

# Networks in a Box

Candela TECHNOLOGIES

## Objective:

Candela Technologies provide a full-scale automated test solution called Networks in a Box which can mimic many kinds of realistic test topics like a Home, Office, Hospital and Stadium that can be very useful for testing Access points in a most efficient manner with a very controlled environment. It can emulate clients at various distances like near, medium and far using variable attenuators and can have various profiles for emulating clients that can be relatable to the capabilities of original real devices like mobiles, laptops and IOT devices. Also, there are various kinds of traffic profiles which are predefined that can match activities like Netflix streaming, PUBG gaming and many more. Together these combinations will represent scenarios of tests like Simple home, Studio apartment where clients will be distributed across various regions and run traffic. Using this kind of testing methodologies will help us understand how the access point will be operating in the field and can address some crucial problems in the Access Point.

## Test Configuration:

Test Scenario: Test\_Sn\_Higher\_load

Test Duration(in minutes): 120

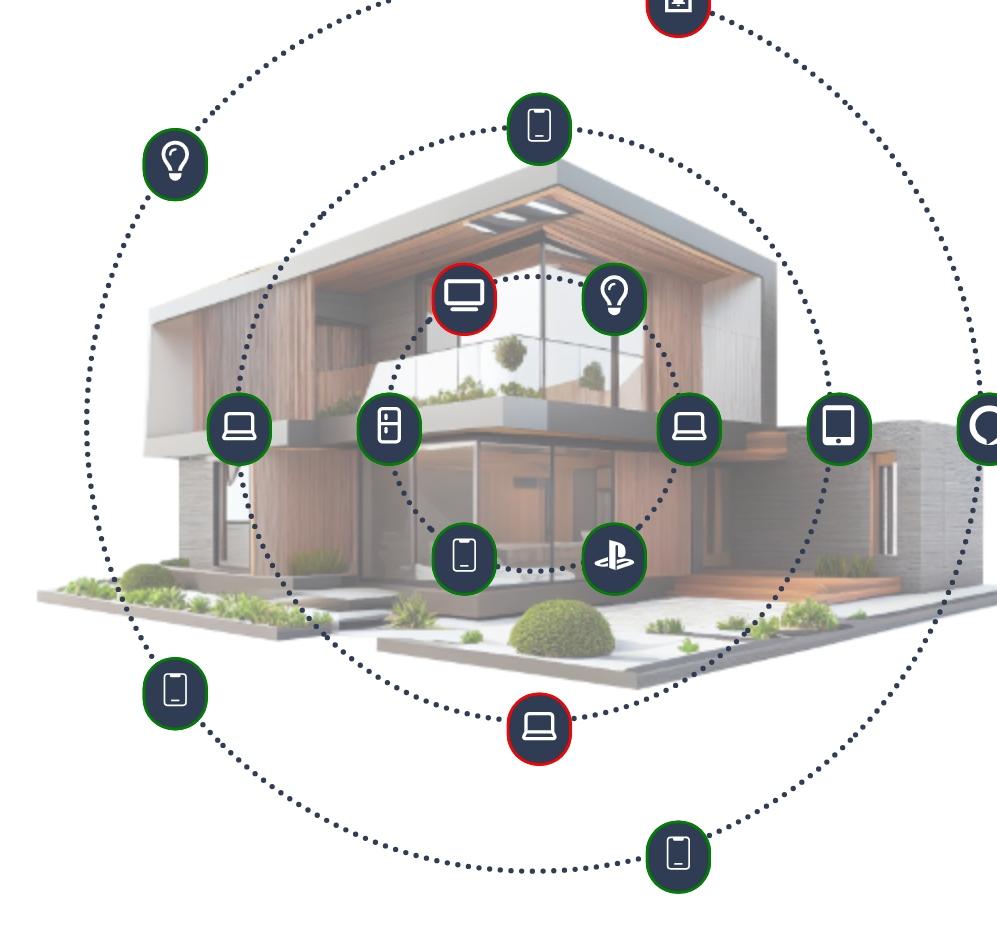
## Dut Configuration:

Band	SSID	BSSID	Encryption	Password
2G	TEST_2G	DEFAULT	WPA2	lanforge
5G	TEST_5G	DEFAULT	WPA2	lanforge
6G	TPLINK_6G	DEFAULT	WPA3	lanforge

