

best in test.

For adding something on top in South Africa and reaching an overall score of 921 dots in mobile network benchmarking survey we proudly award this certificate to

MTN South Africa

Score 921 out of 1000 in Total
Score 258 out of 270 in Voice Services
Score 445 out of 480 in Data Services
Score 218 out of 250 in Crowdsourced Quality



Hakan Ekmen
Global Networks Lead, Comms Industry





Measurement Overview

umlaut tested and measured the performance of its voice and data services on smartphones in comparison to other 5G/LTE mobile radio networks in metropolitan and rural areas of South Africa.

The audit was done as a performance benchmark performed by umlaut between 09.09.2024 and 02.10.2024 in cities and towns as well as on connection roads.

Dedicated measurements have been executed as drive tests outdoors using a Samsung Galaxy S23+.

All data measurements have been performed in 5G preferred mode. Voice measurements have been done in 5G/5G preferred mode on both sides, while call origin has been alternated.

In addition crowdsourced performance data has been collected and evaluated between CW16 2024 and CW39 2024.

The following pages provide a comparative overview about the performance results observed for the different tested service types.



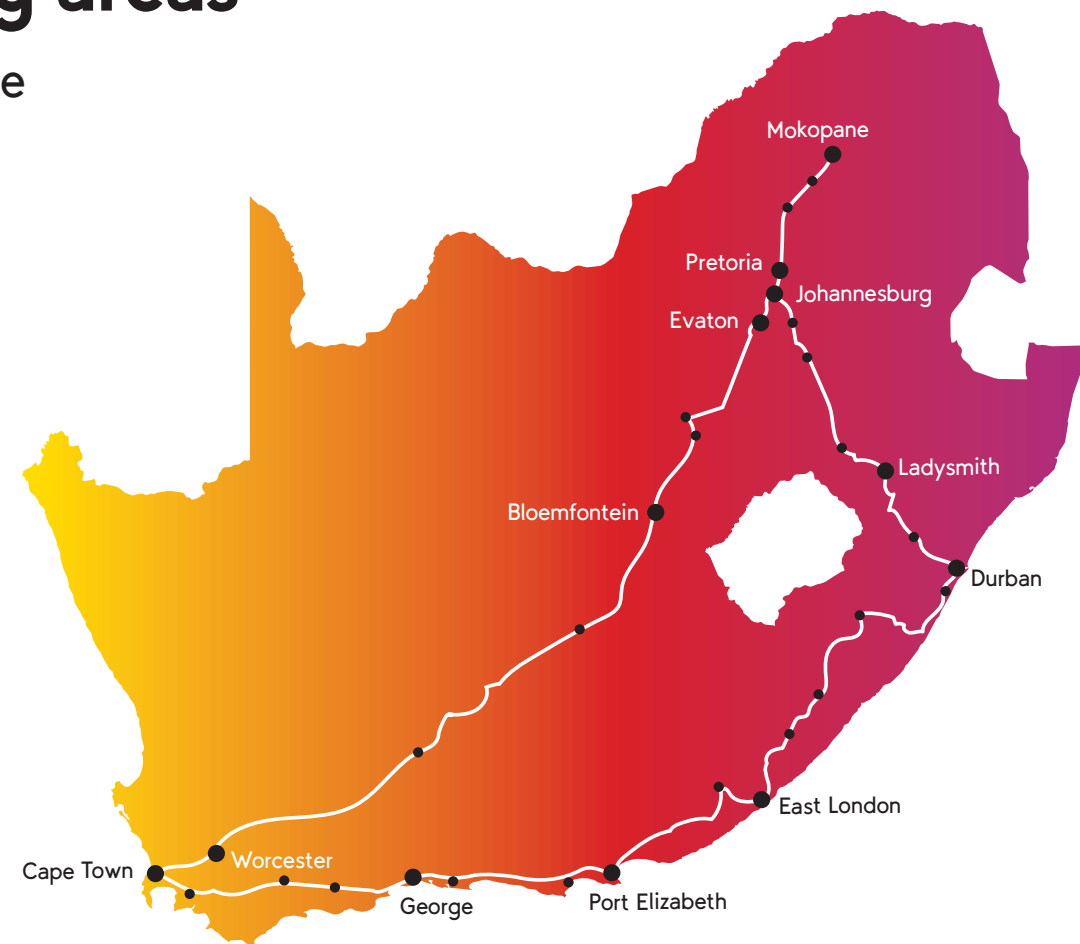
Measurement setup

Drivetest	Voice	Data
Device	Samsung Galaxy S23+	Samsung Galaxy S23+
Test Cases	Mobile-to-Mobile (M2M) Side1 (5G preferred: Volte) to Side2 (5G preferred: Volte) 105 sec call window 70 sec call duration 15 sec call setup timeout Multi-RAB traffic injection on both sides Conversational App – OTT	Data 5G preferred CA HTTP DL datastream 7s HTTP UL datastream 7s HTTP 10MB DL fixed file transfer HTTP 5MB UL fixed file transfer Web Browsing – Kepler ETSI Ref. Page 10 Live web pages 1 YouTube HD video ~ 45s 1 YouTube 4k video ~ 45s 1 YouTube live stream ~ 45
Mobility and Route Types	Drive test 100% 50–70% in Cities, 10–25% in Towns and 10–40% on Roads	
Samples	18,801	165,014
Dates	21 measurement days 09.09.2024 – 02.10.2024	
Crowd Data Assessment	24 weeks CW16 2024 – CW39 2024	



