LITMUS
Network Certification
v1.0.3.40523

Commissioning Link TZ1-250M

TARGET ENDPOINT

172.29.59.116:7201

FULL NETWORK CERTIFICATION

TCP & UDP across Upload, Download, and Bidirectional

BANDWIDTH

250 Mbit/s

CERTIFIED 2026

OVERALL QUALITY SUMMARY

IDLE / LOADED	LATENCY INCREASE	JITTER	PACKET LOSS	DATA INTEGRITY
0.6 / 0.6 ms	**+0.14 ms**	**0.99 ms**	**<0.01%**	**PASS (975,418)**
PASS	PASS	PASS	PASS	PASS

TEST RESULTS OVERVIEW

Test	Protocol	Direction	Avg Throughput	Latency	Result
1	TCP	↓ Download	250.05 Mbps	0.4 ms	✓ PASS
2	TCP	↑ Upload	249.88 Mbps	0.6 ms	✓ PASS
3	TCP	↑↓ Bidirectional	242.16 Mbps	0.5 ms	✓ PASS
4	UDP	↓ Download	250.00 Mbps	0.5 ms	✓ PASS
5	UDP	↑ Upload	249.77 Mbps	0.5 ms	✓ PASS
6	UDP	↑↓ Bidirectional	238.52 Mbps	0.5 ms	✓ PASS

TEST 1/6: TCP Download

✓ PASS

	PROTOCOL TCP		DIRECTION Download		DURATION 12 seconds
	DATA PATTERN Random		BANDWIDTH 250 Mbit/s		STREAMS 2
	OMIT INITIAL 4s				

Metric	Value	Metric	Value
Average Throughput	250.05 Mbps	Total Transferred	357.77 MB
Minimum Throughput	247.73 Mbps	Maximum Throughput	251.71 Mbps
Idle Latency	0.47 ms	Loaded Latency	0.45 ms
Latency Increase	-0.03 ms	Test Duration	00:00:11.9
Packet Loss	N/A (TCP reliable)	Streams	2
Data Integrity	PASS (2,700 checked)	Corrupt Packets	0
TCP Retransmits	0	TCP Connect Time	0.37 ms
Network Quality	A (100/100)		
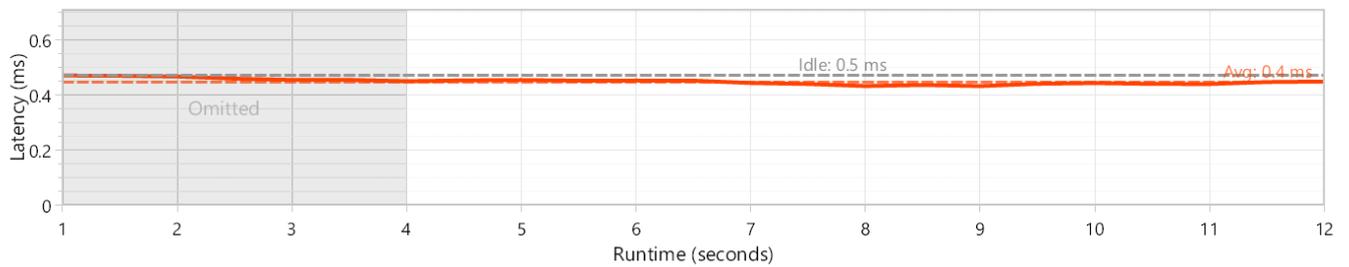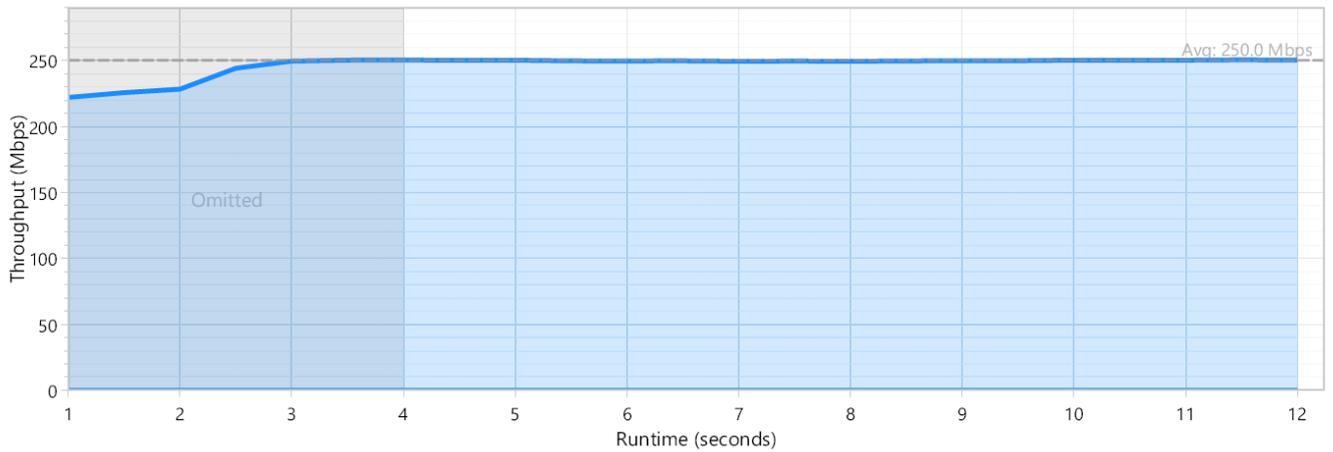
TEST 2/6: TCP Upload

