

ETSI Benchmarking Report DJERBA Area Q1 2021



www.huawei.com

Agenda

1

- **Introduction**

2

- ETSI Score

3

- Service KQI

4

- Coverage

5

- Site solution Capacity

ETSI Introduction

ETSI is a non-profit telecommunications standardization organization approved by the European Commission in 1988. It is headquartered in Nice, south of France. ETSI's main standardization area is the telecommunications field, and the information and broadcasting technology field cooperated with other organizations. Recognized by the European Committee for Standardization (CEN) and the Conference of European Post and Telecommunications (CEPT), the recommended standards formulated by ETSI are often adopted by the European Community as the technical basis of European regulations and are required to be implemented.

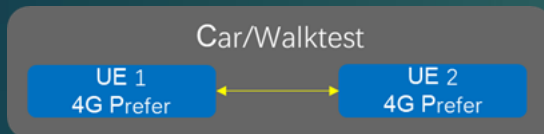
ETSI TR 103 599 describes the methodology of service QoS testing and network benchmark scoring. It provides suggestions on testing methods (drive tests), tested services, and tested KPIs for reference, and provides parameter settings based on the scenario weight, scoring weight, and each tested KPI of ETSI.

<https://www.etsi.org/>

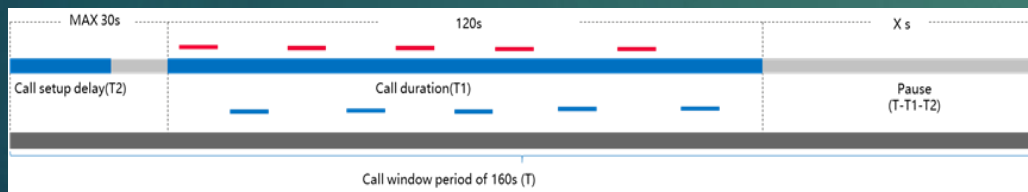


Test Plan : Service type

Voice Test

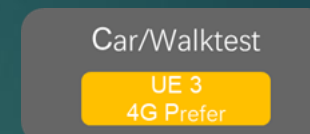


M2M test: Two UEs call each other in the same vehicle. The VoLTE mode is enabled. If VoLTE is available on the network, test VoLTE. If VoLTE is unavailable, test CSFB. VoLTE supports the EVS feature, and up to EVS-W 128K coding is supported.

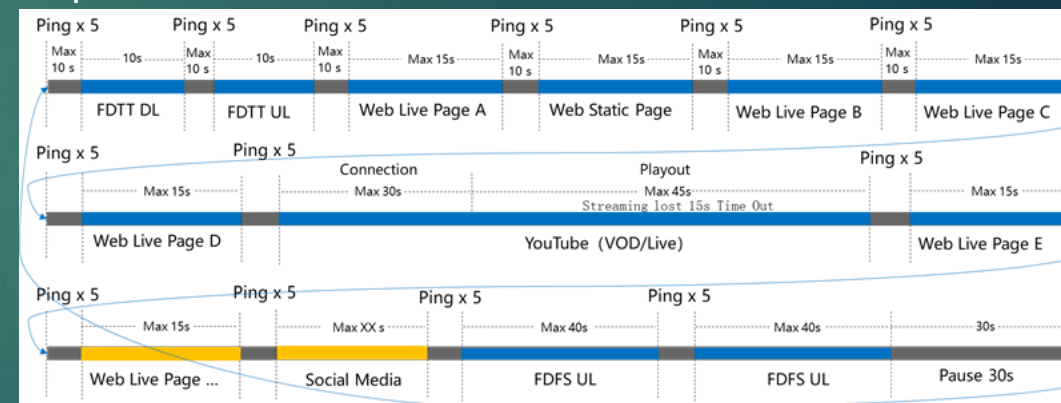


- Tools :
 - Software : PHU tester application, GENEX Cloud
 - Hardware : 3 P30 pro

Data Test



In a data service test, one UE is used for a single operator. Cyclic tests are performed on data services, such as upload, download, web page browsing, and video services in sequence. 4G preference



➔ Limitation :

- Due to limitation in UE number, we have performed only data test
- The PHU tester does not yet support the social media test

Test Plan : Script configuration : PS

Log Segment: Naming Configuration

Edit

Whole test plan cycles: 999

Edit

<input type="checkbox"/>	Number	Test Plan Type	Test Count	Operating
<input type="checkbox"/>	1	Ping	5	↓
<input type="checkbox"/>	2	HTTP Download	1	↑ ↓
<input type="checkbox"/>	3	Ping	5	↑ ↓
<input type="checkbox"/>	4	HTTP Upload	1	↑ ↓
<input type="checkbox"/>	5	Ping	5	↑ ↓
<input type="checkbox"/>	6	HTTP Browsing	5	↑ ↓
<input type="checkbox"/>	7	Ping	5	↑ ↓
<input type="checkbox"/>	8	HTTP Browsing	5	↑ ↓
<input type="checkbox"/>	9	Ping	5	↑ ↓
<input type="checkbox"/>	10	HTTP Browsing	5	↑ ↓
<input type="checkbox"/>	11	Ping	5	↑ ↓
<input type="checkbox"/>	12	Video Streaming	1	↑ ↓
<input type="checkbox"/>	13	Ping	5	↑ ↓
<input type="checkbox"/>	14	HTTP Browsing	5	↑ ↓
<input type="checkbox"/>	15	Ping	5	↑ ↓
<input type="checkbox"/>	16	HTTP Browsing	5	↑ ↓
<input type="checkbox"/>	17	Ping	5	↑ ↓
<input type="checkbox"/>	18	HTTP Browsing	5	↑ ↓
<input type="checkbox"/>	19	Ping	5	↑ ↓
<input type="checkbox"/>	20	HTTP Browsing	5	↑ ↓
<input type="checkbox"/>	21	Ping	5	↑ ↓
<input type="checkbox"/>	22	HTTP Browsing	5	↑ ↓
<input type="checkbox"/>	23	Ping	5	↑ ↓
<input type="checkbox"/>	24	HTTP Download	1	↑ ↓
<input type="checkbox"/>	25	Ping	5	↑ ↓
<input type="checkbox"/>	26	HTTP Upload	1	↑ ↓
<input type="checkbox"/>	27	Idle	1	↑

1. Ping :

- Destination : 8.8.8.8
- Packet size : 40 Byte

2. HTTP Download :

Remote file : <http://sqmed01.swissqual.com/put/5mb.dat>

3. HTTP Upload :

Remote file : <https://www.thinkbroadband.com/download>

File size : 1024000 KB

4. HTTP Browsing :

www.Facebook.com

www.tayara.tn

www.mosaiquefm.net

www.elhiwarettounsi.com

www.netflix.com

www.google.tn

www.gmail.com

www.wikipedia.org

5. Video Streaming :

URL Type : YouTube

Duration : 45 s

Resolution : 1080 p

6. Idle duration = 30 s

Test Plan : Script configuration : CS

Test Plan List Terminal List

Orange Project-Test Plan-UE1_MOS

Upload test file automatically(Only valid for remote control mode)
 ETSI test scenario (Only valid for Stand-alone mode)

Log Segment: Naming Configuration [Edit](#)

Whole test plan cycles: 999 [Edit](#)

<input type="checkbox"/>	Number	Test Plan Type	Test Count	Operating
<input checked="" type="checkbox"/>	1	MOS Test	1	ⓘ
<input type="checkbox"/>	2	Wait	1	ⓘ

MOS Test

Parameter Setting

Score Type:	Local Score	MOS Call Mode:	One Way MOS Call
Call Type:	Call by Call	Destination Number:	*****
Timeout:	20	Test Count:	1
Call Duration:	120	Mode:	SWB
Test Interval:	1	Audio Sample File:	amenglish_swb_m1s1_f2s...

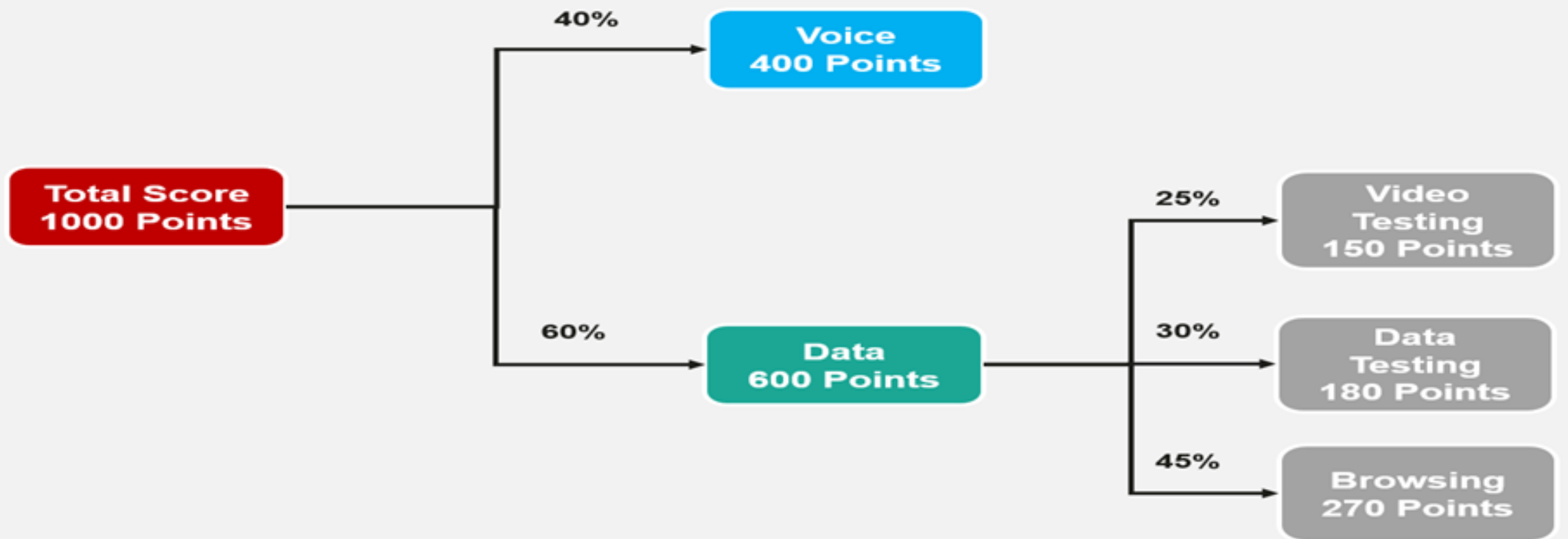
1. MOS Test :

- Call by call to another number for the same operator
- Call Duration 120 s

2. Wait:

- Wait 30 s between two consecutive call

Score calculation concept



Drive Test Road



Delegation :
All DJERBA Island

Test Distance Info(Km)			
TEST_TYPE	Ooredoo	Orange	TT
Browsing	87.29	104.85	134.75
Data Testing	31.27	31.12	30.82
Video Streaming	99.32	77.15	78.13
Total	217.88	213.12	243.7

