Mixed Traffic Test

2024-03-18-18-19-32

Test Setup Information

Overall Setup Info For all Tests	DUT Model	NA
	DUT Firmware	NA
	SSID	NA
	Security	NA
	No of Devices	8 (Virtual Clients: 0, Windows: 2, Linux: 2, Mac: 2, Android: 2)
	Test Duration (HH:MM:SS)	00:05:00

Objective

The Candela mixed traffic test is designed to measure the access point performance andstability by running multiple traffic on real clients like Android, Linux, Windows, and IOSconnected to the access point. This test allows the user to choose multiple types of traffic likeclient capacity test, web browser test, video streaming test ping test. Along with theperformance measurements are client connection times, Station 4-Way Handshake time, DHCPtimes, and more. The expected behavior is for the AP to be able to handle all types of traffic onthe several stations (within the limitations of the AP specs) and Make sure all clients can run alltypes of traffic.

Traffic Details

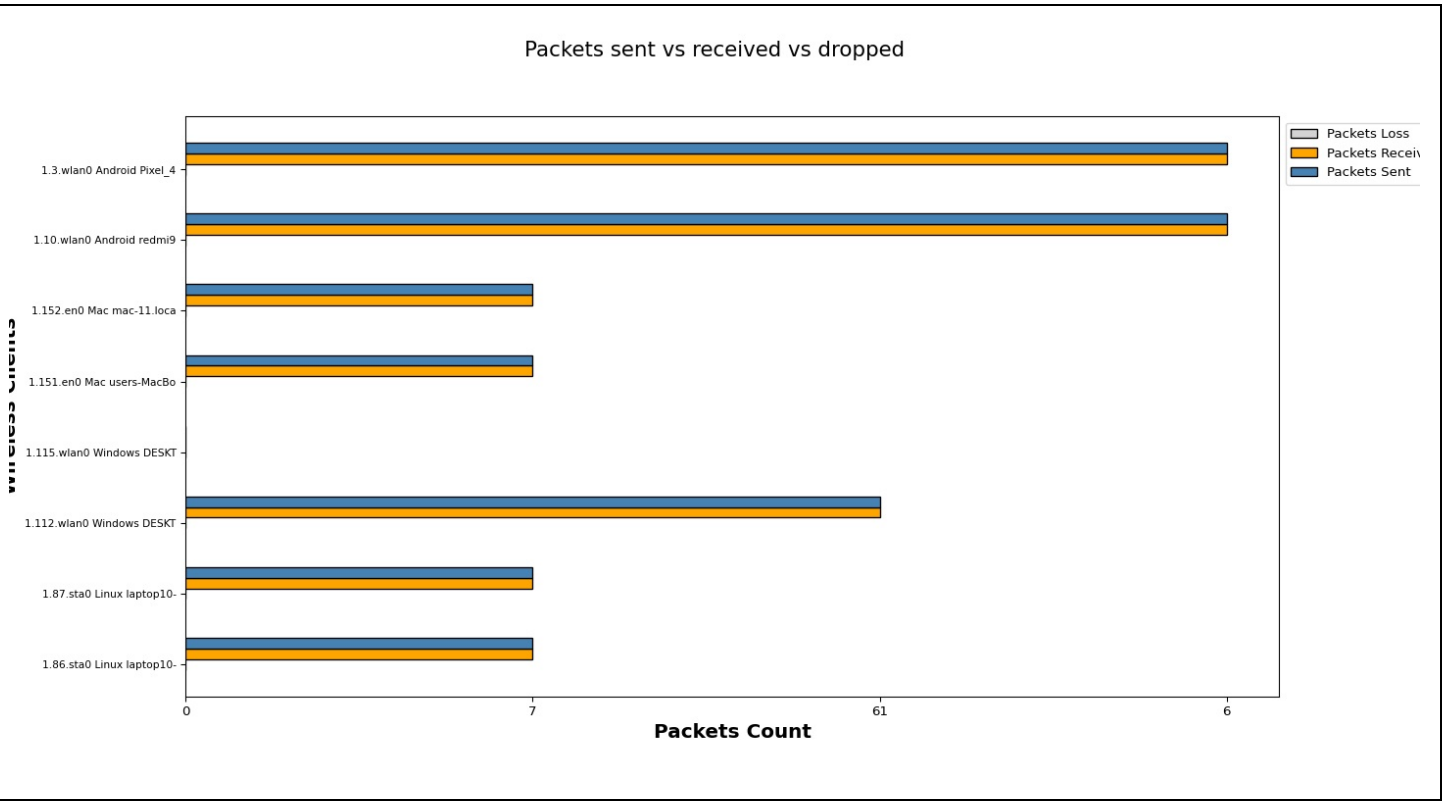
Sno	Test Cases	Test Duration	Test Execution State
1	Ping Test	1.0 minute	Executed
2	Quality Of Service(QOS) Test ['VO', 'BE']	1.0 minute	Executed
3	FTP Test	1.0 minute	Executed
4	HTTP Test	1.0 minute	Executed
5	Multicast Test	1.0 minute	Executed

