

# 2023 Orange Group DSBO campaign in Slovakia

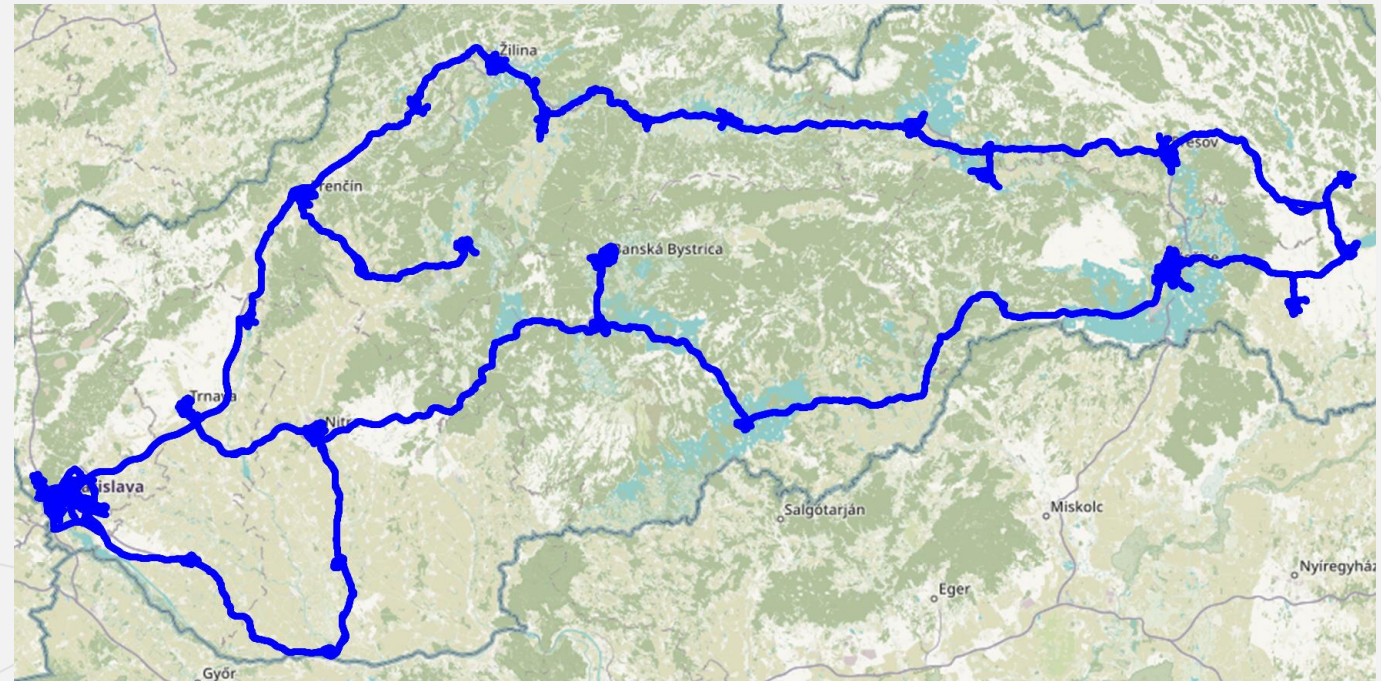
Campaign results

# Change History

Version	Date	Changes
1.0	07/Sep/2023	Initial version

# Campaign methodology

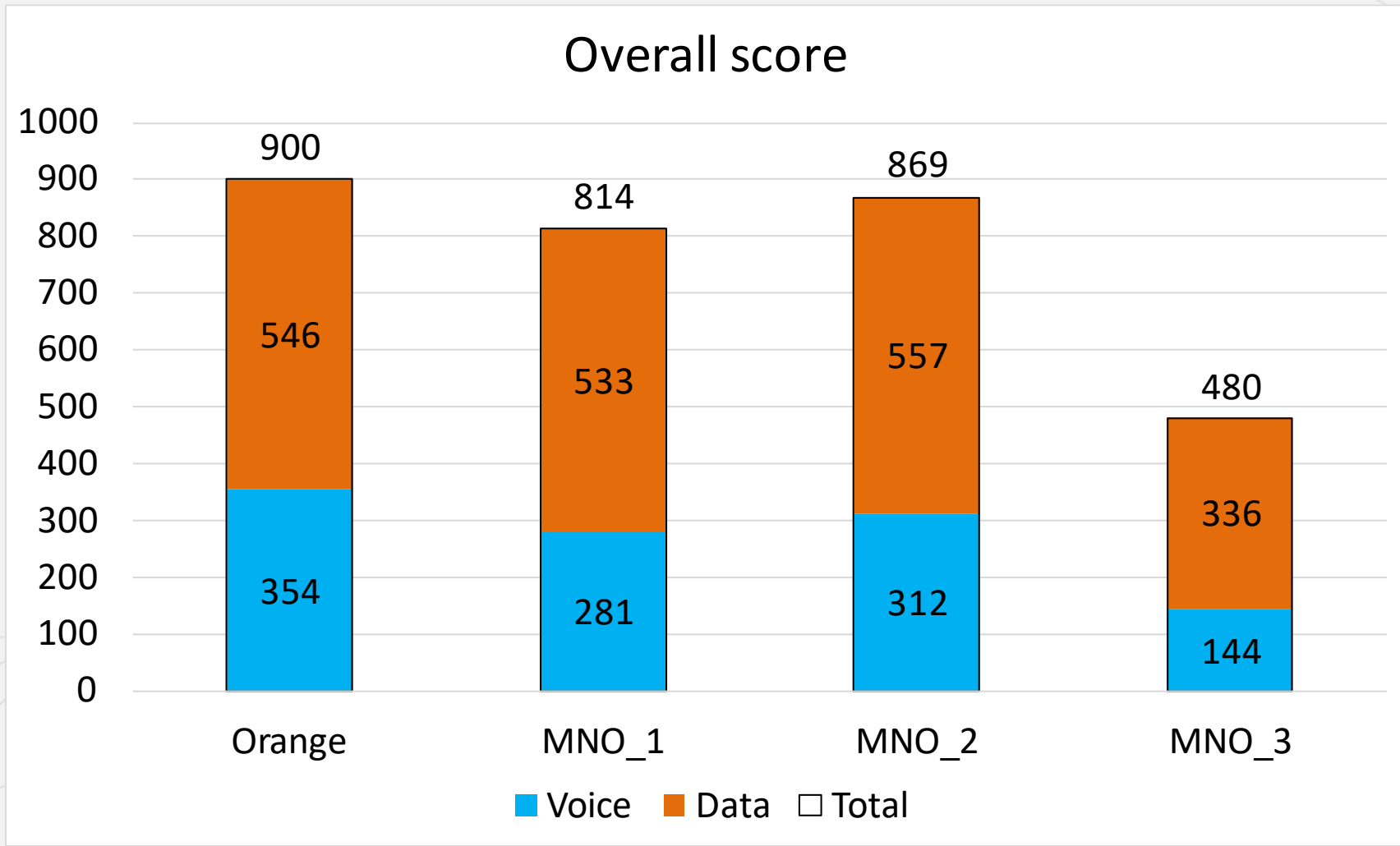
- » Measurements were conducted by driving 2 cars with Rohde & Schwarz equipment across Slovakia. Smartphones were installed in-car, such that the measurements represent in-car performance
- » The campaign was conducted between 1/June/2023 and 22/June/2023, including more than 110 hours of drive tests per car.
- » Big cities, small cities & conn.roads were selected based on their importance and population
- » A total distance of roughly 3,700 km was covered during the tests; over 2,600 voice calls were made on each network; and over 22,000 data tests were conducted per network.