✓ PASS

PROTOCOL	TCP
DIRECTION	Upload
DURATION	12 seconds
DATA PATTERN	Random
BANDWIDTH	250 Mbit/s
STREAMS	2
OMIT INITIAL	4s

Metric	Value	Metric	Value
Average Throughput	249.88 Mbps	Total Transferred	357.77 MB
Minimum Throughput	248.51 Mbps	Maximum Throughput	251.21 Mbps
Idle Latency	0.54 ms	Loaded Latency	0.60 ms
Latency Increase	+0.07 ms	Test Duration	00:00:11.9
Packet Loss	N/A (TCP reliable)	Streams	2
Data Integrity	N/A (send only)	Corrupt Packets	0
TCP Retransmits	0	TCP Connect Time	0.26 ms
Network Quality	A (100/100)		

TEST 3/6: TCP Bidirectional

✓ PASS

	PROTOCOL			DIRECTION			DURATION
	TCP			Bidirectional			12 seconds

	DATA PATTERN			BANDWIDTH			STREAMS
	Random			250 Mbit/s			2

	OMIT INITIAL
	4s

Metric	Value	Metric	Value
Throughput	↑ 242.16 Mbps ↓ 242.15 Mbps	Total Transferred	715.02 MB
Min / Max	↑ 108.94 - 251.32 Mbps ↓ 108.98 - 251.28 Mbps	Test Duration	00:00:11.9
Idle Latency	0.64 ms	Loaded Latency	0.49 ms
Packet Loss	N/A (TCP reliable)	Streams	2
Data Integrity	PASS (2,677 checked)	Corrupt Packets	0
TCP Retransmits	0	TCP Connect Time	0.45 ms
Network Quality	A (100/100)		
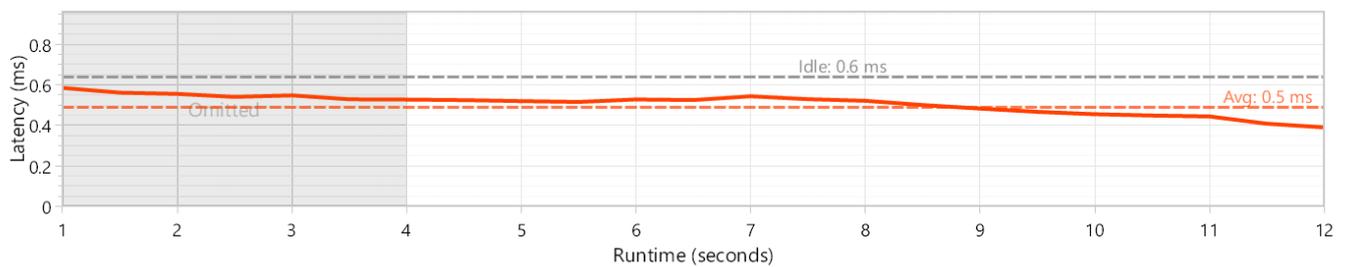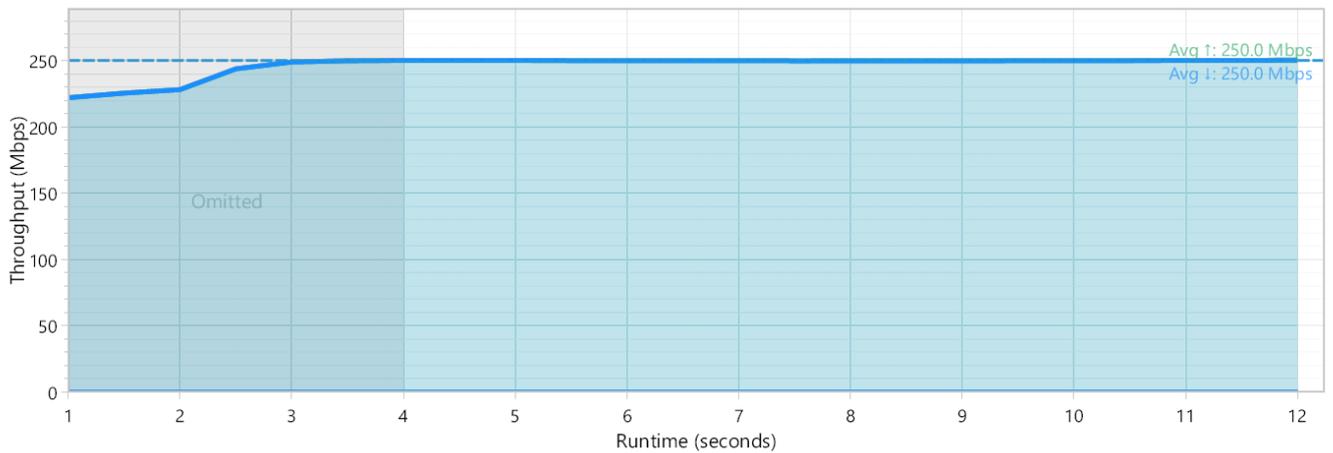
TEST 4/6: UDP Download

✓ **PASS**

PROTOCOL UDP	**DIRECTION** Download	**DURATION** 12 seconds
DATA PATTERN Random	**BANDWIDTH** 250 Mbit/s	**STREAMS** 2
PACKET SIZE 1472 bytes	**DF BIT** OFF	**OMIT INITIAL** 4s