1. Ping Test

Test Configuration

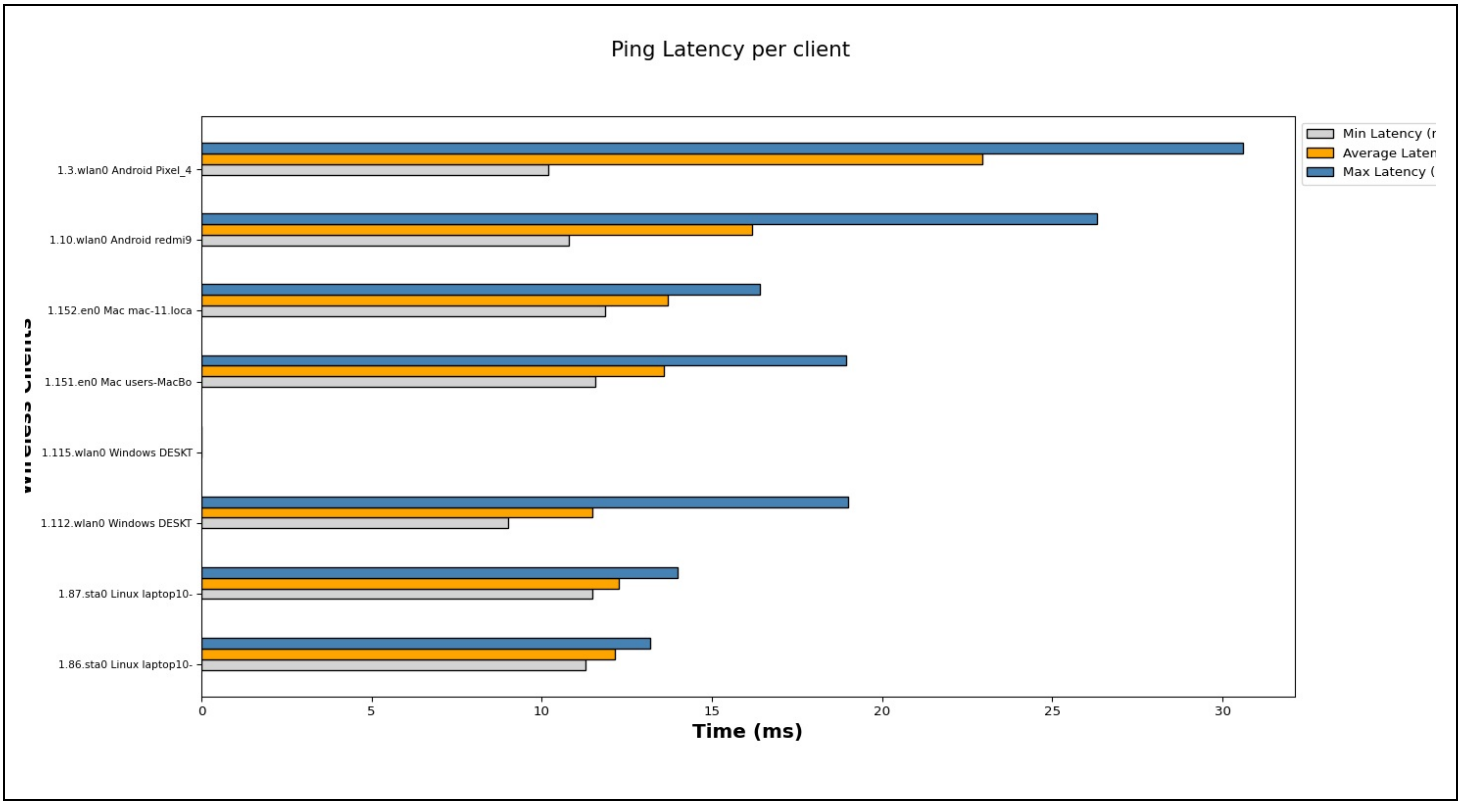
Test Setup Information	IP / Website	8.8.8.8

Packets sent vs packets received vs packets dropped



Wireless Client	MAC	Channel	Mode	Packets Sent	Packets Received	Packets Loss
laptop10-Latitude-E5450	dc:53:60:f0:16:c9	-1	802.11bgn-AC 80 2x2	7	7	0
laptop10-ThinkPad-T450	48:45:20:6f:42:50	-1	802.11bgn-AC 80 2x2	7	7	0
DESKTOP-SJQGI80	00:bb:60:37:87:af	149	AUTO 20 1x1	61	61	0
DESKTOP-DSVHJ4L	34:f3:9a:eb:46:b4	149	AUTO 20 1x1	0	0	0
users-MacBook-Pro.local	60:f8:1d:b6:71:70	149	802.11abgn-AC 20 3x3	7	7	0
mac-11.local	ac:bc:32:77:dc:99	149	802.11abg 20 1x1	7	7	0
redmi9prime	dc:b7:2e:21:d7:fc	149	AUTO 20	6	6	0
Pixel_4a_1	02:00:00:00:00:00	149	802.11abgn-AC 40	6	6	0

Ping Latency Graph



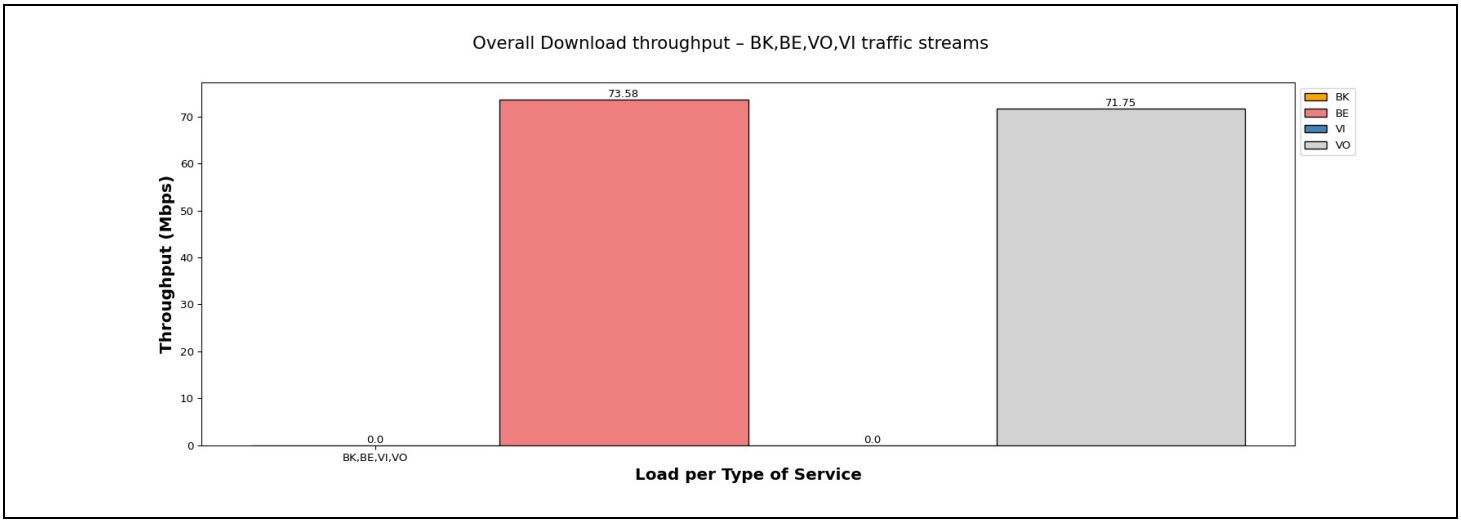
Wireless Client	MAC	Channel	Mode	Min Latency (ms)	Average Latency (ms)	Max Latency (ms)
laptop10-Latitude-E5450	dc:53:60:f0:16:c9	-1	802.11bgn-AC 80 2x2	11.300	12.157	13.200
laptop10-ThinkPad-T450	48:45:20:6f:42:50	-1	802.11bgn-AC 80 2x2	11.500	12.271	14.000
DESKTOP-SJQGI80	00:bb:60:37:87:af	149	AUTO 20 1x1	9.000	11.475	19.000
DESKTOP-DSVHJ4L	34:f3:9a:eb:46:b4	149	AUTO 20 1x1	0.000	0.000	0.000
users-MacBook-Pro.local	60:f8:1d:b6:71:70	149	802.11abgn-AC 20 3x3	11.569	13.603	18.942
mac-11.local	ac:bc:32:77:dc:99	149	802.11abg 20 1x1	11.857	13.693	16.415
redmi9prime	dc:b7:2e:21:d7:fc	149	AUTO 20	10.800	16.167	26.300
Pixel_4a_1	02:00:00:00:00:00	149	802.11abgn-AC 40	10.200	22.950	30.600