## Client distributions and live representation:

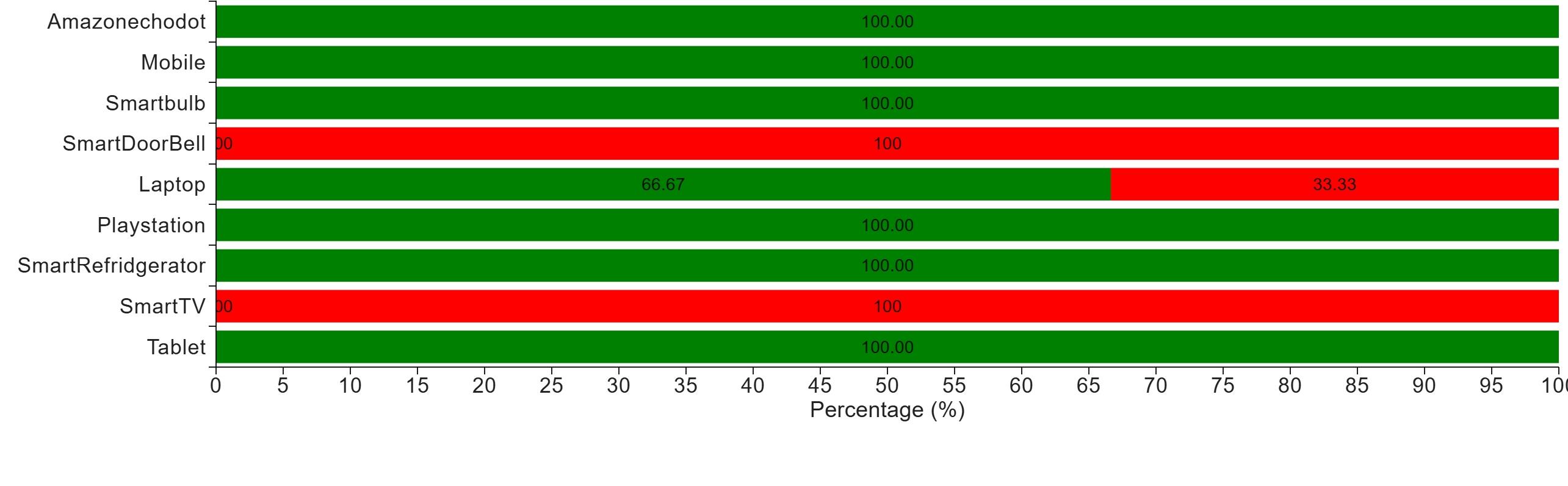
Here, we can see how the clients are distributed across various distances like near, medium and far. Also, we can see which clients are present in the near and their representation with an image of red/green representing whether they have achieved pass/fail with respect to the SLA's configured in the test. With this representation we can clearly see the complete result of the test execution in a brief manner.

■ Passed ■ Fail ■ In Progress ■ Idle



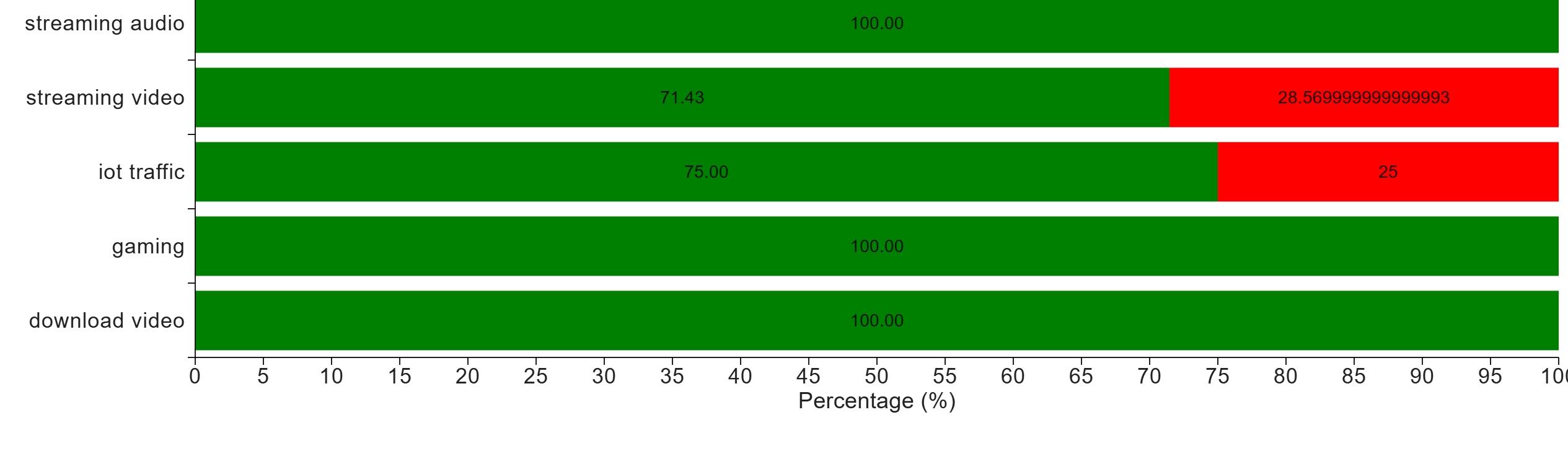
## Performance with respect to device types:

