

Audit Report

Malaysia — 2024





Foreword



umlaut has tested the quality of the Mobile Networks in Malaysia and took a detailed look into the performance of each operator.



The company is headquartered in Aachen, Germany and is a world leader in mobile network testing and benchmarking.



Intro

The leader in mobile benchmarking, umlaut, has analyzed the mobile networks in Malaysia with regards to mobile network performance.

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 – enabling comparisons between the network performance and capability of each mobile network. Our 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.


In our nationwide assessment more than 244,687 square kilometres in Malaysia were tested. The measurement was done between W37 2023 and W08 2024.


Crowdsourcing based test area




 **W37 2023 to W08 2024**
Data collection period

 **3.6 billion**
samples

 **244,687 km²**
size of tested area

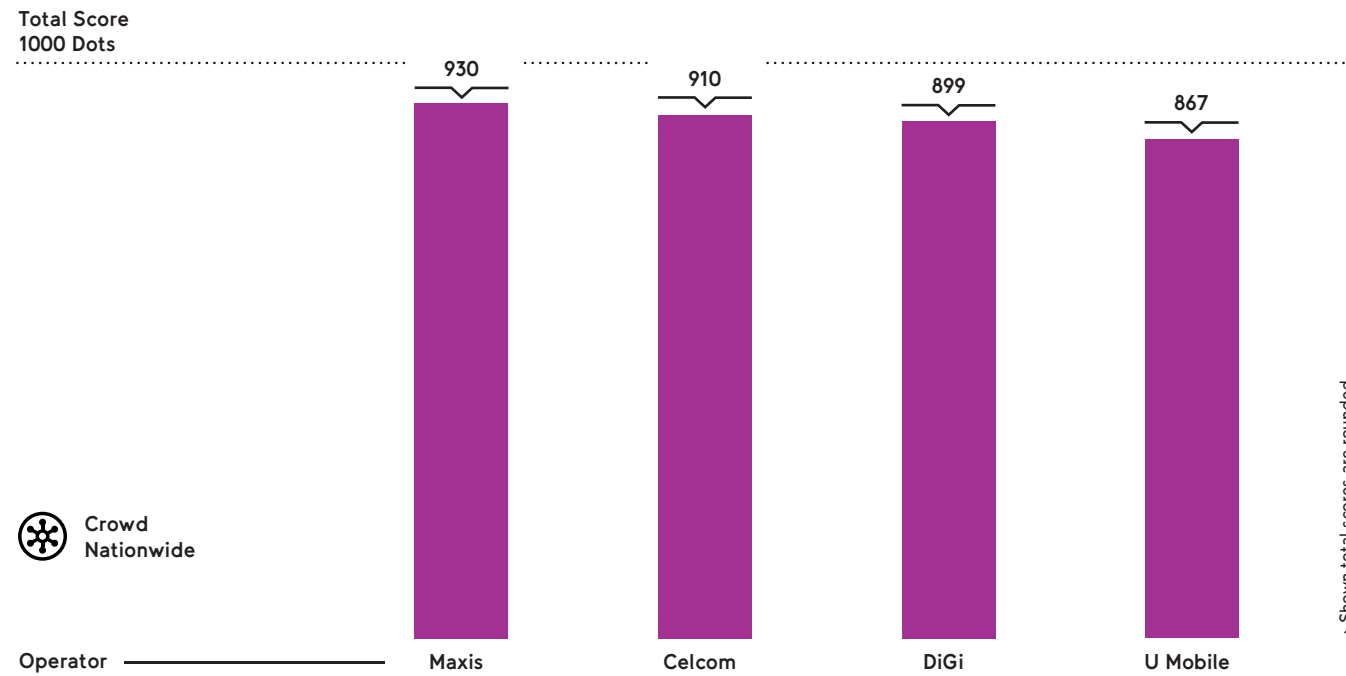
 **99.6 %**
of the 'built-up area' covered

