Tirana 5G QoE Campaign

MedUX Insights: Detailed report, June 2025

Measurement campaign: May, June 2025

FINAL REPORT

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Tirana 5G QoE Campaign

MedUX Insights:

Tirana 5G QoE Campaign

At MedUX we have conducted our **5G QoE Campaign in Tirana**.

We have leveraged our autonomous and cost-effective ‘light’ drive testing solution to benchmark and monitor mobile networks.

It aims at improving customer satisfaction by delivering an honest, **independent review that enhances service quality** from the viewpoint of the people who matter most – the users and the service they are consuming.

5G QoE in Tirana

Did you know?

MedUX

MOBILE PERFORMANCE
VERY GOOD

5G EXPERIENCE
IN TIRANA (AL)

vodafone
June / 2025

www.medux.com

Best 5G Quality of Experience in Tirana

FASTEST 5G DL SPEED	FASTEST 5G UL SPEED	STREAMING	AVG. LATENCY	WEB BROWSING
1270 Mbps	**162 Mbps**	**99,5%**	**40 ms**	**1,5 seg**
Achieved by One	Achieved by Vodafone	Plays without Stalls Achieved by Vodafone	Best Avergae Latency achieved by Vodafone	Fastest access to web achieved by Vodafone

Key findings

MedUX 5G QoE campaign conducted in Tirana in June 2025 shows one winner and a strong contender.

Vodafone clearly leads the 5G user experience in Tirana. Vodafone achieved the highest overall score with 3.87/5, outperforming One (3.44/5) and establishing itself as the top provider for 5G quality of experience in the Albanian capital.

vodafone

Vodafone demonstrates superior speed and network capacity
Vodafone delivered higher upload speeds on 5G, showcasing better performance in multi-thread Cloud Speed Tests.

Vodafone excels in accessibility and network responsiveness
Tests recorded faster network access times and lower latency with Vodafone, reflecting better consistency and stability in its 5G services.

Vodafone wins all Mobile Experience Awards
Including Best QoE, Value for Speed, Data & OTT, and Video Streaming, confirming its market leadership in Tirana's mobile sector.

Vodafone dominates data and OTT service experiences
The operator leads all key end-user categories, including gaming, social media, web browsing, and video streaming, offering the most complete and satisfying experience.

QoE Score: 3,87 out of 5
5G QoE Score 3,87 out of 5

one

One has achieved the highest speed values in the campaign by making use of 4G/5G carrier aggregation capabilities
Highest DL Speed (1.270 Mb/s)

QoE Score: 3,44 out of 5
Best max. DL speed with 1.270 Mbps

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Benchmarking Methodology

With the goal of providing an independent and international benchmarking tool, MedUX developed its own QoE ScoreCard to determine and certify the best provider or operator with respect of the services accessed via mobile networks.

This goal is achieved by executing benchmarking tests that represent a major part of the services used by final customers of mobile networks. The results collected are individually and collectively weighted and aggregated into an overall score.

The service category scoring model and its drill-down capabilities makes it exploitable by different stakeholders, from executive management (CxOs) to more technical departments (engineering and optimization). Thus, providers or operators can improve their networks and services offering a better experience to their customers.

To give transparency and a clear interpretation of the benchmarking results, MedUX publishes a description of the scoring methodology, in line with the current state of the ETSI TR 103 559 V1.2.1

In this context we introduce the following terms, Quality of Service (QoS) and Quality of Experience (QoE):

- QoS: “Totality of characteristics of a telecommunications service that bear on its ability to satisfy stated and implied needs of the user of the service.”

- QoE: “Degree of delight of the user of a service. In the context of communication services, it is influenced by content, network, device, application, user expectations and goals, and context of use.”

MedUX propose a model where technical measurements are transformed into perceptive indicators taking into account the human response to mobile service’s events, improvements and degradations.

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Quality of Experience – Ranking approach

MedUX approach, based on our MedOS (MedUX Opinion Score) and QoE Scorecard, assesses network performance and end-user experience in the 5G Era. We revisit criteria and thresholds once a year to consider best practices but also to reflect technology and industry development.

At MedUX we use the concept of Mean opinion score (MOS) for most of the rankings, which ratings are algorithmically estimated based on test results and KPIs, in line with the current state of the ETSI TR 103 559 V1.2.1 and ITU Recommendation ITU-T P.800.1.

•Top Awards:

- **Overall QoE Score** – a combination of availability, accessibility, speed, streaming, and data and OTT experience results.
- **Reliability** – assesses network consistency across all service categories, focusing on 5G stability by considering the success rate (%) of all tests and services described above. A test is considered as not successful if it fails or if does not meet minimum service thresholds.

•Experience Awards:

- **Accessibility** (responsiveness) – how long it takes to access the network. Particularly in 5G it measures how long takes to access the 5G network across all testing categories while taking latency and network responsiveness results into account.
- **Value for Speed** (throughput) - how much data can be transferred. Particularly in 5G it measures how is the network capacity when stressing the line (multi-thread and multi-server stress test with our patented Cloud Speed Test).
  - DL Speed
  - UL Speed
- **Video Streaming experience** - it measures the average video experience for each operator while considering video resolution, video loading time, and stall ratio.
- **Data and OTT experience** - a combination of gaming, web browsing and social networks.

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Quality of Experience – Ranking approach

•**5G Awards**

- **5G Availability** – the percentage of 5G network registration, a proxy of 5G coverage available during the measurements.
- **5G DL Speed** (throughput) – how much data can be transferred in 5G downlink channel, how is the network capacity when stressing the line (multi-thread and multi-server stress test with our patented Cloud Speed Test),
- **5G UL Speed** (throughput) – how much data can be transferred in 5G uplink channel, how is the network capacity when stressing the line (multi-thread and multi-server stress test with our patented Cloud Speed Test),

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Quality of Experience – Ranking approach

Our QoE Scorecard is the tool for facilitating benchmarking and reducing the complexity of service quality and performance improvements. We combine different performance indicators into a synthetic indicator or single Global Score.

Global Score

MOS Combination

Overall Experience Score

MOS

MOS: MedUX Opinion Score

By service

Qualifiers

Differentiators

KPI aggregation

By Test case

Minimum expected performance
Minimum requirements to define a satisfying customer experience

Performance exceeding basic expectations
Additional performance assessment for tests fulfilling the qualifier criteria

Synthetic Experience Indicator

- The Global score is a combination of MOSes from all service categories, weighted based on international best practices and industry experience.

MOS

- The MOS is an aggregation of several QoS/QoE KPIs for each service category, which allows for a more granular QoE analysis.
- Each MOS is characterized by a Qualifier KPI and one or more Differentiator KPIs.

KPIs Aggregation

- KPIs are combined into Qualifier and Differentiator indicators to transform network and service quality indicators into a Experience metrics by Service.

Mobile Experience Awards

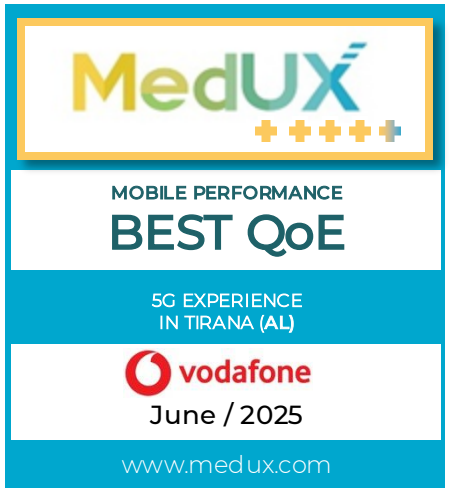
Awards are granted to the best performing operators in each attribute or category we test. If two or more operators record statistically indistinguishable results*, each operator earns an Experience Award while sharing the highest rank in that category.

Vodafone lead the Tirana 5G QoE campaign. Data and OTT, Streaming, Value for Speed and Accesibility Mobile Experience Award goes to Vodafone. Vodafone also offers a better speeds in DL and UL.

	Top Awards	Experience Awards				5G Awards	
	Best 5G Experience	Data & OTT	Streaming	Value for Speed	Accessibility	5G DL Speed	5G UL Speed
Tirana	🏆	🥇	🥇	🥇	🥇	🥇 5G	🥇 5G

- Vodafone wins the most important award for Best QoE, in addition to leading all other categories.
- One performs well overall, but does not lead in any category, consistently trailing behind Vodafone — particularly in upload speed

NOTE*: Co-leaders (less than 0.5% difference)



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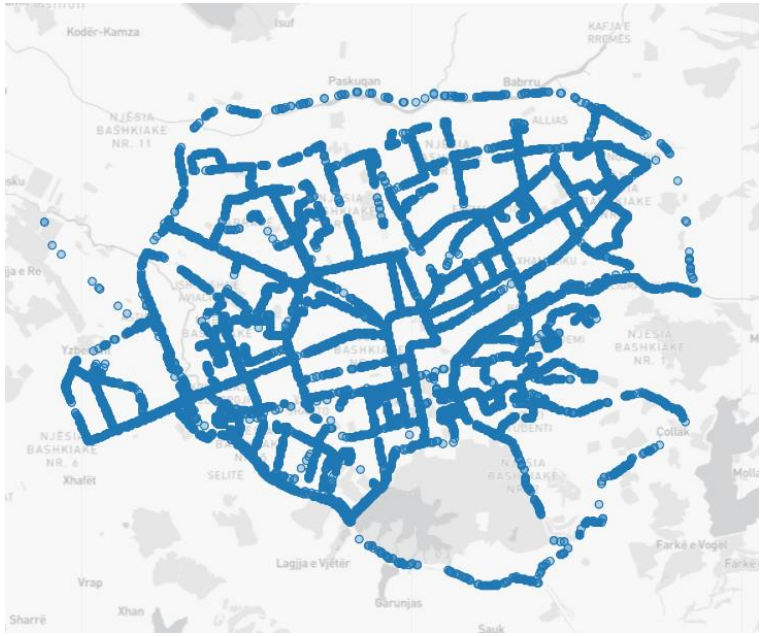
5G Measurement Overview

The measurement campaign consisted of drive tests conducted during May and June 2025 in Tirana.

One drive test car covered more than 500 kilometers and 50km2 to understand how mobile operators cover the Albania capital.