In this representation we can see how many clients have passed vs failed with respect to device types like Mobiles, Laptops, Tablets, Gaming consoles, IOT devices, smart wearable applications. With this we can come to a certain understanding that what kind of device types are performing better with the Access Point and can assume that similar kinds of devices can perform better in real time situations.



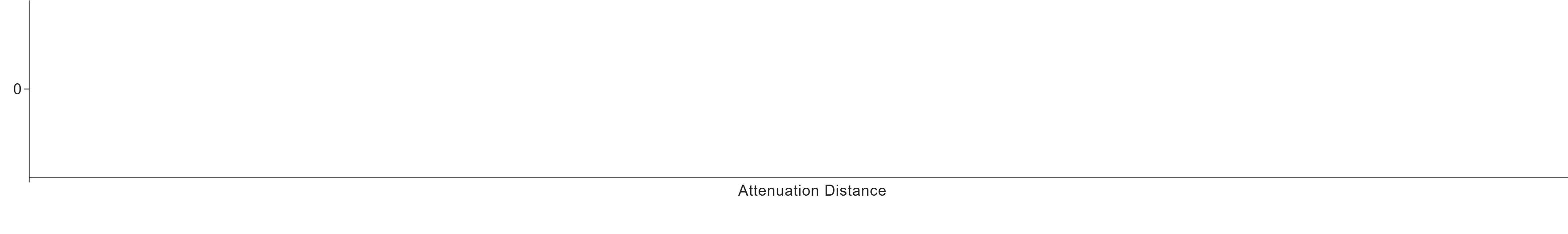
## Performance with respect to traffic types:

In this representation we can see how many clients have passed vs failed with respect to traffic types like Video conferencing, Audio/Video streaming, Gaming and IOT applications. With this we can come to a certain understanding that what kind of traffic types are performing better with the Access Point and can assume that similar kinds of traffic can be deployed in the real time situations.



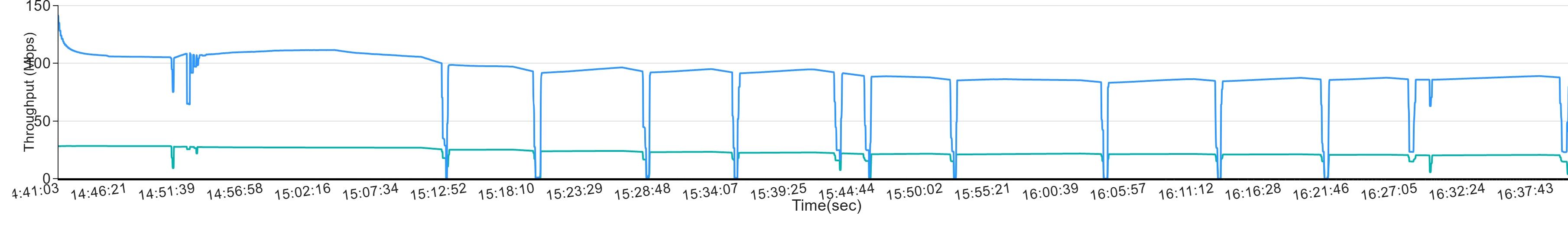
## Performance with respect to Distances:

In this representation we can see how many clients have passed vs failed with respect to the location of the clients which are place in near, medium and far regions. With this we can understand the performance of different kinds of devices running different kinds of traffic placed at different distances. This gives us a very detailed understanding of various reasons behind the clients which are performing less than the SLA's which are derived.