Testing areas

Drive route

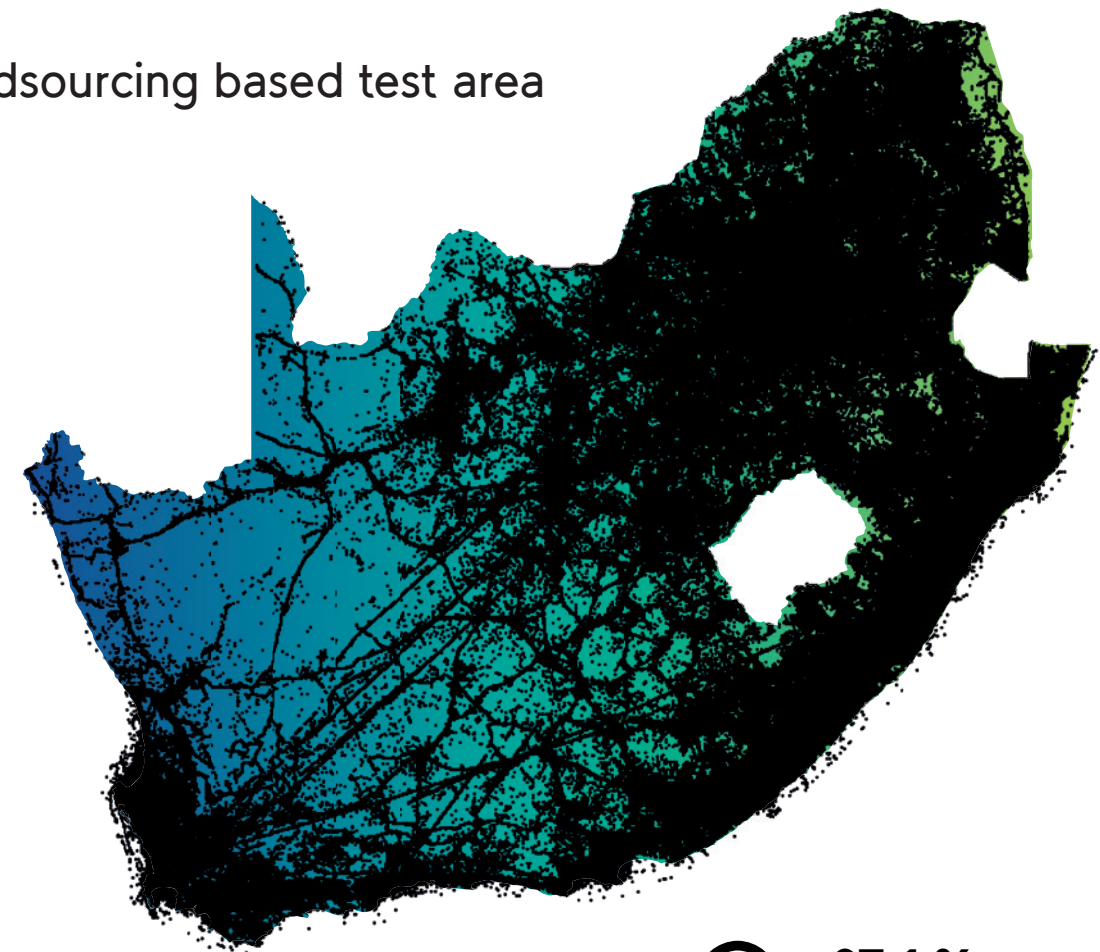


8582 km
measuring distance



37.3 %
of population measured

Crowdsourcing based test area



97.1 %
of the 'built-up area' covered



644,984 km²
size of tested area



99.4 %
of the 'Population area' covered



Claims




Best in test
MTN South Africa




Best in data
MTN South Africa



Best in voice
MTN South Africa



Best in Reliability
MTN South Africa



Best in crowd-sourced quality
MTN South Africa



Methodology

The leader in mobile benchmarking, umlaut, has analyzed the mobile networks of South Africa with regards to mobile network performance. We measure smartphone