# Campaign setup

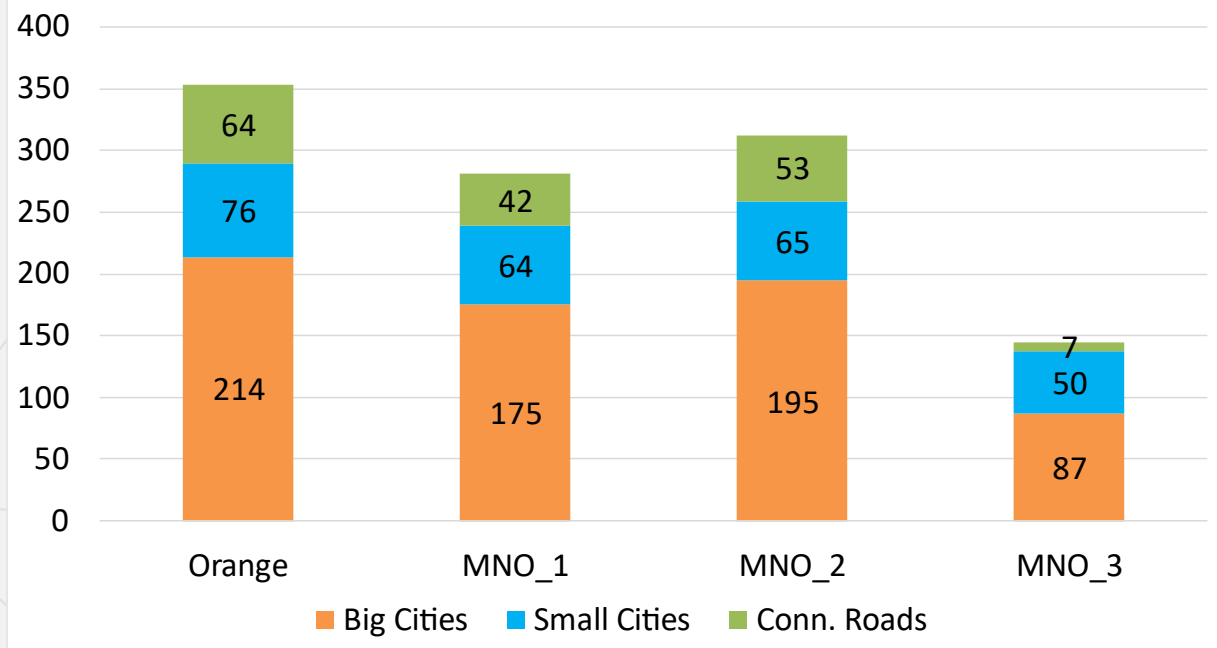
	Voice	Data
Device	Samsung Galaxy S22+	Samsung Galaxy S22+
Test cases	Mobile-to-mobile calls Best available voice technology 115 sec call window 85 sec call duration 15 sec call setup time out HTTP 100kB traffic injection per call	Data 5G preferred HTTP DL & UL multi-stream tests 7s HTTPS 10MB DL & 5MB UL file transfers 8 live web pages YouTube FHD live stream ~ 30s YouTube UHD buffered stream ~ 45s
Routes	Drive tests in Big cities (58%), Small cities (20%), Conn.Roads (22%)	
Scoring	Orange Group methodology, based on ETSI TR 103 559	

