

# CERTIFICATE

**P3 communications GmbH**

hereby certifies that



**Orange Moldova SA**

str. Alba Iulia 75, MD-2071, Chisinau, Moldova

achieved „**Best in Test**“ with a

**Total Score of 822 of 1000**

in the **Mobile Benchmark Moldova 12/2015.**

(Score 318 of 400 in Telephony, Score 503 of 600 in Data Services)



**Maziar Kianzad**  
*Head of Network Testing  
& Benchmarking*  
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## Measurement Setup

	Voice	Data
<b>Device</b>	Samsung Galaxy S5 LTE cat4 (SM-G900F) LTE / HSPA+ DC / HSUPA 5.76 attenuation book	Samsung Galaxy Note4 LTE cat6 (SM-N910F) LTE / HSPA+ DC / HSUPA 5.76 attenuation book
<b>Test Cases</b>	Mobile-to-Mobile 3Gpref - 4G preferred (P3 Scoring) 115 sec call window 70 sec call duration 15 sec call setup timeout Email traffic injection on both sides (1 mail per call)	Data 4G preferred (P3 Scoring) Data 3G preferred HTTP UL and DL stress test 10s HTTP 1MB UL and 3MB DL fixed file transfer Web Browsing-ETSI Ref. Page Web Browsing – 4 Live Pages YouTube Video-30s clip SD and HD
<b>Mobility and Route Types</b>	100% Drivetest Big cities, small cities and connecting roads	
<b>Samples</b>	4Gpref: ~ 2450 per Operator	4Gpref ~ 1100 per Operator
<b>Dates</b>	<b>December 03rd – December 16th, 2015</b>	

## Testing Route



## Score Points and Breakdown

The following table indicates the score points achieved by the networks under test in the modules “Telephony” and “Data Services” as well as the breakdown of achieved points in the geographical categories “Big Cities”, “Small Cities” and “Connecting Roads”.

Module	Infrastructure	Max.	Orange	Operator 2	Operator 3
<b>Voice</b>	<b>Total</b>	<b>400</b>	<b>318</b>	<b>286</b>	<b>310</b>
	big cities	260	77%	71%	77%
	small cities and connecting roads	140	84%	73%	78%
<b>Data</b>	<b>Total</b>	<b>600</b>	<b>503</b>	<b>426</b>	<b>338</b>
	big cities	390	88%	80%	64%
	small cities	90	86%	51%	43%
	connecting roads	120	70%	56%	40%
<b>TOTAL</b>		<b>1.000</b>	<b>822</b>	<b>712</b>	<b>648</b>

Shown voice, data and total scores are rounded

The following table indicates the achieved percentage of the maximum score in each of the different data services.

Data	Service Group	Max.	Orange	Operator 2	Operator 3
<b>big cities</b>	Web Browsing	136,5	92%	87%	45%
	File Download	78,0	84%	82%	81%
	File Upload	78,0	85%	72%	77%
	YouTube	97,5	88%	76%	68%
<b>small cities</b>	Web Browsing	31,5	91%	61%	36%
	File Download	18,0	85%	63%	62%
	File Upload	18,0	77%	29%	60%
	YouTube	22,5	84%	46%	23%
<b>connecting roads</b>	Web Browsing	42,0	75%	62%	33%
	File Download	24,0	76%	69%	62%
	File Upload	24,0	70%	49%	52%
	YouTube	30,0	58%	43%	24%

## Voice KPI Overview

The following table indicates the achieved values of all networks under test in each of the relevant Telephony Key Performance Indicators (KPIs) for the geographical categories “Big Cities” and “Connecting Roads”.

<b>Voice M2M</b>	<b>Kpi Name</b>	<b>Unit</b>	<b>Orange</b>	<b>Operator 2</b>	<b>Operator 3</b>
<b>big cities</b>	Qualified	[%]	96,6	95,4	97,6
	Call Setup Time	[s]	5,8	4,6	6,1
	AVG Speech Quality	[MOS-LQO]	3,5	2,7	2,7
<b>small cities and connecting roads</b>	Qualified	[%]	95,9	92,3	95,5
	Call Setup Time	[s]	5,5	4,0	5,5
	AVG Speech Quality	[MOS-LQO]	3,4	2,7	2,6

## Data KPI Overview

The following table indicates the achieved values of all networks under test in each of the relevant Data Key Performance Indicators (KPIs) for the geographical categories “Big Cities”, “Small Cities” and “Connecting Roads”.