 **99.7 %**
of the 'Population area' covered



Total Score — 4G/5G

Nationwide — Overall results



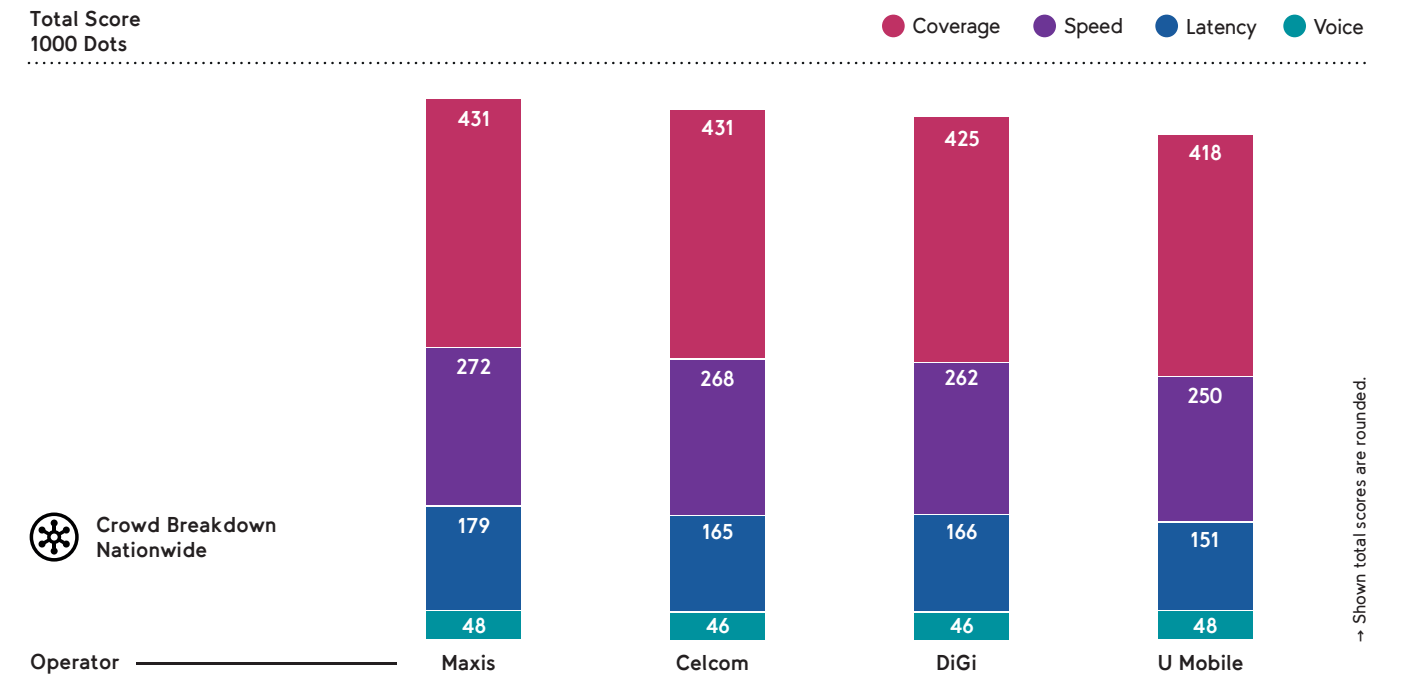
Score achieved by the networks under test in Malaysia.

Score achievement in school grades: outstanding (>950), very good (>850 and <950), good (>750 and <850), satisfactory (<650 and <750), sufficient (<550 and <650).



Score Breakdown — 4G/5G

Nationwide — Coverage, Speed, Latency and Voice



Score achieved by the networks under test in Malaysia, considering Coverage, Latency, Speed and Voice.

Score achievement in school grades: outstanding (>950), very good (>850 and <950), good (>750 and <850), satisfactory (<650 and <750), sufficient (<550 and <650).