## Realtime Graph of Layer-3 activity:

This chart represents the complete aggregate real-time performance of all the clients that are doing layer-3 activity.



## Realtime Graph of Layer-4 activity:

This chart represents the complete aggregate real-time performance of all the clients that are doing layer-4 activity.

No data to display

undefined

### Per-client data analysis:

Traffic Profile	Device Profile	Device Type	Client Type	Traffic	Traffic Type	Download Rate (in bps)	Upload Rate (in bps)	Protocol	Priority DL	Priority UL	Packet Size [Bytes]	URL	UL SLA%	DL SLA%	Obtained Average Download Rate (in bps)	Obtained Average Upload Rate (in bps)	Total URLs	Result
Zechodot	Amazonecho	Amazonecho dot	Virtual	L3	streaming audio	700000	60000	If_tcp	BE	BE	1575	-	75	75	590054.08	50617.34	-	Pass
2samsungs23 ultra	Samsungs23 ultra	Mobile	Virtual	L3	streaming video	6000000	1200	If_tcp	BE	BE	1602	-	75	75	5066930.05	999.51	-	Pass
streaming_mb_l	Vivo vY24	Mobile	Virtual	L3	streaming video	3000000	1260	If_udp	BE	BE	110	-	75	75	2397024.97	1060.11	-	Pass
2Smartiot	Wipro Bulb	Smartbulb	Virtual	L3	iot traffic	4000	2000	If_tcp	BE	BE	280	-	75	75	3330.79	1663.85	-	Pass
2Doorbell	DoorBell	SmartDoorBell	Virtual	L3	iot traffic	4200	6000000	If_udp	BE	BE	256	-	75	75	3529.16	3900502.61	-	Fail
2streamingvid_6G	macbookPro_6G	Laptop	Virtual	L3	streaming video	10000000	10000000	If_udp	BE	BE	1600	-	75	75	8479134.52	8601202.66	-	Pass
gaming_statio_n	Playstation_6_G	Playstation	Virtual	L3	gaming	20000000	9000000	If_udp	BE	BE	1500	-	75	75	17195577.92	7770036.16	-	Pass
2streamingau_diospot	IPhoneX	Mobile	Virtual	L3	streaming audio	1000000	2000	If_tcp	BE	BE	790	-	75	75	861264.59	1717.69	-	Pass
refridgerator	SmartRefridgerator	SmartRefridgerator	Virtual	L3	iot traffic	100000	2000000	If_tcp	BE	BE	1500	-	75	75	83306.43	1657990.81	-	Pass
2videostream_mtv	LG TV	SmartTV	Virtual	L3	streaming video	44000000	200000	If_tcp	BE	BE	1602	-	75	75	27321853.64	165527.08	-	Fail
2Smartiot	Wipro Bulb	Smartbulb	Virtual	L3	iot traffic	4000	2000	If_tcp	BE	BE	280	-	75	75	3352.32	1675.01	-	Pass
Streamingvid_eo_teams	Pixel 4	Tablet	Virtual	L3	streaming video	2000000	1000000	If_udp	BE	BE	1170	-	75	75	1690482.90	843917.28	-	Pass
2streaming_V_Ideo_HP	HP	Laptop	Virtual	L3	streaming video	40000000	40000	If_udp	BE	BE	1400	-	75	75	16171240.32	33817.05	-	Fail
2zoom_laptop	Lenovo_Thinkpad	Laptop	Virtual	L3	streaming video	218000	44000	If_udp	BE	BE	1170	-	75	75	184023.79	37184.78	-	Pass
downloadvide_o_YT_plus	Oneplus10R	Mobile	Virtual	L3	download video	16000000	20000	If_udp	BE	BE	1402	-	75	75	12144530.03	16858.27	-	Pass