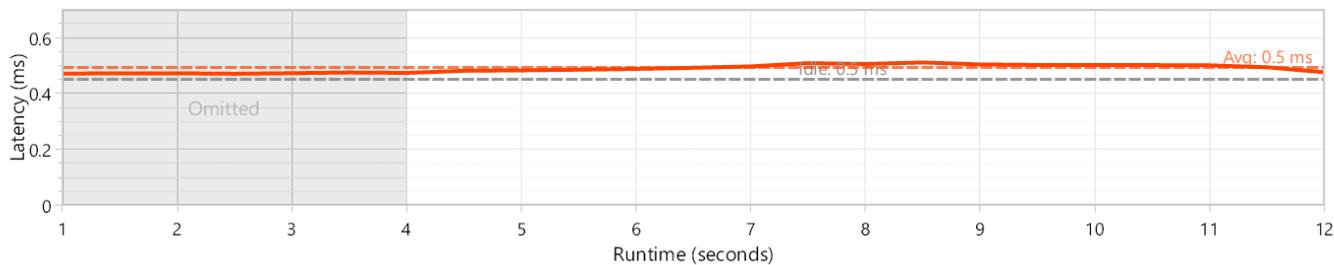| Metric	Value	Metric	Value
Average Throughput	250.00 Mbps	Total Transferred	359.26 MB
Minimum Throughput	249.98 Mbps	Maximum Throughput	250.01 Mbps
Idle Latency	0.37 ms	Loaded Latency	0.51 ms
Latency Increase	+0.14 ms	Test Duration	00:00:12.2
Jitter (RFC 3550)	0.86 ms	Packet Loss	<0.01%
Data Integrity	PASS (244,934 checked)	Corrupt Packets	0
Network Quality	A (100/100)		
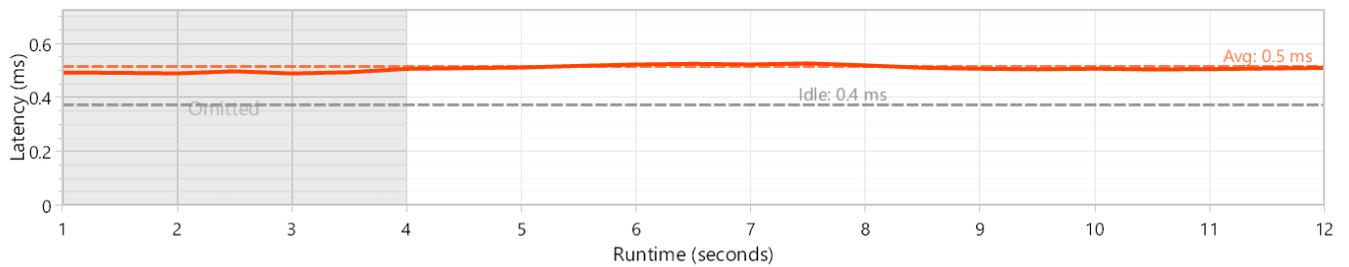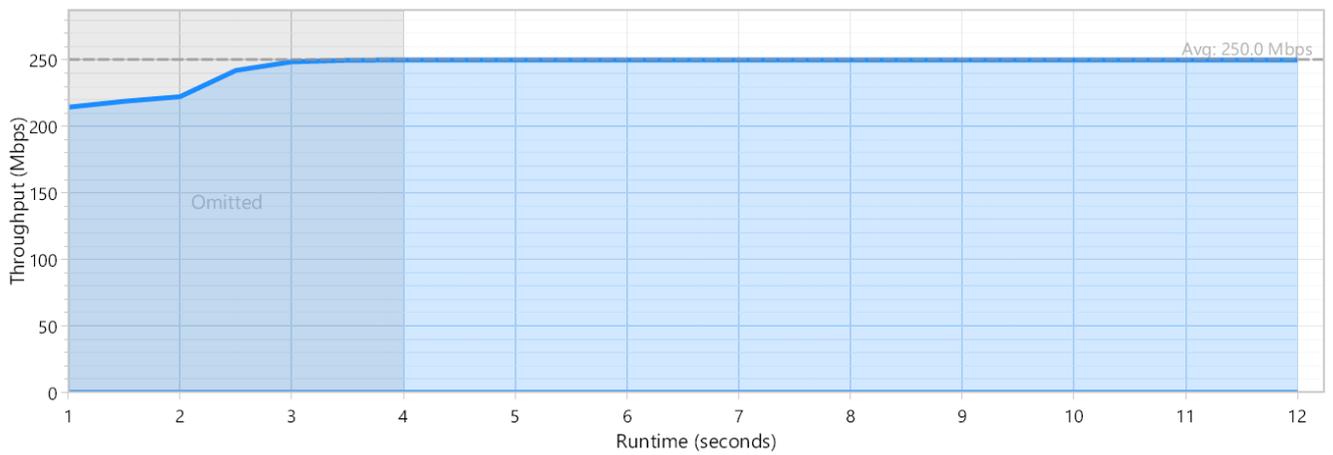
TEST 5/6: UDP Upload

✓ PASS

	PROTOCOL		DIRECTION		DURATION
	UDP		Upload		12 seconds
	DATA PATTERN		BANDWIDTH		STREAMS
	Random		250 Mbit/s		2
	PACKET SIZE		DF BIT		OMIT INITIAL
	1472 bytes		OFF		4s

