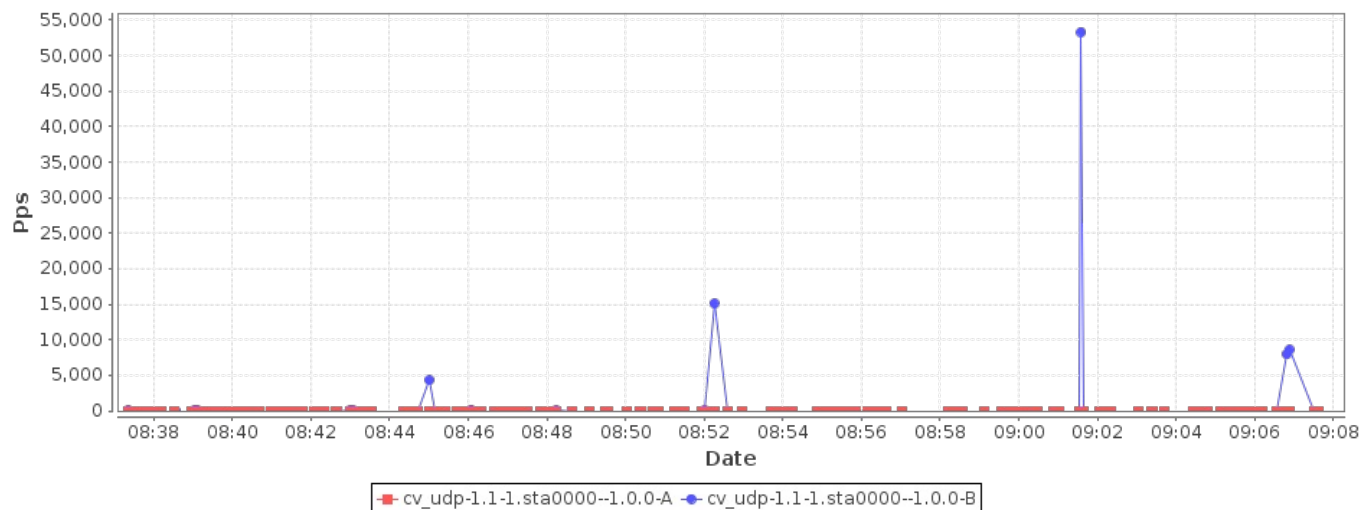
157	VHT	5	3	80	ON	270	17	10	106241 / 106261	99.981	195 Mbps	0	0	780000000	-54	1	802.11an-AC
157	VHT	5	3	80	ON	300	17	10	0 / 1739	0	195 Mbps	0	0	780000000	-57	1	802.11an-AC
157	VHT	4	3	80	ON	0	17	10	1792 / 435825	0.411	585 Mbps	490669390	487447232	585000000	-27	1	802.11an-AC
157	VHT	4	3	80	ON	30	17	10	0 / 406890	0	585 Mbps	495247043	495495709	585000000	-30	1	802.11an-AC
157	VHT	4	3	80	ON	60	17	10	128 / 401933	0.032	585 Mbps	497563279	495263557	585000000	-33	1	802.11an-AC
157	VHT	4	3	80	ON	90	17	10	128 / 414482	0.031	585 Mbps	495406937	495019354	585000000	-36	1	802.11an-AC
157	VHT	4	3	80	ON	120	17	10	128 / 407306	0.031	585 Mbps	496883108	495252554	585000000	-39	1	802.11an-AC
157	VHT	4	3	80	ON	150	17	10	0 / 420649	0	585 Mbps	498574123	495209912	585000000	-42	1	802.11an-AC
157	VHT	4	3	80	ON	180	17	10	0 / 411456	0	585 Mbps	498691351	495357853	585000000	-45	1	802.11an-AC
157	VHT	4	3	80	ON	210	17	10	0 / 404801	0	585 Mbps	496829511	495288408	585000000	-48	1	802.11an-AC
157	VHT	4	3	80	ON	240	17	10	480 / 412391	0.116	585 Mbps	484686419	481720741	585000000	-51	1	802.11an-AC
157	VHT	4	3	80	ON	270	17	10	109696 / 109670	100	195 Mbps	0	0	585000000	-54	1	802.11an-AC
157	VHT	4	3	80	ON	300	17	10	107648 / 173526	62.036	195 Mbps	0	0	585000000	-56	1	802.11an-AC
157	VHT	4	3	80	ON	330	17	10	105728 / 105710	100	195 Mbps	0	0	585000000	-59	1	802.11an-AC
157	VHT	3	3	80	ON	0	17	10	512 / 263670	0.194	390 Mbps	329768512	330435824	390000000	-27	1	802.11an-AC
157	VHT	3	3	80	ON	30	17	10	0 / 280393	0	390 Mbps	330508416	330518333	390000000	-29	1	802.11an-AC
157	VHT	3	3	80	ON	60	17	10	0 / 269426	0	390 Mbps	330354734	330320552	390000000	-32	1	802.11an-AC
157	VHT	3	3	80	ON	90	17	10	0 / 259491	0	390 Mbps	329505473	330425130	390000000	-36	1	802.11an-AC
157	VHT	3	3	80	ON	120	17	10	128 / 279513	0.046	390 Mbps	330562564	330398434	390000000	-40	1	802.11an-AC
157	VHT	3	3	80	ON	150	17	10	0 / 277750	0	390 Mbps	331811007	330510957	390000000	-42	1	802.11an-AC
157	VHT	3	3	80	ON	180	17	10	0 / 267237	0	390 Mbps	331217477	330513589	390000000	-45	1	802.11an-AC
157	VHT	3	3	80	ON	210	17	10	128 / 276103	0.046	390 Mbps	332492489	330474061	390000000	-49	1	802.11an-AC
157	VHT	3	3	80	ON	240	17	10	128 / 269044	0.048	390 Mbps	329122166	330424194	390000000	-51	1	802.11an-AC
157	VHT	3	3	80	ON	270	17	10	500 / 266908	0.187	390 Mbps	318679448	323723618	390000000	-54	1	802.11an-AC
157	VHT	3	3	80	ON	300	17	10	110197 / 110221	99.978	195 Mbps	16621	7866	390000000	-57	1	802.11an-AC
157	VHT	3	3	80	ON	330	17	10	105856 / 105930	99.93	195 Mbps	0	0	390000000	-60	1	802.11an-AC