>500 km and >50 km2

Measurement Scope

Technology: Up to 5GNSA
- Unforced mode

Devices: 2 Samsung S24 Ultra with Android 15 and MedUX app
- Commercial smartphone

Vehicles: 1 car

Sampling:
- Active Tests: approx. 10K samples
- Radio: approx. 230K samples

Complete Test protocol
- Targets, servers, OTTs, destinations,...

5G SIM cards

Planned route: 5 Days

Timing: May, June 2025

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Tests suite

MedUX evaluates mobile networks experience by ranking the performance of typical consumer use cases such as web browsing popular websites, downloading/uploading content, visiting social networks, accessing gaming servers and streaming video content, among other.

Service Availability	Connectivity based on radio technology samples.
HTTP DL	Multi-thread download speed test based on public CDNs.
HTTP UL	Multi-thread upload speed test based on dedicated servers.
Latency	Echo request to a specific URL based on ICMP.

Social Media	Social media sessions based on Chrome browser
Streaming	Video playback based on a Android multimedia player.
Gaming	Echo request to gaming servers based on ICMP.
Web Browsing	Navigation of any website based on Chrome browser.

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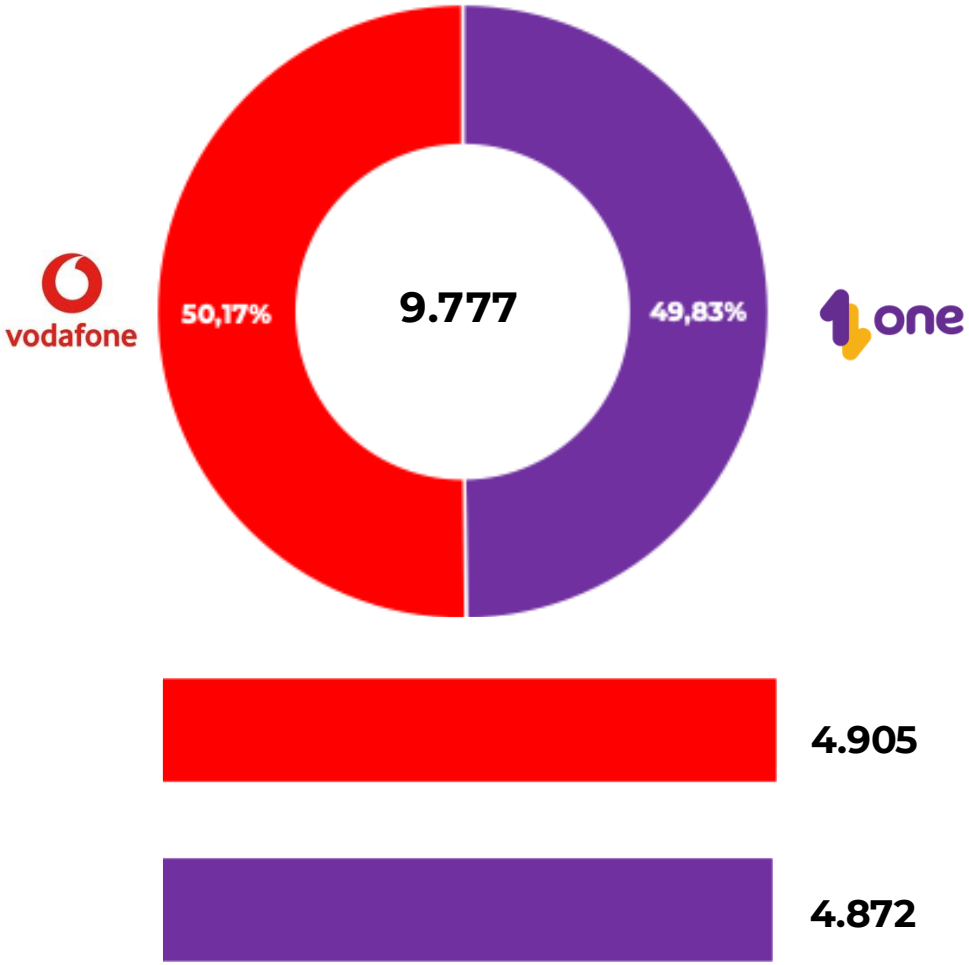
5G Campaign Setup – Tests performed



Test performed

9.777

Service Type	One	Vodafone	Total
Value for speed	**832**	**846**	**1.678**
Cloud DL	416	423	839
Cloud UL	416	423	839
Network responsiveness	**832**	**787**	**1.619**
Ping	832	787	1.619
DATA and OTT	**3.208**	**3.272**	**6.480**
Web browsing	1.960	2.003	3.963
Gaming	416	423	839
Social	416	423	839
Streaming	**416**	**423**	**839**
Video Streaming	416	423	839
TOTAL	**4.872**	**4.905**	**9.777**

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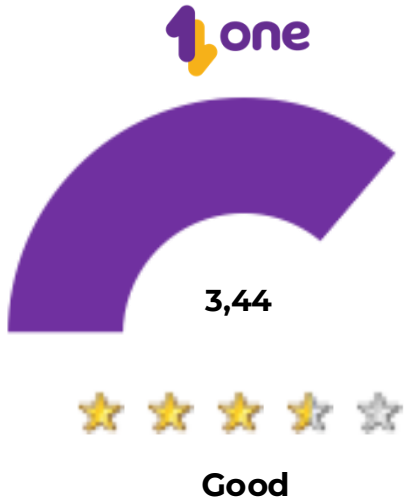
Benchmarking Experience - Best QoE

Vodafone leads the user experience in Tirana, closely followed by One. Vodafone achieved a score of 3.87 out of 5, while One scored 3.44 out of 5, both delivering a good 5G experience.



- Vodafone delivers the best overall experience across all categories. Vodafone outperforms in key aspects such as gaming, web browsing, social media, streaming, and both download and upload speeds, offering a superior experience to customers.
- While One offers a good overall experience, it doesn't excel in any category and consistently performs slightly worse than Vodafone.

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Benchmarking Experience – Results per category

vodafone

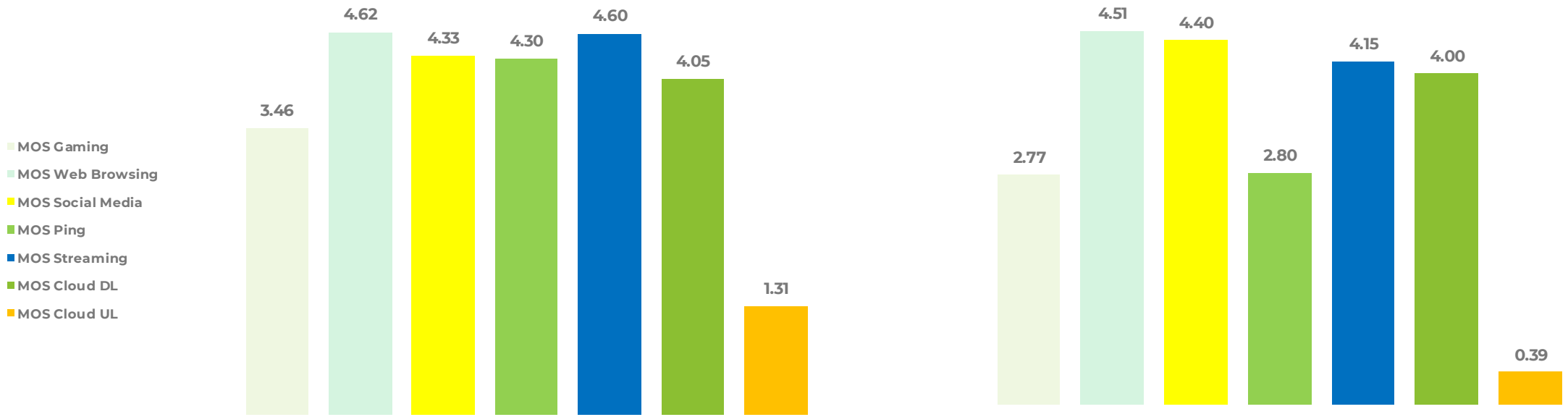
3,68

Good

one

3,63

Good



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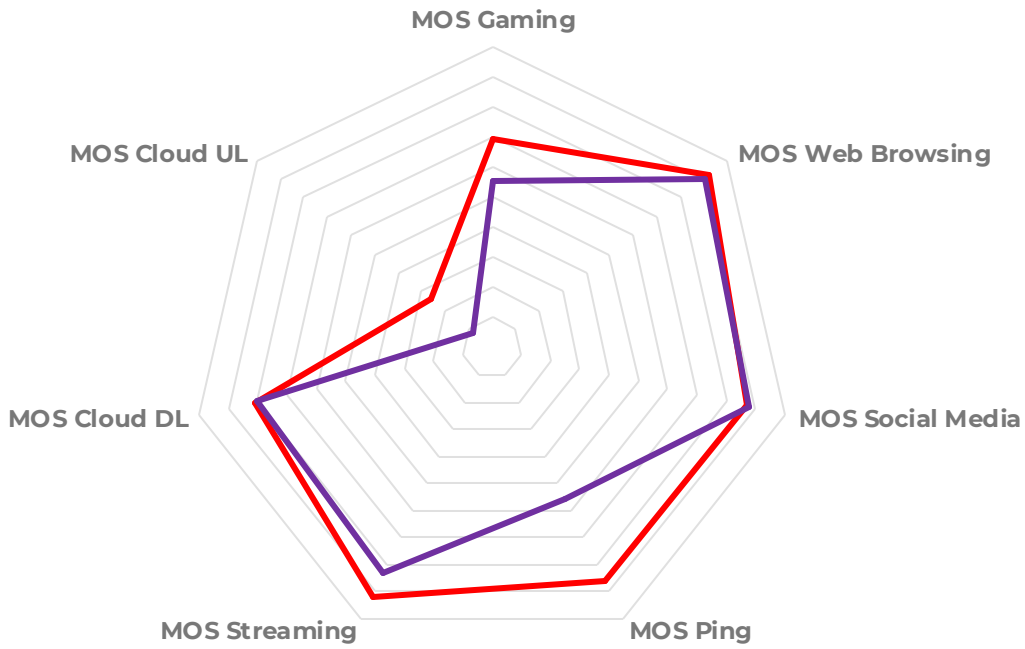
Benchmarking Experience – Results per category