voice and data performance based on extensive drivetests – from major metropolitan areas to smaller cities and connection roads.

We objectively define the routes and test methodology and publish the results through certificates or public benchmark reports. In addition crowdsourced performance data has been collected and evaluated.

As the de-facto industry standard, our benchmarking methodology focuses on customer-experienced network quality and covers a wide range of mobile services.

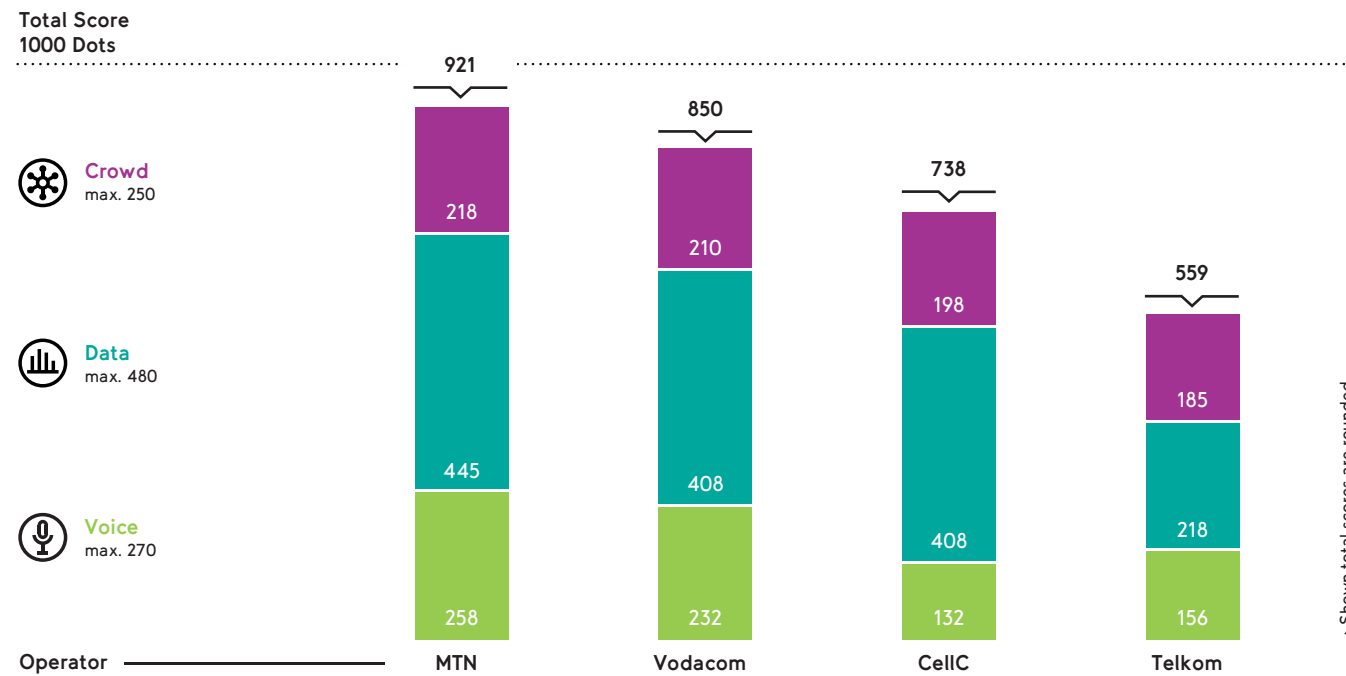
Today, more than 200 mobile networks in more than 120 countries are being evaluated by our unique scoring methodology.