Main finding Executive Summary

Ooredoo

ETSI Rank: **1**

Browsing: 1

HTTP Down/Up: 1

Streaming : 1

Coverage : 2

Orange

ETSI Rank: 2

Browsing : 3

HTTP Down/Up: 3

Streaming : 2

Coverage: 1

TT

ETSI Rank: 3

Browsing: 2

HTTP Down/Up: 2

Streaming : 3

Coverage : 3

1

- Introduction

2

- **ETSI Score**

3

- Service KQI

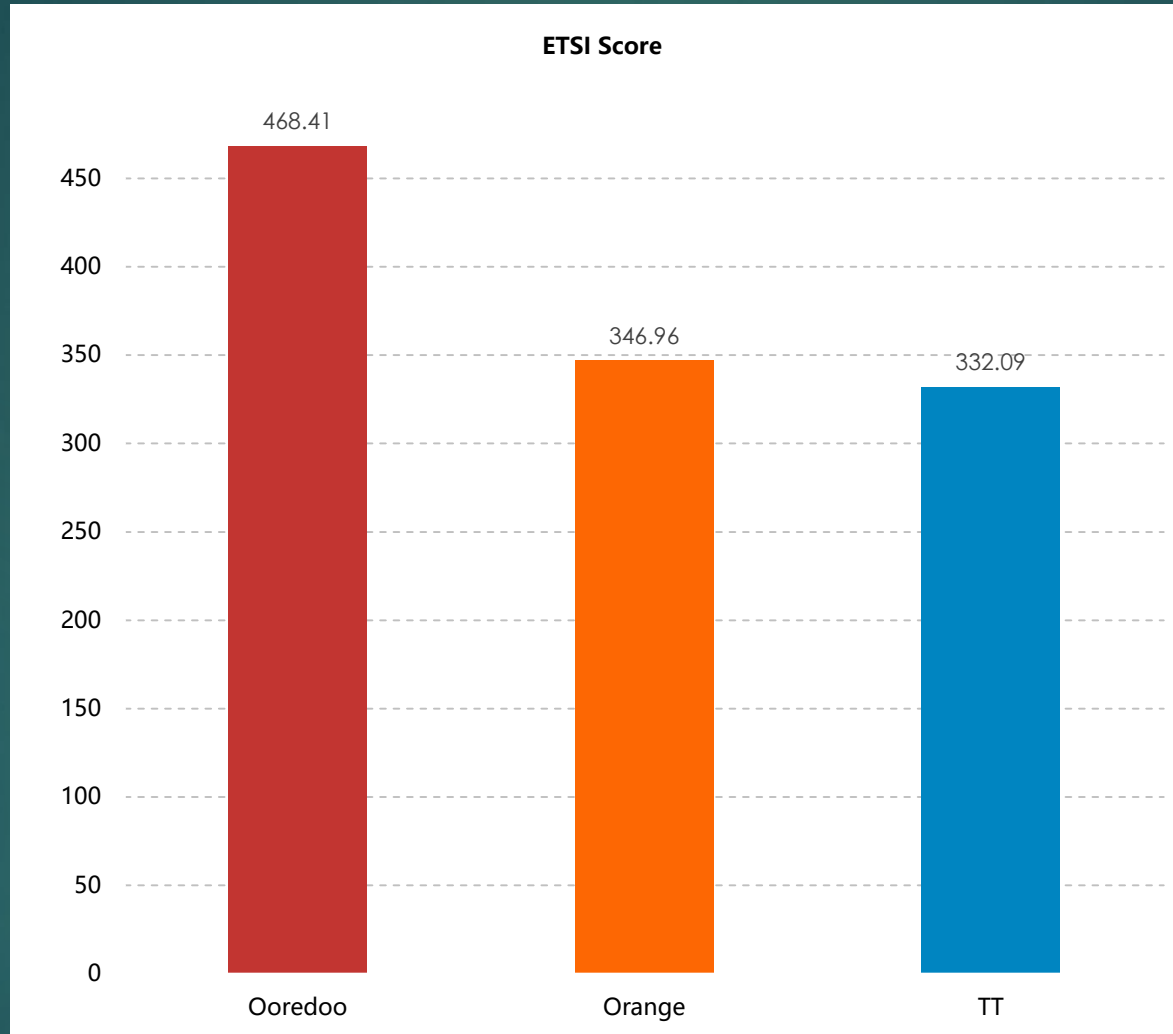
4

- Coverage

5

- Site solution Capacity

ETSI Global score Ranking



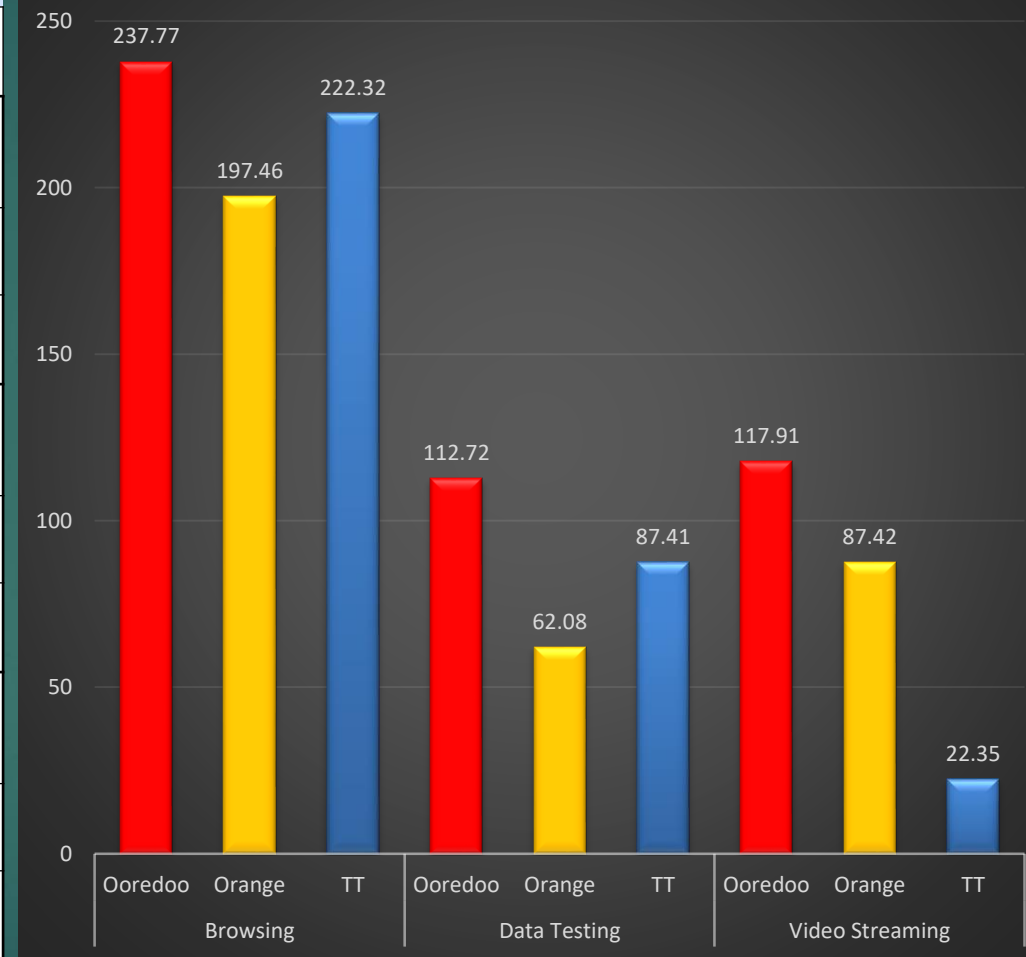
Ooredoo has the best ETSI score, and it is very far compared to the other 2 operators, more than 100 point difference, Orange second, and Third Tunisia Telecom

Service based Ranking

ETSI Score

			MAX_Score	Score	Ratio	Rank
City type	Browsing	Ooredoo	270	237.77	88%	1
		Orange	270	197.46	73%	3
		TT	270	222.32	82%	2
	Data Testing	Ooredoo	180	112.72	63%	1
		Orange	180	62.08	34%	3
		TT	180	87.41	49%	2
	Video Streaming	Ooredoo	150	117.91	79%	1
		Orange	150	87.42	58%	2
		TT	150	22.35	15%	3

ETSI Score



Ooredoo has the best score in all the different test, TT Video Streaming is very low 22/180

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- **Service KQI**

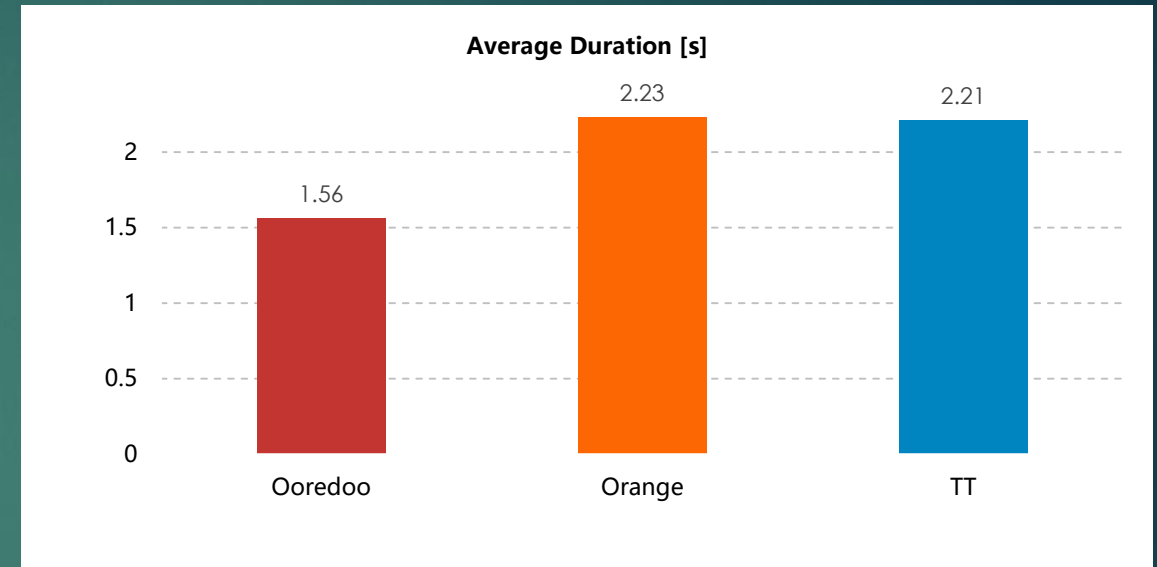
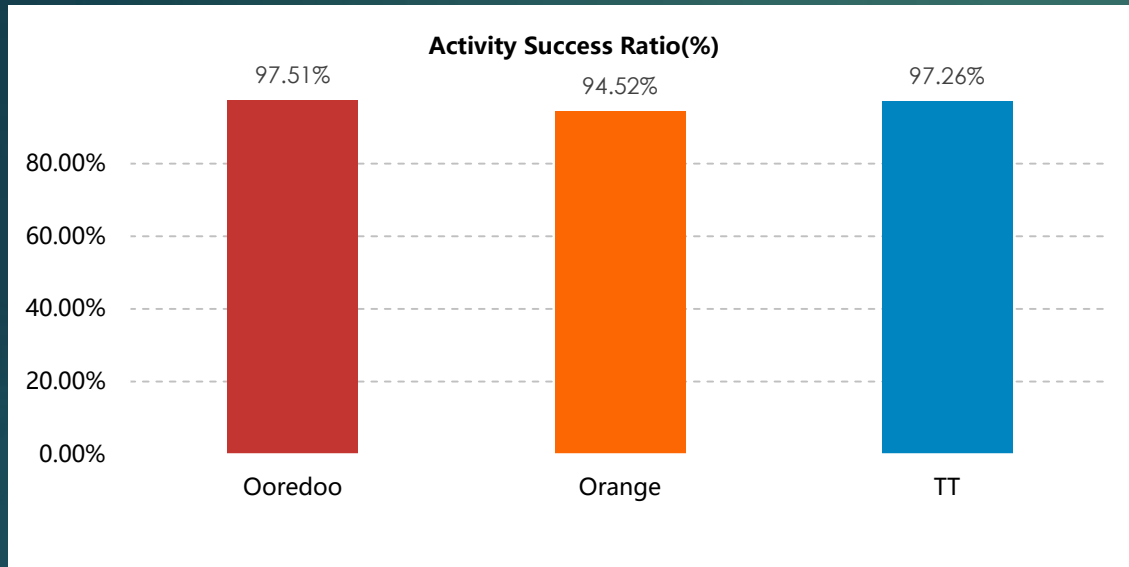
4

- Coverage

5

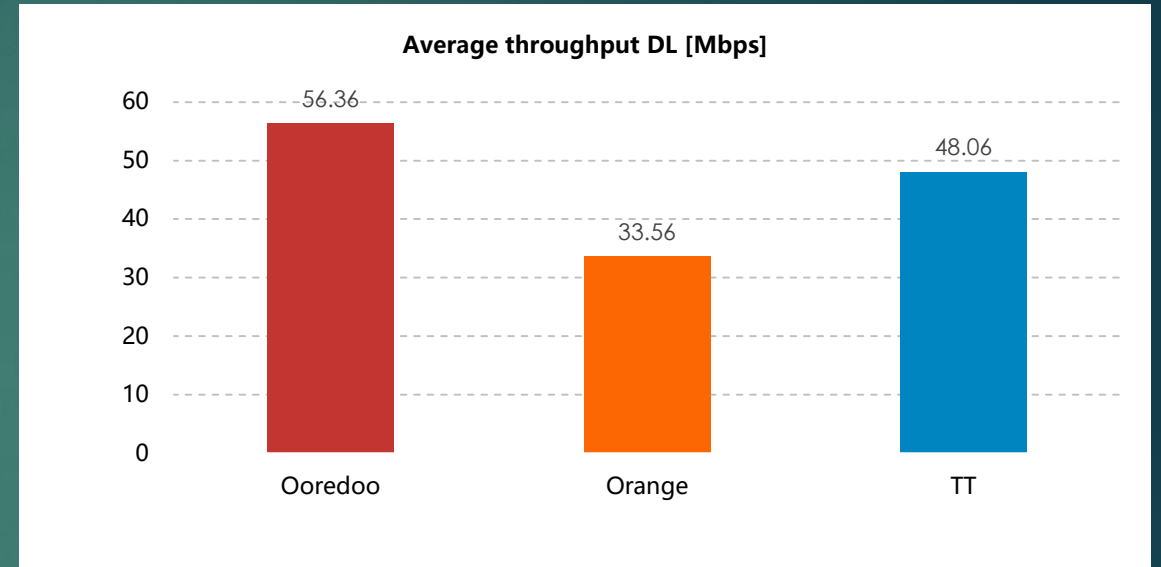
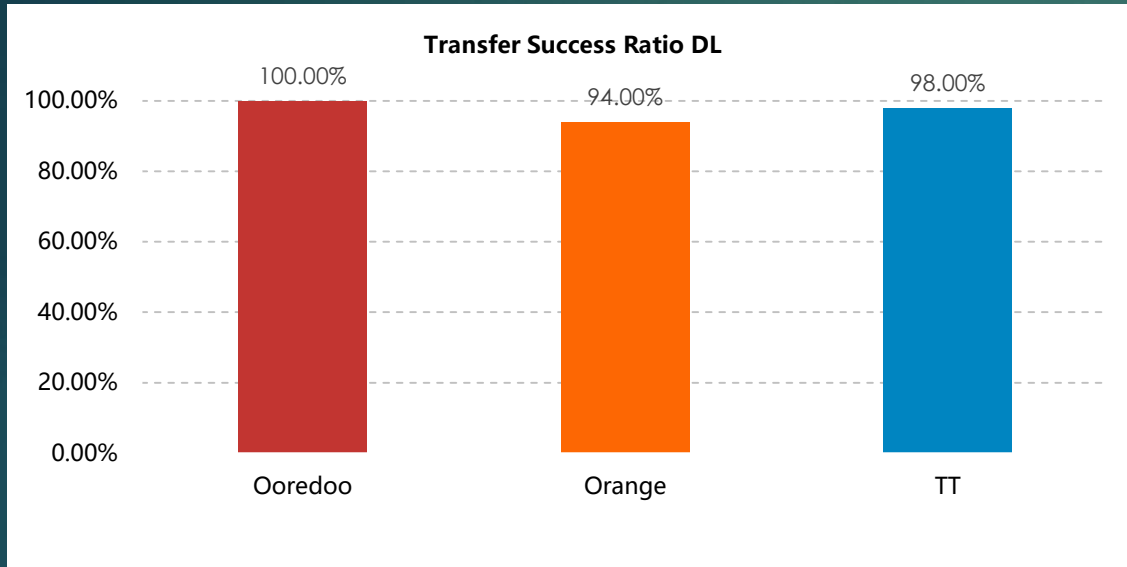
- Site solution Capacity