2. Quality Of Service(QOS) Test

Test Configuration

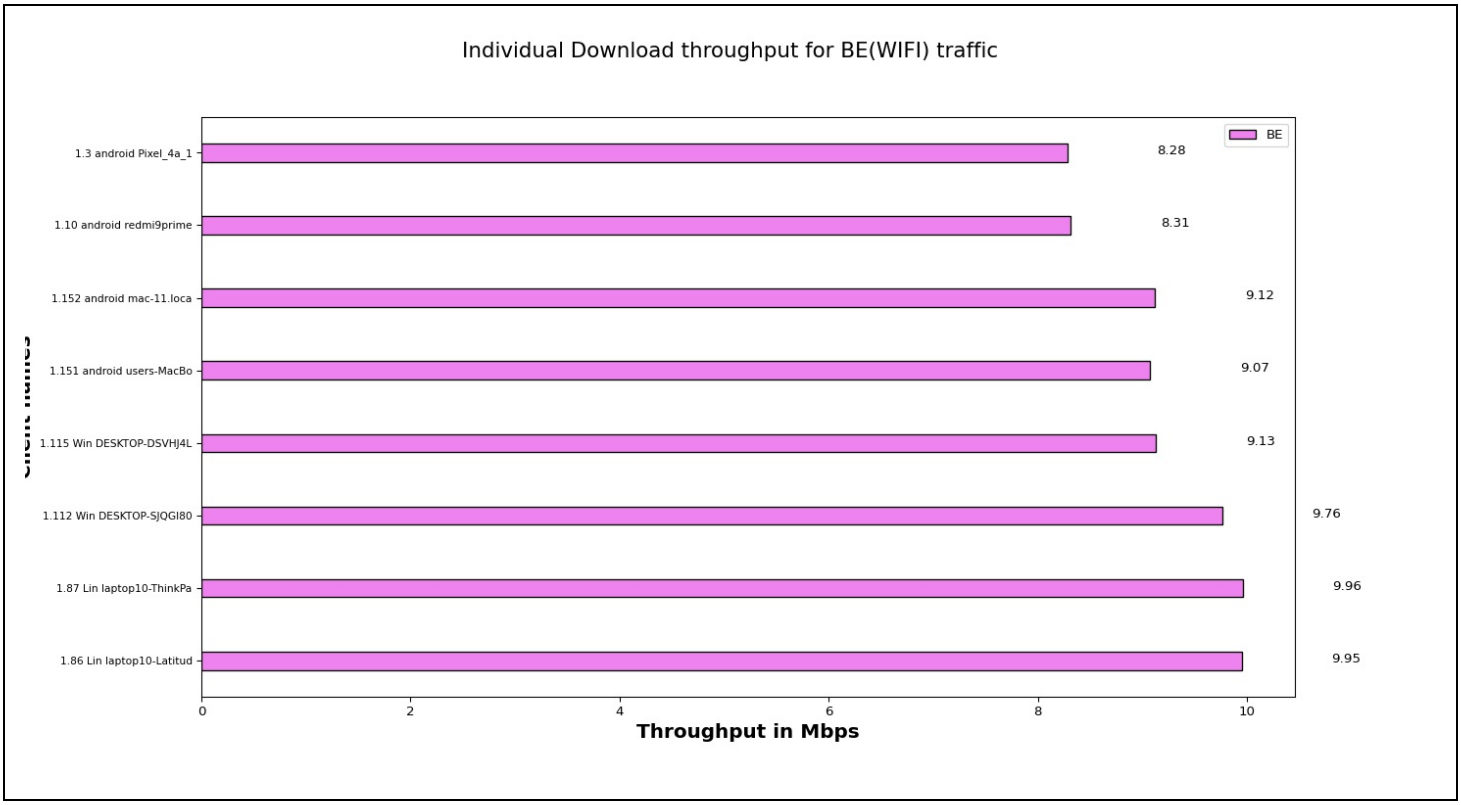
Test Setup Information	Protocol	TCP
	Traffic Direction	Download
	Security	None
	TOS	['VO', 'BE']
	Per TOS Load	10.0 Mbps

Overall Download Throughput for all TOS i.e BK | BE | Video (VI) | Voice (VO)



Individual Download throughput with intended load 10.0 Mbps/station for traffic BE(WiFi).

The below graph represents individual throughput for 8 clients running BE (WiFi) traffic. X- axis shows "number of clients" and Y-axis shows "Throughput in Mbps".