It allows a technical analysis that is unprecedented in its level of detail and enables comparisons between the network performance and capability of each mobile network. Our public benchmarks as well as the certificate benchmarks help network operators to demonstrate how well they are delivering wireless connections to consumers, business users and enterprises and reveals the areas of improvement.



Score and breakdown

MTN South Africa achieved the highest overall score among competitors with 921 dots out of 1000.



→ Shown total scores are rounded.

Overall score considering Voice, Data and Crowdsourcing.

Total score

		MTN	Vodacom	CellC	Telkom
Voice	max. 270	258	232	132	156
Cities Drivetest	162	97%	86%	44%	60%
Towns Drivetest	54	98%	92%	70%	82%
Roads Drivetest	54	88%	79%	41%	28%
Data	max. 480	445	408	408	218
Cities Drivetest	288	94%	87%	86%	41%
Towns Drivetest	96	92%	84%	85%	49%
Roads Drivetest	96	89%	80%	81%	56%
Crowdsourced Quality	max. 250	218	210	198	185
Broadband Coverage	100	92%	93%	88%	88%
Download Speed	55	84%	72%	76%	59%
Upload Speed	20	84%	76%	75%	48%
Latency	50	83%	79%	80%	66%
Voice	10	84%	91%	1%	90%
Stability	15	89%	90%	85%	86%
Total	1000	921	850	738	559

Shown scores are rounded.



Achieved percentage of the maximum score in each of the different data services.

Data	Service Group	max	MTN	Vodacom	CellC	Telkom
Cities	Web Browsing	50,4	96%	91%	93%	61%
	File Download	64,8	97%	90%	87%	15%
	File Upload	64,8	96%	88%	83%	28%
	YouTube	64,8	91%	85%	90%	54%
	OTT	43,2	89%	80%	78%	54%
Towns	Web Browsing	16,8	95%	92%	89%	68%
	File Download	21,6	95%	86%	88%	30%
	File Upload	21,6	92%	85%	83%	32%
	YouTube	21,6	91%	77%	94%	63%
	OTT	14,4	87%	80%	67%	60%
Roads	Web Browsing	16,8	93%	87%	84%	69%
	File Download	21,6	94%	85%	89%	48%
	File Upload	21,6	86%	72%	77%	47%
	YouTube	21,6	88%	76%	84%	62%
	OTT	14,4	85%	82%	68%	59%