Browsing ETSI KQI



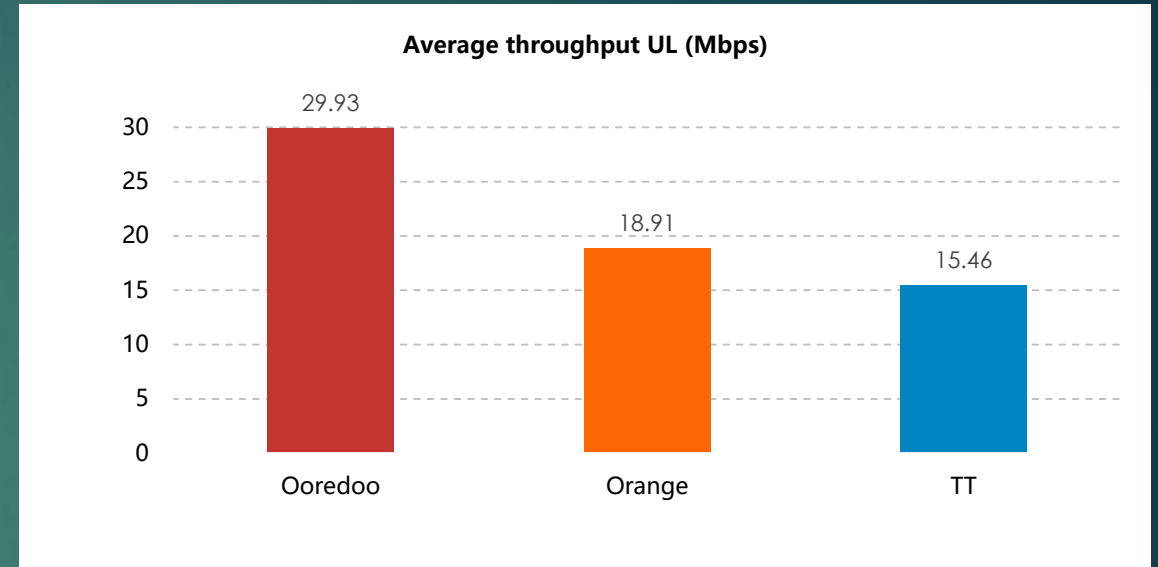
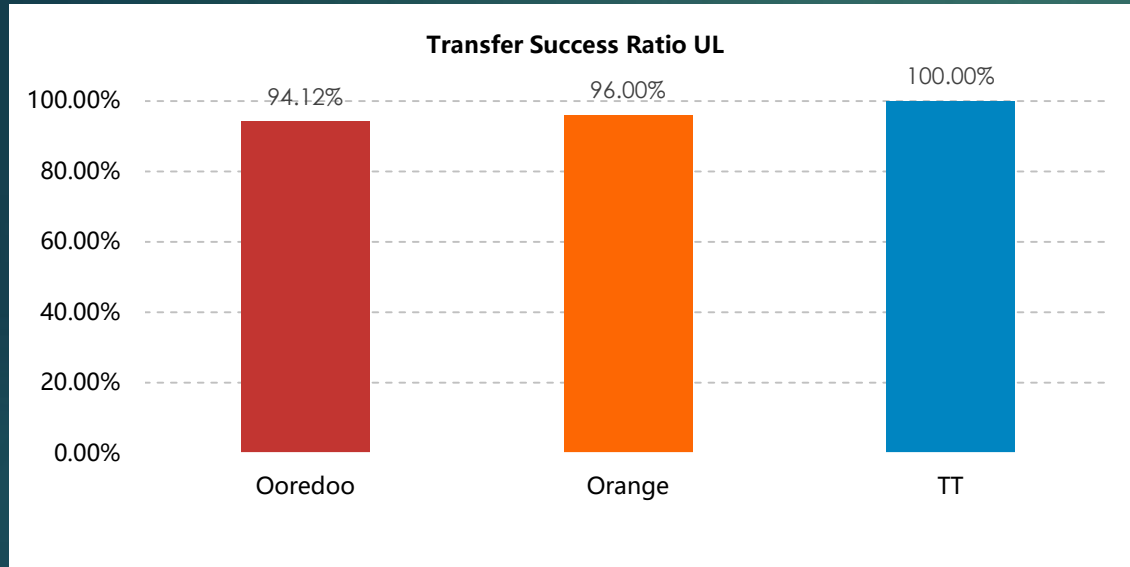
No operator has a 100% browsing Ratio, and has the best time average is recorded for Ooredoo 1.56 s

Data Testing(HTTP Download)



Ooredoo only has a transfer SR equal to 100%, and the best average throughput 56.36 Mbps

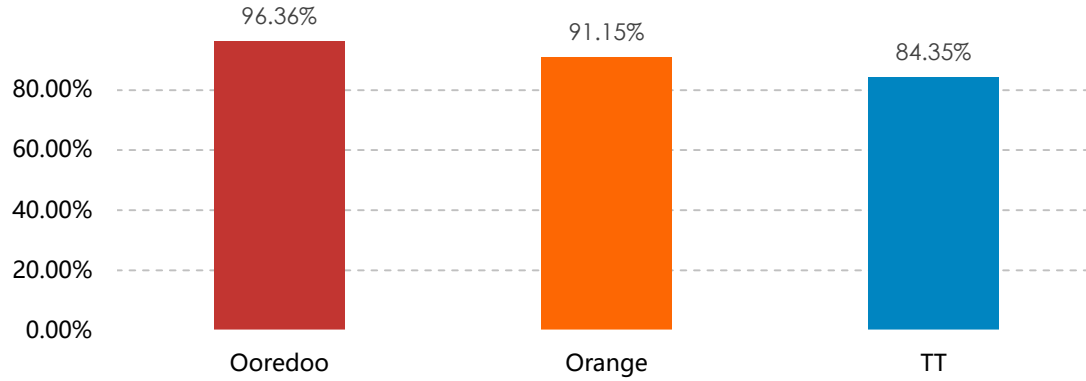
Data Testing(HTTP Upload)



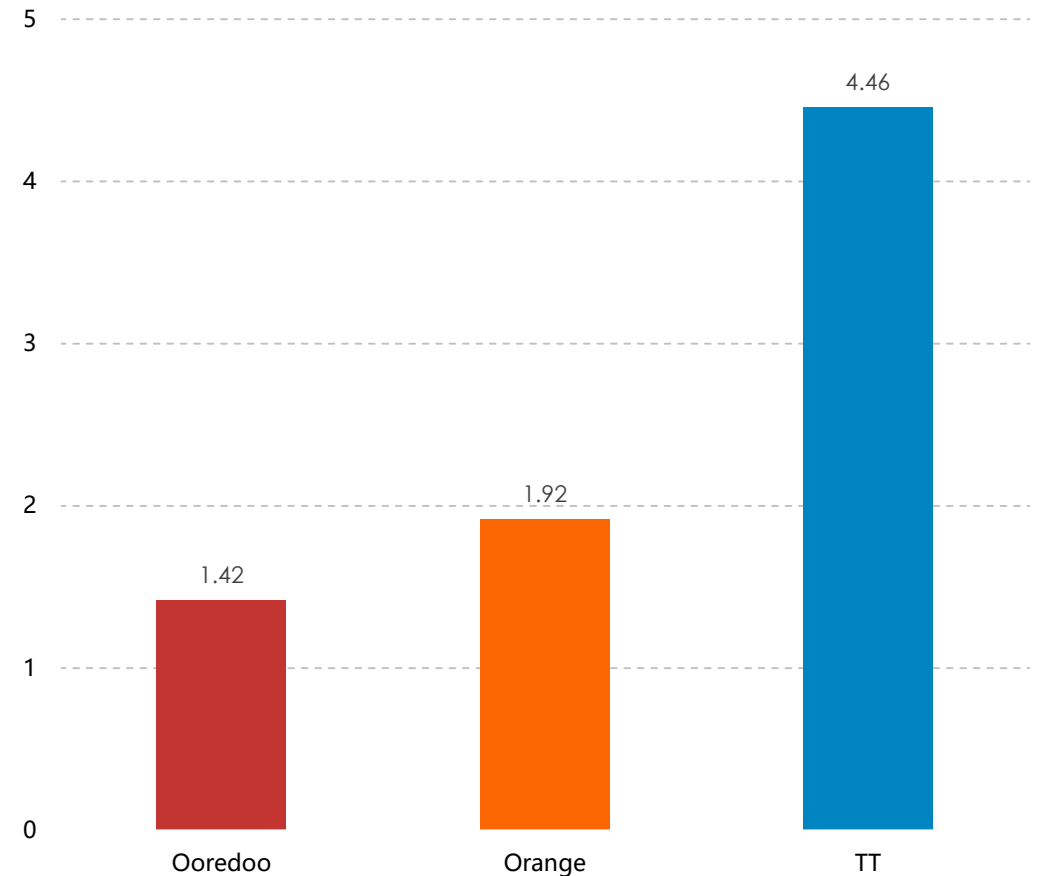
Only TT has a transfer Success Ratio equal to 100%, Ooredoo has the best average 29.93

Video Streaming

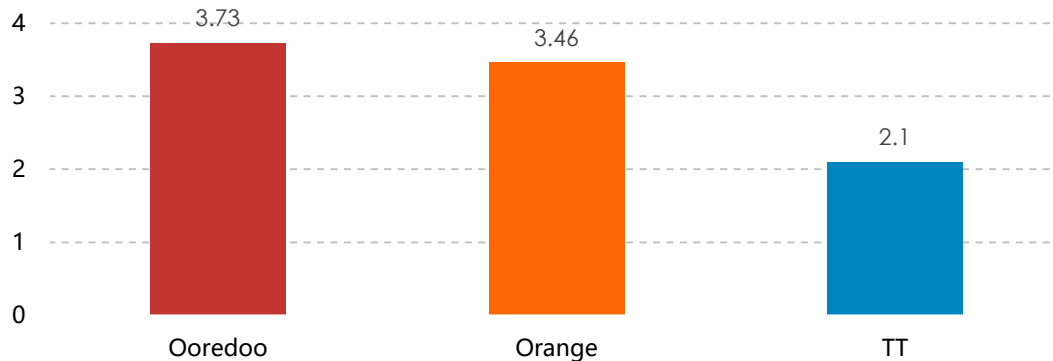
Video Streaming Service Success Ratio (VSSSR)



Video access time [s]