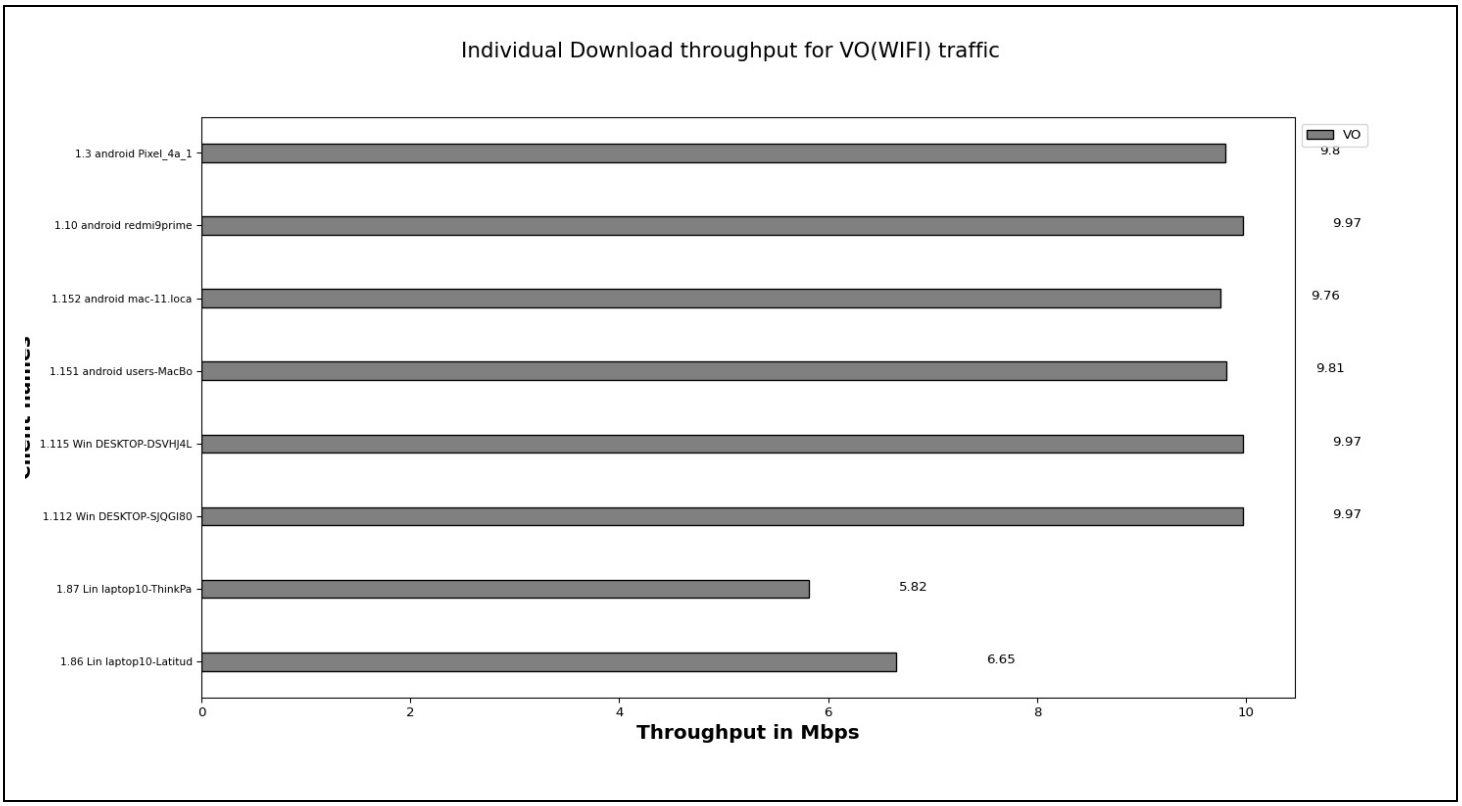


Client Name	MAC	Type of traffic	Traffic Direction	Traffic Protocol	Offered upload rate(Mbps)	Offered download rate(Mbps)	Observed upload rate(Mbps)	Observed download rate(Mbps)	Observed Download Drop (%)
1.86 Lin laptop10-Latitud	dc:53:60:f0:16:c9	Besteffort	Download	TCP	0.0 Mbps	10.0 Mbps	0	9.95	0.06
1.87 Lin laptop10-ThinkPa	48:45:20:6f:42:50	Besteffort	Download	TCP	0.0 Mbps	10.0 Mbps	0	9.96	0.11
1.112 Win DESKTOP-SJQGI80	00:bb:60:37:87:af	Besteffort	Download	TCP	0.0 Mbps	10.0 Mbps	0	9.76	0.05
1.115 Win DESKTOP-DSVHJ4L	34:f3:9a:eb:46:b4	Besteffort	Download	TCP	0.0 Mbps	10.0 Mbps	0	9.13	0.10
1.151 android users-MacBo	60:f8:1d:b6:71:70	Besteffort	Download	TCP	0.0 Mbps	10.0 Mbps	0	9.07	0.58
1.152 android mac-11.loca	ac:bc:32:77:dc:99	Besteffort	Download	TCP	0.0 Mbps	10.0 Mbps	0	9.12	0.14

1.10 android redmi9prime	dc:b7:2e:21:d7:fc	Besteffort	Download	TCP	0.0 Mbps	10.0 Mbps	0	8.31	0.00
1.3 android Pixel_4a_1	02:00:00:00:00:00	Besteffort	Download	TCP	0.0 Mbps	10.0 Mbps	0	8.28	0.04

Individual Download throughput with intended load 10.0 Mbps/station for traffic VO(WiFi).

The below graph represents individual throughput for 8 clients running VO (WiFi) traffic. X- axis shows "number of clients" and Y-axis shows "Throughput in Mbps".



Client Name	MAC	Type of traffic	Traffic Direction	Traffic Protocol	Offered upload rate(Mbps)	Offered download rate(Mbps)	Observed upload rate(Mbps)	Observed download rate(Mbps)	Observed Download Drop (%)
1.86 Lin laptop10-Latitud	dc:53:60:f0:16:c9	Voice	Download	TCP	0.0 Mbps	10.0 Mbps	0	6.65	0.03
1.87 Lin laptop10-ThinkPa	48:45:20:6f:42:50	Voice	Download	TCP	0.0 Mbps	10.0 Mbps	0	5.82	0.02
1.112 Win DESKTOP-SJQGI80	00:bb:60:37:87:af	Voice	Download	TCP	0.0 Mbps	10.0 Mbps	0	9.97	0.04
1.115 Win DESKTOP-DSVHJ4L	34:f3:9a:eb:46:b4	Voice	Download	TCP	0.0 Mbps	10.0 Mbps	0	9.97	0.03
1.151 android users-MacBo	60:f8:1d:b6:71:70	Voice	Download	TCP	0.0 Mbps	10.0 Mbps	0	9.81	0.30
1.152 android mac-11.loca	ac:bc:32:77:dc:99	Voice	Download	TCP	0.0 Mbps	10.0 Mbps	0	9.76	0.06
1.10 android redmi9prime	dc:b7:2e:21:d7:fc	Voice	Download	TCP	0.0 Mbps	10.0 Mbps	0	9.97	0.01
1.3 android Pixel_4a_1	02:00:00:00:00:00	Voice	Download	TCP	0.0 Mbps	10.0 Mbps	0	9.80	0.00