	Vodafone		One	
Service MOS (Max MOS)	Value	%	Value	%
DATA & OTT (1,75)	**1,52**	**86,6%**	**1,48**	**84,3%**
MOS Gaming (0,25)	0,17	69,2%	0,14	55,4%
MOS Web Browsing (0,75)	0,69	92,3%	0,68	90,2%
MOS Social Media (0,75)	0,65	86,7%	0,66	88,0%
NETWORK RESPONSIVENESS (0,5)	**0,43**	**86,0%**	**0,28**	**56,0%**
MOS Ping (0,5)	0,43	86,0%	0,28	56,0%
STREAMING (1)	**0,92**	**92,0%**	**0,83**	**83,0%**
MOS Streaming (1)	0,92	92,0%	0,83	83,0%
VALUE FOR SPEED (1,75)	**1,01**	**67,1%**	**0,86**	**57,3%**
MOS Cloud DL (1)	0,81	81,0%	0,80	80,0%
MOS Cloud UL (0,75)	0,20	26,1%	0,06	7,9%
TOTAL MOS (5)	**3,87**	**77,4%**	**3,44**	**68,9%**



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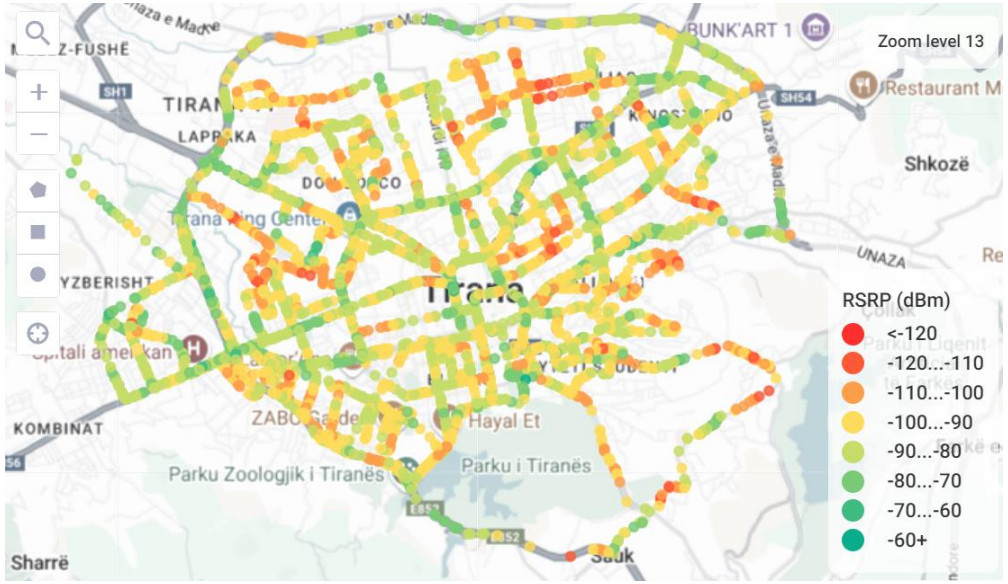
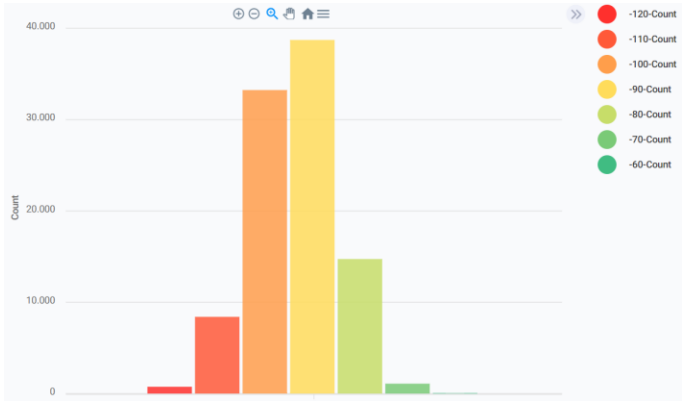
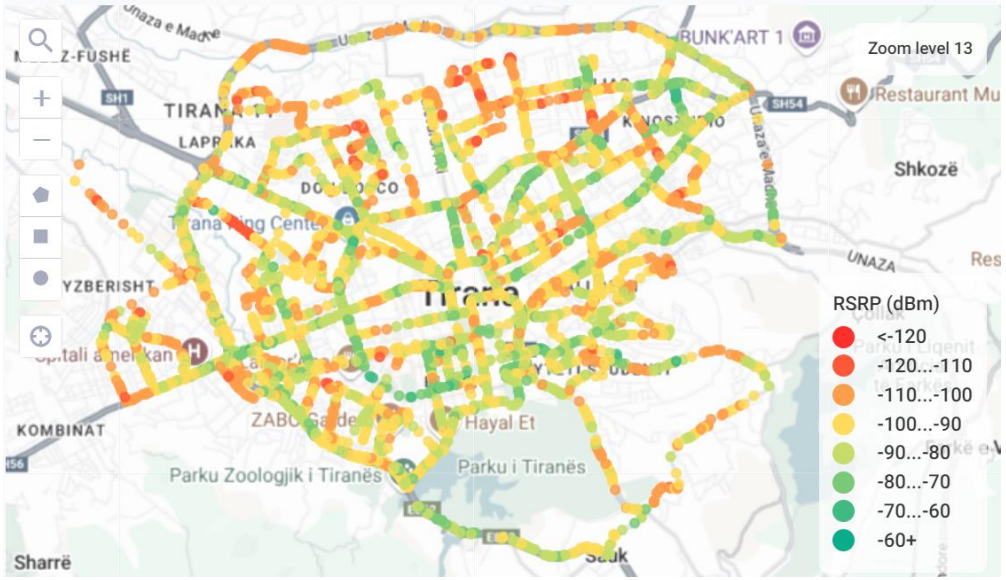
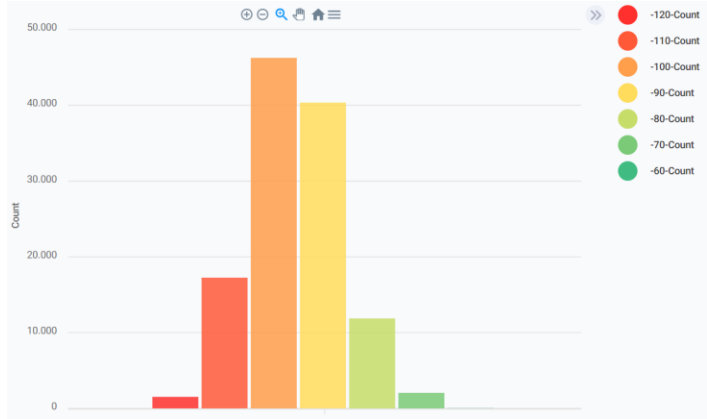
LTE Levels - RSRP









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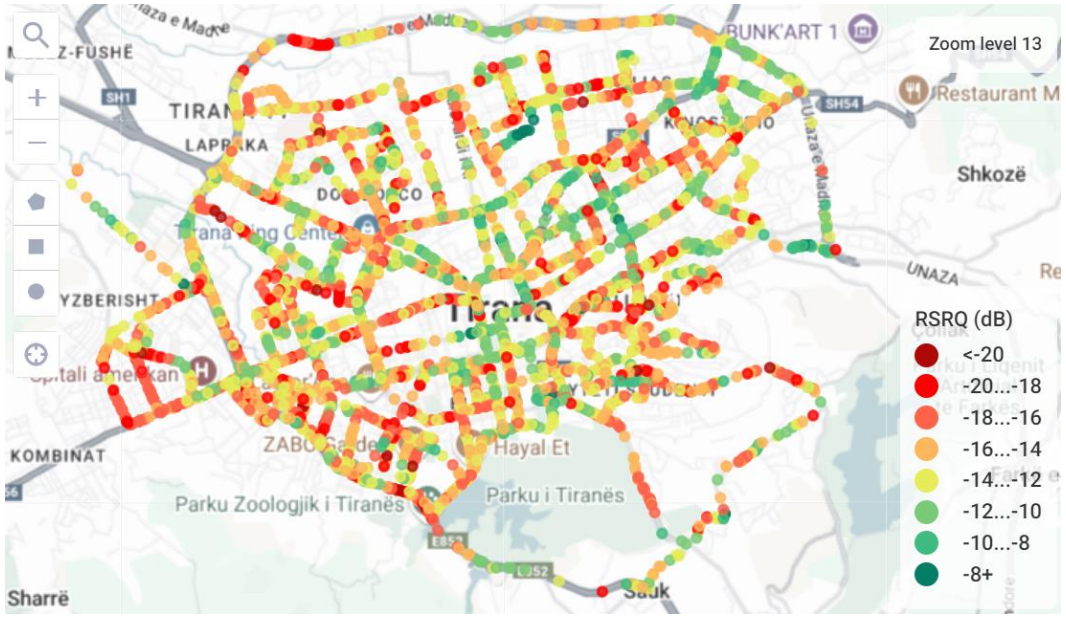
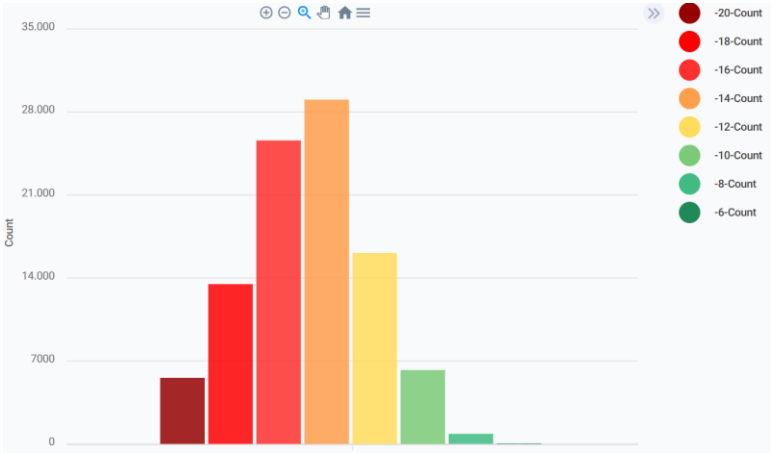
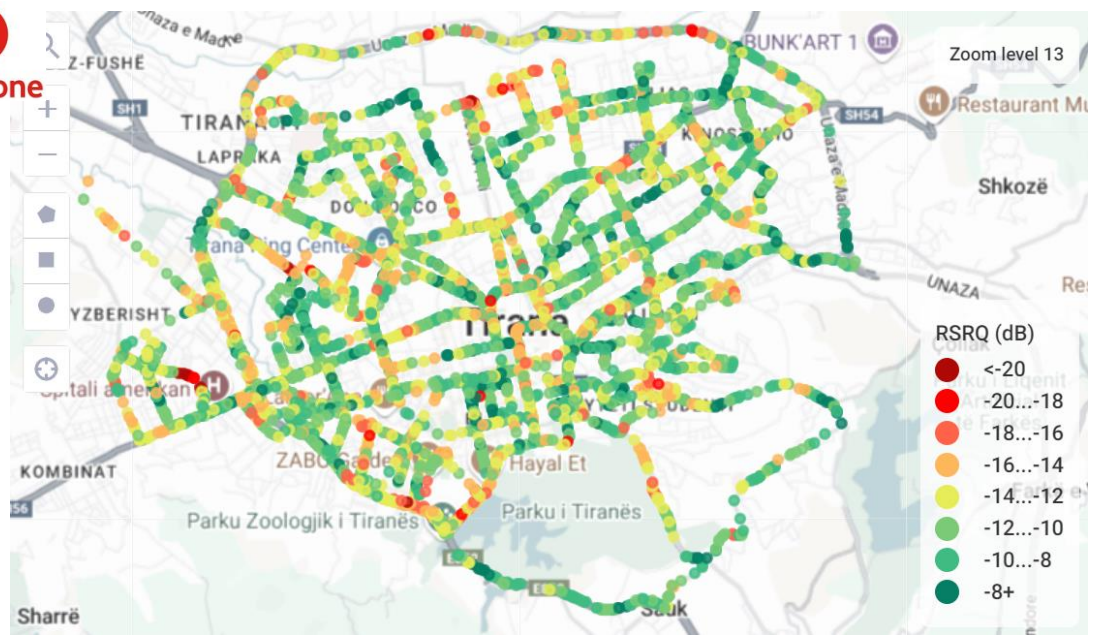
LTE Levels – RSRQ