Crowd KPI overview — 4G/5G

Nationwide

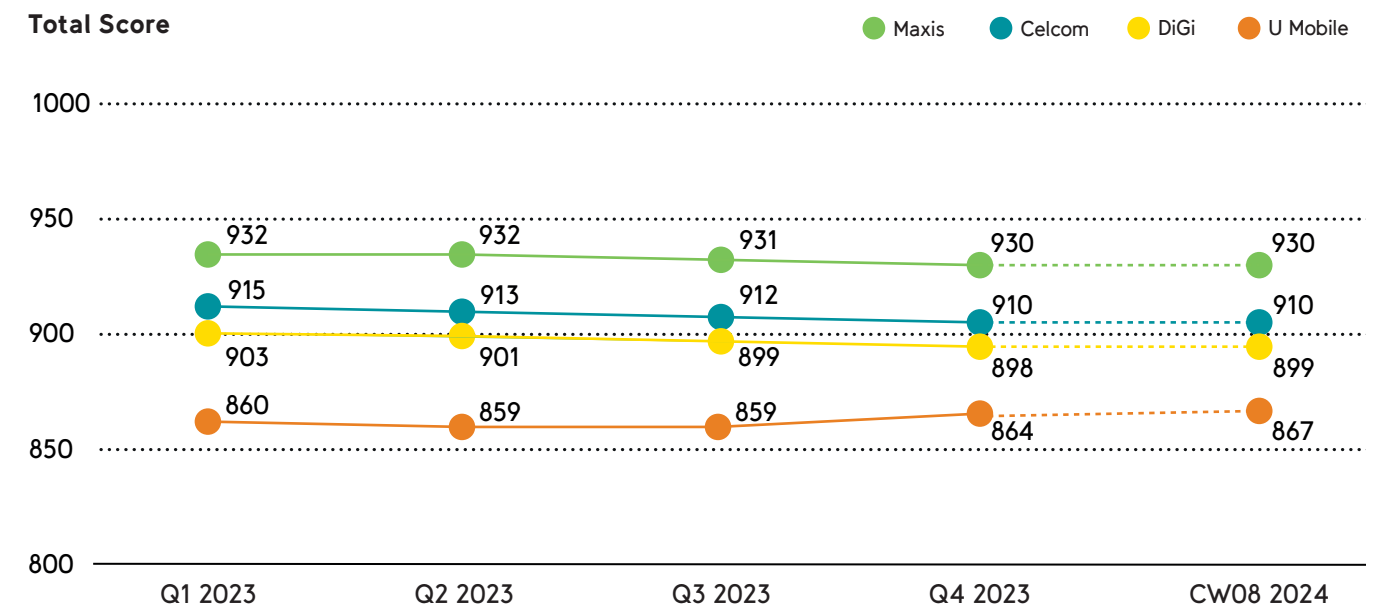
Nationwide	KPI name	max.	Maxis	Celcom	DiGi	U Mobile
Broadband Coverage	Coverage Quality	67,5	63,7	63,3	60,6	59,5
	Coverage Reach	135,0	123,2	125,9	122,6	117,1
	Time on broadband	247,5	243,5	241,3	241,6	241,8
Download Speed	Basic internet class	165,0	149,8	150,3	150,5	146,5
	HD video class	101,3	93,5	91,4	84,8	82,4
	UHD video class	33,8	29,2	26,4	26,2	20,9
Latency	OTT voice class	110,0	95,6	90,8	88,1	88,9
	Gaming class	90,0	82,9	74,3	78,3	62,0
Voice	HD voice	50,0	48,3	46,3	45,6	47,5
Total		1000	930	910	899	867

Achieved values of all networks under test in each of the relevant Crowd Key Performance Indicators (KPIs) in Malaysia. Shown scores are rounded.