Metric	Value	Metric	Value
Average Throughput	249.77 Mbps	Total Transferred	340.53 MB
Minimum Throughput	249.34 Mbps	Maximum Throughput	250.00 Mbps
Idle Latency	0.45 ms	Loaded Latency	0.49 ms
Latency Increase	+0.04 ms	Test Duration	00:00:12.0
Jitter (RFC 3550)	0.99 ms	Packet Loss	0%
Data Integrity	PASS (242,579 checked)	Corrupt Packets	0
Network Quality	A (100/100)		
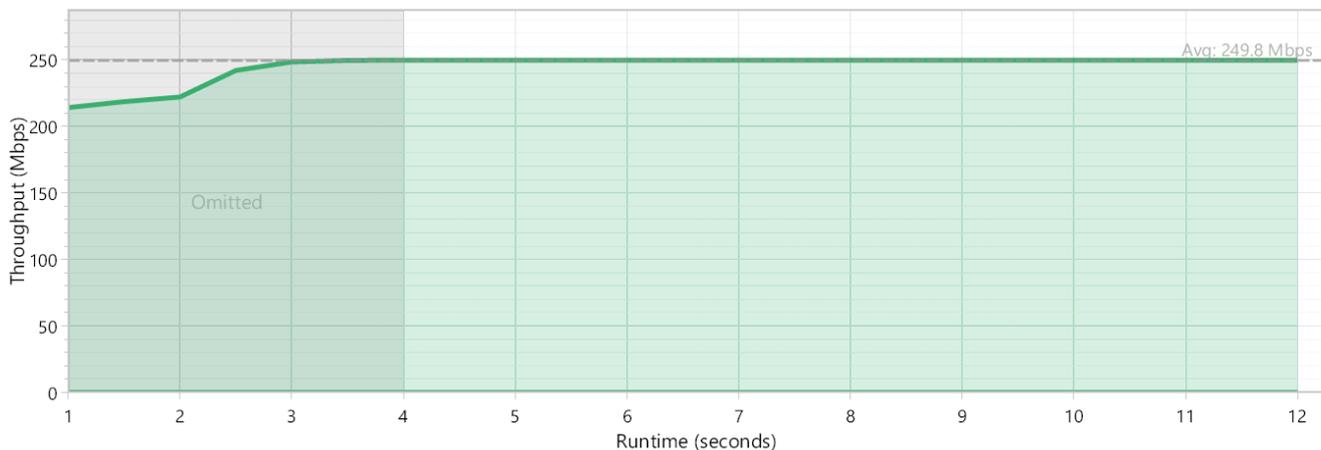
TEST 6/6: UDP Bidirectional

✓ PASS

PROTOCOL UDP	**DIRECTION** Bidirectional	**DURATION** 12 seconds
DATA PATTERN Random	**BANDWIDTH** 250 Mbit/s	**STREAMS** 2
PACKET SIZE 1472 bytes	**DF BIT** OFF	**OMIT INITIAL** 4s

