

# best in test.

For adding something on top in New Zealand and reaching an overall score of 784 dots in mobile network benchmarking survey we proudly award this certificate to

## One New Zealand

Score 784 out of 1000 in Total

Score 215 out of 270 in Voice Services

Score 349 out of 480 in Data Services

Score 220 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 New Zealand.

The audit was done as a performance benchmark performed by umlaut between 19.04.2023 and 10.05.2023 in cities and towns as well as on connection roads.

Dedicated measurements have been executed as drive tests outdoors using a Samsung Galaxy S21+ and a Samsung Galaxy S22+.

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 CW48 2022 and CW19 2023.

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



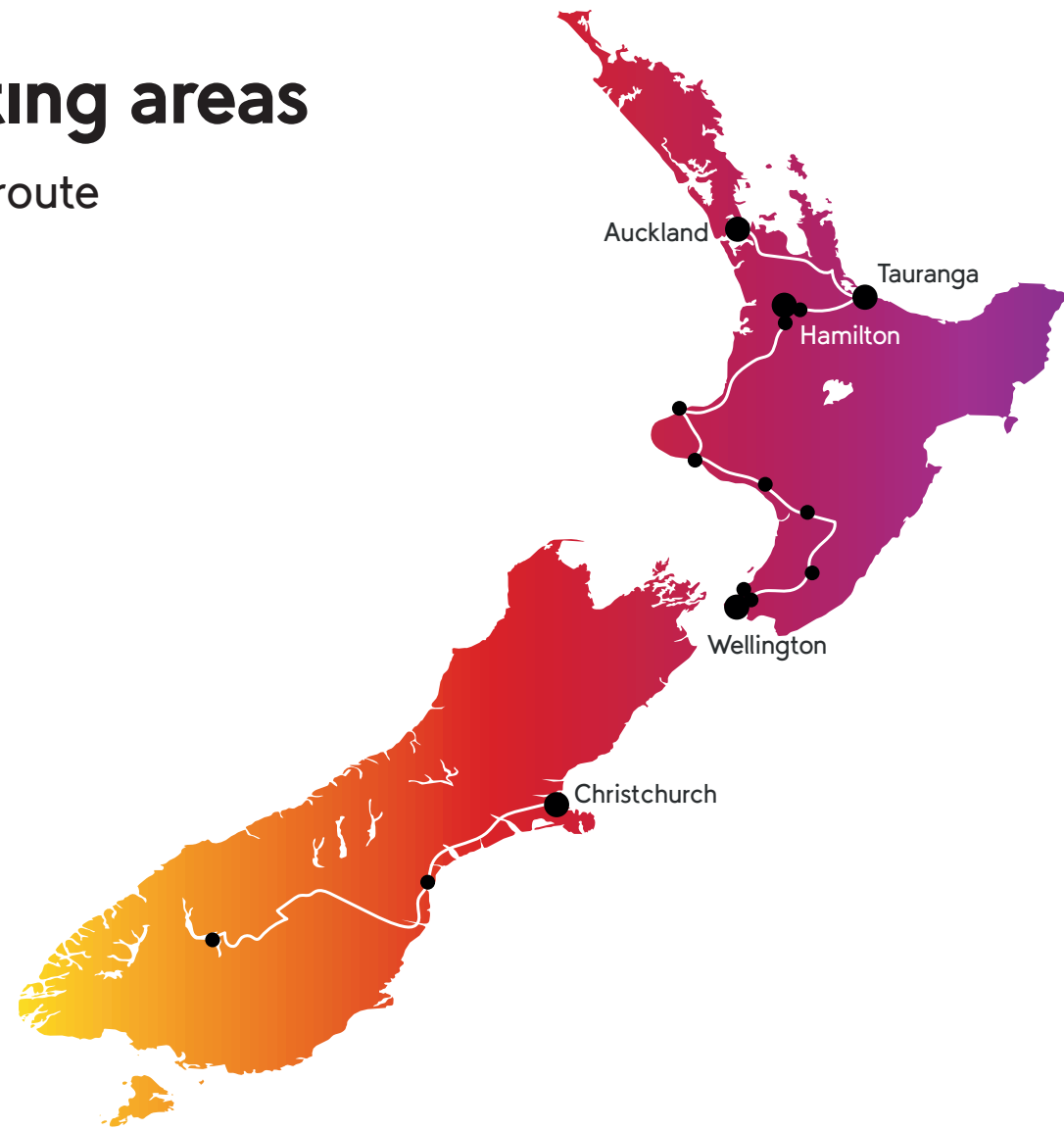
# Measurement setup

Drivetest	Voice	Data
Device	Samsung Galaxy S21+	Samsung Galaxy S22+
Test Cases	Mobile-to-Mobile (M2M) Side1 (5G Preferred) to Side2 (5G Preferred) 105 sec call window 70 sec call duration 15 sec call setup timeout Multi-RAB traffic injection on both sides Generic OTT Voice Channel	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 9 Live Web Pages Interactivity Testing (eGaming) 3 YouTube Videos
Mobility and Route Types	100% Drive test 54.07% in cities, 23.33% in towns, 22.60% in Roads	
Samples	~3119 per Operator	~24118 per Operator
Dates	17 measurement days 19.04.2023 – 10.05.2023	
Crowd Data Assessment	24 weeks CW48 2022 – CW19 2023	