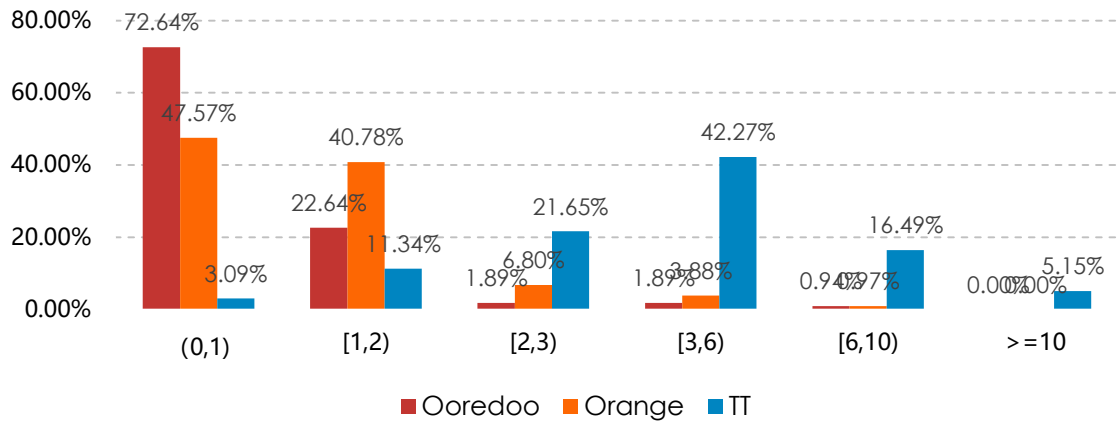
Video Quality MOS



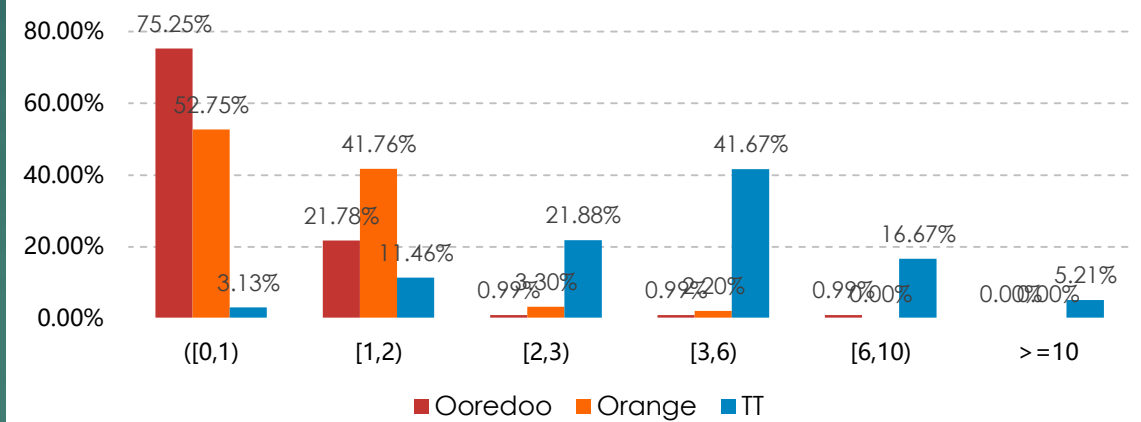
Ooredoo is N1 in the Video Quality MOS, and has the best Video access Time 1.42 s and best vMOS Score 3.73
Tunisia Telecom Video Access time is very high 4.46s, even the SR is too low 84%

Video Streaming

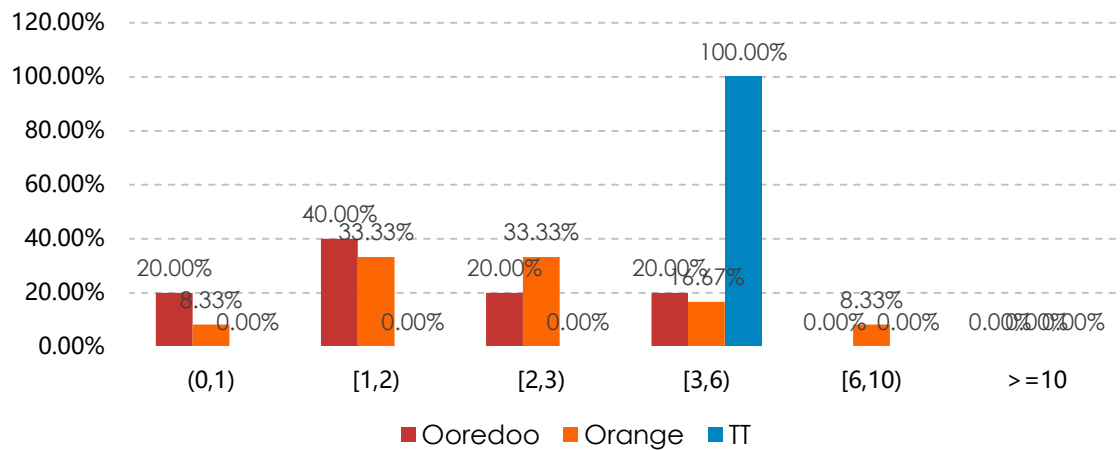
Initial Buffering Download Latency(s)



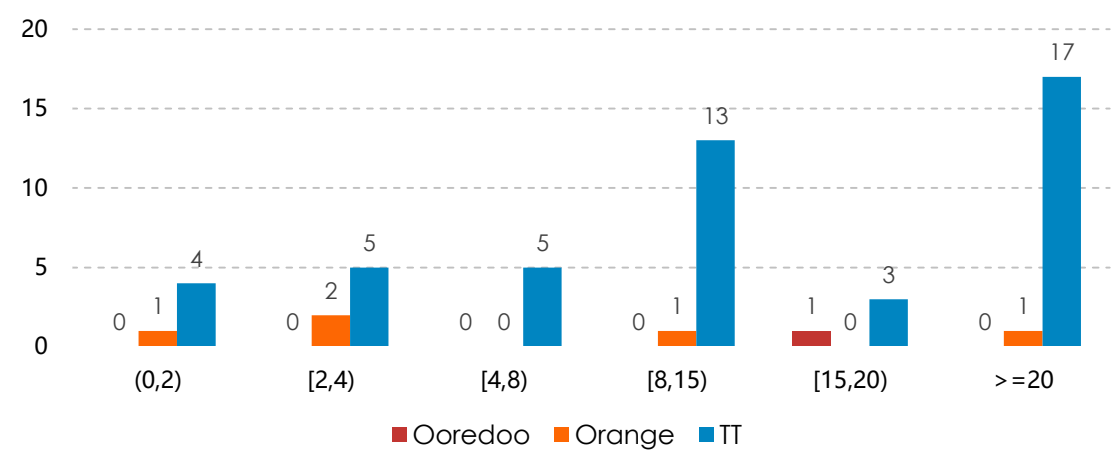
Initial Buffering Download Latency LTE(s)



Initial Buffering Download Latency WCDMA(s)



Total Stalling Ratio



KPI Result Overview

KPI Overview

Service	KPI	City type		
		Ooredoo	Orange	TT
Video Streaming	Video Streaming Service Success Ratio (VSSSR)(%)	96.36%	91.15%	84.35%
	Video Quality MOS	3.80	3.63	2.29
	10 percentile of MOS	3.62	3.32	1.00
	Video access time s	1.42	1.92	4.46
	Video access time > 10 s(%)	0.00%	0.97%	6.19%
Data Testing	Transfer Success Ratio DL (e.g. 5 MB)(%)	100.00%	94.00%	98.00%
	Average throughput DL [Mbit/s](Mbps)	56.36	33.56	48.06
	10th percentile of (low) throughput DL [Mbit/s](Mbps)	35.09	4.51	22.98
	90th percentile of (high) throughput DL Mbit/s)(Mbps)	85.22	66.94	77.25
	Average throughput UL [Mbit/s](Mbps)	29.93	18.91	15.46
	10th percentile of (low) throughput UL [Mbit/s](Mbps)	10.64	3.27	3.27
	90th percentile of (high) throughput UL [Mbit/s)(Mbps)	52.40	47.48	44.22
Browsing	Activity Success Ratio(%)	97.51%	94.52%	97.26%
	Average Duration s	1.56	2.23	2.21
	Activity Duration > 6 s(%)	1.30%	5.01%	5.06%

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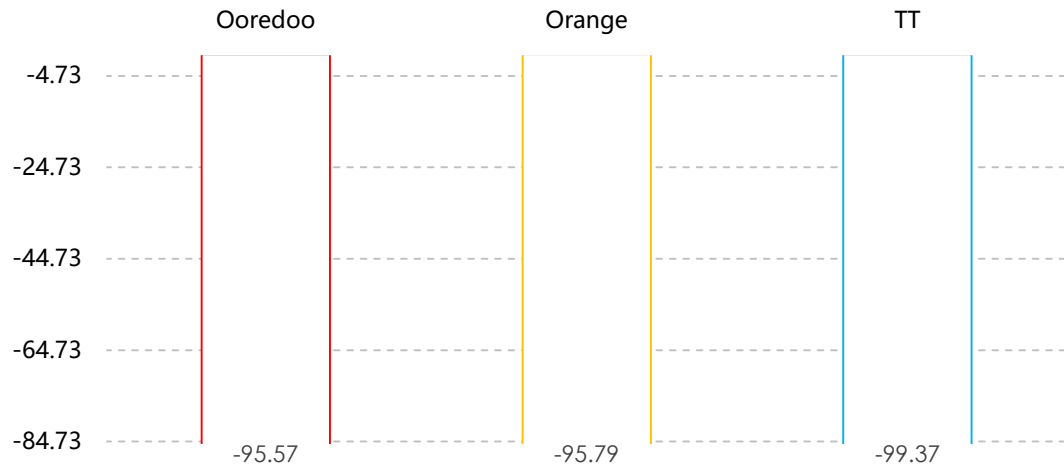
- **Coverage**