Metric	Value	Metric	Value
Throughput	↑ 237.18 Mbps ↓ 239.86 Mbps	**Total Transferred**	336.78 MB
Min / Max	↑ 70.13 - 249.28 Mbps ↓ 70.26 - 250.01 Mbps	**Test Duration**	00:00:12.0
Idle Latency	0.47 ms	**Loaded Latency**	0.55 ms
Jitter (RFC 3550)	0.84 ms	**Packet Loss**	<0.01%
Data Integrity	PASS (482,528 checked)	**Corrupt Packets**	0
Network Quality	A (100/100)		
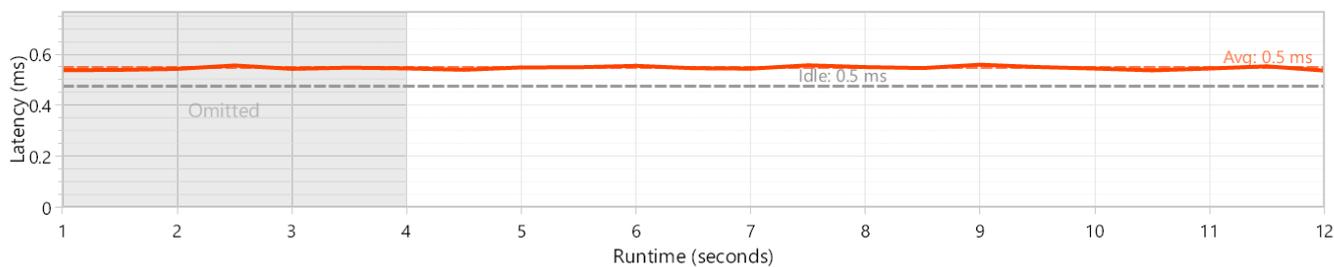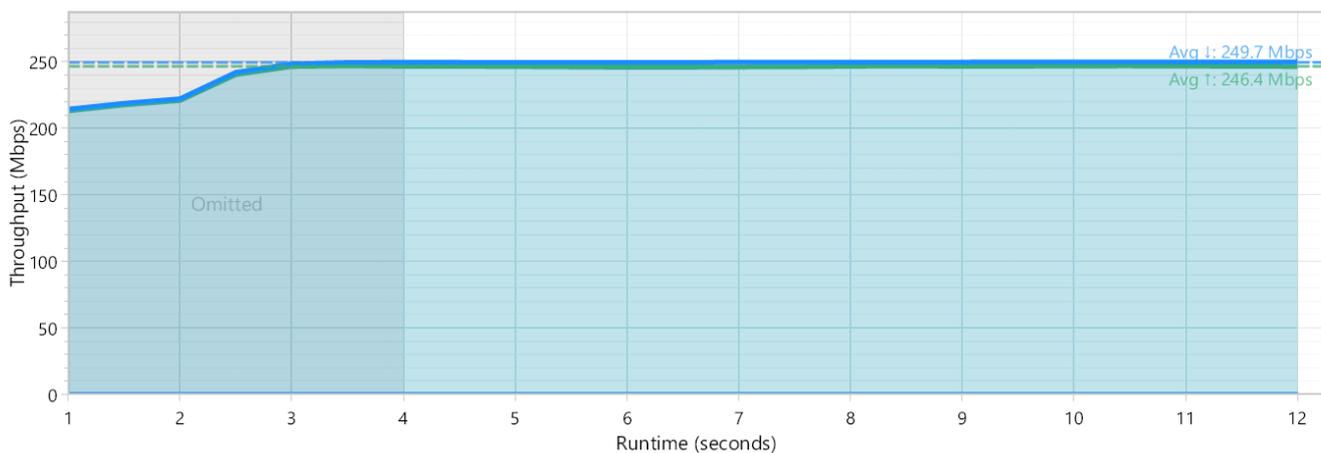
PUNCH LIST

#	ITEM	STATUS	NOTES
1	Throughput stability	PASS	6/6 tests stable
2	Latency within threshold	PASS	Worst: 0.6 ms
3	Jitter acceptable	PASS	Worst: 0.99 ms
4	Packet loss within threshold	PASS	Worst: <0.01%
5	Data integrity verified	PASS	CRC32 verified
6	TCP retransmits	PASS	0 across 3 TCP tests
7			
8			
9			
10			
11			

Both parties acknowledge that the above test results have been reviewed and accepted as an accurate representation of network performance at the time of testing.

PARTY A

Name:
_____

Title:
_____

Signature:
_____

Date:
_____

PARTY B

Name:
_____

Title:
_____

Signature:
_____

Date:
_____

DOCUMENT VERIFICATION

Report ID	20260219223420
Document Hash	D5071306B67C809E438FF4BD72BFD4EE
Generated	February 19, 2026 at 10:34:20 PM
Generated By	LITMUS v1.0.3.40523
Machine	DESKTOP-L9POTOO
Processor	AMD Ryzen 5 5600XT 6-Core Processor @ 12 logical cores
Memory	16 GB
OS	Microsoft Windows NT 10.0.26100.0
Runtime	.NET 8.0.23

Note: Test results may be influenced by the host machine's hardware capabilities. Systems with limited CPU or memory resources may not sustain the throughput required for high-bandwidth tests, particularly UDP, potentially yielding results that underrepresent actual network capacity.

DATA PATTERN REFERENCE

Random payload per RFC 2544 Section 9 and ITU-T O.150. Pseudo-random bit sequences (PRBS) prevent payload compression on the wire and provide realistic traffic simulation. This is the recommended pattern for general throughput benchmarking.