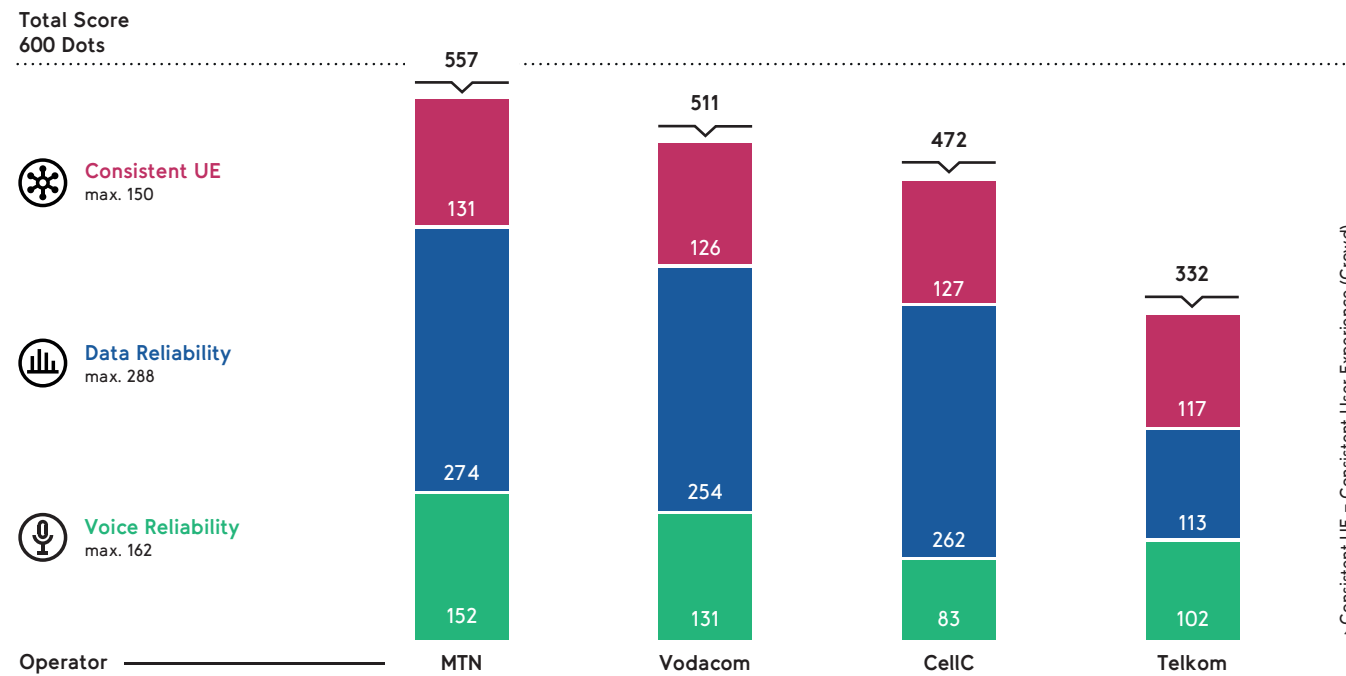


Achieved percentage of the maximum score in each of the different crowdsourcing services.

Crowd	Service Group	max	MTN	Vodacom	CellC	Telkom
Crowdsourced Quality	Broadband Coverage	100	92%	93%	88%	88%
	DL Speed	55	84%	72%	76%	59%
	UL Speed	20	84%	76%	75%	48%
	Latency	50	83%	79%	80%	66%
	Voice	10	84%	91%	1%	90%
	Stability	15	89%	90%	85%	86%



Reliability



Reliability score considering Voice Reliability, Data Reliability and Consistent UE.

Total score

	Service Group	max	MTN	Vodacom	CellC	Telkom
Reliability	Voice Reliability	162	94%	81%	51%	63%
	Data Reliability	288	95%	88%	91%	39%
	Consistent User Experience	150	87%	84%	84%	78%

Score achievement in school grades:
 outstanding (≥95%), very good (≥85% and <95%), good (≥75% and ≤85%), satisfactory (≤65% and <75%), sufficient (≤55% and <65%).



Voice KPI overview

Achieved values of all networks under test in each of the relevant Voice Key Performance Indicators (KPIs) for the geographical categories "Cities", "Towns" and "Roads".

Voice	Service Group	Unit	MTN	Vodacom	CellC	Telkom
Cities	Qualifier	[%]	99,7	98,3	94,9	97,0
	Call Setup Time (P90)	[s]	1,2	1,4	8,4	6,1
	Speech Quality (P10)	[MOS-LQO]	4,5	4,1	3,5	3,6
Towns	Qualifier	[%]	99,8	99,1	98,9	99,5
	Call Setup Time (P90)	[s]	1,3	1,5	7,7	5,3
	Speech Quality (P10)	[MOS-LQO]	4,5	4,2	3,4	3,7
Roads	Qualifier	[%]	97,3	95,8	91,4	89,1
	Call Setup Time (P90)	[s]	1,3	1,7	7,7	6,6
	Speech Quality (P10)	[MOS-LQO]	4,3	4,1	3,3	3,0



Data Services KPI overview

Achieved values of all networks under test in each of the relevant Data Key Performance Indicators (KPIs) for the geographical category "Cities".