# Overall score per service

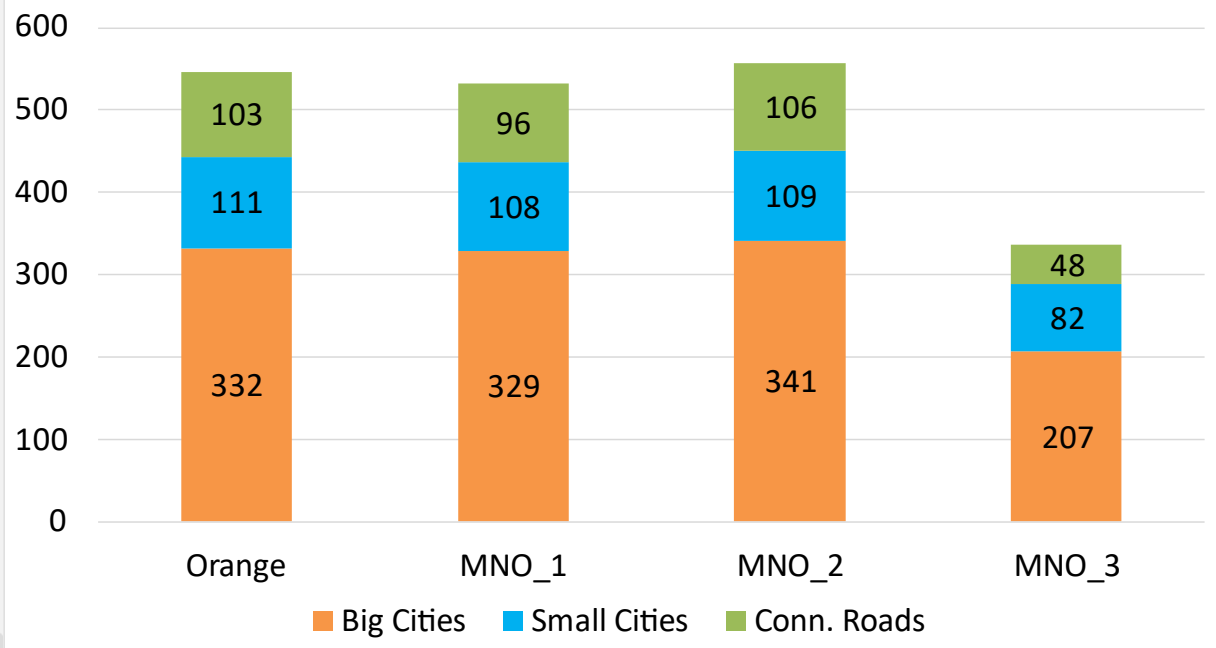


# Data & voice score breakdown per area

### Voice score breakdown per area



### Data score breakdown per area



# Voice & data service KPIs overview - Big cities

» Big cities aggregation voice & data service KPIs overview

BIG CITIES SUMMARY			ORANGE	MNO_1	MNO_2	MNO_3
VOICE/VOLTE M2M	QUALIFIED	[%]	98.6%	97.0%	97.5%	90.7%
	CALL SETUP TIME	[sec]	2.3	2.6	2.6	2.7
	AVG SPEECH QUAL	[#]	4.5	3.9	4.4	3.6
HTTP DOWNLOAD FDTT (7s)	QUALIFIED	[%]	99.4%	99.5%	99.9%	94.4%
	AVERAGE DATA RATE	[Mbps]	214.9	156.6	182.2	51.1
	P10 DATA RATE	[Mbps]	57.6	24.2	55.8	7.2
	P90 DATA RATE	[Mbps]	420.4	308.2	342.2	132.7
HTTP UPLOAD FDTT(7s)	QUALIFIED	[%]	99.1%	99.7%	99.6%	98.7%
	AVERAGE DATA RATE	[Mbps]	50.6	43.9	64.4	29.6
	P10 DATA RATE	[Mbps]	14.4	11.1	20.5	11.4
	P90 DATA RATE	[Mbps]	83.7	83.5	105.9	44.4
HTTP FILE DL (10MB)	QUALIFIED	[%]	99.3%	99.4%	99.9%	95.1%
	AVERAGE SESSION TIME	[sec]	1.6	2.1	1.5	5.4
	P10 DATA RATE	[Mbps]	35.7	18.6	35.3	6.6
	P90 DATA RATE	[Mbps]	134.5	194.4	128.7	78.9
HTTP FILE UL(5 MB)	QUALIFIED	[%]	98.9%	99.7%	99.5%	98.2%
	AVERAGE SESSION TIME	[sec]	2.8	2.9	2.4	4.6
	P10 DATA RATE	[Mbps]	7.4	7.4	9.6	3.7
	P90 DATA RATE	[Mbps]	57.1	57.3	67.6	34.6
HTTP LIVE PAGE DL	QUALIFIED	[%]	98.7%	98.9%	99.5%	56.4%
	TIME TO 1st 1000kByte	[sec]	1.3	1.3	1.4	1.7
YouTube STREAMING HD	QUALIFIED	[%]	99.5%	99.7%	99.8%	93.3%
	START TIME	[sec]	0.7	0.7	0.7	1.5
	VMOS	[#]	4.3	4.3	4.3	4.2
YouTube STREAMING 4k	QUALIFIED	[%]	99.6%	100.0%	99.8%	95.3%