SAMPLE DATA

Test 1/6: TCP Download

↓ TCP Download Samples

Timestamp	Throughput	Latency (ms)
22:32:54 0s	155.35 Mbps	0.53
22:32:55 1s	245.97 Mbps	0.48
22:32:56 2s	250.03 Mbps	0.43
22:32:57 3s	251.67 Mbps	0.45
22:32:58 4s	250.56 Mbps	0.46
22:32:59 5s	250.42 Mbps	0.48
22:33:00 6s	248.89 Mbps	0.45
22:33:01 7s	248.87 Mbps	0.41
22:33:02 8s	250.43 Mbps	0.45
22:33:03 9s	250.16 Mbps	0.42
22:33:04 10s	250.25 Mbps	0.44
22:33:05 11s	250.09 Mbps	0.46
22:33:06 12s	251.46 Mbps	0.44

Test 2/6: TCP Upload

↑ TCP Upload Samples

Timestamp	Throughput	Latency (ms)
22:33:07 0s	156.14 Mbps	0.47
22:33:08 1s	245.16 Mbps	0.51
22:33:09 2s	249.64 Mbps	0.55
22:33:10 3s	250.44 Mbps	1.04
22:33:11 4s	249.56 Mbps	1.03
22:33:12 5s	249.93 Mbps	0.53
22:33:13 6s	250.94 Mbps	0.58
22:33:14 7s	249.52 Mbps	0.53
22:33:15 8s	250.19 Mbps	0.51
22:33:16 9s	249.45 Mbps	0.51
22:33:17 10s	249.74 Mbps	0.60
22:33:18 11s	250.40 Mbps	0.56
22:33:19 12s	248.51 Mbps	0.52

Test 3/6: TCP Bidirectional

↑ TCP Upload Samples

Timestamp	Throughput	Latency (ms)
22:33:20 0s	156.82 Mbps	0.59
22:33:21 1s	244.88 Mbps	0.64
22:33:22 2s	249.68 Mbps	0.56
22:33:23 3s	250.47 Mbps	0.46
22:33:24 4s	249.53 Mbps	0.50
22:33:25 5s	250.45 Mbps	0.58
22:33:26 6s	250.11 Mbps	0.55
22:33:27 7s	249.89 Mbps	0.50

	22:33:28 8s	249.87 Mbps	0.49
	22:33:29 9s	249.57 Mbps	0.58
	22:33:30 10s	250.40 Mbps	0.41
	22:33:31 11s	249.73 Mbps	0.37
	22:33:32 12s	251.16 Mbps	0.38

↓ **TCP Download Samples**

Timestamp	Throughput	Latency (ms)
22:33:20 0s	156.82 Mbps	0.59
22:33:21 1s	244.90 Mbps	0.64
22:33:22 2s	249.67 Mbps	0.56
22:33:23 3s	250.48 Mbps	0.46
22:33:24 4s	249.54 Mbps	0.50
22:33:25 5s	251.03 Mbps	0.58
22:33:26 6s	249.86 Mbps	0.55
22:33:27 7s	249.88 Mbps	0.50
22:33:28 8s	249.52 Mbps	0.49
22:33:29 9s	249.55 Mbps	0.58
22:33:30 10s	250.39 Mbps	0.41
22:33:31 11s	249.93 Mbps	0.37
22:33:32 12s	250.72 Mbps	0.38

Test 4/6: UDP Download

↓ **UDP Download Samples**

Timestamp	Throughput	Latency (ms)	Jitter (ms)
22:33:33 0s	131.98 Mbps	0.49	0.3217
22:33:33 1s	243.65 Mbps	0.50	0.6657
22:33:34 2s	249.82 Mbps	0.50	0.8128
22:33:35 3s	250.01 Mbps	0.48	0.8953
22:33:36 4s	250.00 Mbps	0.49	0.8880
22:33:37 5s	250.00 Mbps	0.50	0.8399
22:33:38 6s	250.00 Mbps	0.57	0.8104
22:33:39 7s	250.00 Mbps	0.52	0.8518
22:33:40 8s	250.00 Mbps	0.51	0.8812
22:33:41 9s	250.00 Mbps	0.49	0.8777
22:33:42 10s	250.00 Mbps	0.50	0.8548
22:33:43 11s	250.01 Mbps	0.50	0.8465
22:33:44 12s	249.98 Mbps	0.55	0.8462