Trend view — 4G/5G

Nationwide

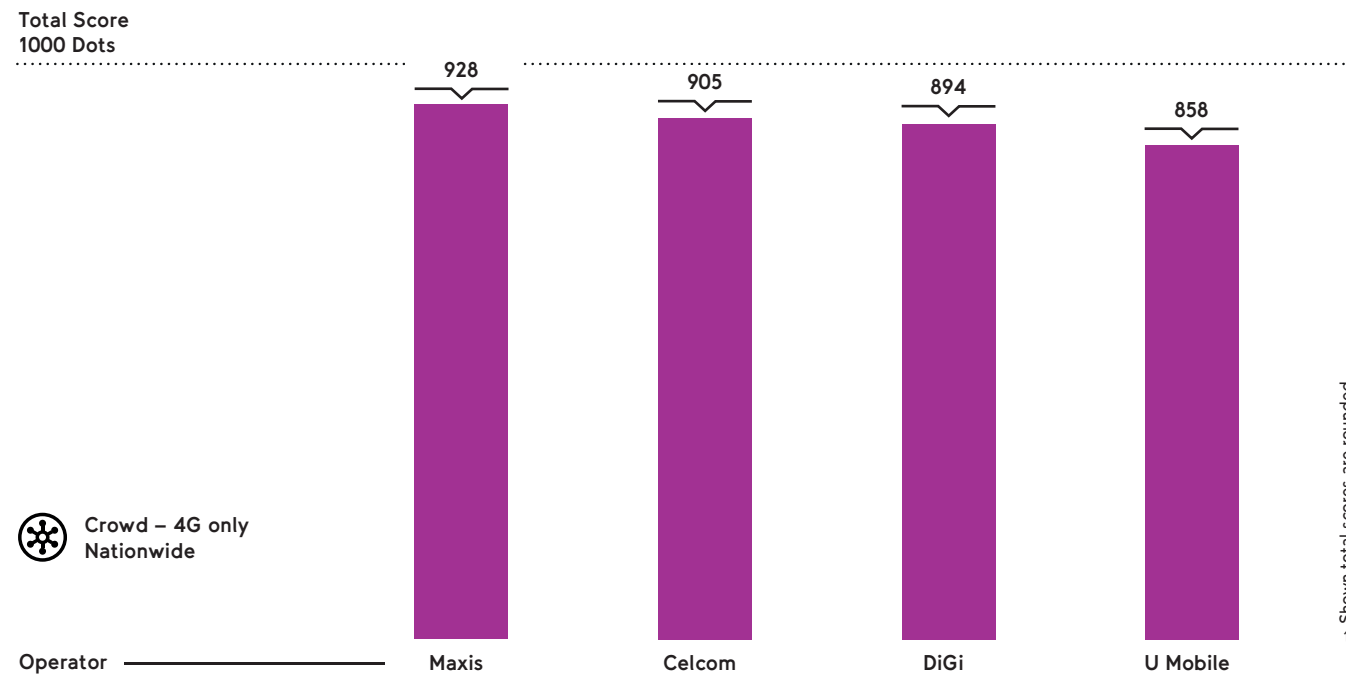


Score achieved by the networks under test in Malaysia. We measure smartphone data performance based on extensive drive- and crowdtests.