5

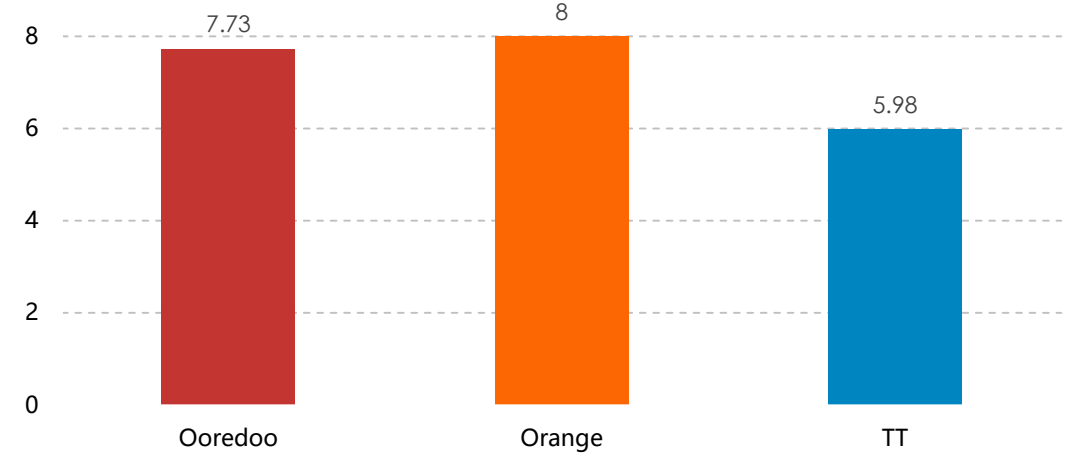
- Site solution Capacity

LTE coverage indicator Benchmark

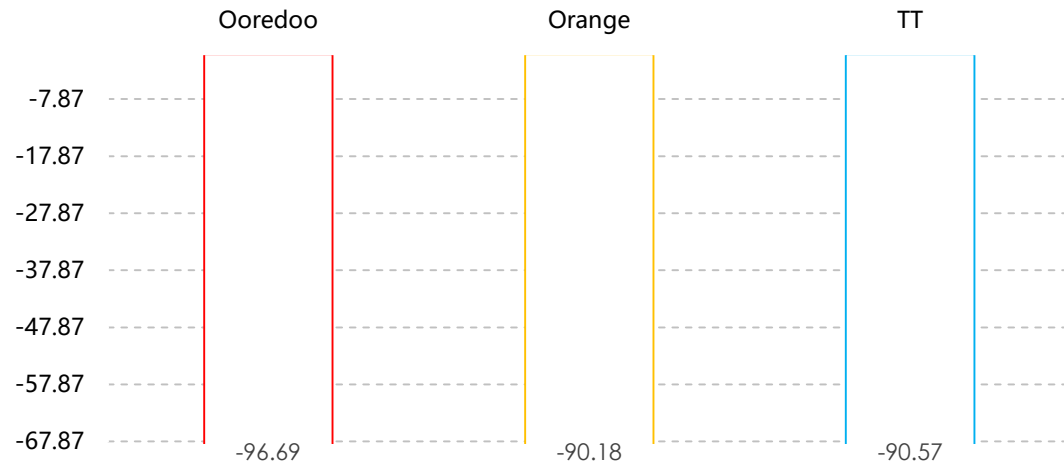
LTE RSRP



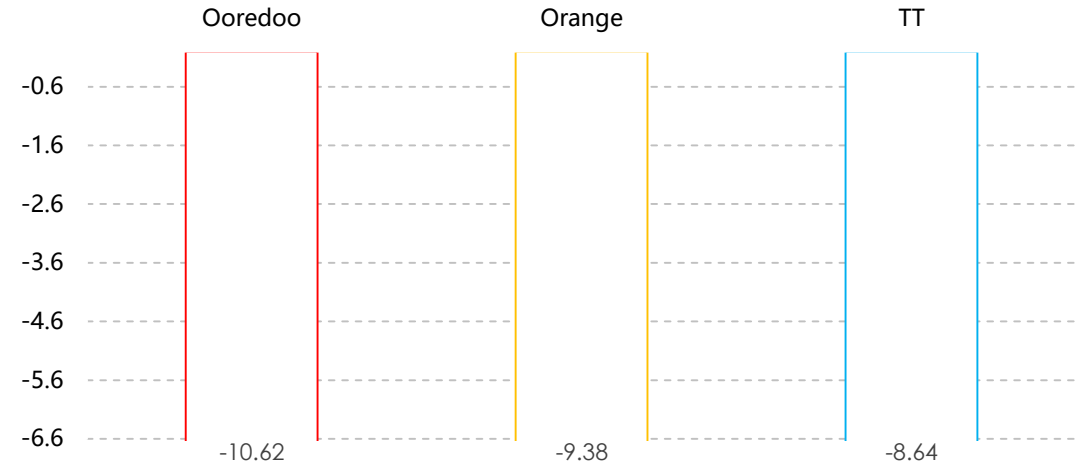
LTE SINR



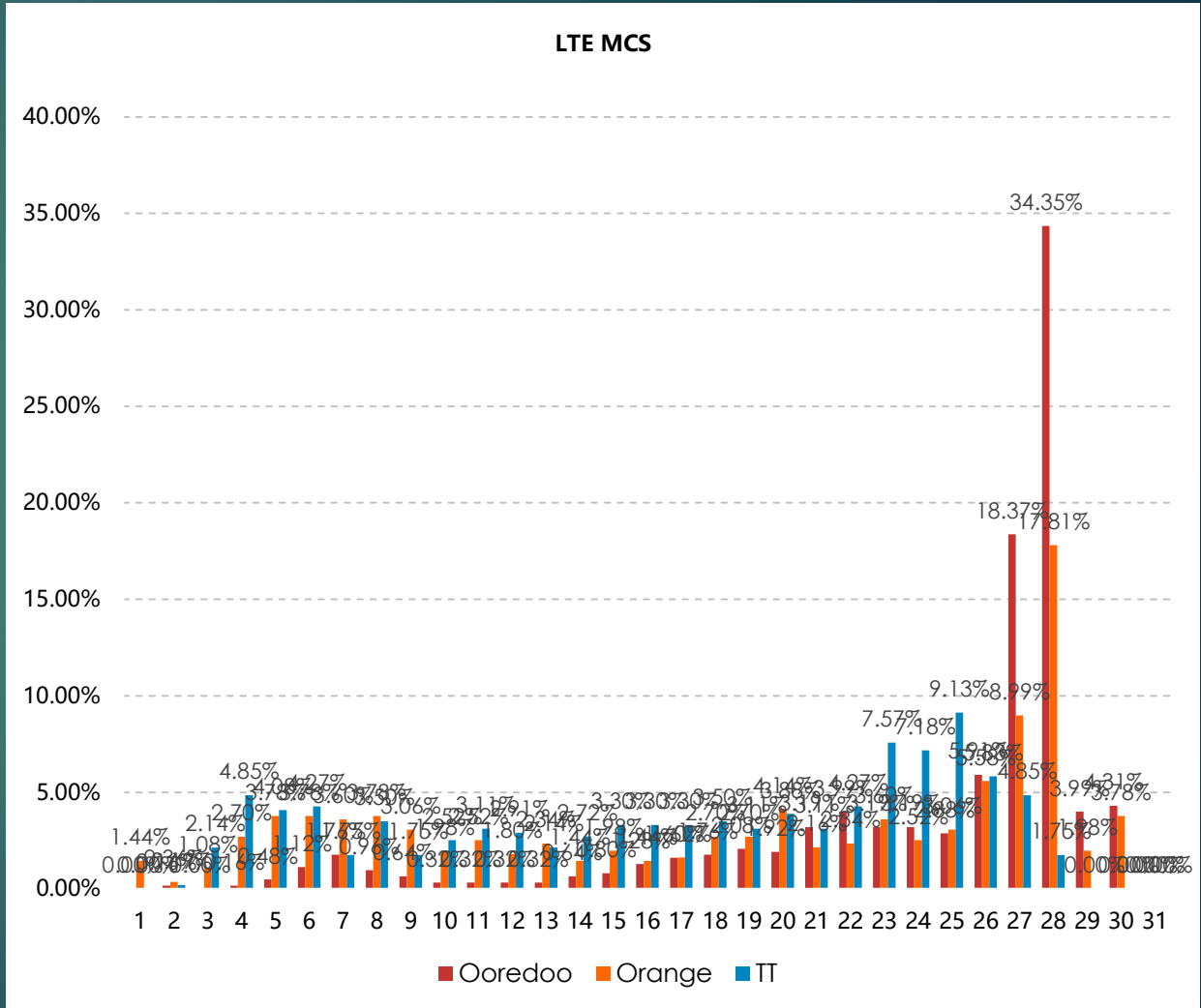
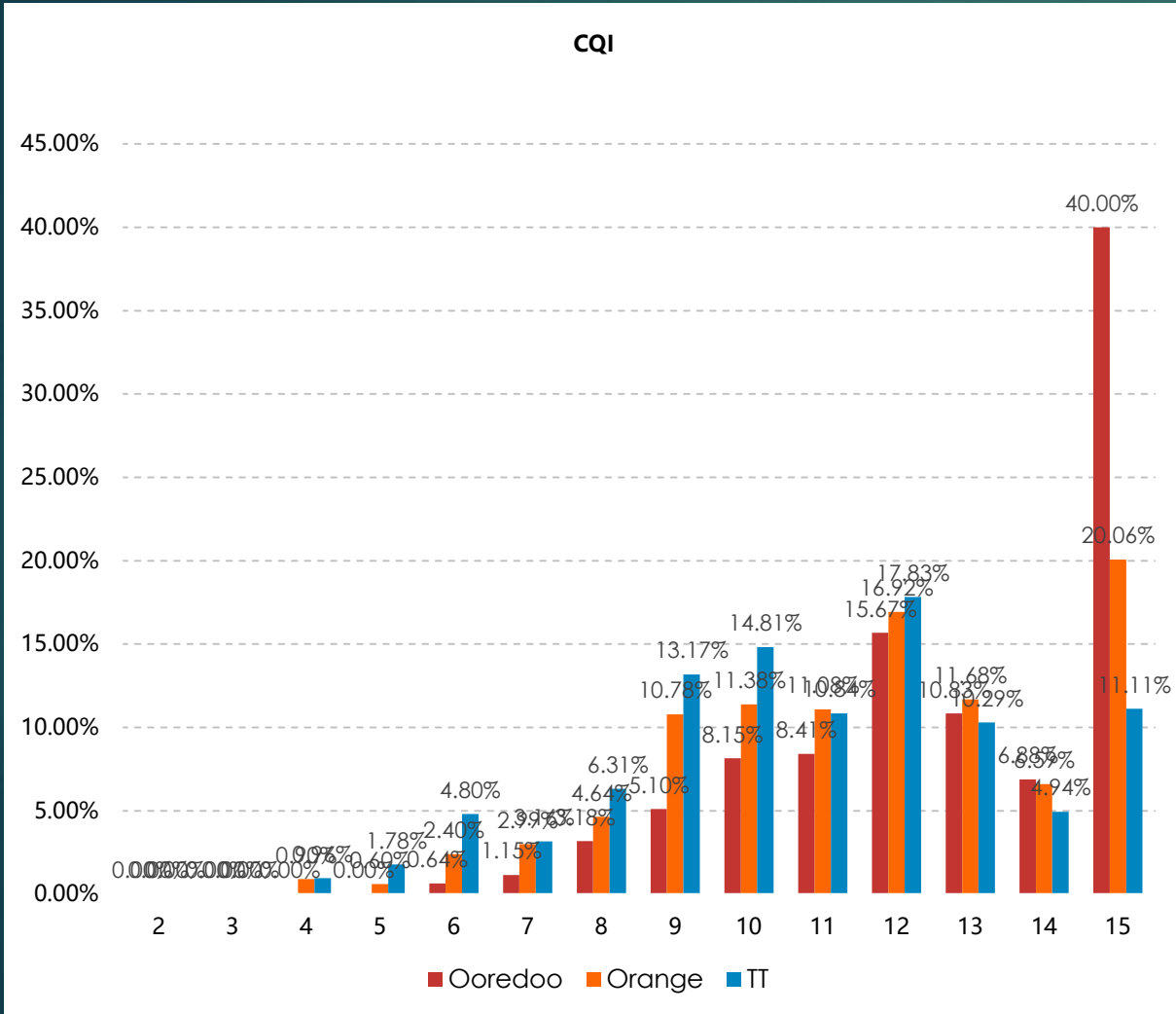
UMTS RSCP