	START TIME	[sec]	0.4	0.4	0.4	1.0
	VMOS	[#]	4.6	4.5	4.5	4.5

# Voice & data service KPIs overview - Small cities

» Small cities aggregation voice & data service KPIs overview

BIG CITIES SUMMARY			ORANGE	MNO_1	MNO_2	MNO_3
VOICE/VOLTE M2M	QUALIFIED	[%]	99.6%	98.3%	97.7%	95.8%
	CALL SETUP TIME	[sec]	2.4	2.9	2.6	2.6
	AVG SPEECH QUAL	[#]	4.5	3.9	4.2	3.6
HTTP DOWNLOAD FDTT (7s)	QUALIFIED	[%]	100.0%	99.2%	99.5%	98.3%
	AVERAGE DATA RATE	[Mbps]	150.1	142.0	106.8	36.5
	P10 DATA RATE	[Mbps]	38.7	14.3	23.2	10.7
	P90 DATA RATE	[Mbps]	336.7	302.5	229.4	64.7
HTTP UPLOAD FDTT(7s)	QUALIFIED	[%]	99.2%	100.0%	100.0%	99.4%
	AVERAGE DATA RATE	[Mbps]	38.7	32.6	43.3	29.5
	P10 DATA RATE	[Mbps]	8.6	8.7	6.7	13.1
	P90 DATA RATE	[Mbps]	70.5	64.6	96.9	44.2
HTTP FILE DL (10MB)	QUALIFIED	[%]	100.0%	99.7%	99.5%	98.8%
	AVERAGE SESSION TIME	[sec]	1.5	2.8	2.2	4.2
	P10 DATA RATE	[Mbps]	36.0	12.0	20.9	10.0
	P90 DATA RATE	[Mbps]	122.1	185.6	119.5	58.7
HTTP FILE UL(5 MB)	QUALIFIED	[%]	98.7%	99.7%	100.0%	99.4%
	AVERAGE SESSION TIME	[sec]	3.7	3.5	4.2	3.1
	P10 DATA RATE	[Mbps]	5.8	6.3	4.4	8.0
	P90 DATA RATE	[Mbps]	50.5	47.3	56.8	34.2
HTTP LIVE PAGE DL	QUALIFIED	[%]	99.7%	99.5%	99.6%	58.1%
	TIME TO 1st 1000kByte	[sec]	1.3	1.4	1.4	1.6
YouTube STREAMING HD	QUALIFIED	[%]	100.0%	100.0%	100.0%	95.3%
	START TIME	[sec]	0.7	0.8	0.8	1.5
	VMOS	[#]	4.2	4.2	4.2	4.2
YouTube STREAMING 4k	QUALIFIED	[%]	100.0%	100.0%	100.0%	96.3%
	START TIME	[sec]	0.3	0.4	0.4	1.0
	VMOS	[#]	4.6	4.5	4.5	4.5