# Testing areas

## Drive route



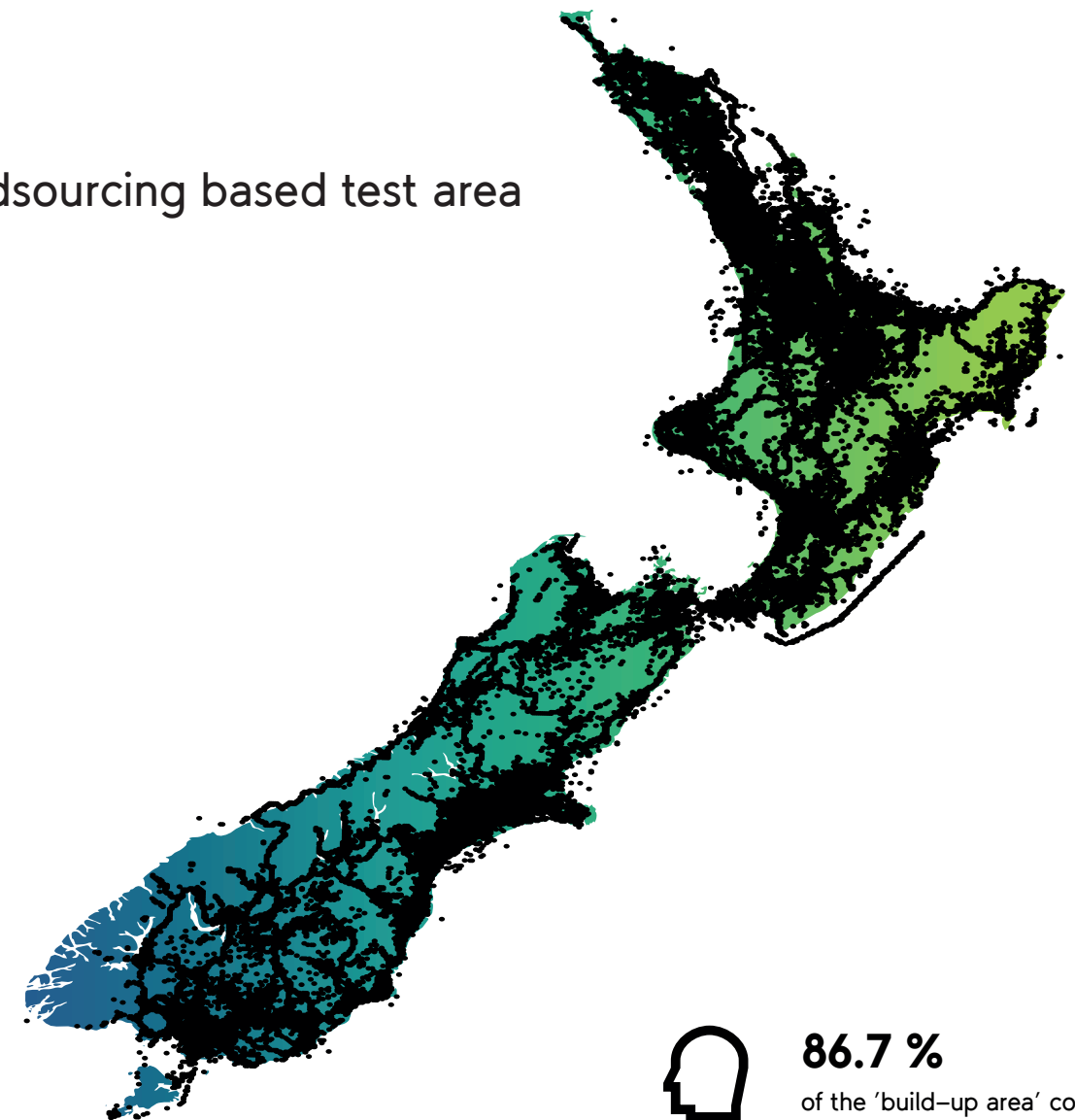
**8515 km**  
measuring distance



**49 %**  
of population measured



## Crowdsourcing based test area



**96,983 km<sup>2</sup>**  
size of tested area



**86.7 %**  
of the 'build-up area' covered



**98.1 %**  
of the 'Population area' covered



# Claims




**Best in test**  
One New Zealand



**Best in data**  
One New Zealand



**Best in voice**  
One New Zealand



**Best in Reliability**  
One New Zealand



**Best in crowd-sourced quality**  
One New Zealand



# Methodology

The leader in mobile benchmarking, umlaut, has analyzed the mobile networks of New Zealand with regards to mobile network performance. We measure smartphone voice and data performance based on extensive drive-tests – 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-perceived 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

One New Zealand achieved the highest overall score among competitors with 784 dots out of 1000.

Total Score  
1000 Dots



→ Shown total scores are rounded.