Total Score — 4G only

Nationwide — Overall results



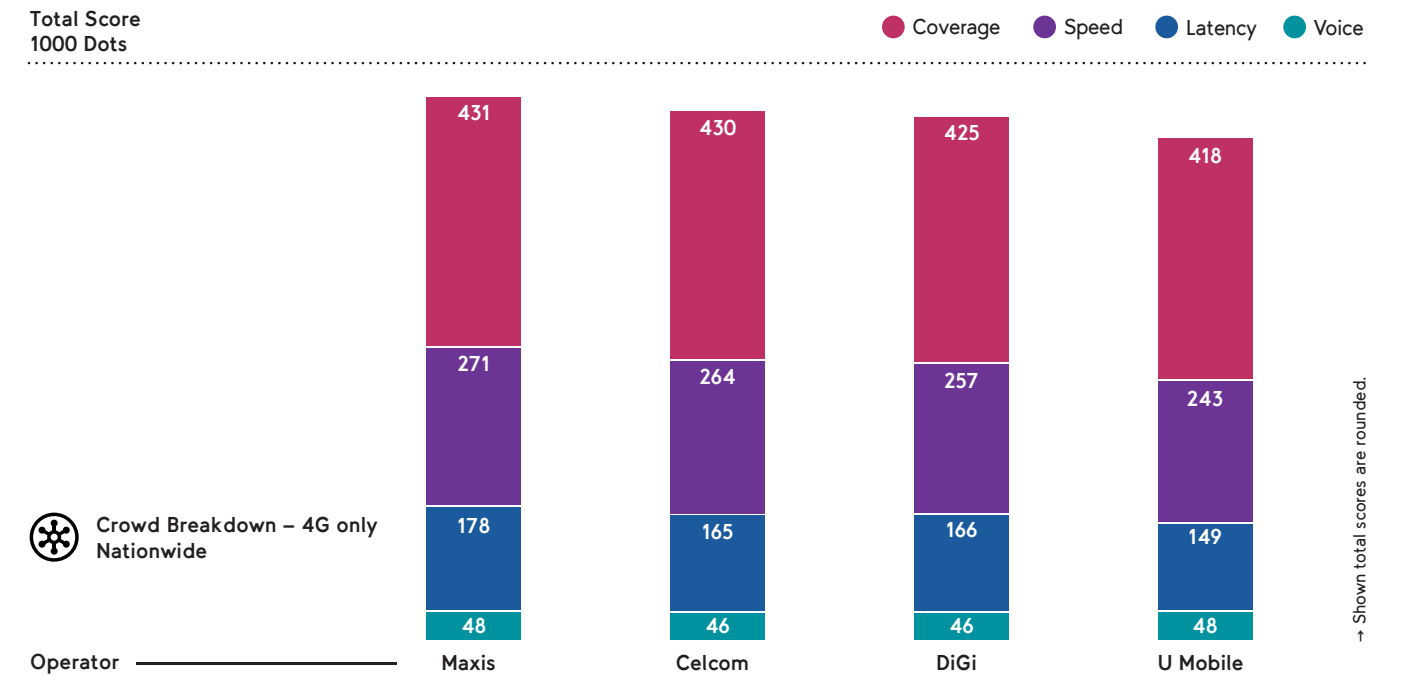
Crowd — 4G only Nationwide

Score achieved by the networks under test in Malaysia.
 Score achievement in school grades: outstanding (>950), very good (>850 and <950), good (>750 and <850), satisfactory (<650 and <750), sufficient (<550 and <650).



Score Breakdown — 4G only

Nationwide — Coverage, Speed, Latency and Voice



Crowd Breakdown — 4G only Nationwide

Score achieved by the networks under test in Malaysia, considering Coverage, Latency, Speed and Voice.
 Score achievement in school grades: outstanding (>950), very good (>850 and <950), good (>750 and <850), satisfactory (<650 and <750), sufficient (<550 and <650).



Crowd KPI overview — 4G only

Nationwide

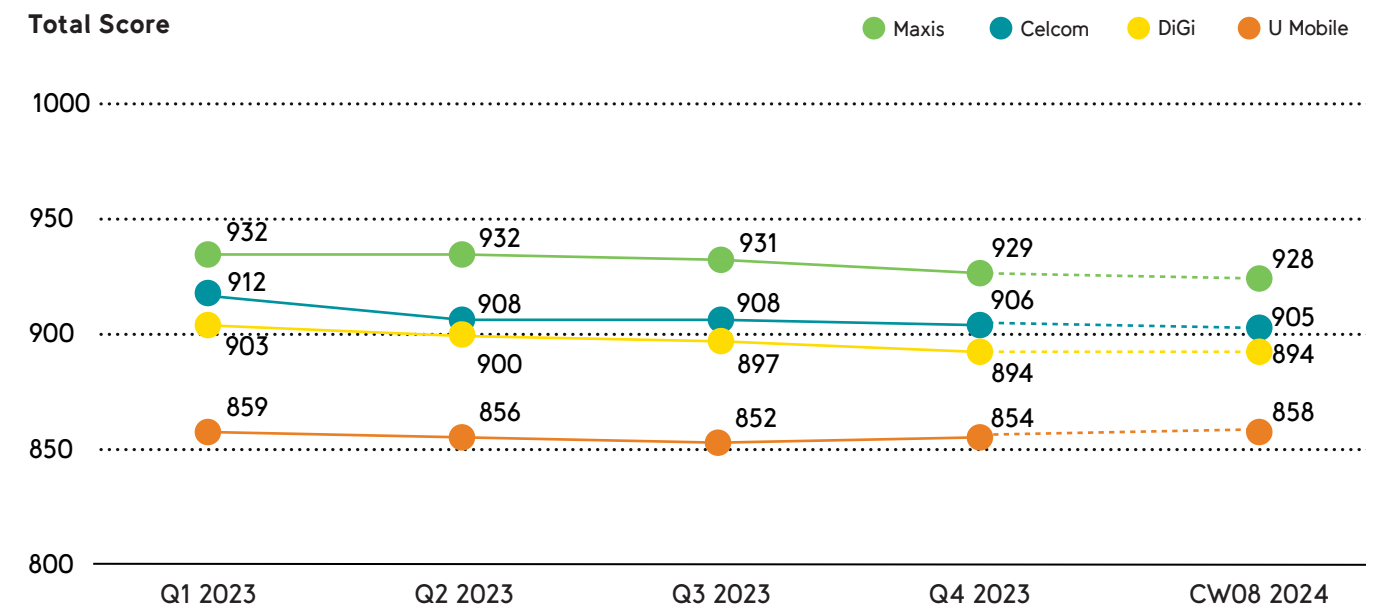
Nationwide 4G only	KPI name	max.	Maxis	Celcom	DiGi	U Mobile
Broadband Coverage	Coverage Quality	67,5	63,7	63,2	60,5	59,4
	Coverage Reach	135,0	123,0	125,8	122,5	117,0
	Time on broadband	247,5	243,5	241,2	241,6	241,6
Download Speed	Basic internet class	165,0	149,5	149,9	150,3	145,8
	HD video class	101,3	93,2	90,2	82,6	79,8
	UHD video class	33,8	28,0	23,5	24,4	17,4
Latency	OTT voice class	110,0	95,3	90,3	87,7	87,9
	Gaming class	90,0	82,9	74,1	78,2	60,7
Voice	HD voice	50,0	48,3	46,4	45,6	47,6
Total		1000	928	905	894	858