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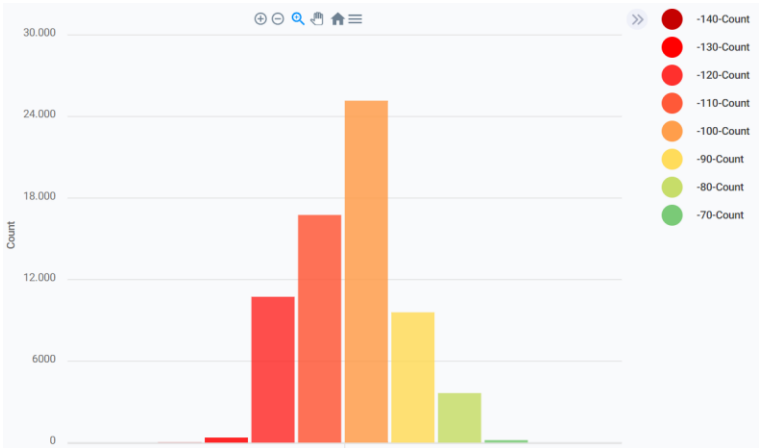
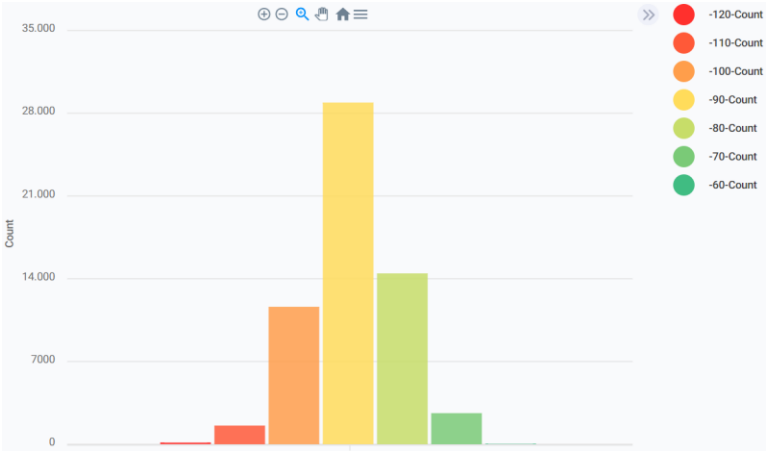
NR Levels - RSRP





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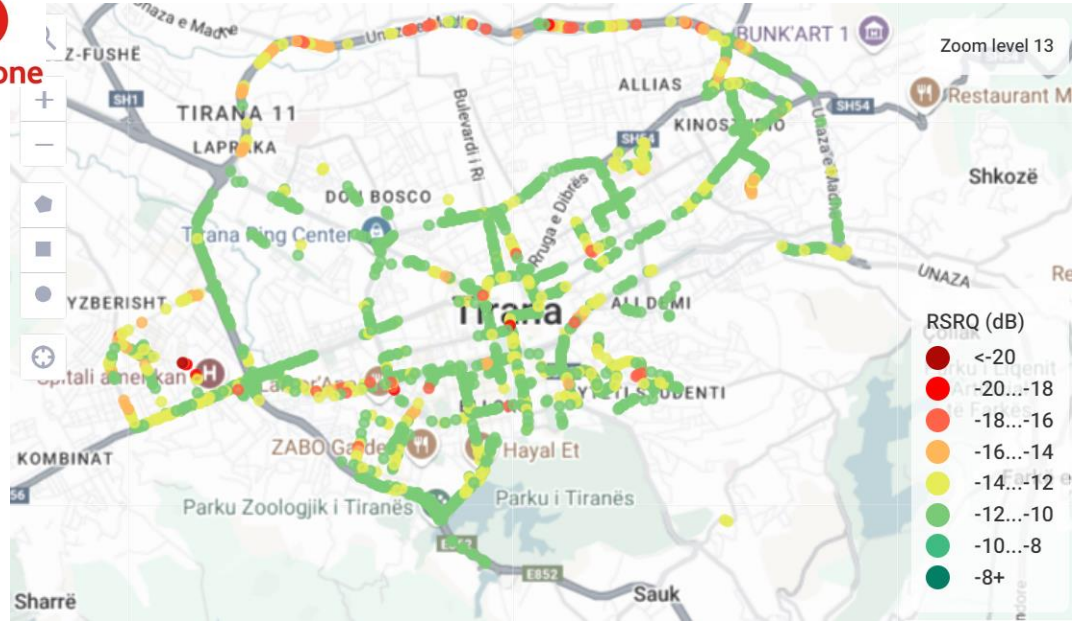

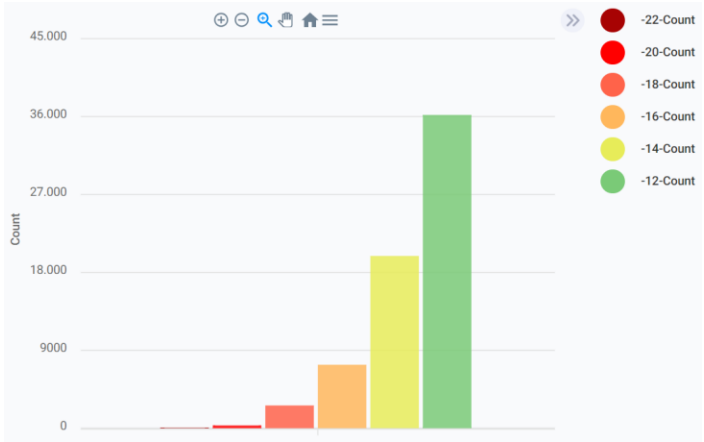

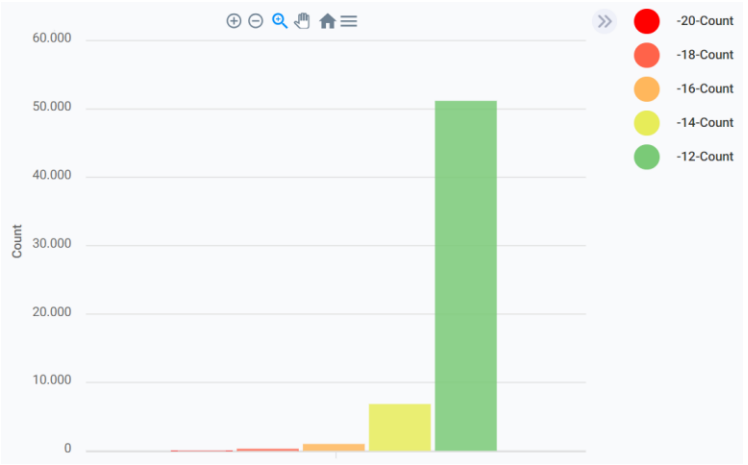

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Detailed Benchmarking Results

KPIs Value for Speed

	One	Vodafone
Cloud DL Completed %	100%	98,58%
Cloud DL Avg Speed	206,35	195,37
Cloud DL P10	28,58	30,67
Cloud DL P90	462,56	477,94
Max Cloud DL avg.	824,16	810,39
Cloud DL > 100 Mbps (%)	60,78%	58,19%
Cloud DL > 20 Mbps (%)	91,91%	94,86%

	One	Vodafone
Cloud UL Completed %	100%	95,67%
Cloud UL Avg Speed	20,87	31,19
Cloud UL P10	0,70	3,39
Cloud UL P90	47,17	70,38
Max Cloud UL avg.	67,48	123,98
Cloud UL > 20 Mbps (%)	48,79%	56,93%
Cloud UL > 10 Mbps (%)	65,21%	78,10%