3. File Transfer Protocol (FTP) Test

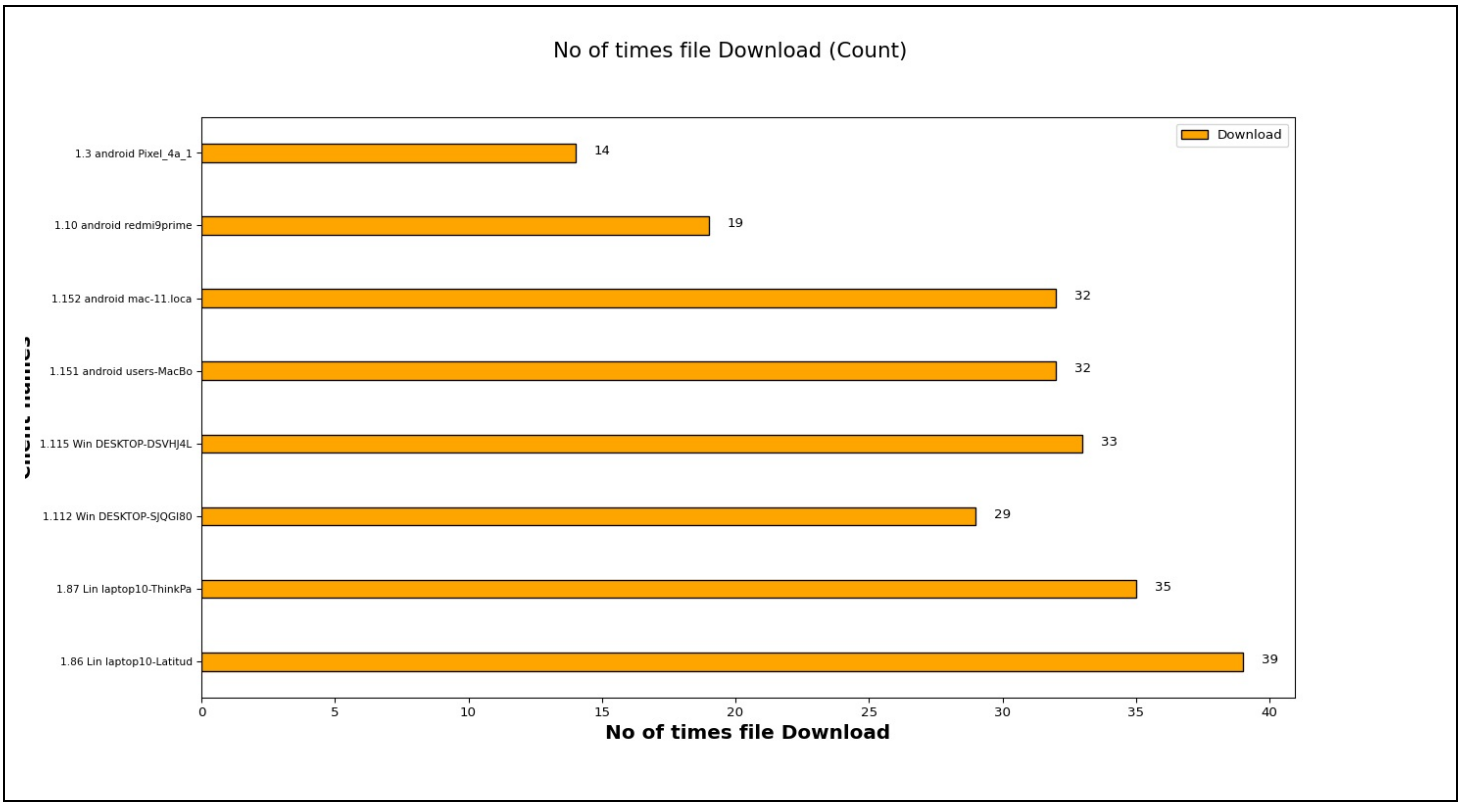
Test Configuration

Test Setup Information	Traffic Direction	Download
	File Size	5MB

File Location	/home/lanforge

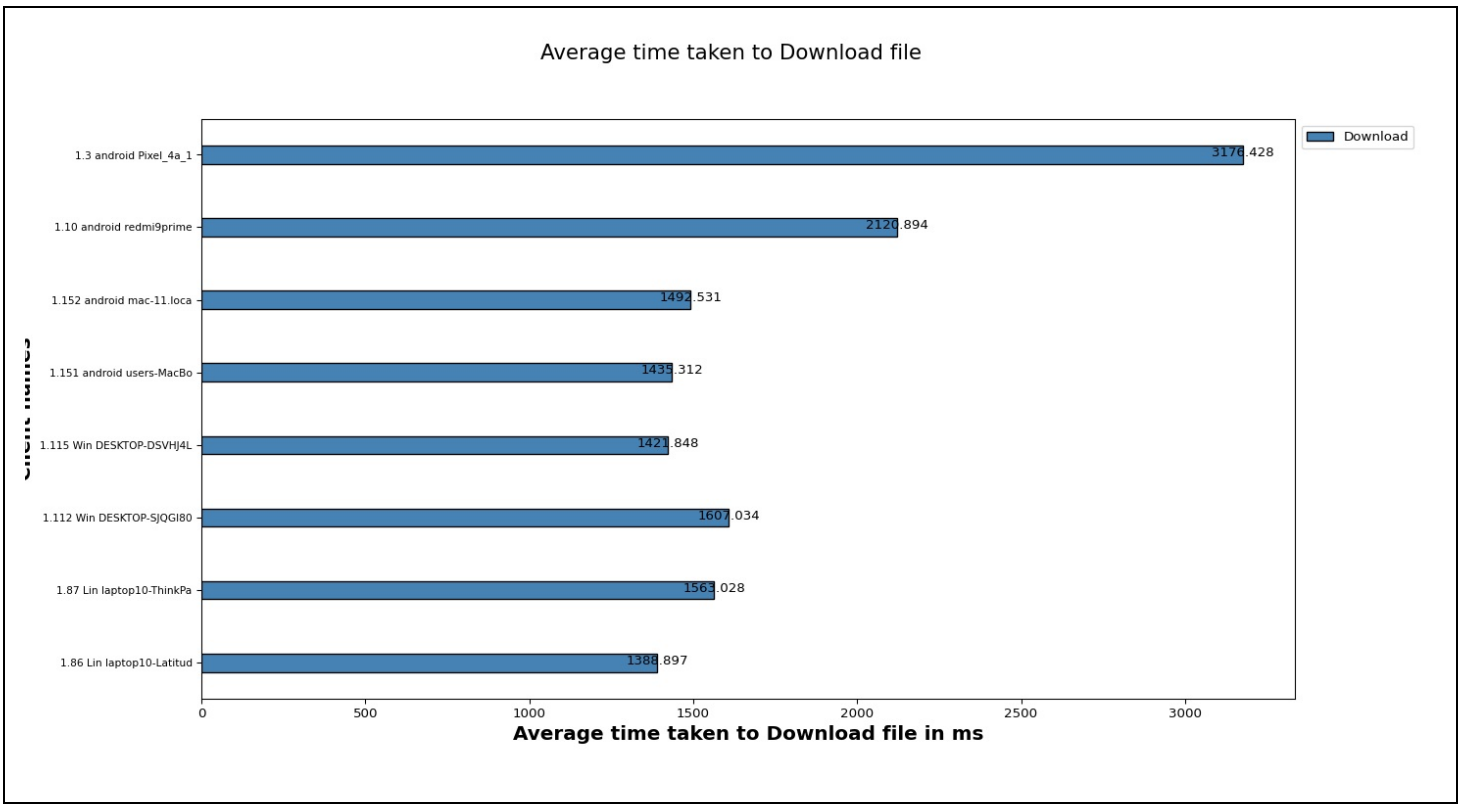
No.of times file Download

The below graph represents number of times a file Download for each client (WiFi) traffic. X-axis shows "No of times file Download" and Y-axis shows "Client names".



Average time taken to Download file

The below graph represents average time taken to Download for each client (WiFi) traffic. X-axis shows "Average time taken to Download a file " and Y-axis shows "Client names".



Overall Results

Clients	MAC	Channel	Mode	No of times File downloaded	Time Taken to Download file (ms)