Data Cities	KPI Name	Unit	MTN	Vodacom	CellC	Telkom
HTTP Web Page DL Smartphone	Qualifier	[%]	99,7	99,0	99,5	96,1
	Overall Session Time	[s]	1,3	1,5	1,7	2,3
HTTP 10MB DL Smartphone	Qualifier	[%]	100,0	99,6	99,8	91,6
	Overall Session Time	[s]	1,2	1,7	2,1	6,3
	90% faster than	[Mbit/s]	46,1	27,9	23,9	7,6
	10% faster than	[Mbit/s]	195,1	231,1	125,7	56,3
HTTP 5MB UL Smartphone	Qualifier	[%]	99,9	99,9	99,3	94,7
	Average Session Time	[s]	1,7	3,1	3,9	7,4
	90% faster than	[Mbit/s]	15,4	6,9	5,8	3,0
	10% faster than	[Mbit/s]	61,9	52,3	28,7	21,0
HTTP DL FDTT	Qualifier	[%]	99,9	99,0	99,7	84,7
	10% faster than	[Mbit/s]	340,4	498,6	210,2	102,0
	faster than 20 Mbit/s	[%]	99,2	95,4	93,2	69,8
	faster than 100 Mbit/s	[%]	81,6	77,6	43,2	10,2
HTTP UL FDTT	Qualifier	[%]	99,9	99,7	99,7	83,2
	10% faster than	[Mbit/s]	81,2	63,4	81,4	30,9
	faster than 2 Mbit/s	[%]	99,7	98,3	97,1	94,4
	faster than 5 Mbit/s	[%]	98,4	94,3	93,3	82,7
YouTube	Qualifier	[%]	99,3	98,5	99,5	95,8
	Start Time	[s]	2,2	2,6	2,6	3,3
	AVG Resolution	[p]	1079,0	1074,9	1078,2	1075,9
YouTube Live Smartphone	Qualifier	[%]	99,1	98,7	99,2	93,0
	Start Time	[s]	2,6	2,8	2,9	3,7
	AVG Resolution	[p]	1079,0	1076,7	1078,9	1071,1
Interactivity	Qualifier	[%]	96,6	93,0	92,1	74,7
	Interactivity egaming	[%]	70,5	62,6	47,1	43,3
Interactivity Videochat	Qualifier	[%]	94,7	88,9	91,1	72,3
	Interactivity egaming	[%]	87,4	84,1	84,8	79,5
Conversational App	Qualifier	[%]	99,8	99,6	99,4	98,7
	Speech Quality (P10)	[MOS-LQO]	4,0	3,5	3,9	3,7



Data Services KPI overview

Achieved values of all networks under test in each of the relevant Data Key Performance Indicators (KPIs) for the geographical category "Towns".

Data Towns	KPI Name	Unit	MTN	Vodacom	CellC	Telkom
HTTP Web Page DL Smartphone	Qualifier	[%]	99,6	99,3	99,0	97,2
	Overall Session Time	[s]	1,5	1,7	1,8	2,3
HTTP 10MB DL Smartphone	Qualifier	[%]	100,0	99,5	99,8	95,6
	Overall Session Time	[s]	1,4	2,6	2,2	5,4
	90% faster than	[Mbit/s]	38,7	16,9	23,7	10,0
	10% faster than	[Mbit/s]	174,1	213,9	117,4	55,9
HTTP 5MB UL Smartphone	Qualifier	[%]	100,0	99,8	99,8	95,7
	Average Session Time	[s]	2,5	3,9	3,9	7,4
	90% faster than	[Mbit/s]	9,7	5,5	5,9	2,9
HTTP DL FDDT	10% faster than	[Mbit/s]	51,0	41,5	26,1	21,0
	Qualifier	[%]	99,8	100,0	100,0	90,0
	10% faster than	[Mbit/s]	301,7	450,6	193,9	103,6
HTTP UL FDDT	faster than 20 Mbit/s	[%]	96,9	88,9	93,8	74,1
	faster than 100 Mbit/s	[%]	76,6	48,1	45,3	536,3
	Qualifier	[%]	99,8	99,8	98,8	90,6
YouTube	10% faster than	[Mbit/s]	71,9	48,5	72,8	38,5
	faster than 2 Mbit/s	[%]	99,3	97,9	98,6	94,8
	faster than 5 Mbit/s	[%]	97,9	93,3	93,9	83,2
YouTube Live Smartphone	Qualifier	[%]	99,8	97,6	100,0	95,3
	Start Time	[s]	2,4	3,0	2,7	3,3
	AVG Resolution	[p]	1078,7	1070,9	1077,9	1077,4
Interactivity	Qualifier	[%]	99,1	97,9	100,0	96,1
	Start Time	[s]	2,8	3,1	3,0	3,6
	AVG Resolution	[p]	1078,6	1073,4	1078,9	1077,9
Interactivity egaming	Qualifier	[%]	97,0	92,2	80,3	78,7
	Interactivity egaming	[%]	61,4	58,2	43,6	34,7
Interactivity Videochat	Qualifier	[%]	94,5	90,7	88,9	79,0
	Interactivity egaming	[%]	0,9	0,8	0,8	0,8
Conversational App	Qualifier	[%]	99,6	99,5	98,6	99,6
	Speech Quality (P10)	[MOS-LQO]	4,0	3,8	3,8	3,9



Achieved values of all networks under test in each of the relevant Data Key Performance Indicators (KPIs) for the geographical category "Roads".