Overall score considering Voice, Data and Crowdsourcing.

Total score

	One New Zealand	2degrees	Spark
Voice	215	167	135
Cities Drivetest	162	72%	54%
Towns Drivetest	54	69%	64%
Roads Drivetest	54	25%	23%
Data	349	307	315
Cities Drivetest	288	71%	71%
Towns Drivetest	96	69%	69%
Roads Drivetest	96	39%	45%
Crowdsourced Quality	220	215	206
Broadband Coverage	112	87%	85%
Download Speed	75	91%	85%
Latency	50	74%	72%
Voice	13	89%	85%
<b>Total</b>	<b>784</b>	<b>689</b>	<b>656</b>

Shown scores are rounded.



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

Data	Service Group	max	One New Zealand	2degrees	Spark
Cities	Web Browsing	64,8	92%	81%	87%
	File Download	64,8	85%	74%	80%
	File Upload	64,8	68%	81%	75%
	YouTube	64,8	85%	49%	49%
	OTT	28,8	70%	69%	58%
Towns	Web Browsing	21,6	89%	83%	82%
	File Download	21,6	81%	67%	81%
	File Upload	21,6	55%	81%	72%
	YouTube	21,6	61%	47%	48%
	OTT	9,6	66%	63%	53%
Roads	Web Browsing	21,6	63%	48%	56%
	File Download	21,6	63%	39%	56%
	File Upload	21,6	18%	16%	22%
	YouTube	21,6	47%	45%	45%
	OTT	9,6	56%	51%	47%