1.86 Lin laptop10-Latitud	dc:53:60:f0:16:c9	149	802.11abgn-AC 40	39	1388.897
1.87 Lin laptop10-ThinkPa	48:45:20:6f:42:50	149	AUTO 20	35	1563.028
1.112 Win DESKTOP-SJQGI80	00:bb:60:37:87:af	-1	802.11bgn-AC 80 2x2	29	1607.034
1.115 Win DESKTOP-DSVHJ4L	34:f3:9a:eb:46:b4	-1	802.11bgn-AC 80 2x2	33	1421.848
1.151 android users-MacBo	60:f8:1d:b6:71:70	149	AUTO 20 1x1	32	1435.312
1.152 android mac-11.loca	ac:bc:32:77:dc:99	149	AUTO 20 1x1	32	1492.531
1.10 android redmi9prime	dc:b7:2e:21:d7:fc	149	802.11abgn-AC 20 3x3	19	2120.894
1.3 android Pixel_4a_1	02:00:00:00:00:00	149	802.11abg 20 1x1	14	3176.428

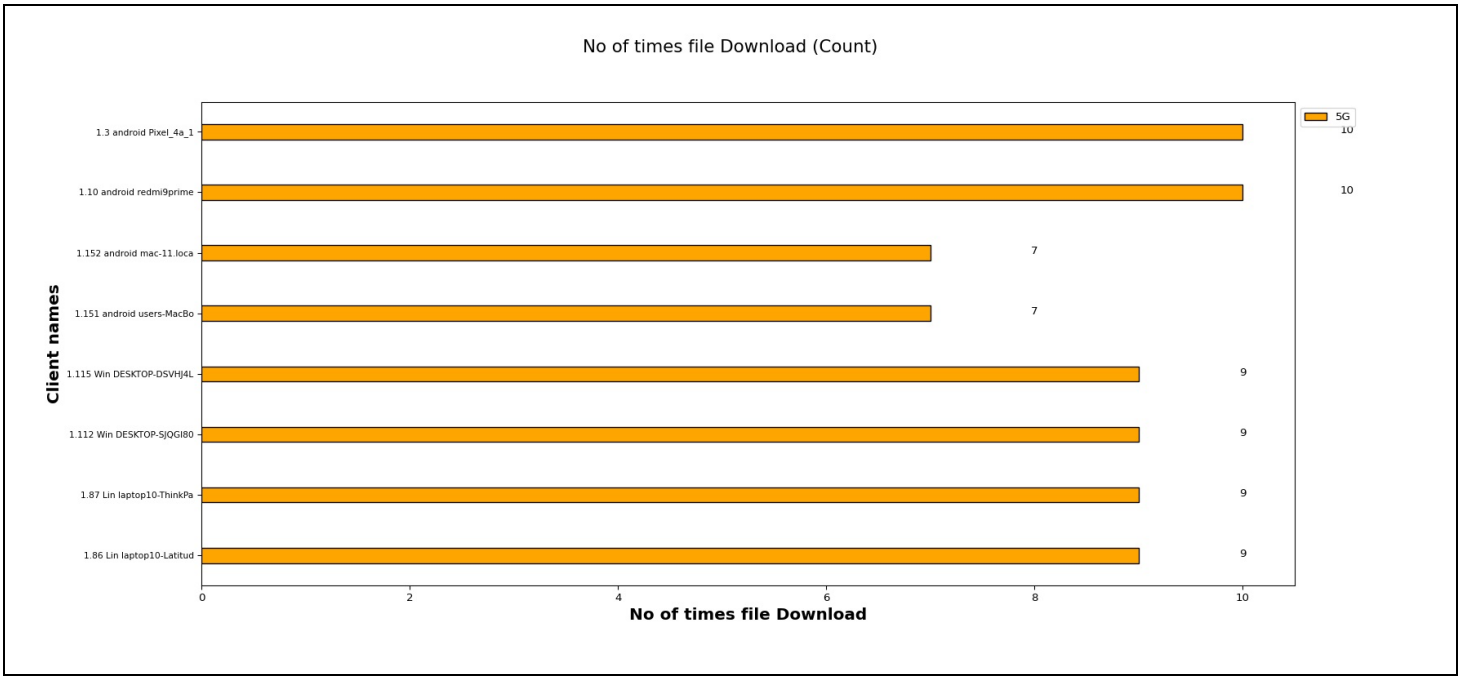
4. Hyper Text Transfer Protocol (HTTP) Test