Data Roads	KPI Name	Unit	MTN	Vodacom	CellC	Telkom
HTTP Web Page DL Smartphone	Qualifier	[%]	99,1	97,9	97,7	95,7
	Overall Session Time	[s]	1,6	1,7	1,9	2,3
HTTP 10MB DL Smartphone	Qualifier	[%]	99,6	98,9	99,3	95,8
	Overall Session Time	[s]	2,0	3,2	2,8	5,0
	90% faster than	[Mbit/s]	25,3	14,4	18,2	8,7
	10% faster than	[Mbit/s]	147,9	126,3	121,6	98,9
HTTP 5MB UL Smartphone	Qualifier	[%]	99,1	98,6	98,3	93,5
	Average Session Time	[s]	3,7	5,8	4,8	7,5
	90% faster than	[Mbit/s]	5,6	3,1	4,2	2,6
HTTP DL FDDT	10% faster than	[Mbit/s]	48,3	36,3	26,4	24,8
	Qualifier	[%]	99,2	98,7	98,6	88,3
	10% faster than	[Mbit/s]	239,5	180,3	183,6	147,2
HTTP UL FDDT	faster than 20 Mbit/s	[%]	95,4	88,1	91,7	77,9
	faster than 100 Mbit/s	[%]	57,8	33,5	43,1	26,2
	Qualifier	[%]	98,9	96,1	97,4	90,7
YouTube	10% faster than	[Mbit/s]	71,0	43,0	67,1	44,2
	faster than 2 Mbit/s	[%]	96,0	94,1	94,0	93,4
	faster than 5 Mbit/s	[%]	90,3	86,1	87,6	83,2
YouTube Live Smartphone	Qualifier	[%]	98,4	97,0	97,4	93,2
	Start Time	[s]	2,5	2,9	2,8	3,2
	AVG Resolution	[p]	1078,2	1069,0	1077,8	1077,5
Interactivity	Qualifier	[%]	98,2	95,6	97,6	92,8
	Start Time	[s]	2,9	3,3	3,1	3,6
	AVG Resolution	[p]	1078,6	1071,2	1076,7	1074,1
Interactivity egaming	Qualifier	[%]	91,6	92,3	81,0	75,6
	Interactivity egaming	[%]	59,7	59,8	41,8	40,3
Interactivity Videochat	Qualifier	[%]	89,3	86,2	84,1	73,1
	Interactivity egaming	[%]	0,9	0,9	0,8	0,8
Conversational App	Qualifier	[%]	99,4	98,4	97,2	97,0
	Speech Quality (P10)	[MOS-LQO]	3,8	3,6	3,6	3,7



Crowd KPI overview

Achieved values of all networks under test in each of the relevant Crowd Key Performance Indicators (KPIs) for the categories "Broadband Coverage", "Download Speed", "Latency", "Voice Crowd" and "Stability".

Category	KPI name	Unit	MTN	Vodacom	CellC	Telkom
Broadband Coverage	Coverage Quality	[%]	96.3	96.6	95.3	93.0
	Coverage Reach	[%]	89.7	91.7	82.2	83.4
	Time on broadband	[%]	97.0	97.2	96.8	97.0
Download Speed	Basic internet class	[%]	95.5	94.6	95.0	94.2
	HD video class	[%]	80.1	75.0	79.0	71.9
	UHD video class	[%]	24.5	22.1	20.8	14.6
Latency	OTT voice class	[%]	95.6	94.8	95.3	92.0
	Gaming class	[%]	84.0	83.0	79.4	72.7
	Egoshooter class	[%]	27.1	7.9	13.0	11.3
Voice	HD voice	[%]	89.9	94.0	4.7	92.8
Download Speed Active	90% faster than	[Mbit/s]	5.6	3.1	4.4	2.5
	10% faster than	[Mbit/s]	105.3	71.1	61.3	27.3
	AVG data rate	[Mbit/s]	44.6	33.0	27.5	14.0
Upload Speed Active	90% faster than	[Mbit/s]	2.1	2.2	1.8	1.4
	10% faster than	[Mbit/s]	42.4	26.4	33.9	16.6
	AVG data rate	[Mbit/s]	18.5	13.4	14.6	7.8
Stability	Transaction success	[%]	88.9	89.6	84.7	85.8



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