Achieved values of all networks under test in each of the relevant Crowd Key Performance Indicators (KPIs) in Malaysia. Shown scores are rounded.



Trend view — 4G only

Nationwide

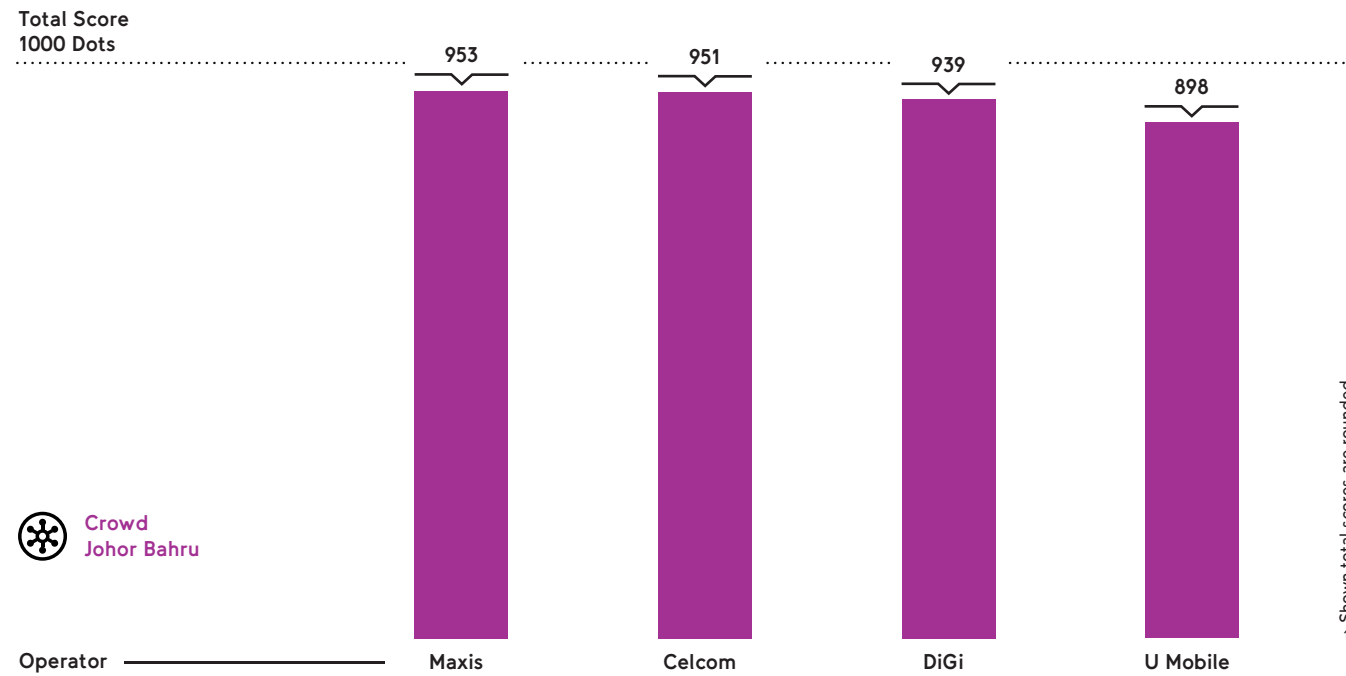


Score achieved by the networks under test in Malaysia. We measure smartphone data performance based on extensive drive- and crowdtests.