KPIs Network Responsiveness

	One	Vodafone
PING	100%	100%
PINGLatencyAvg. (ms)	61,29	40,67
PINGLatencyAvg<50ms (%)	46,66%	67,67%

KPIs Gaming

	One	Vodafone
Gaming Completed (%)	100%	100%
GamingLatencyAvg. (ms)	73,73	54,29

KPIs Social Media

	One	Vodafone
Web page completed (%)	99%	100%
WEB TFFB (ms)	440	410
WBT (ms)	1850	1510

KPIs Web Browsing

	One	Vodafone
Web page completed (%)	98,9%	99,4%
WEB TFFB (ms)	280	290
WBT (ms)	1870	1780

KPIs Streaming

	One	Vodafone
Completed	98,29%	98,01%
Playing Time (s)	13,56	13,6
Number of stalls	8	5
Avg Video resolution	1080	1080

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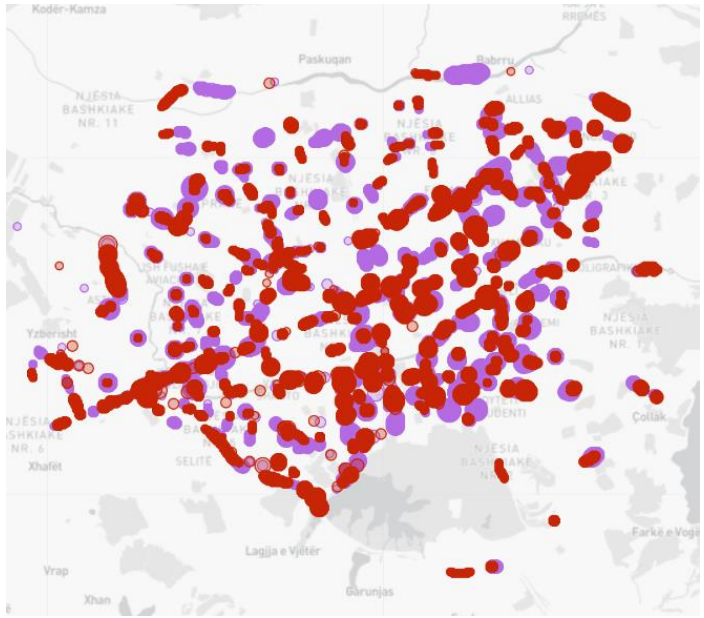
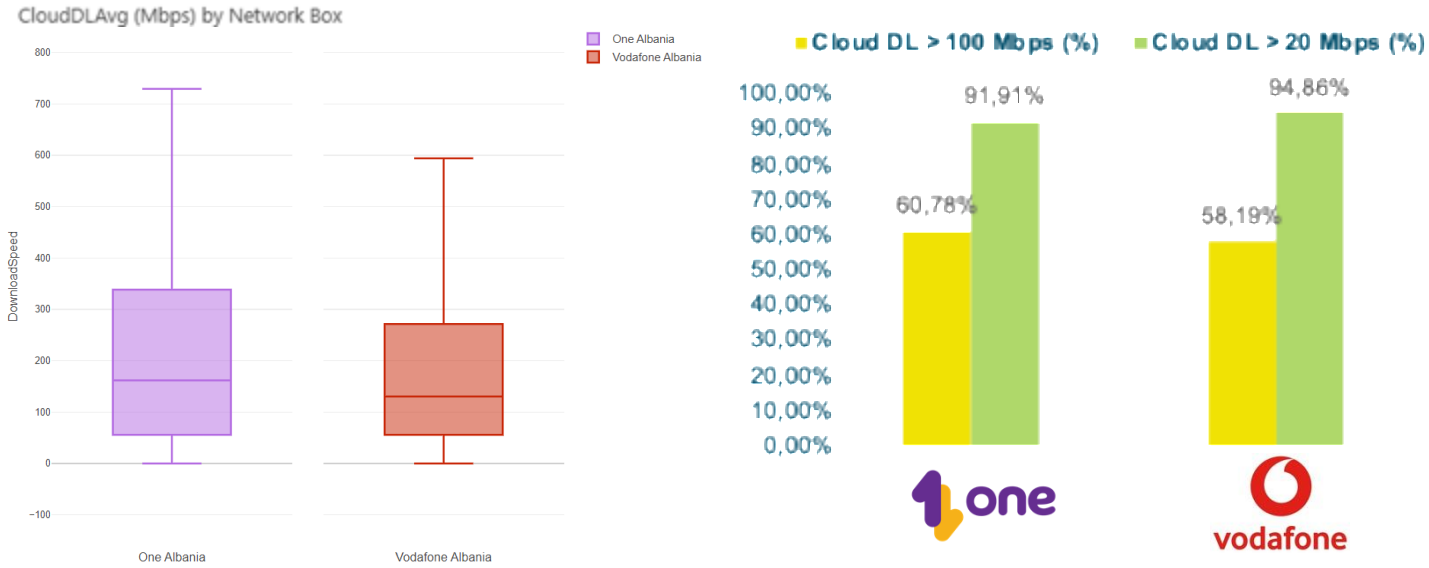
5G DL Speed - Cloud Speed Test (multi-thread)





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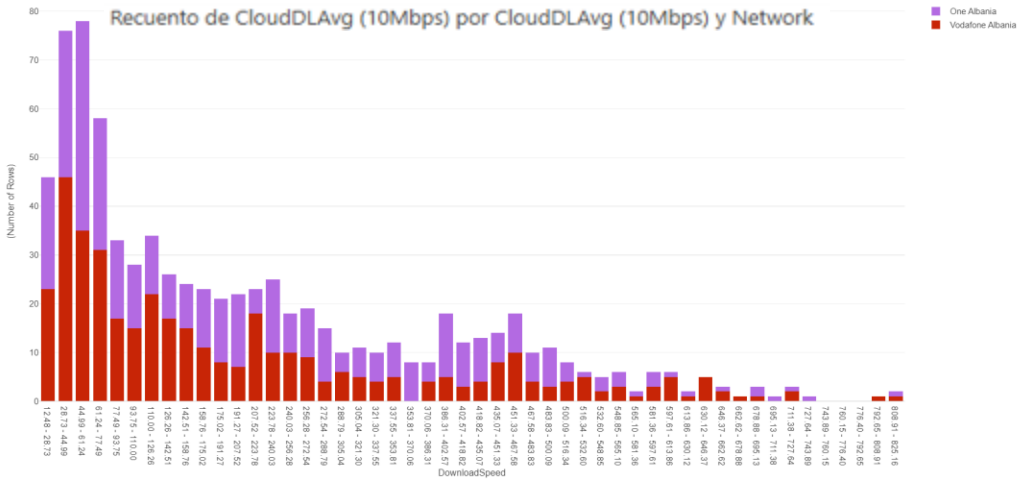

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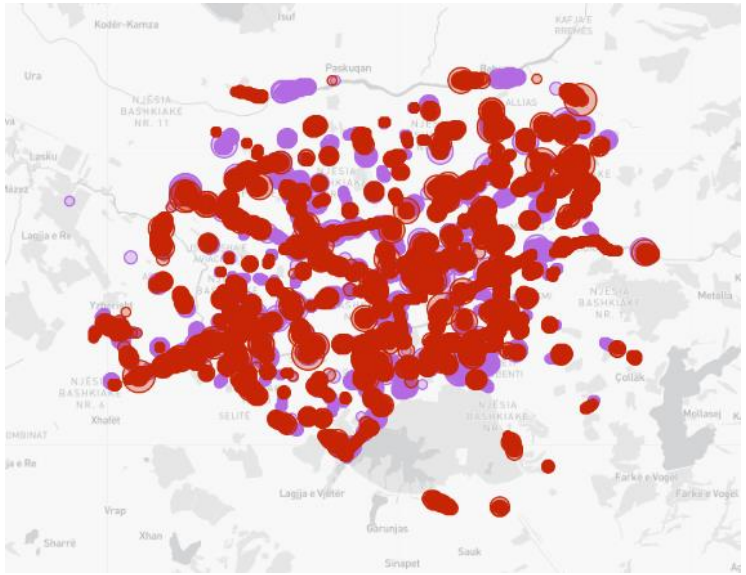
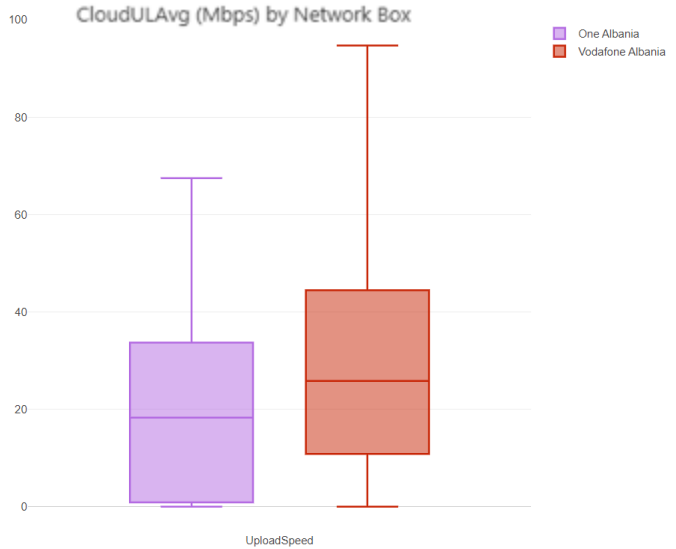
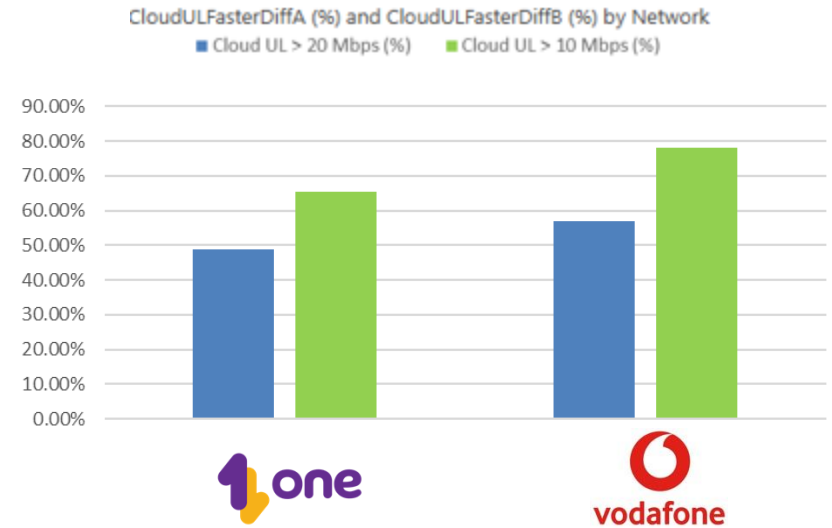
5G UL Speed - Cloud Speed Test (multi-thread)