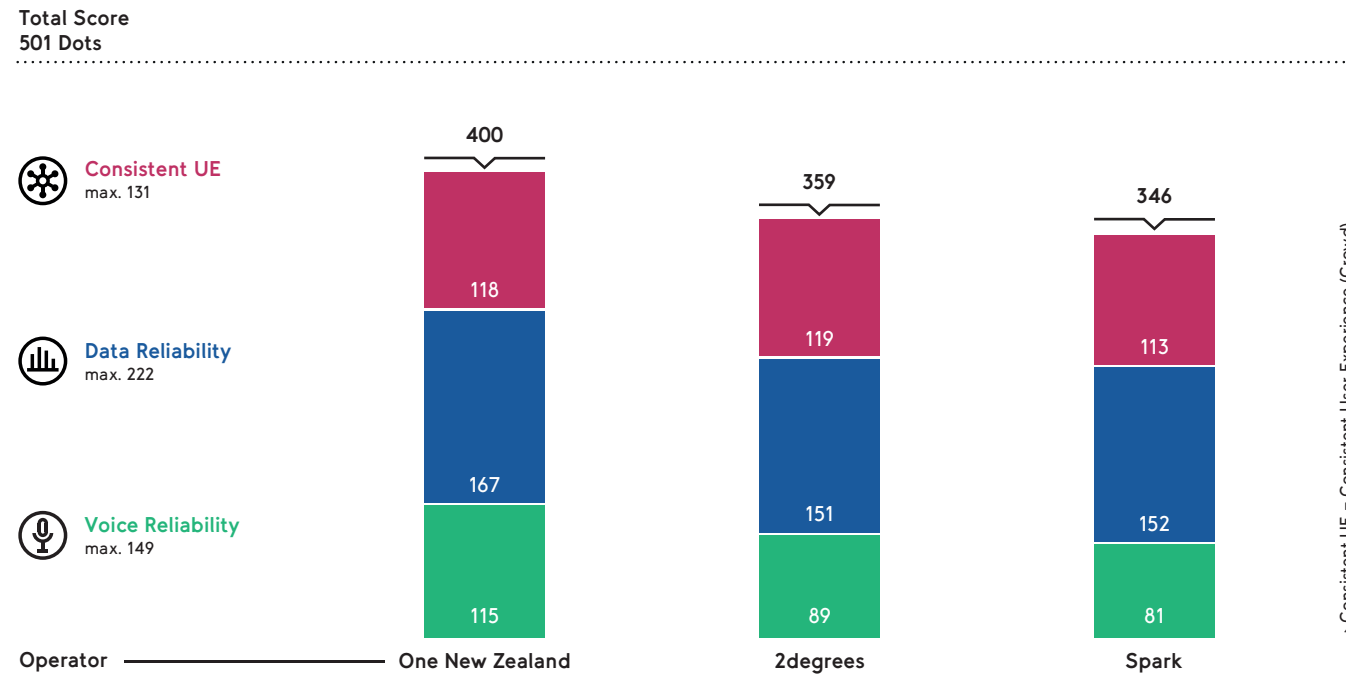


Achieved percentage of the maximum score in each of the different crowdsourcing services.

Crowd	Service Group	max	One New Zealand	2degrees	Spark
Crowdsourced Quality	Broadband Coverage	112	87%	87%	85%
	DL Speed	75	90%	91%	85%
	Latency	50	89%	74%	72%
	Voice	13	86%	89%	85%



# Reliability



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

## Total score

	Service Group	max	One New Zealand	2degrees	Spark
Reliability	Voice Reliability	149	78%	60%	54%
	Data Reliability	222	75%	68%	69%
	Consistent User Experience	131	90%	91%	86%

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	One New Zealand	2degrees	Spark
Cities	Qualifier	[%]	99,2	97,3	96,3
	Call Setup Time (P90)	[s]	2,9	2,8	5,6
	Speech Quality (P10)	[MOS-LQO]	4,0	2,9	3,1
	Multirab connectivity	[%]	99,9	99,7	99,9
Towns	Qualifier	[%]	99,4	97,1	97,2
	Call Setup Time (P90)	[s]	3,2	2,8	4,9
	Speech Quality (P10)	[MOS-LQO]	4,0	2,8	3,3
	Multirab connectivity	[%]	99,1	98,9	100,0
Roads	Qualifier	[%]	85,2	79,8	82,0
	Call Setup Time (P90)	[s]	3,6	4,1	5,6
	Speech Quality (P10)	[MOS-LQO]	3,7	2,5	3,0
	Multirab connectivity	[%]	98,1	98,0	98,8