Test Configuration

Test Setup Information	Traffic Direction	Download
	File Size	5MB
	File location	/usr/local/lanforge/nginx/html

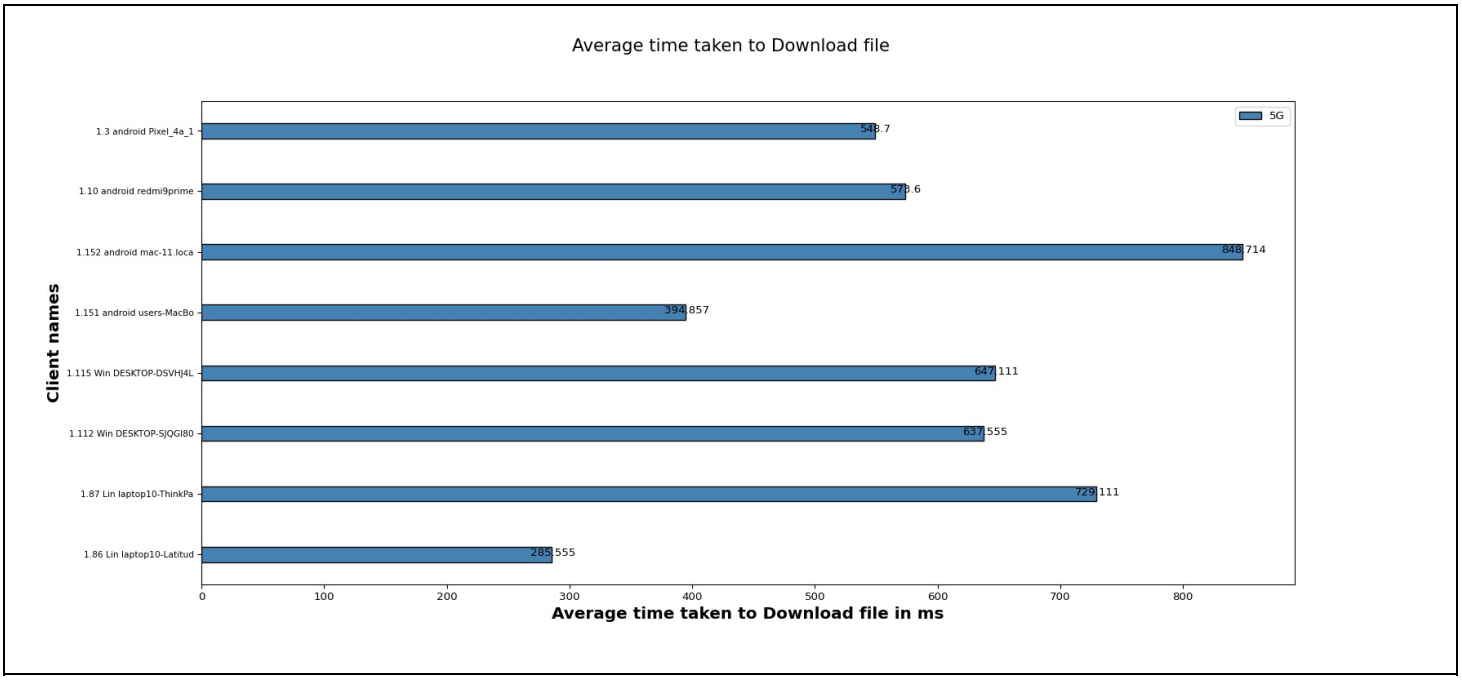
No of times file Downloads

The below graph represents number of times a file downloads for each client. X- axis shows “No of times file downloads and Y-axis shows Client names.



Average time taken to download file

The below graph represents average time taken to download for each client . X- axis shows “Average time taken to download a file ” and Y-axis shows Client names.



Overall Results

Clients	MAC	Channel	Mode	No of times File downloaded	Average time taken to Download file (ms)
1.86 Lin laptop10-Latitud	dc:53:60:f0:16:c9	149	802.11abgn-AC 40	9	285.555
1.87 Lin laptop10-ThinkPa	48:45:20:6f:42:50	149	AUTO 20	9	729.111
1.112 Win DESKTOP-SJQGI80	00:bb:60:37:87:af	-1	802.11bgn-AC 80 2x2	9	637.555
1.115 Win DESKTOP-DSVHJ4L	34:f3:9a:eb:46:b4	-1	802.11bgn-AC 80 2x2	9	647.111
1.151 android users-MacBo	60:f8:1d:b6:71:70	149	AUTO 20 1x1	7	394.857
1.152 android mac-11.loca	ac:bc:32:77:dc:99	149	AUTO 20 1x1	7	848.714
1.10 android redmi9prime	dc:b7:2e:21:d7:fc	149	802.11abgn-AC 20 3x3	10	573.600
1.3 android Pixel_4a_1	02:00:00:00:00:00	149	802.11abgn 20 1x1	10	548.700