157	VHT	3	3	80	ON	360	17	10	113665 / 217333	52.3	195 Mbps	0	0	390000000	-63	1	802.11an-AC
157	VHT	3	3	80	ON	390	17	10	105472 / 105380	100	195 Mbps	0	0	390000000	-66	1	802.11an-AC
157	VHT	2	3	80	ON	0	17	10	256 / 207886	0.123	292.7 Mbps	247477804	247446466	292500000	-28	1	802.11an-AC
157	VHT	2	3	80	ON	30	17	10	0 / 202009	0	292.7 Mbps	248729827	247497736	292500000	-30	1	802.11an-AC
157	VHT	2	3	80	ON	60	17	10	0 / 196571	0	292.7 Mbps	248817355	247555677	292500000	-33	1	802.11an-AC
157	VHT	2	3	80	ON	90	17	10	128 / 208343	0.061	292.7 Mbps	248748952	247525968	292500000	-37	1	802.11an-AC
157	VHT	2	3	80	ON	120	17	10	128 / 202450	0.063	292.7 Mbps	249158799	247486253	292500000	-39	1	802.11an-AC
157	VHT	2	3	80	ON	150	17	10	0 / 209457	0	292.7 Mbps	242622328	247576850	292500000	-42	1	802.11an-AC
157	VHT	2	3	80	ON	180	17	10	128 / 205264	0.062	292.7 Mbps	248863606	247418501	292500000	-46	1	802.11an-AC
157	VHT	2	3	80	ON	210	17	10	0 / 216920	0	292.7 Mbps	246882887	247378733	292500000	-48	1	802.11an-AC
157	VHT	2	3	80	ON	240	17	10	128 / 213792	0.06	292.7 Mbps	247140439	247532624	292500000	-51	1	802.11an-AC
157	VHT	2	3	80	ON	270	17	10	128 / 203501	0.063	292.7 Mbps	247663133	247204805	292500000	-54	1	802.11an-AC
157	VHT	2	3	80	ON	300	17	10	128 / 215368	0.059	292.7 Mbps	249349394	247228864	292500000	-57	1	802.11an-AC
157	VHT	2	3	80	ON	330	17	10	77442 / 105356	73.505	195 Mbps	33853061	47119826	292500000	-60	1	802.11an-AC
157	VHT	2	3	80	ON	360	17	10	107136 / 107134	100	195 Mbps	0	0	292500000	-63	1	802.11an-AC
157	VHT	2	3	80	ON	390	17	10	89856 / 160757	55.896	195 Mbps	0	0	292500000	-67	1	802.11an-AC
157	VHT	2	3	80	ON	420	17	10	108544 / 108564	99.982	195 Mbps	0	0	292500000	-70	1	802.11an-AC
157	VHT	1	3	80	ON	0	17	10	256 / 135769	0.189	195 Mbps	160754683	161025109	195000000	-27	1	802.11an-AC
157	VHT	1	3	80	ON	30	17	10	128 / 130418	0.098	195 Mbps	161625543	161066306	195000000	-30	1	802.11an-AC
157	VHT	1	3	80	ON	60	17	10	0 / 130130	0	195 Mbps	161510391	161138168	195000000	-33	1	802.11an-AC
157	VHT	1	3	80	ON	90	17	10	128 / 133645	0.096	195 Mbps	157700198	161140880	195000000	-36	1	802.11an-AC
157	VHT	1	3	80	ON	120	17	10	128 / 134373	0.095	195 Mbps	160788265	161033250	195000000	-39	1	802.11an-AC
157	VHT	1	3	80	ON	150	17	10	0 / 138763	0	195 Mbps	161410944	160937349	195000000	-42	1	802.11an-AC
157	VHT	1	3	80	ON	180	17	10	128 / 133507	0.096	195 Mbps	161607501	161066306	195000000	-45	1	802.11an-AC
157	VHT	1	3	80	ON	210	17	10	0 / 129752	0	195 Mbps	160945841	161056778	195000000	-48	1	802.11an-AC
157	VHT	1	3	80	ON	240	17	10	0 / 134401	0	195 Mbps	160532820	161054117	195000000	-51	1	802.11an-AC