### 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	One New Zealand	2degrees	Spark
HTTP Web Page DL Smartphone	Qualifier	[%]	99,4	99,0	99,4
	Overall Session Time	[s]	1,8	2,2	2,0
HTTP 10MB DL Smartphone	Qualifier	[%]	98,9	99,7	99,5
	Overall Session Time	[s]	2,4	5,1	3,5
	90% faster than	[Mbit/s]	17,2	8,1	10,8
HTTP 5MB UL Smartphone	10% faster than	[Mbit/s]	224,3	187,4	176,2
	Qualifier	[%]	99,2	99,4	99,3
	Average Session Time	[s]	5,2	3,6	5,1
HTTP DL FDTT	90% faster than	[Mbit/s]	3,4	6,6	3,6
	10% faster than	[Mbit/s]	53,1	48,7	49,1
	Qualifier	[%]	99,6	99,5	99,6
HTTP UL FDTT	10% faster than	[Mbit/s]	506,4	357,0	387,2
	faster than 20 Mbit/s	[%]	87,8	76,0	83,2
	faster than 100 Mbit/s	[%]	62,4	28,9	46,0
	Qualifier	[%]	98,0	98,8	98,9
YouTube	10% faster than	[Mbit/s]	72,0	73,4	81,1
	faster than 2 Mbit/s	[%]	93,4	97,1	95,6
	faster than 5 Mbit/s	[%]	82,7	92,4	87,7
YouTube Live Smartphone	Qualifier	[%]	96,6	91,6	90,3
	Start Time	[s]	2,3	3,2	2,6
	Time to full resolution	[s]	7,5	7,9	8,0
YouTube 4K Smartphone	Qualifier	[%]	98,7	91,1	91,4
	Start Time	[s]	4,0	4,1	4,2
	Time to full resolution	[s]	6,7	7,0	6,9
Interactivity	Qualifier	[%]	90,1	74,8	70,3
	Start Time	[s]	2,4	2,7	2,4
	Time to full resolution	[s]	7,6	7,3	8,0
Conversational App	Interactivity egaming	[%]	32,7	31,5	18,8
	Qualifier	[%]	99,9	99,9	99,6
Conversational App	Speech Quality (P10)	[MOS-LQO]	3,5	3,4	3,2





### 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	One New Zealand	2degrees	Spark
HTTP Web Page DL Smartphone	Qualifier	[%]	99,0	99,0	98,9
	Overall Session Time	[s]	1,8	2,1	2,2
HTTP 10MB DL Smartphone	Qualifier	[%]	99,2	99,4	99,8
	Overall Session Time	[s]	3,5	5,0	3,6
	90% faster than	[Mbit/s]	12,5	9,4	11,2
	10% faster than	[Mbit/s]	233,9	67,9	163,9
HTTP 5MB UL Smartphone	Qualifier	[%]	98,7	99,8	99,4
	Average Session Time	[s]	7,0	3,9	4,8
	90% faster than	[Mbit/s]	2,4	6,4	4,2
HTTP DL FDTT	10% faster than	[Mbit/s]	48,0	39,7	45,5
	Qualifier	[%]	99,6	99,4	99,4
	10% faster than	[Mbit/s]	534,9	82,2	412,4
HTTP UL FDTT	faster than 20 Mbit/s	[%]	80,6	74,9	86,2
	faster than 100 Mbit/s	[%]	54,6	5,6	49,0
	Qualifier	[%]	96,2	99,4	98,4
YouTube	10% faster than	[Mbit/s]	65,2	50,2	70,7
	faster than 2 Mbit/s	[%]	90,9	96,8	93,9
	faster than 5 Mbit/s	[%]	78,3	92,0	89,2
YouTube Live Smartphone	Qualifier	[%]	92,9	84,8	88,3
	Start Time	[s]	2,5	2,8	2,8
	Time to full resolution	[s]	7,3	8,8	7,8
YouTube 4K Smartphone	Qualifier	[%]	93,4	84,6	87,3
	Start Time	[s]	3,7	4,3	4,2
	Time to full resolution	[s]	7,2	7,3	7,1
Interactivity	Qualifier	[%]	81,4	60,6	63,8
	Start Time	[s]	2,3	2,6	2,5
	Time to full resolution	[s]	7,2	7,4	7,7
Conversational App	Interactivity egaming	[%]	25,8	22,7	9,6
	Qualifier	[%]	99,8	99,7	99,8
Speech Quality (P10)	Qualifier	[%]	99,8	99,7	99,8
	Speech Quality (P10)	[MOS-LQO]	3,6	3,5	3,4