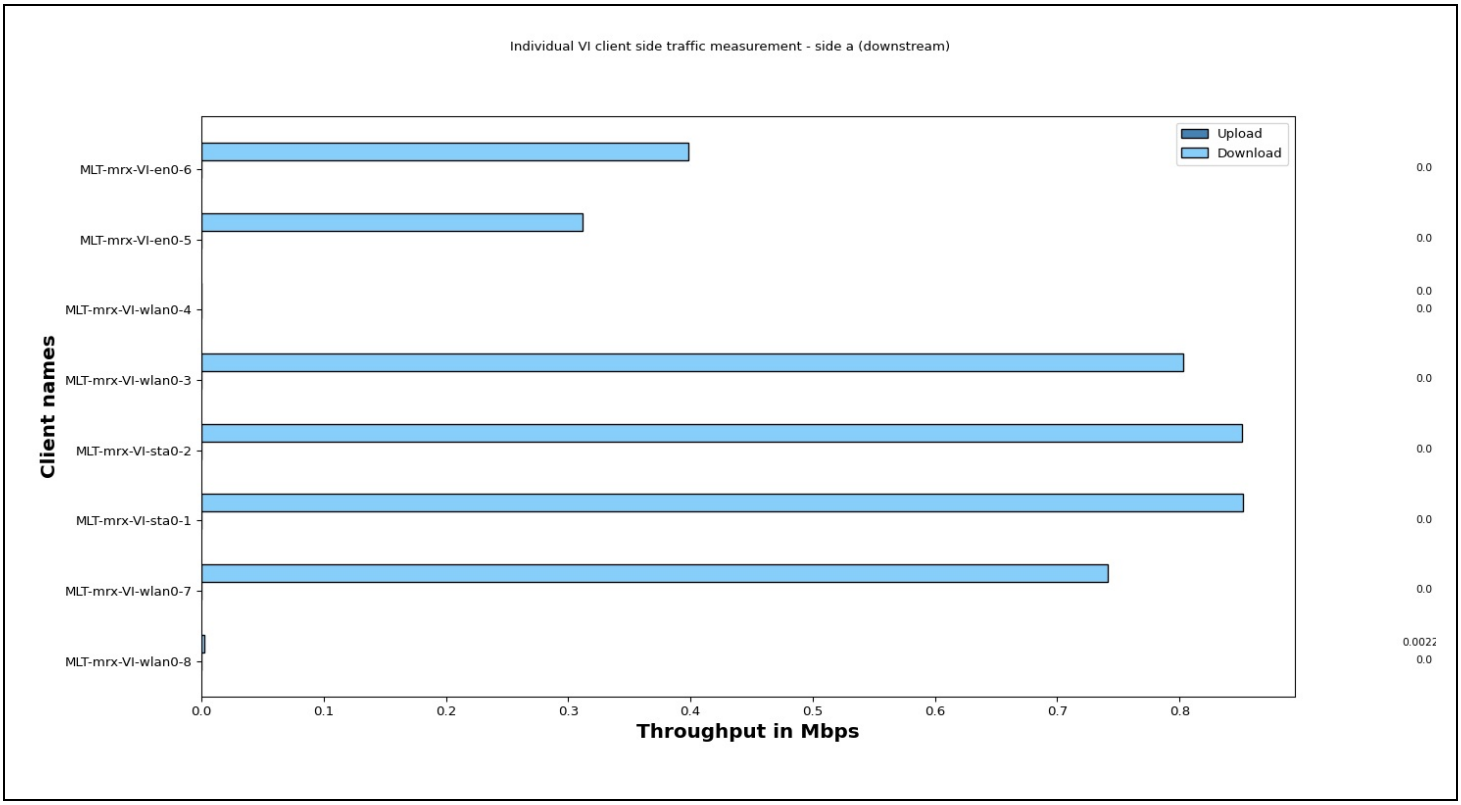
5. Multicast Test

Test Configuration

Test Setup Information	Protocol	UDP
	Type of Service (TOS)	VI
	Upstream Port	eth2
	Offered Load (Mbps)	10.0

Individual throughput with intended load 10.0 Mbps station for traffic VI (WiFi).

The below graph represents individual throughput for 8 clients running VI (WiFi) traffic. Y- axis shows “Client names“ and X-axis shows “Throughput in Mbps”.



Client Name	Endp Name	HW Version	Port Name	Mode	Mac	Channel	Type of traffic	Traffic Protocol	Offered Download Rate Per Client (Mbps)	Download Rate Per Client (Mbps)	Download Drop Percentage (%)
1.3_abfarm-release-rbe-64-2004-0076_Android	MLT-mrx-VI-wlan0-8	Google Pixel 4a r13 sdk: 33	1.3.wlan0	802.11abgn-AC 40	02:00:00:00:00:00	149	VI	Mcast	10.0	0.002253	0.0
1.10_c4-miui-ota-bd141.bj_Android	MLT-mrx-VI-wlan0-7	Xiaomi M2004J19C r10 sdk: 29	1.10.wlan0	AUTO 20	dc:b7:2e:21:d7:fc	149	VI	Mcast	10.0	0.741299	0.0
1.86_laptop10-Latitude-E5450_Linux	MLT-mrx-VI-sta0-1	Linux/x86-64	1.86.sta0	802.11bgn-AC 80 2x2	dc:53:60:f0:16:c9	-1	VI	Mcast	10.0	0.851815	0.0
1.87_laptop10-ThinkPad-T450_Linux	MLT-mrx-VI-sta0-2	Linux/x86-64	1.87.sta0	802.11bgn-AC 80 2x2	48:45:20:6f:42:50	-1	VI	Mcast	10.0	0.850863	0.0
1.112_DESKTOP-SJQGI80_Win	MLT-mrx-VI-wlan0-3	Win/x86 6.2	1.112.wlan0	AUTO 20 1x1	00:bb:60:37:87:af	149	VI	Mcast	10.0	0.802978	0.0
1.115_DESKTOP-DSVHJ4L_Win	MLT-mrx-VI-wlan0-4	Win/x86 6.2	1.115.wlan0	AUTO 20 1x1	34:f3:9a:eb:46:b4	149	VI	Mcast	10.0	0.000000	0.0
1.151_users-MacBook-Pro.local_Apple	MLT-mrx-VI-en0-5	Apple/x86-64	1.151.en0	802.11abgn 20 3x3	60:f8:1d:b6:71:70	149	VI	Mcast	10.0	0.311956	0.0
1.152_mac-11.local_Apple	MLT-mrx-VI-en0-6	Apple/x86-64	1.152.en0	802.11abg 20 1x1	ac:bc:32:77:dc:99	149	VI	Mcast	10.0	0.398044	0.0

Overall Info	contact	support@candelatech.com