Data big cities	Kpi Name	Unit	Orange	Operator 2	Operator 3
http Live Page DL	Qualified	[%]	99,3	98,6	82,0
	AVG Session Time	[s]	3,2	3,6	3,9
http Static Page DL	Qualified	[%]	99,7	99,8	99,3
	AVG Session Time	[s]	1,4	2,0	1,6
http file DL 3MB	Qualified	[%]	100,0	99,3	99,1
	AVG Session Time	[s]	2,2	3,3	2,3
	90% faster than	[kbit/s]	5706	3459	5271
	10% faster than	[kbit/s]	45455	47244	36753
http file UL 1MB	Qualified	[%]	99,7	96,9	97,9
	AVG Session Time	[s]	1,6	4,3	2,0
	90% faster than	[kbit/s]	2812	735	1621
	10% faster than	[kbit/s]	14493	12121	14414
http DL FDTT 10s	Qualified	[%]	99,7	99,5	100,0
	AVG throughput	[kbit/s]	29851	34468	22929
	90% faster than	[kbit/s]	5169	4284	5747
	10% faster than	[kbit/s]	60089	80502	45606
http UL FDTT 10s	Qualified	[%]	99,3	99,1	99,8
	AVG throughput	[kbit/s]	20041	19706	12770
	90% faster than	[kbit/s]	2547	581	1375
	10% faster than	[kbit/s]	36758	39831	22436
Youtube SD	Qualified	[%]	99,7	98,8	93,8
	Start Time	[s]	1,3	1,5	1,5
	Playouts w/o interruptions	[%]	99,7	98,4	100,0
Youtube HD	Qualified	[%]	97,7	96,0	94,6
	Start Time	[s]	1,7	1,9	1,8
	Playouts w/o interruptions	[%]	98,6	96,2	96,7

Data small cities	Kpi Name	Unit	Orange	Operator 2	Operator 3
<b>http Live Page DL</b>	Qualified	[%]	99,2	94,3	77,4
	AVG Session Time	[s]	3,3	4,5	4,1
<b>http Static Page DL</b>	Qualified	[%]	99,6	94,6	92,4
	AVG Session Time	[s]	1,4	4,0	2,1
<b>http file DL 3MB</b>	Qualified	[%]	100,0	96,7	96,4
	AVG Session Time	[s]	2,4	6,8	6,2
	90% faster than	[kbit/s]	5076	2364	1172
	10% faster than	[kbit/s]	42254	6997	32432
<b>http file UL 1MB</b>	Qualified	[%]	98,4	87,1	93,7
	AVG Session Time	[s]	2,1	11,9	3,8
	90% faster than	[kbit/s]	1522	513	786
	10% faster than	[kbit/s]	13267	775	13093
<b>http DL FDTT 10s</b>	Qualified	[%]	100,0	99,5	96,9
	AVG throughput	[kbit/s]	33621	6199	18418
	90% faster than	[kbit/s]	5659	1858	1364
	10% faster than	[kbit/s]	66756	11005	40944
<b>http UL FDTT 10s</b>	Qualified	[%]	99,2	96,7	98,2
	AVG throughput	[kbit/s]	13855	643	8738
	90% faster than	[kbit/s]	1621	151	630
	10% faster than	[kbit/s]	29316	726	20578
<b>Youtube SD</b>	Qualified	[%]	97,6	95,7	82,1
	Start Time	[s]	1,3	2,1	1,7
	Playouts w/o interruptions	[%]	100,0	99,5	96,8
<b>Youtube HD</b>	Qualified	[%]	97,6	89,0	75,5
	Start Time	[s]	1,9	2,8	1,9
	Playouts w/o interruptions	[%]	98,8	91,9	94,8

Data connecting routes	Kpi Name	Unit	Orange	Operator 2	Operator 3
http Live Page DL	Qualified	[%]	92,5	89,9	68,8
	AVG Session Time	[s]	3,8	4,5	4,4
http Static Page DL	Qualified	[%]	93,4	91,8	84,3
	AVG Session Time	[s]	2,1	4,0	2,9
http file DL 3MB	Qualified	[%]	96,5	94,8	91,0
	AVG Session Time	[s]	6,1	8,7	7,7
	90% faster than	[kbit/s]	1727	1300	1344
	10% faster than	[kbit/s]	38585	18605	25263
http file UL 1MB	Qualified	[%]	92,2	84,0	85,3
	AVG Session Time	[s]	3,4	10,2	5,8
	90% faster than	[kbit/s]	935	518	566
	10% faster than	[kbit/s]	12945	7092	12177
http DL FDTT 10s	Qualified	[%]	95,9	99,3	94,4
	AVG throughput	[kbit/s]	18593	8159	10680
	90% faster than	[kbit/s]	1714	1011	1150
	10% faster than	[kbit/s]	51090	23051	28056
http UL FDTT 10s	Qualified	[%]	95,0	97,3	92,7
	AVG throughput	[kbit/s]	9866	3220	5387
	90% faster than	[kbit/s]	657	157	246
	10% faster than	[kbit/s]	28174	10201	18140
Youtube SD	Qualified	[%]	93,9	93,1	75,9
	Start Time	[s]	2,0	2,3	2,5
	Playouts w/o interruptions	[%]	98,6	98,5	97,2
Youtube HD	Qualified	[%]	82,8	79,0	69,4
	Start Time	[s]	2,4	3,3	3,1
	Playouts w/o interruptions	[%]	91,9	84,8	89,7