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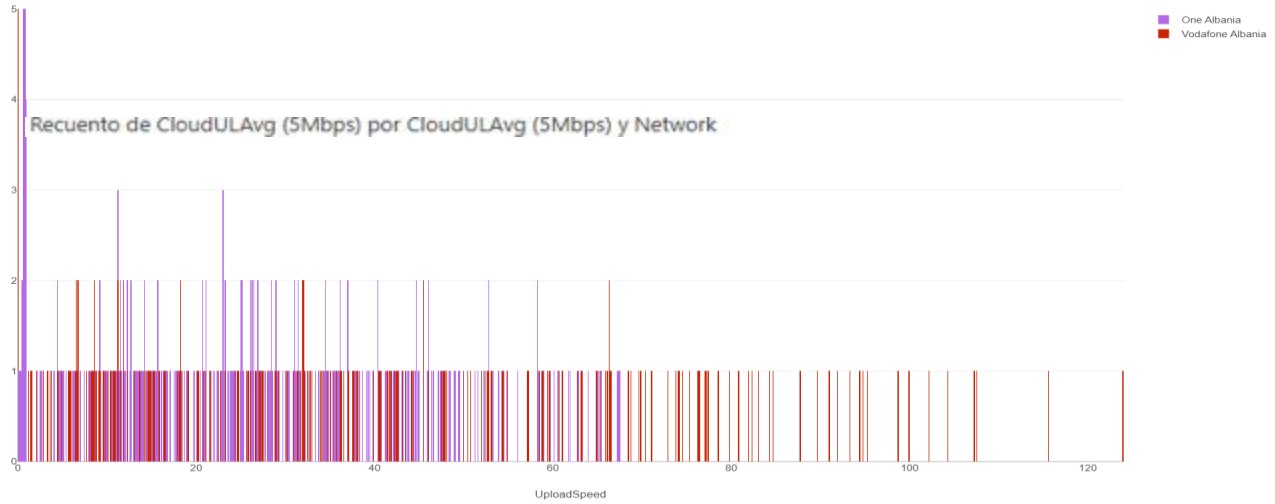
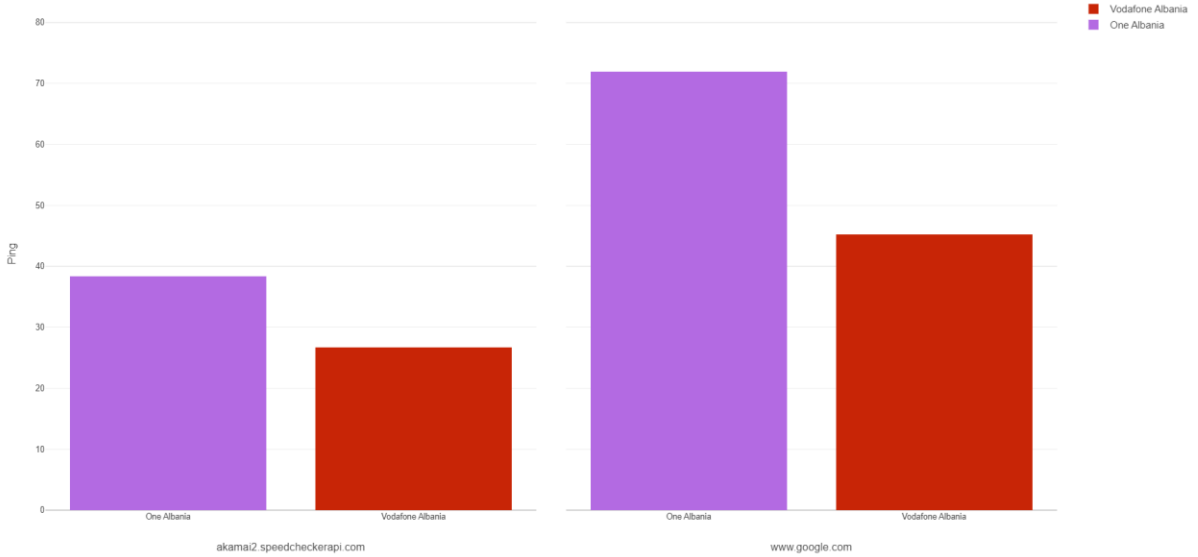
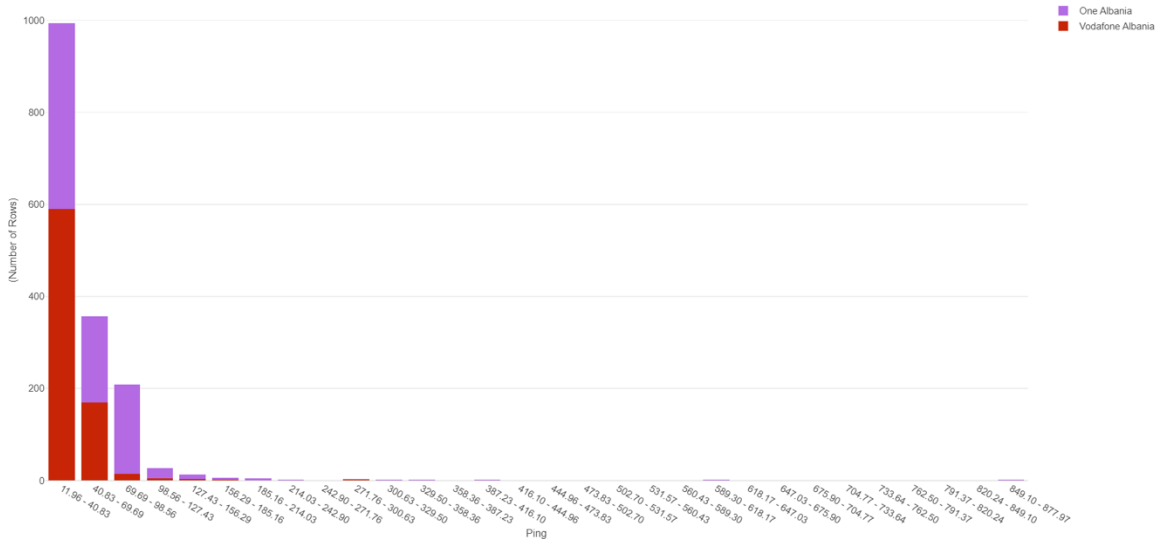


Latency 5G

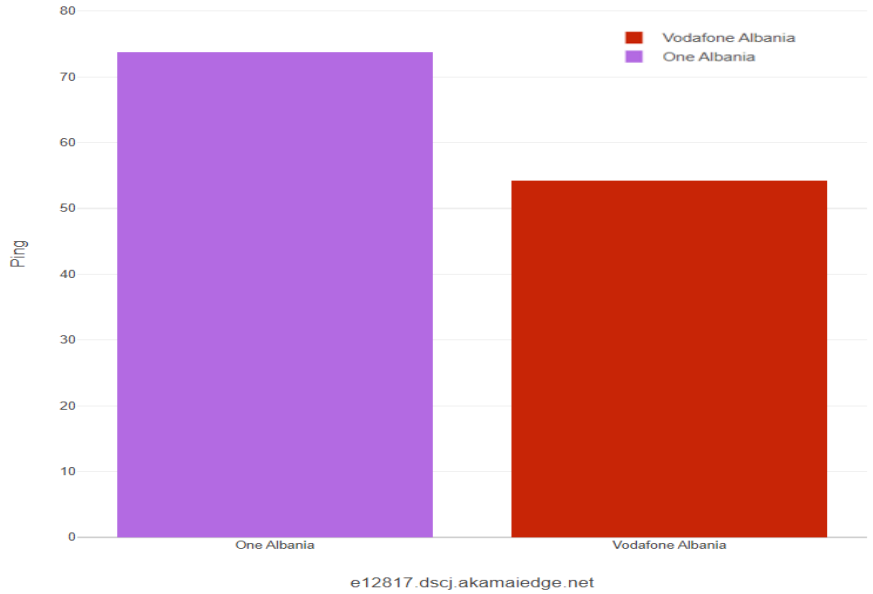
	One	Vodafone
PING	100%	100%
PING LatencyAvg. (ms)	61,29	40,67
PING LatencyAvg<50ms (%)	46,66%	67,67%