# Voice & data service KPIs overview - Conn. Roads

» Conn. Roads aggregation voice & data service KPIs overview

BIG CITIES SUMMARY			ORANGE	MNO_1	MNO_2	MNO_3
VOICE/VOLTE M2M	QUALIFIED	[%]	96.1%	90.1%	93.7%	52.9%
	CALL SETUP TIME	[sec]	2.6	3.1	2.8	3.5
	AVG SPEECH QUAL	[#]	4.3	3.7	3.8	3.0
HTTP DOWNLOAD FDTT (7s)	QUALIFIED	[%]	98.6%	93.9%	98.4%	84.2%
	AVERAGE DATA RATE	[Mbps]	92.3	79.0	78.0	33.9
	P10 DATA RATE	[Mbps]	12.6	6.5	8.5	5.9
	P90 DATA RATE	[Mbps]	212.5	208.9	194.3	65.4
HTTP UPLOAD FDTT(7s)	QUALIFIED	[%]	96.9%	96.6%	98.8%	85.5%
	AVERAGE DATA RATE	[Mbps]	28.2	25.2	32.9	19.7
	P10 DATA RATE	[Mbps]	2.7	4.6	5.5	2.7
	P90 DATA RATE	[Mbps]	62.9	58.0	69.6	40.5
HTTP FILE DL (10MB)	QUALIFIED	[%]	98.4%	94.6%	98.6%	87.1%
	AVERAGE SESSION TIME	[sec]	3.4	5.2	4.7	6.1
	P10 DATA RATE	[Mbps]	10.7	5.9	7.0	5.9
	P90 DATA RATE	[Mbps]	97.8	141.3	103.7	59.7
HTTP FILE UL(5 MB)	QUALIFIED	[%]	96.7%	97.1%	99.3%	88.0%
	AVERAGE SESSION TIME	[sec]	6.7	6.3	6.7	9.9
	P10 DATA RATE	[Mbps]	2.3	2.9	2.2	1.9
	P90 DATA RATE	[Mbps]	45.0	44.1	52.1	31.2
HTTP LIVE PAGE DL	QUALIFIED	[%]	97.0%	97.6%	99.3%	51.0%
	TIME TO 1st 1000kByte	[sec]	1.5	1.6	1.6	1.8
YouTube STREAMING HD	QUALIFIED	[%]	98.6%	98.1%	100.0%	87.7%
	START TIME	[sec]	0.9	0.9	0.9	1.8
	VMOS	[#]	4.3	4.2	4.3	4.2
YouTube STREAMING 4k	QUALIFIED	[%]	99.0%	98.9%	99.5%	77.5%
	START TIME	[sec]	0.4	0.5	0.5	1.2
	VMOS	[#]	4.5	4.5	4.5	4.5



EXPERTS IN **RADIO ACCESS** AND **MOBILE DATA**

Commsquare NV  
Dellingstraat 34/1, 2800 Mechelen, Belgium  
T: +32 15 52 88 74

Commsquare Hellas  
Paparrigopoulou 21, 15343 Ag. Paraskevi, Athens, Greece  
T: +30 210 64 45 022

Commsquare Ltd  
Third floor Connexions Building  
159 Princes Street Ipswich Suffolk IP11QJ, UK  
T: +44 1473 487 130

Regional Office Jordan  
25 Otbah Ben Ghazwan Street, Suite 205, Amman, Jordan  
T: +962 6 200 5688

[www.commsquare.com](http://www.commsquare.com)