UMTS ECIO

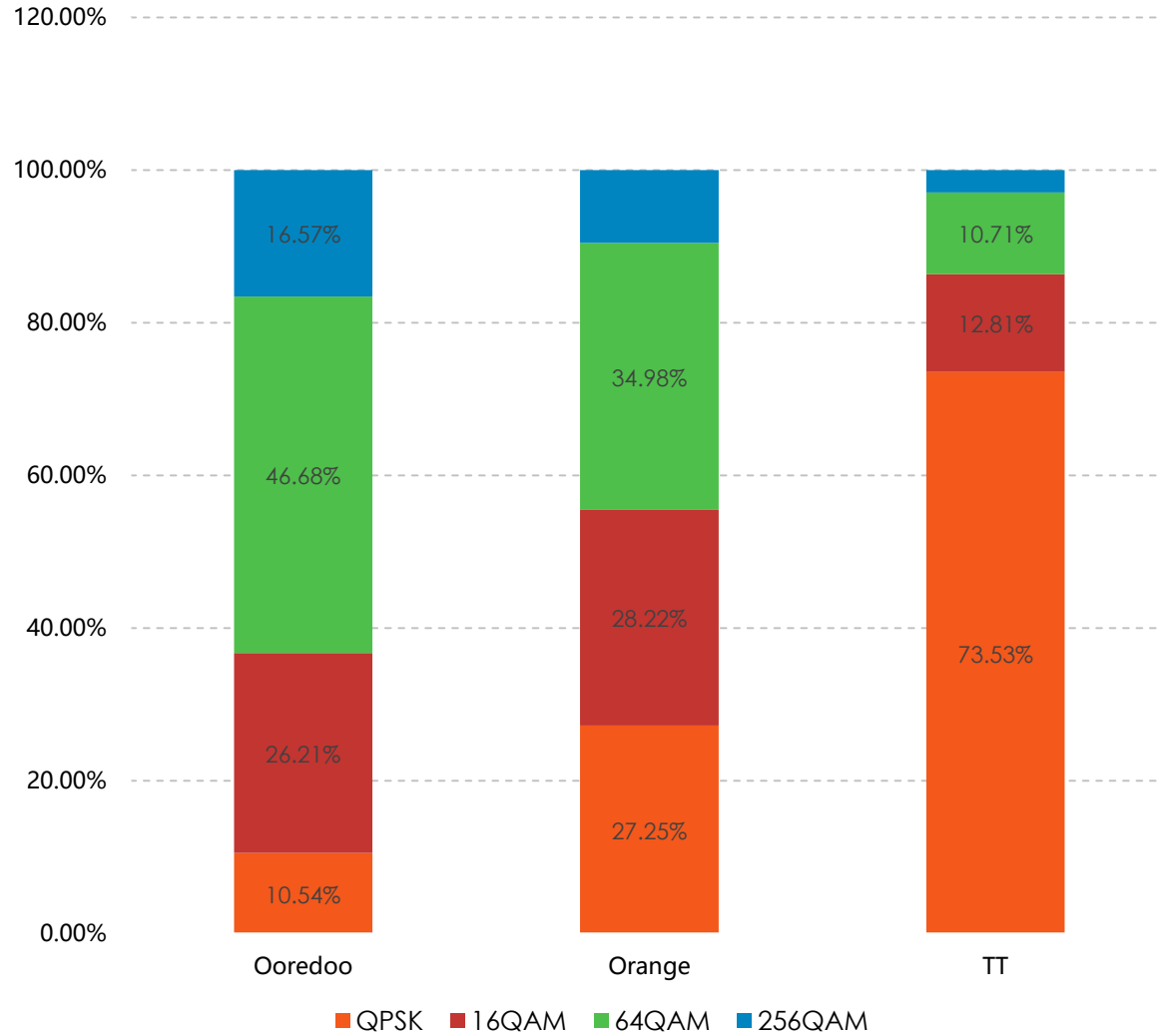


CQI and MCS Distribution

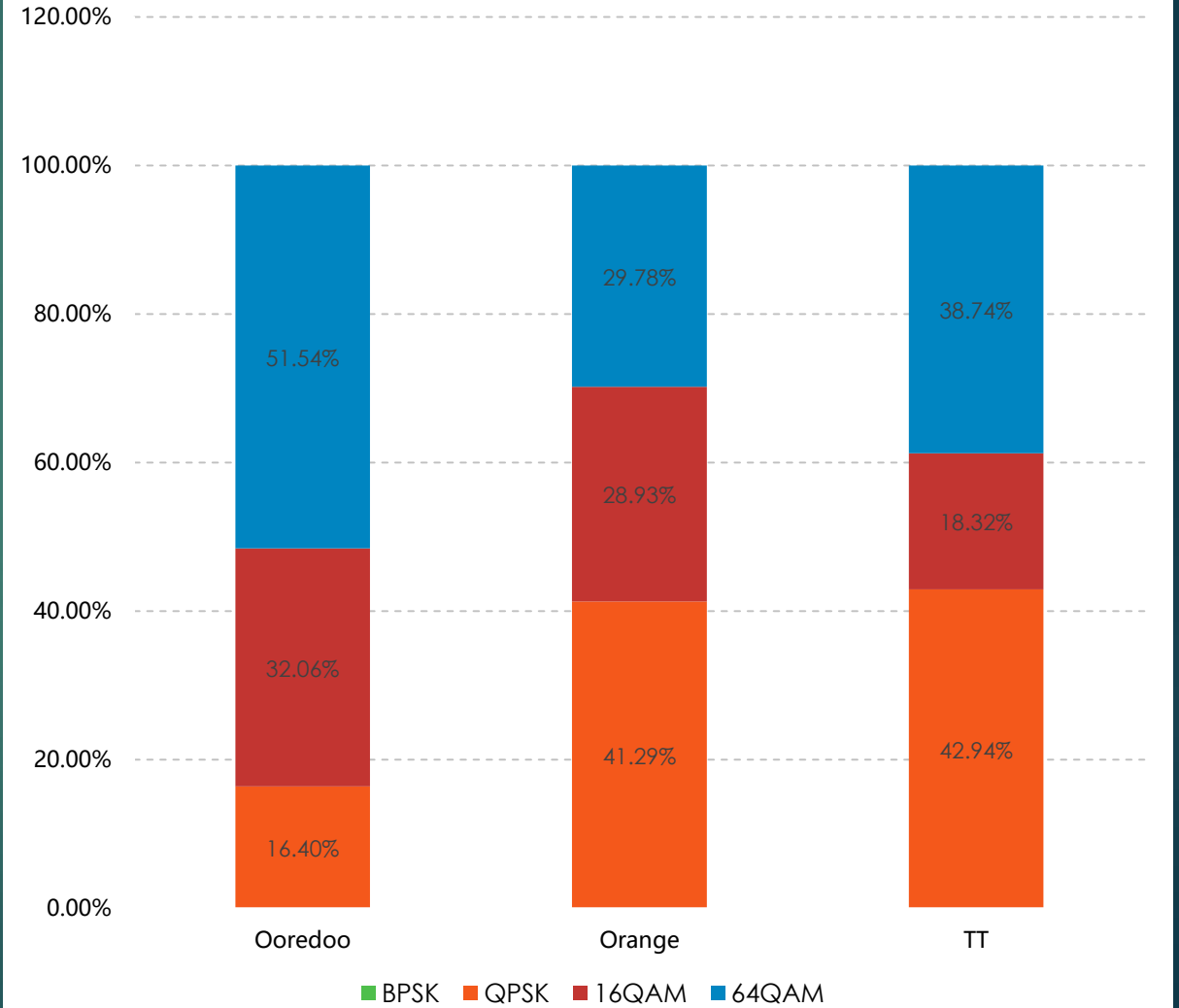


Modulation Overview

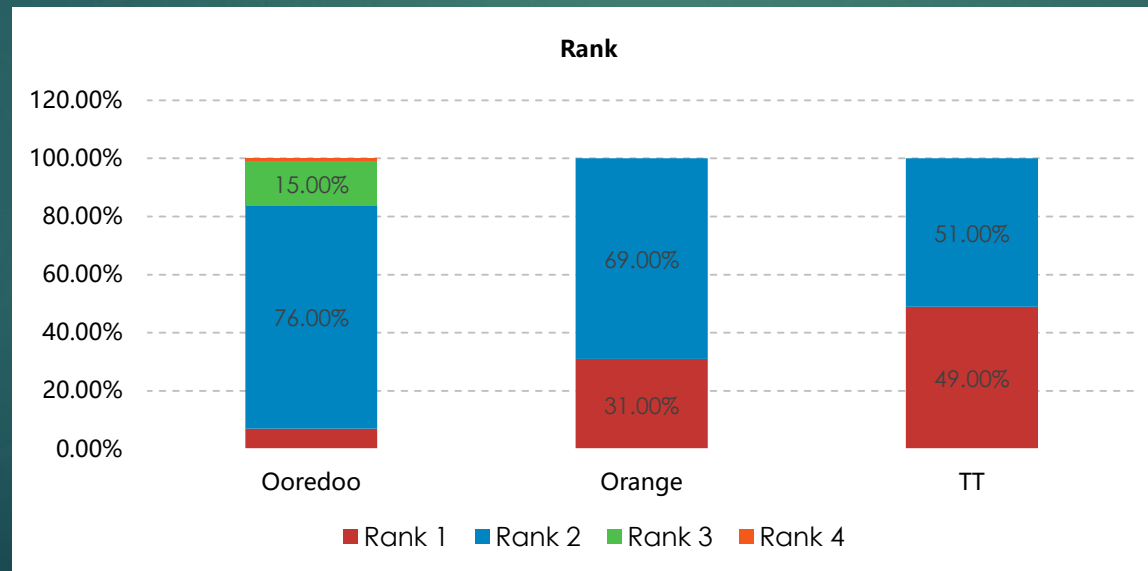
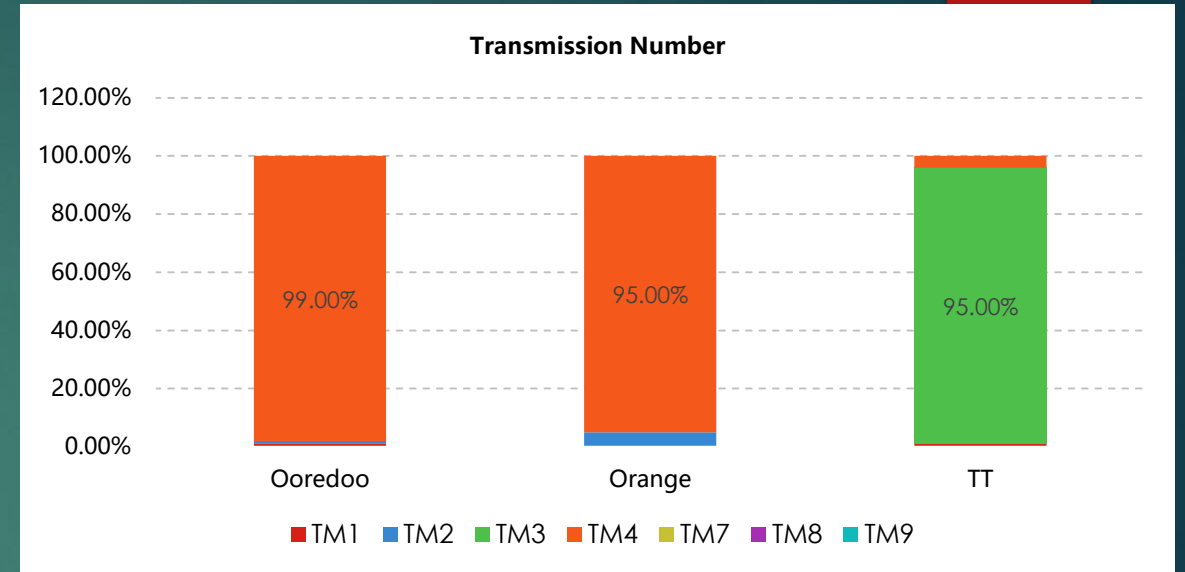
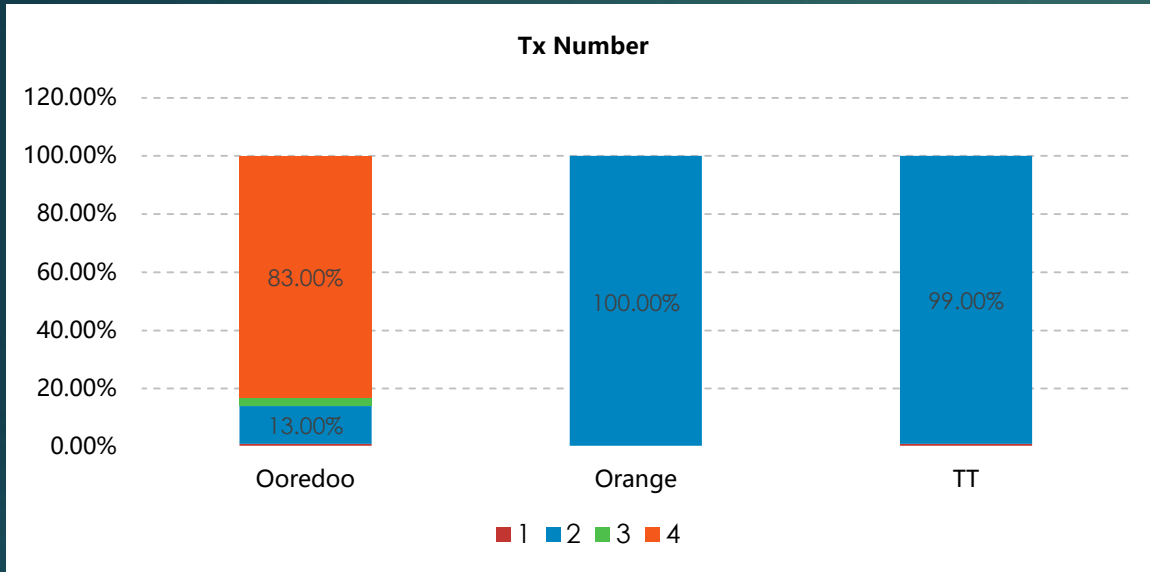
PCC_TOTAL_RATIO_DL



PCC_TOTAL_RATIO_UL



Transmission model information



1

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- ETSI Score

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- Service KQI

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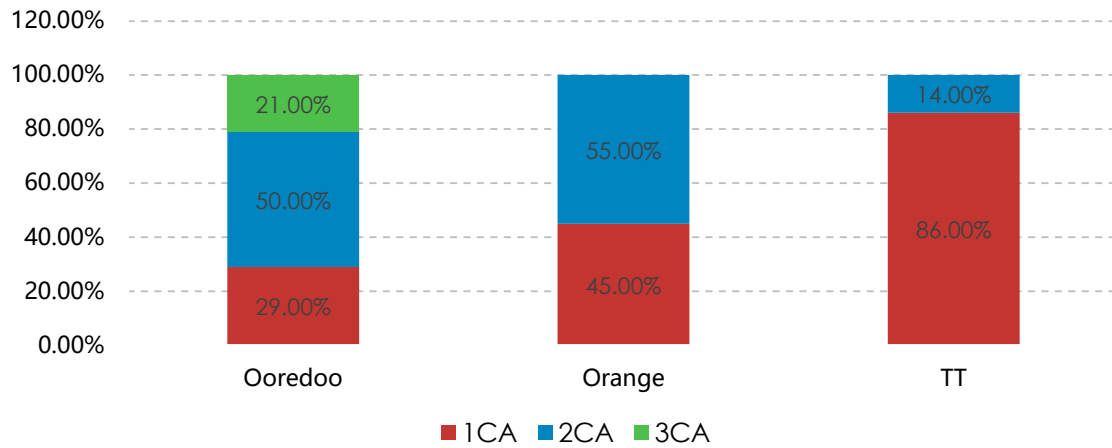
- Coverage