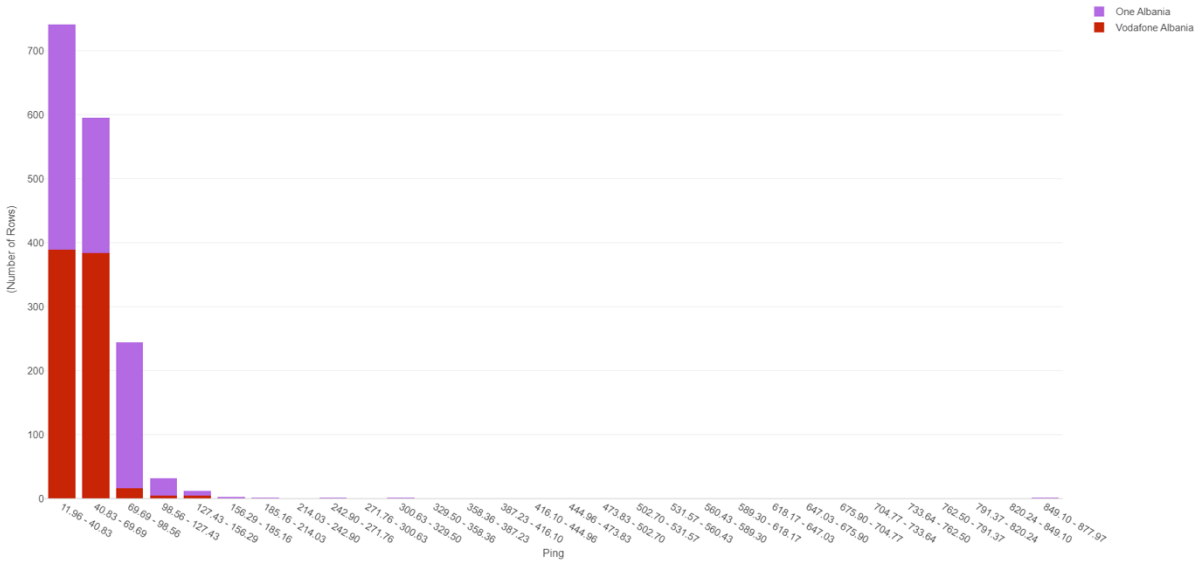




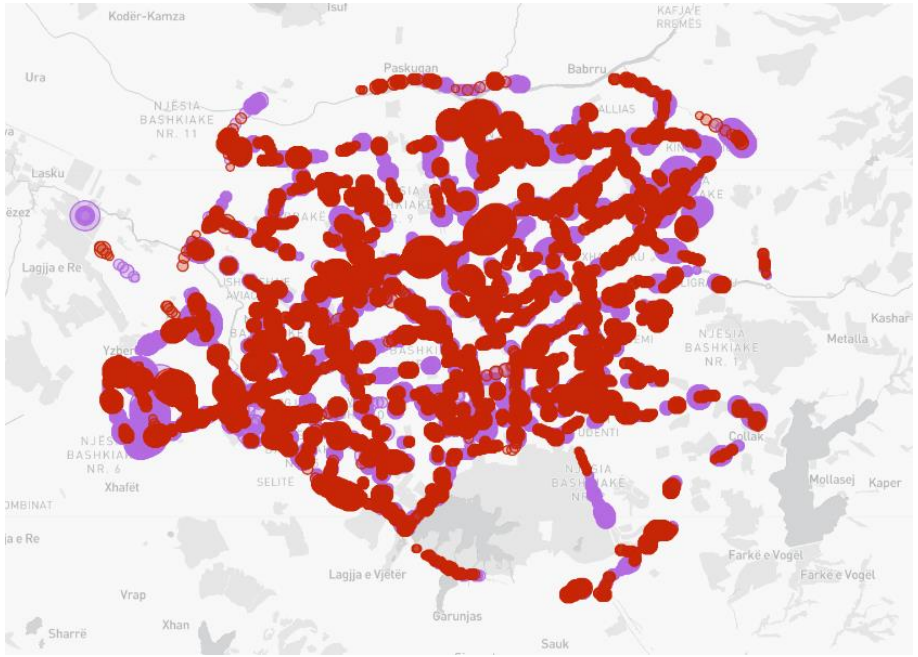
Gaming 5G

	One	Vodafone
Gaming Completed (%)	100%	100%
GamingLatencyAvg. (ms)	73,73	54,29



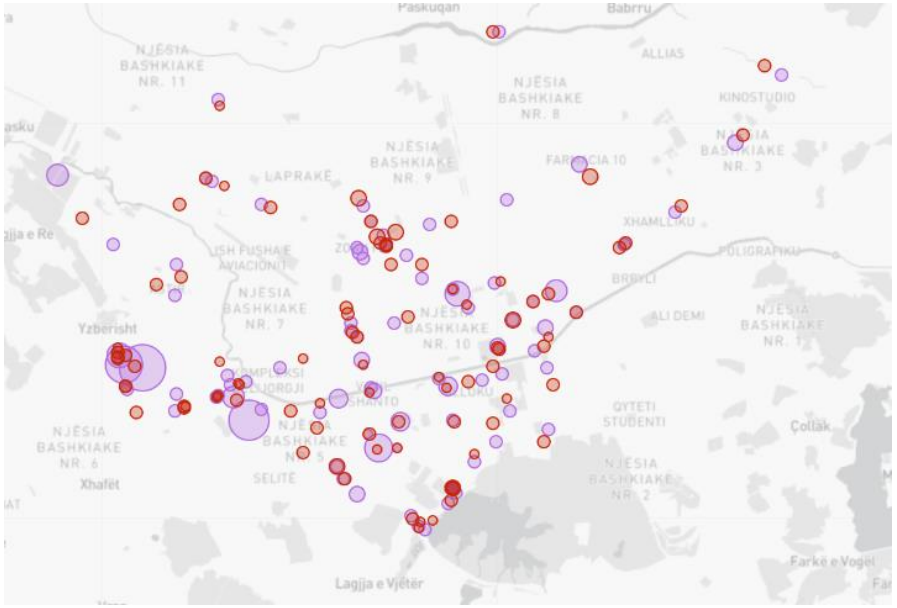


Web browsing 5G

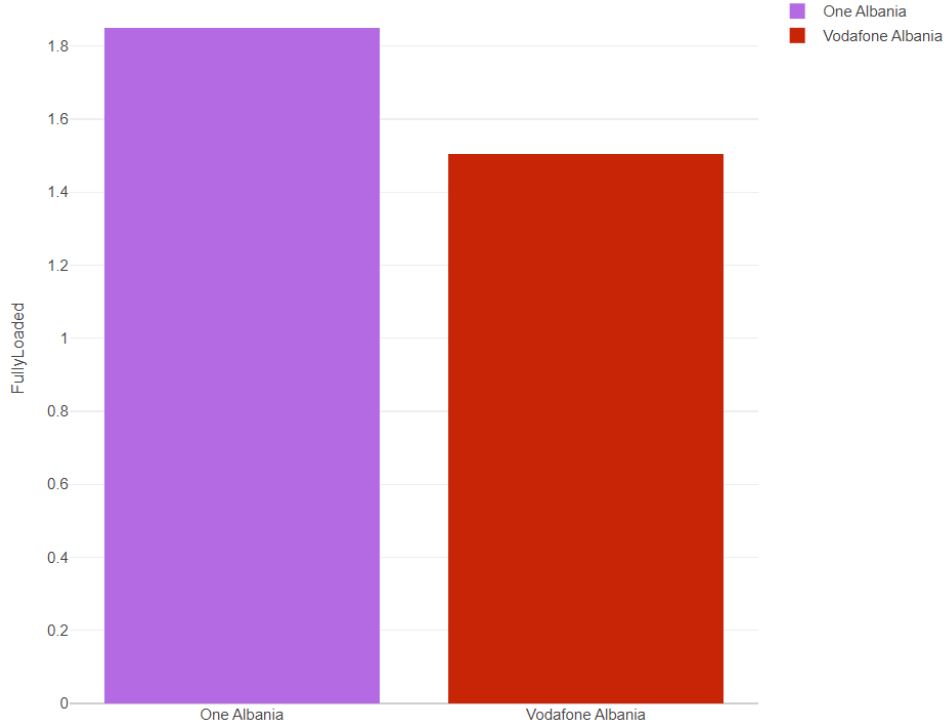


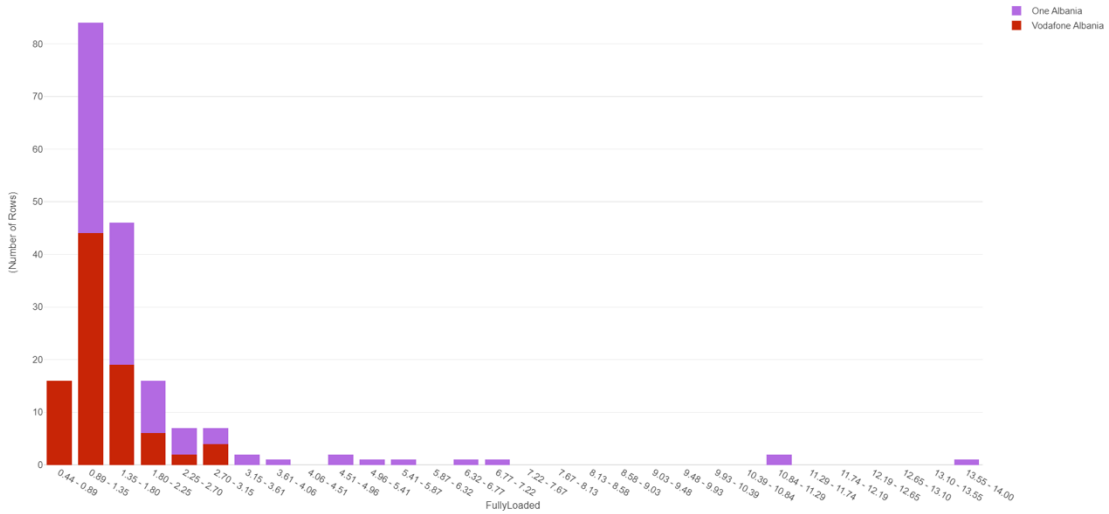
	One	Vodafone
Web page completed (%)	98,9%	99,4%
WEB TFFB (ms)	280	290
WBT (ms)	1870	1780