157	VHT	1	3	80	ON	270	17	10	0 / 130974	0	195 Mbps	160013873	161151485	195000000	-54	1	802.11an-AC
157	VHT	1	3	80	ON	300	17	10	0 / 143221	0	195 Mbps	160519786	161122461	195000000	-57	1	802.11an-AC
157	VHT	1	3	80	ON	330	17	10	0 / 133573	0	195 Mbps	161148604	160980930	195000000	-60	1	802.11an-AC
157	VHT	1	3	80	ON	360	17	10	107132 / 107187	99.949	195 Mbps	7268	7920	195000000	-63	1	802.11an-AC
157	VHT	1	3	80	ON	390	17	10	105984 / 105956	100	195 Mbps	0	0	195000000	-67	1	802.11an-AC
157	VHT	1	3	80	ON	420	17	10	83072 / 97591	85.123	195 Mbps	0	0	195000000	-70	1	802.11an-AC
157	VHT	1	3	80	ON	450	17	10	108032 / 108027	100	195 Mbps	0	0	195000000	-73	1	802.11an-AC
157	VHT	0	3	80	ON	0	17	10	384 / 68806	0.558	97.7 Mbps	81102875	81049840	97500000	-27	1	802.11an-AC
157	VHT	0	3	80	ON	30	17	10	0 / 66069	0	97.7 Mbps	80824779	81100661	97500000	-30	1	802.11an-AC
157	VHT	0	3	80	ON	60	17	10	0 / 71680	0	97.7 Mbps	81068255	81133205	97500000	-33	1	802.11an-AC
157	VHT	0	3	80	ON	90	17	10	128 / 67473	0.19	97.7 Mbps	80819179	81084261	97500000	-36	1	802.11an-AC
157	VHT	0	3	80	ON	120	17	10	0 / 66334	0	97.7 Mbps	80929204	81110442	97500000	-39	1	802.11an-AC
157	VHT	0	3	80	ON	150	17	10	0 / 77102	0	97.7 Mbps	81197551	81110442	97500000	-42	1	802.11an-AC
157	VHT	0	3	80	ON	180	17	10	0 / 66320	0	97.7 Mbps	81526644	81127957	97500000	-45	1	802.11an-AC
157	VHT	0	3	80	ON	210	17	10	0 / 65876	0	97.7 Mbps	81525750	81139272	97500000	-48	1	802.11an-AC
157	VHT	0	3	80	ON	240	17	10	0 / 68128	0	97.7 Mbps	81073038	81134944	97500000	-51	1	802.11an-AC
157	VHT	0	3	80	ON	270	17	10	0 / 66974	0	97.7 Mbps	81153656	81113496	97500000	-54	1	802.11an-AC
157	VHT	0	3	80	ON	300	17	10	128 / 67026	0.191	97.7 Mbps	81380962	81134074	97500000	-57	1	802.11an-AC
157	VHT	0	3	80	ON	330	17	10	0 / 64166	0	97.7 Mbps	80901071	81141533	97500000	-60	1	802.11an-AC
157	VHT	0	3	80	ON	360	17	10	0 / 66857	0	97.7 Mbps	81264408	81074592	97500000	-64	1	802.11an-AC
157	VHT	0	3	80	ON	390	17	10	79608 / 80695	98.653	195 Mbps	1427412	1269882	97500000	-67	1	802.11an-AC
157	VHT	0	3	80	ON	420	17	10	84287 / 84351	99.924	195 Mbps	0	0	97500000	-70	1	802.11an-AC
157	VHT	0	3	80	ON	450	17	10	38341 / 39061	98.157	195 Mbps	0	0	97500000	-73	1	802.11an-AC
157	VHT	0	3	80	ON	480	17	10	79012 / 7910								

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%
ToS	0
Duration:	10 sec (10 s)
Upstream Port	1.1.1 eth1 Firmware: 0. 6-1 Resource: MobileStations
WiFi Port	1.1.12 sta0000 Firmware: 10.4b-ct-9984-xtH-012-f6434814c Resource: MobileStations
Show Events	true
Build Date	Sat Jun 1 07:25:09 PDT 2019
Build Version	5.3.9