5

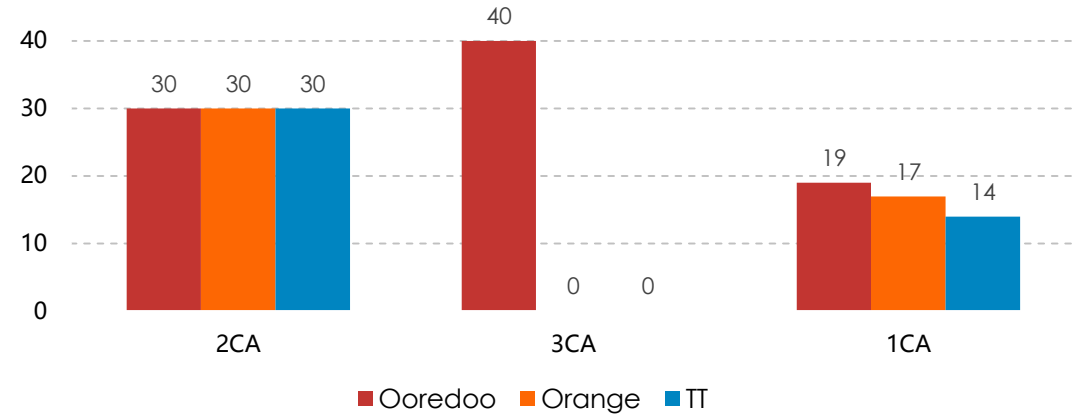
- **Site solution Capacity**

CA Distribution for 3 operator

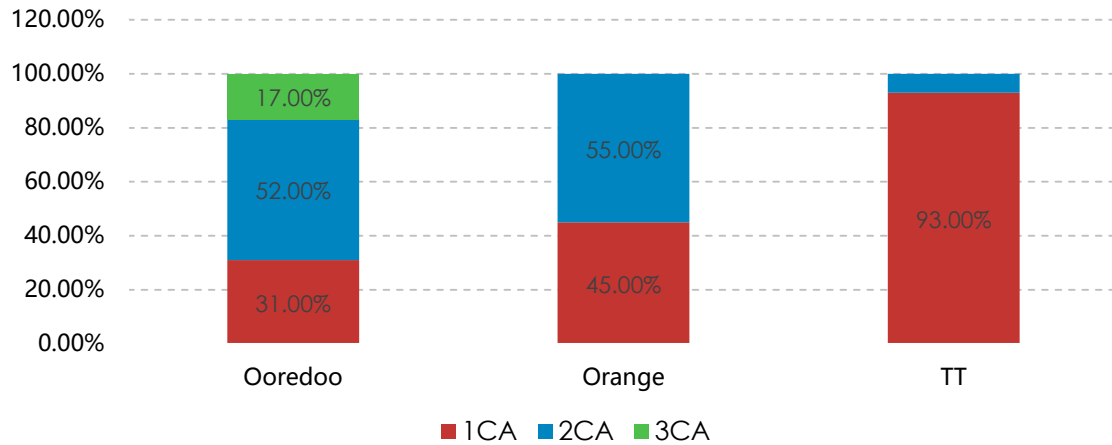
CA Ratio Total



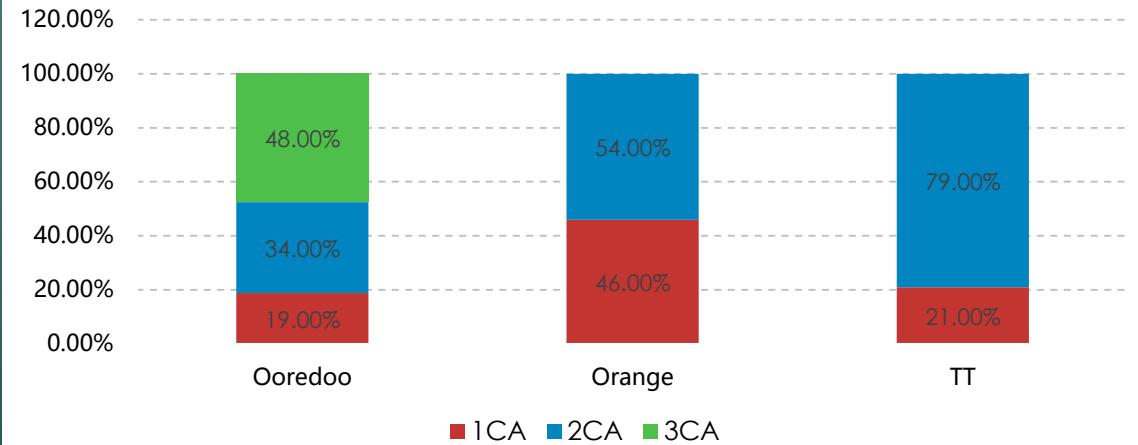
Average Bandwidth of CA



CA Ratio Of Video Testing

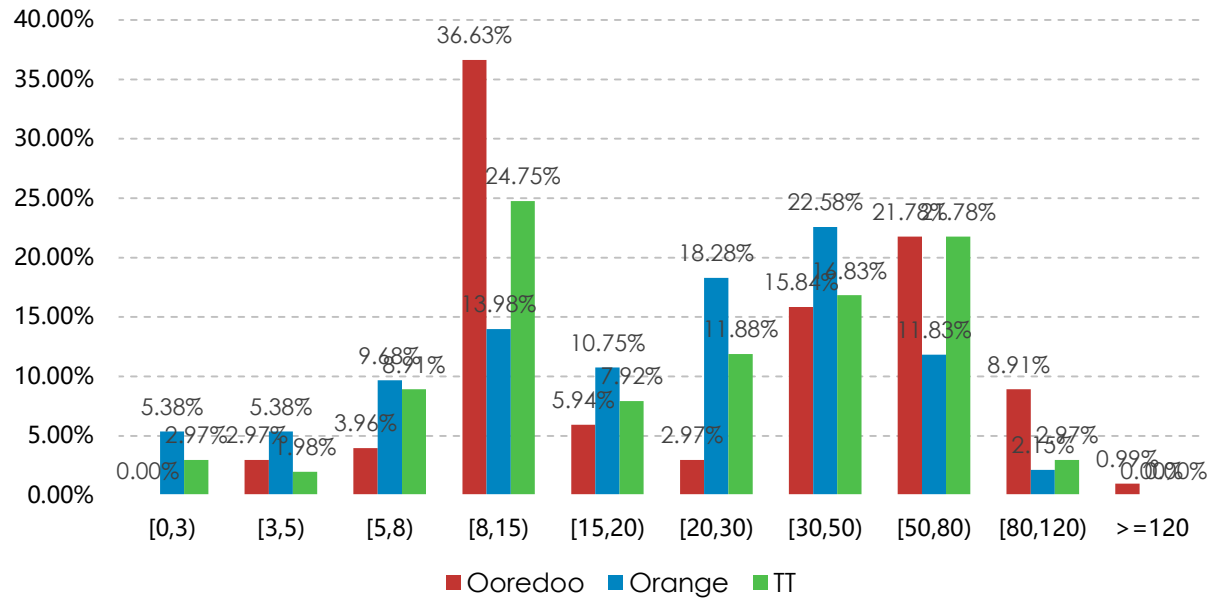


CA Ratio HTTP Download FDFS/FDFT

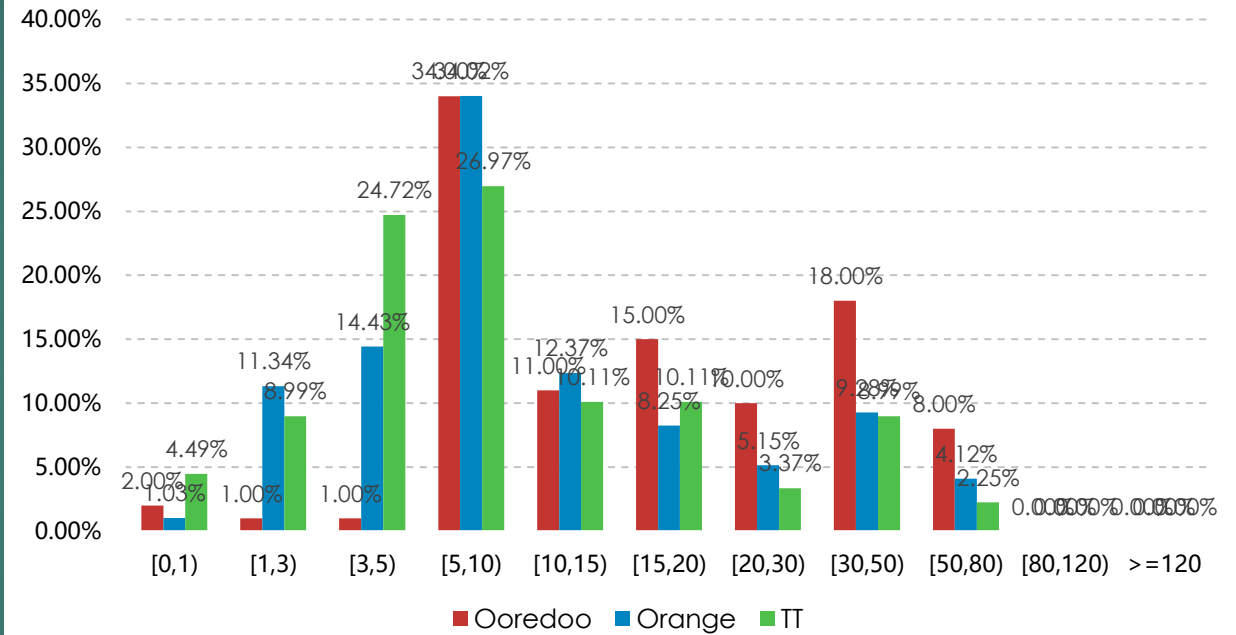


Data Throughput Distribution

Download Throughput Distribution(Mbps)

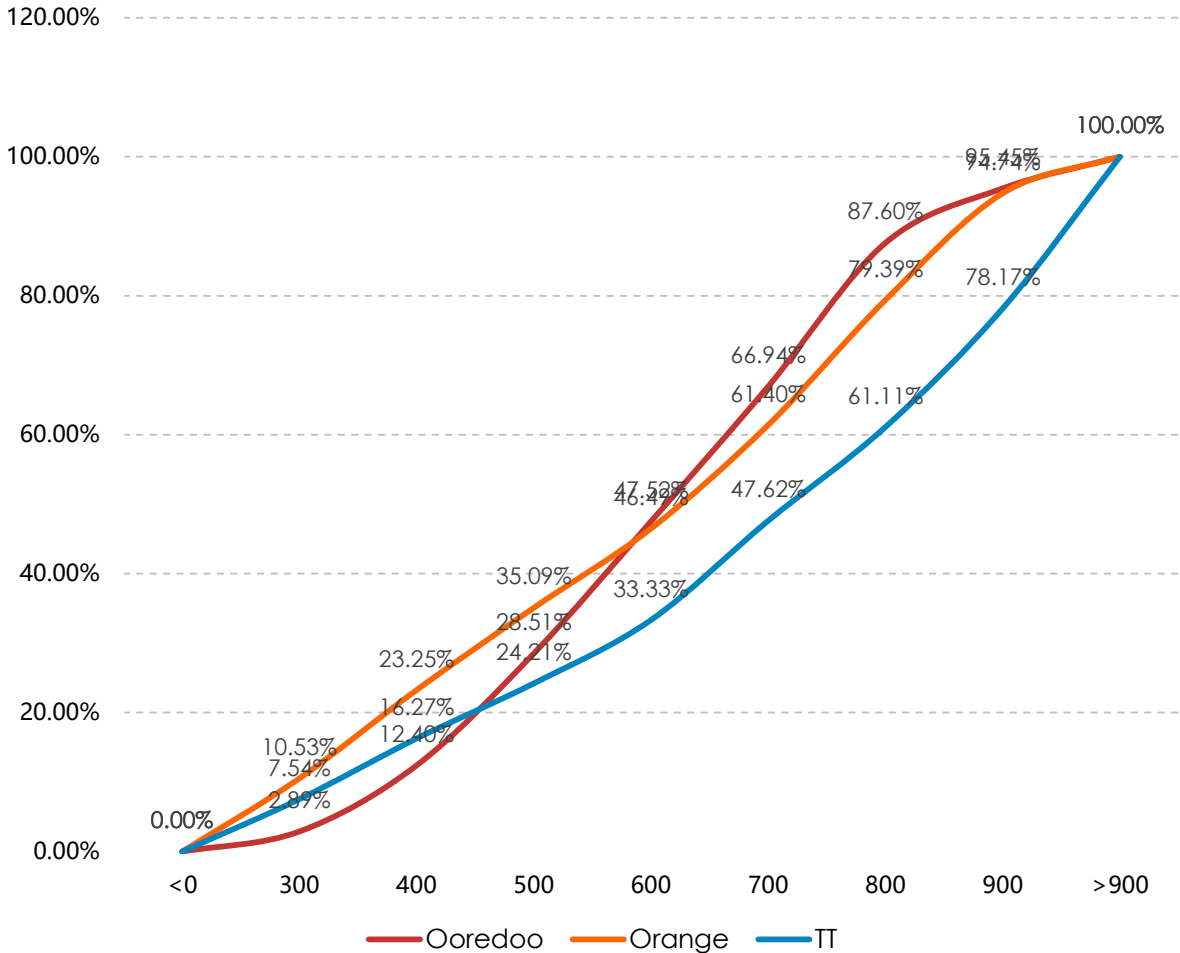


Upload Throughput Distribution(Mbps)