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	One New Zealand	2degrees	Spark
HTTP Web Page DL Smartphone	Qualifier	[%]	87,7	84,9	86,1
	Overall Session Time	[s]	2,3	2,8	2,5
HTTP 10MB DL Smartphone	Qualifier	[%]	88,6	86,9	87,3
	Overall Session Time	[s]	6,1	12,7	7,7
	90% faster than	[Mbit/s]	5,4	2,6	4,7
	10% faster than	[Mbit/s]	183,3	49,7	130,4
HTTP 5MB UL Smartphone	Qualifier	[%]	84,9	84,2	85,9
	Average Session Time	[s]	12,9	13,3	11,9
	90% faster than	[Mbit/s]	1,1	1,1	1,1
HTTP DL FDTT	10% faster than	[Mbit/s]	29,9	24,7	33,1
	Qualifier	[%]	88,9	86,6	88,5
	10% faster than	[Mbit/s]	283,3	53,2	241,1
HTTP UL FDTT	faster than 20 Mbit/s	[%]	71,1	35,4	65,4
	faster than 100 Mbit/s	[%]	37,0	3,0	23,6
	Qualifier	[%]	80,1	79,9	83,4
YouTube	10% faster than	[Mbit/s]	35,2	28,8	50,8
	faster than 2 Mbit/s	[%]	78,5	81,9	81,8
	faster than 5 Mbit/s	[%]	63,5	65,7	71,3
YouTube Live Smartphone	Qualifier	[%]	64,5	65,2	52,1
	Start Time	[s]	2,6	2,9	2,6
	Time to full resolution	[s]	7,5	8,3	8,8
YouTube 4K Smartphone	Qualifier	[%]	58,3	46,4	47,3
	Start Time	[s]	4,2	4,2	4,3
	Time to full resolution	[s]	6,7	6,7	7,1
Interactivity	Qualifier	[%]	58,6	31,3	35,3
	Start Time	[s]	2,5	2,7	2,8
	Time to full resolution	[s]	7,5	7,8	8,1
Conversational App	Interactivity egaming	[%]	14,0	11,9	4,0
	Qualifier	[%]	100,0	99,0	98,9
Speech Quality (P10)	Qualifier	[%]	100,0	99,0	98,9
	Speech Quality (P10)	[MOS-LQO]	3,4	3,0	3,2



### 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" and "Voice Crowd".

Category	KPI name	Unit	One New Zealand	2degrees	Spark
Broadband Coverage	Time on broadband	[%]	89.2	89.5	86.2
	Coverage Reach	[%]	86.9	82.2	89.8
	Coverage Quality	[%]	94.0	95.7	93.6
Download Speed	Basic internet class	[%]	93.8	94.4	89.7
	HD video class	[%]	80.1	83.4	78.8
	UHD video class	[%]	26.8	27.4	28.6
Latency	Gaming class	[%]	78.9	59.0	57.2
	OTT voice class	[%]	97.5	96.4	95.7
Voice	HD voice	[%]	93.1	94.3	92.6



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