Test 5/6: UDP Upload

↑ **UDP Upload Samples**

Timestamp	Throughput	Latency (ms)	Jitter (ms)
22:33:46 0s	131.02 Mbps	0.49	0.3333
22:33:46 1s	243.92 Mbps	0.47	0.6488
22:33:47 2s	249.47 Mbps	0.46	0.8699
22:33:48 3s	249.95 Mbps	0.47	0.9133
22:33:49 4s	249.67 Mbps	0.48	0.9516
22:33:50 5s	249.92 Mbps	0.48	0.9478
22:33:51 6s	249.68 Mbps	0.49	0.9377

22:33:52 7s	249.88 Mbps	0.49	0.9593
22:33:53 8s	249.74 Mbps	0.51	0.9594
22:33:54 9s	249.63 Mbps	0.56	1.2404
22:33:55 10s	249.72 Mbps	0.48	1.0365
22:33:56 11s	249.82 Mbps	0.46	0.9562
22:33:57 12s	249.99 Mbps	0.49	0.8966

Test 6/6: UDP Bidirectional

↑ UDP Upload Samples

Timestamp	Throughput	Latency (ms)	Jitter (ms)
22:34:08 0s	131.11 Mbps	0.51	0.3635
22:34:08 1s	242.87 Mbps	0.55	0.6872
22:34:09 2s	247.64 Mbps	0.55	0.8124
22:34:10 3s	249.04 Mbps	0.54	0.8505
22:34:11 4s	246.37 Mbps	0.54	0.8301
22:34:12 5s	245.17 Mbps	0.56	0.8789
22:34:13 6s	245.13 Mbps	0.52	0.8600
22:34:14 7s	246.39 Mbps	0.58	0.8346
22:34:15 8s	247.32 Mbps	0.54	0.8715
22:34:16 9s	247.46 Mbps	0.56	0.8587
22:34:17 10s	246.41 Mbps	0.51	0.9235
22:34:18 11s	245.60 Mbps	0.59	0.8876
22:34:19 12s	248.41 Mbps	0.48	0.8834

↓ UDP Download Samples

Timestamp	Throughput	Latency (ms)	Jitter (ms)
22:34:08 0s	131.36 Mbps	0.51	0.3326
22:34:08 1s	244.33 Mbps	0.55	0.7395
22:34:09 2s	249.84 Mbps	0.55	0.7391
22:34:10 3s	249.94 Mbps	0.54	0.7851
22:34:11 4s	249.13 Mbps	0.54	0.8285
22:34:12 5s	249.91 Mbps	0.56	0.7983
22:34:13 6s	249.54 Mbps	0.52	0.8854
22:34:14 7s	249.26 Mbps	0.58	0.9142
22:34:15 8s	249.98 Mbps	0.54	0.7398
22:34:16 9s	250.00 Mbps	0.56	0.7808
22:34:17 10s	250.00 Mbps	0.51	0.7518
22:34:18 11s	250.00 Mbps	0.59	0.7933
22:34:19 12s	249.99 Mbps	0.48	0.8354

PACKET LOSS EVENTS

Timestamp	Protocol & Direction	Packets Lost
22:33:37.508 43s	UDP Download Stream 0	4
22:33:38.719 44s	UDP Download Stream 0	1
22:33:39.041 44s	UDP Download Stream 1	1
22:33:43.308 49s	UDP Download Stream 0	1
22:33:43.308 49s	UDP Download Stream 1	1
22:34:12.923 1m18s	UDP Bidirectional Stream 1	1
22:34:13.591 1m19s	UDP Bidirectional Stream 0	2

22:34:13.702	1m19s	UDP Bidirectional Stream 0	1
22:34:13.757	1m19s	UDP Bidirectional Stream 0	1
22:34:14.561	1m20s	UDP Bidirectional Stream 1	1
22:34:15.107	1m20s	UDP Bidirectional Stream 1	1
22:34:15.107	1m20s	UDP Bidirectional Stream 0	1
22:34:15.283	1m21s	UDP Bidirectional Stream 0	1
22:34:16.742	1m22s	UDP Bidirectional Stream 0	1
22:34:18.340	1m24s	UDP Bidirectional Stream 1	4
22:34:18.980	1m24s	UDP Bidirectional Stream 0	1
22:34:18.980	1m24s	UDP Bidirectional Stream 1	1
22:34:19.281	1m25s	UDP Bidirectional Stream 0	3