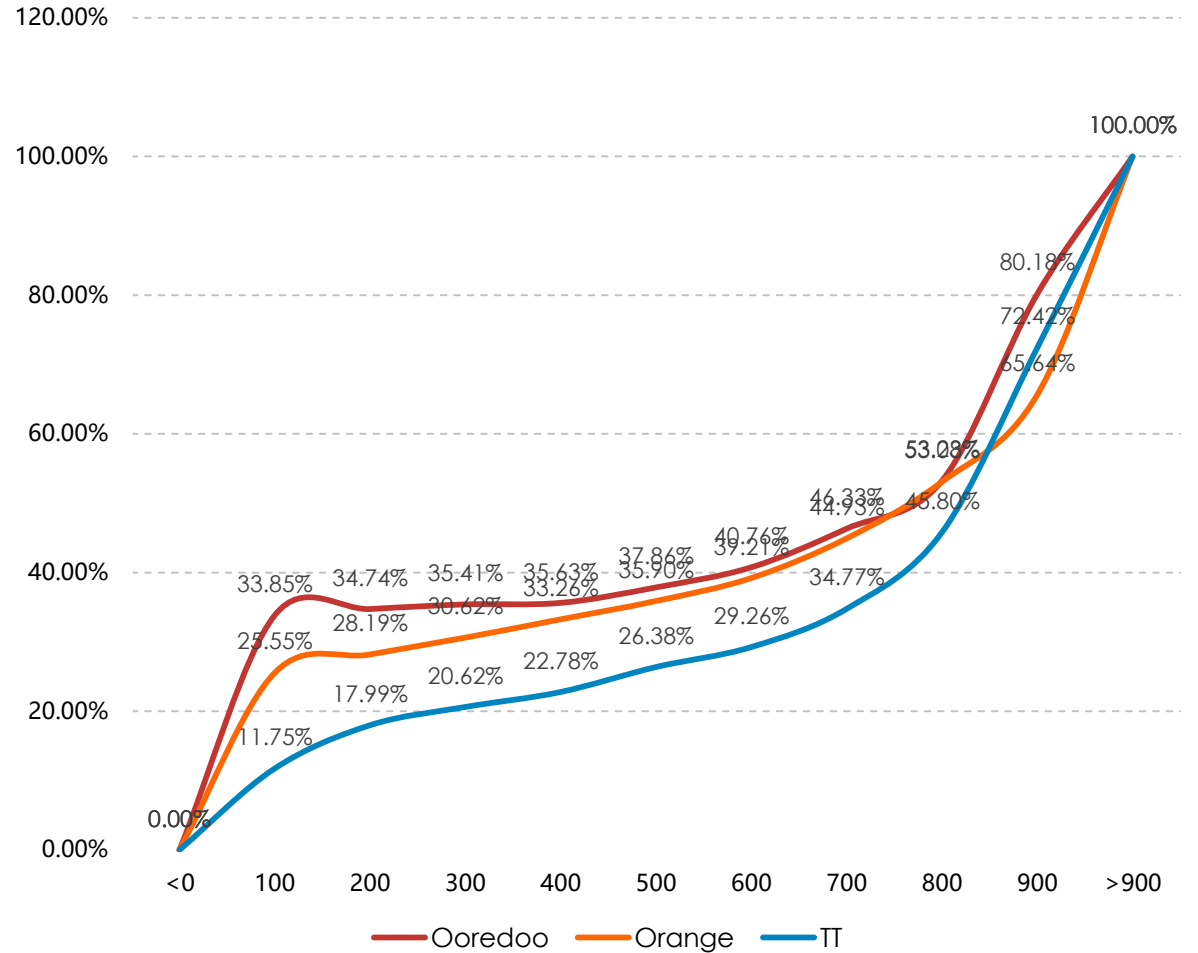


Scheduling Rate

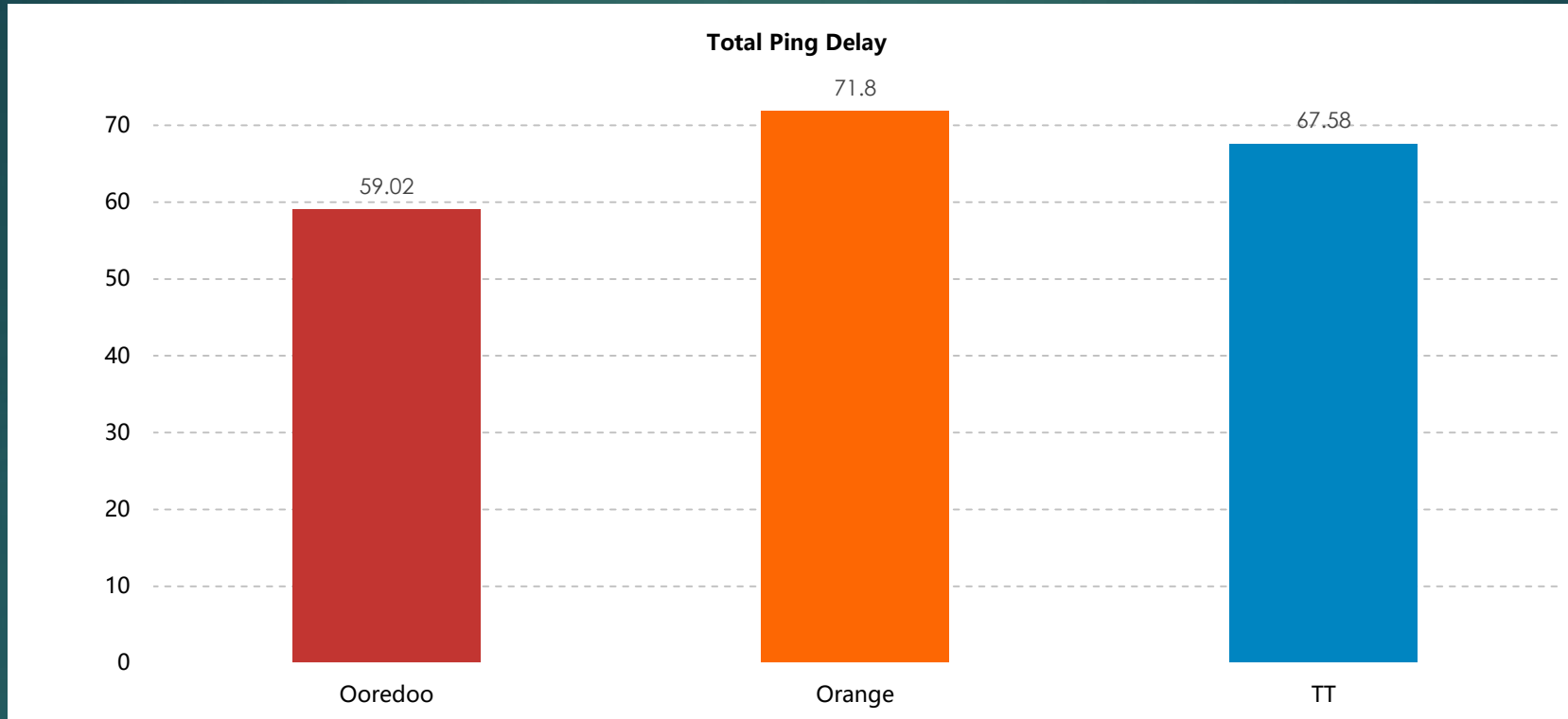
CDF: PCC_PDCCH_DL Distribution



CDF: PCC_PDCCH_UL Distribution



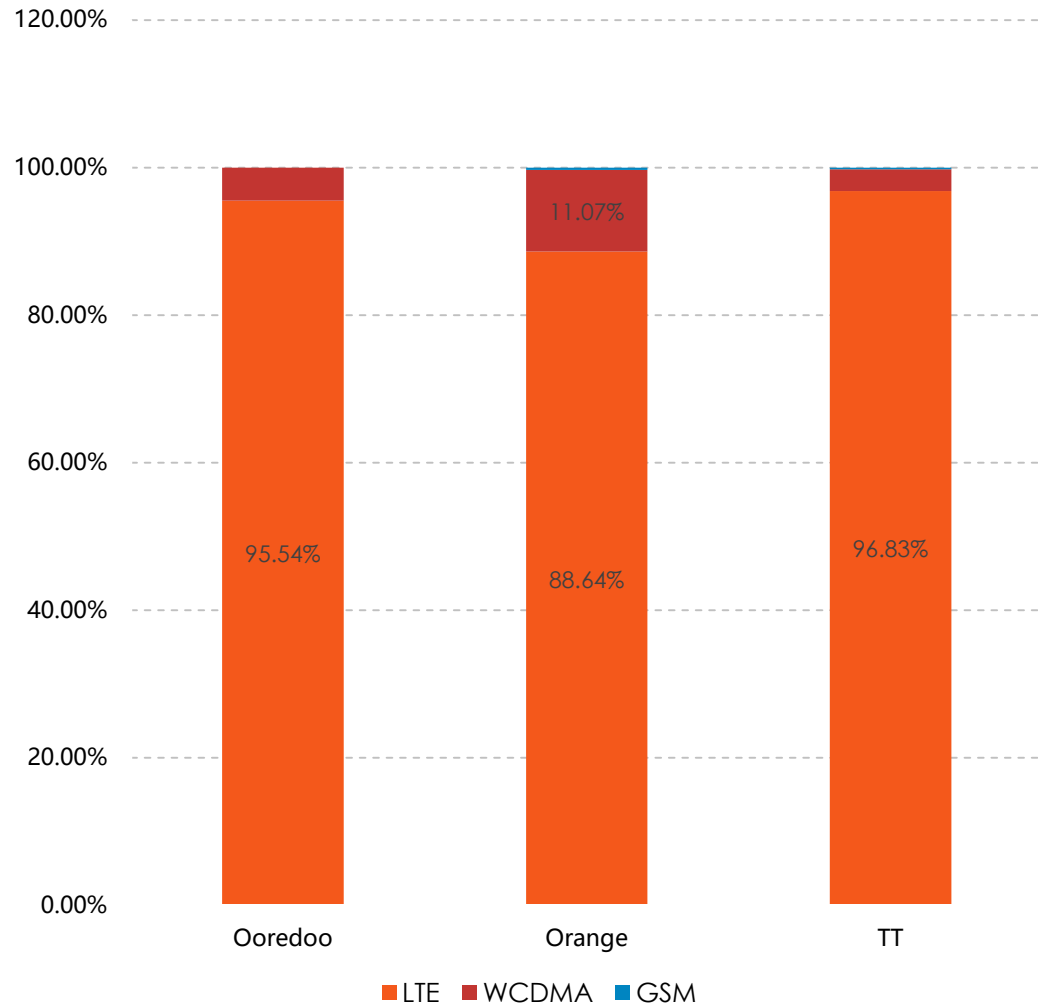
Ping Average Delay



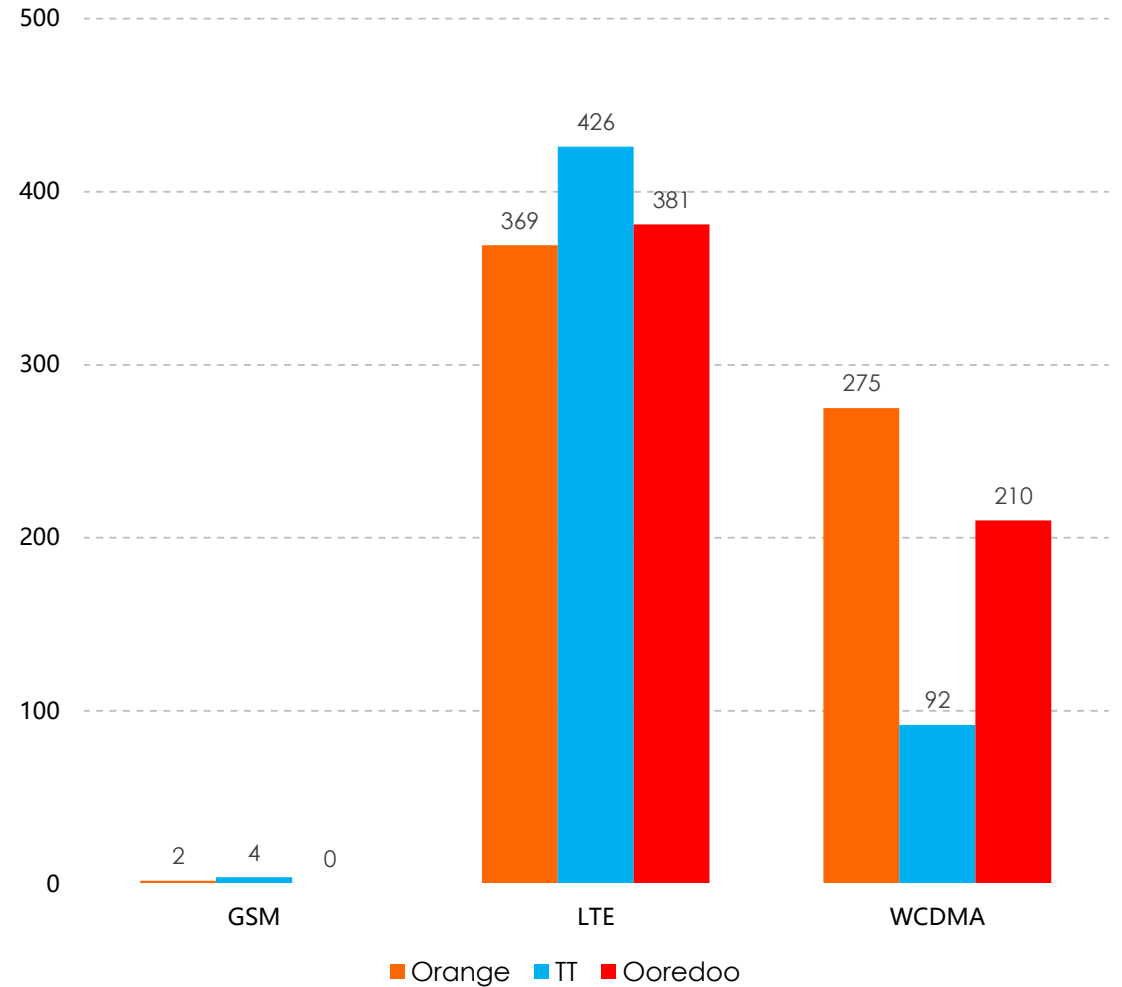
Ooredoo has the best total ping delay 59ms, then TT and finally Orange

% of Time spent per technology

Total RAT Mode



Cells numbers compare



Thanks for your attention