Social Media 5G

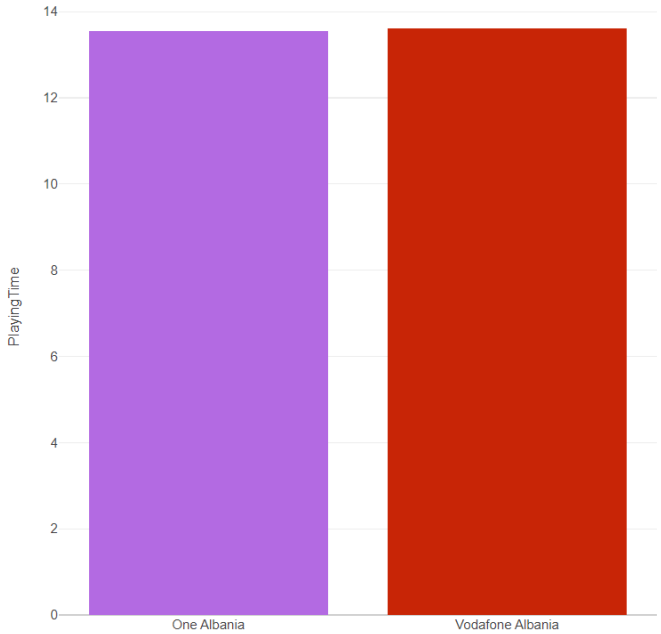


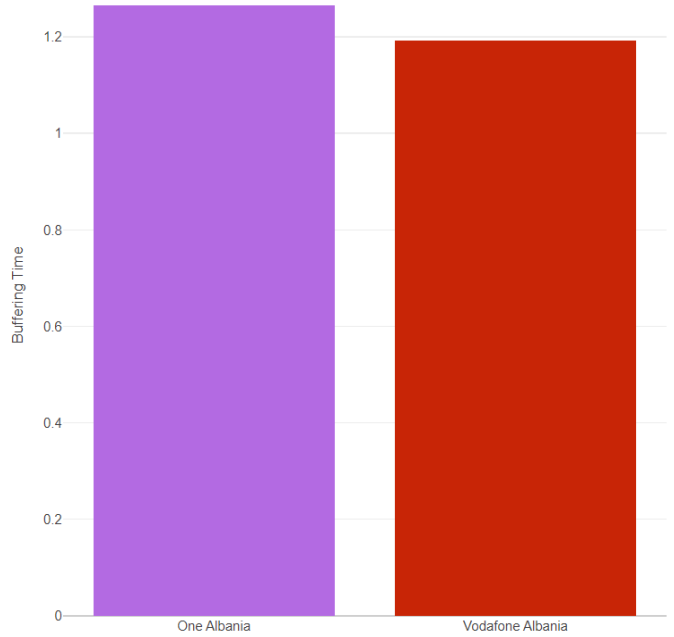
	One	Vodafone
Web page completed (%)	99%	100%
WEB TFFB (ms)	440	410
WBT (ms)	1850	1510



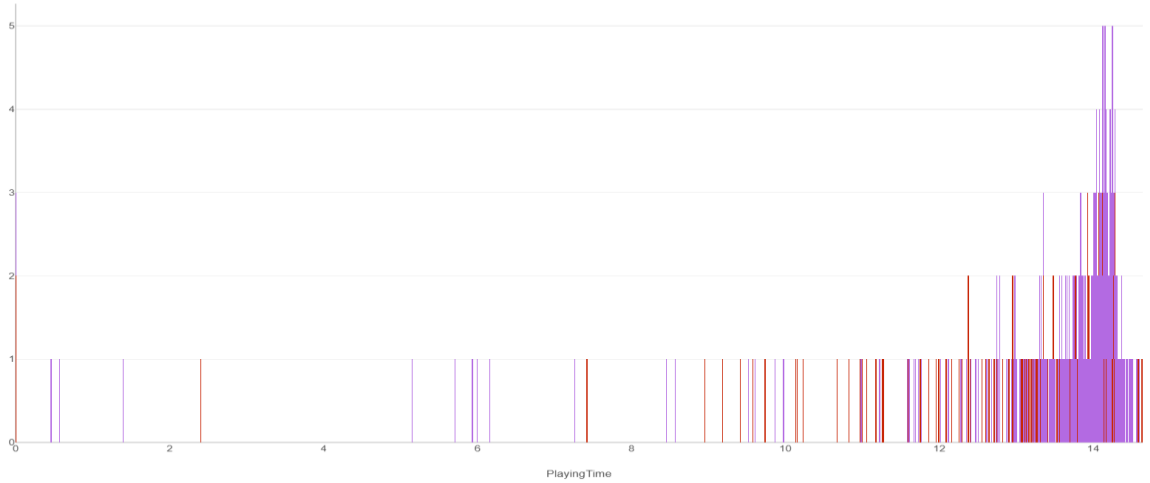


Streaming 5G





	One	Vodafone
Completed	98,29%	98,01%
Playing Time (s)	13,56	13,6
Number of stalls	8	5
Avg Video resolution	1080	1080



QoE Everywhere in the Digital Era

MedUX, the internet QoE testing and monitoring company

www.medux.com

ITU ASSOCIATE

tmforum MEMBER

Rosa Megía
EMEA Hed of Operations
rosa@medux.com

Why MedUX

With MedUX, you get a unique ecosystem that provides a one-stop-shop QoE suite for all your needs.

We integrate robots and agents, our full-stack technology and advanced analytics to deliver comprehensive multi-play testing and grand scale monitoring.

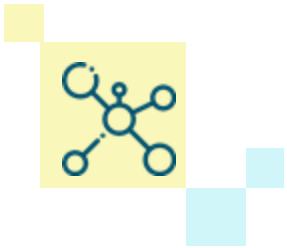
MedUX
The Internet Quality of Experience
Testing and Monitoring Company
10 years empowering
QoE Everywhere
ANNIVERSARY
MedUX

QoE Revolution.

Since 2014, MedUX has been revolutionizing networks and services testing from the **customer perspective**. Our figures have not stopped growing.

20.000
Robots

Active testing devices all over the world.



Billions
Of samples

Analyzed in real time, without integration and 100% operated by us.

+500M
People

Covered by MedUX deployments.

+40M
Agents

SDK Agents and APPs collecting insights from any device.

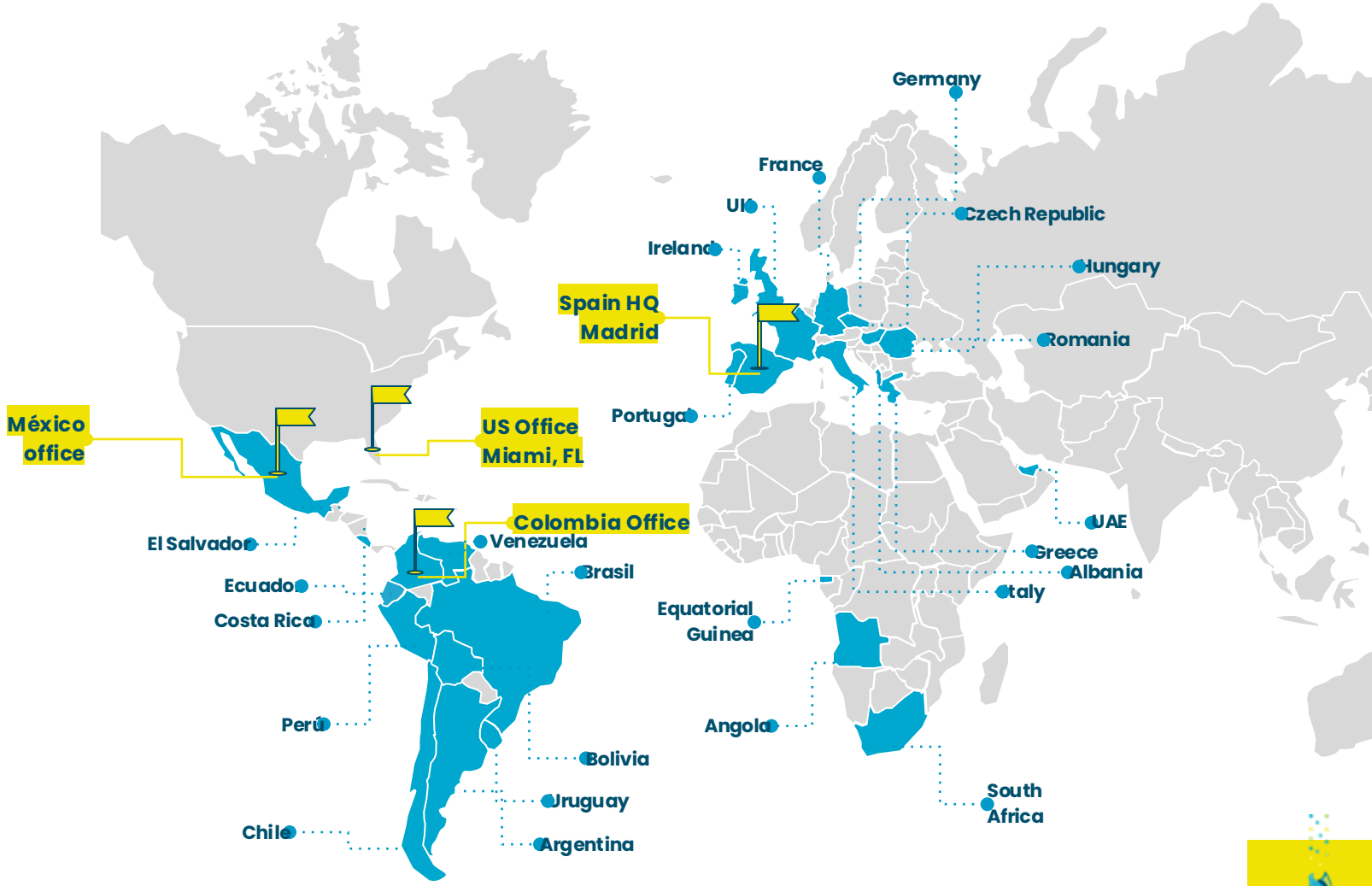
Global Trusted Partner.

+ 30 Countries
International presence.

Global presence.
Centers of excellence throughout the world.

Projects

Offices



Success Stories

Global Trusted Partner

Global TELCOs

Governments

Other Carriers

The internet integral **Multiplatform** testing and monitoring company.

For

- **Communication service Providers**
- **Telecom Regulators**
- **Digital Enterprise**

Multi platform	Multi technology	Multi network
Mobile & Home Robots	Fixed	WiFi
Agent App		xDSL
SDK & Crowdsourcing	Mobile	Fiber
Advanced Analytics		FWA
		2G
		3G
		4G
		5G

The Benefits

Improving customer satisfaction.

Address the **customer needs** that are key to your business. Anticipate any problem that puts your customers loyalty at risk.

Multiplatform QoE for advanced use cases.

Make **QoE testing easy**, enabling more observation points with minimal hardware deployment.

Monitoring of OTT (Over-the-top) services.

Understand the performance, perception and pain points of digital services that **consumers demand in their day-to-day** lives.

Maximizing your investment.

Unlock the full potential of your customers' **Quality of Experience.** With cost-effective solutions that allow you to address service issues and experience improvements.