Total Score — 4G/5G

Johor Bahru — Overall results



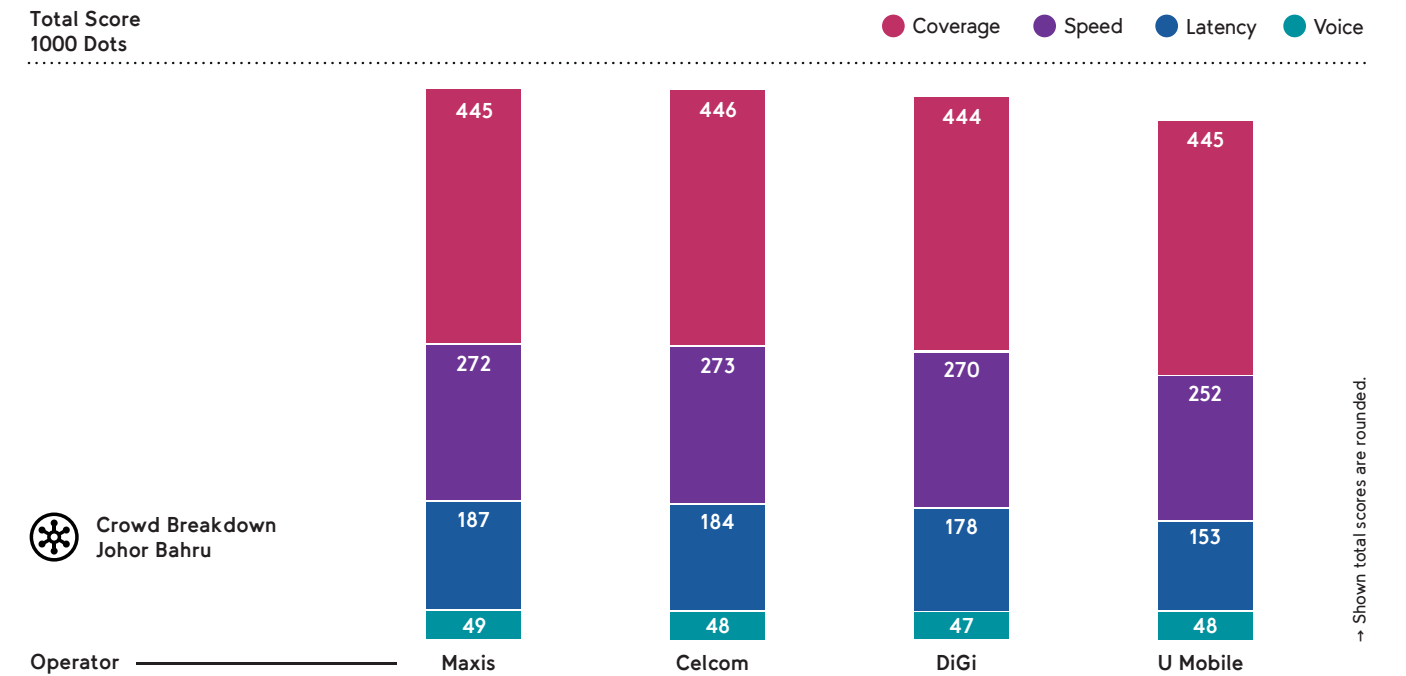
→ Shown total scores are rounded.

Score achieved by the networks under test in Johor Bahru.
 Score achievement in school grades: outstanding (>950), very good (>850 and <950), good (>750 and <850), satisfactory (<650 and <750), sufficient (<550 and <650).



Score Breakdown — 4G/5G

Johor Bahru — Coverage, Speed, Latency and Voice



→ Shown total scores are rounded.

Score achieved by the networks under test in Johor Bahru, considering Coverage, Latency, Speed and Voice.
 Score achievement in school grades: outstanding (>950), very good (>850 and <950), good (>750 and <850), satisfactory (<650 and <750), sufficient (<550 and <650).



Crowd KPI overview — 4G/5G

Johor Bahru

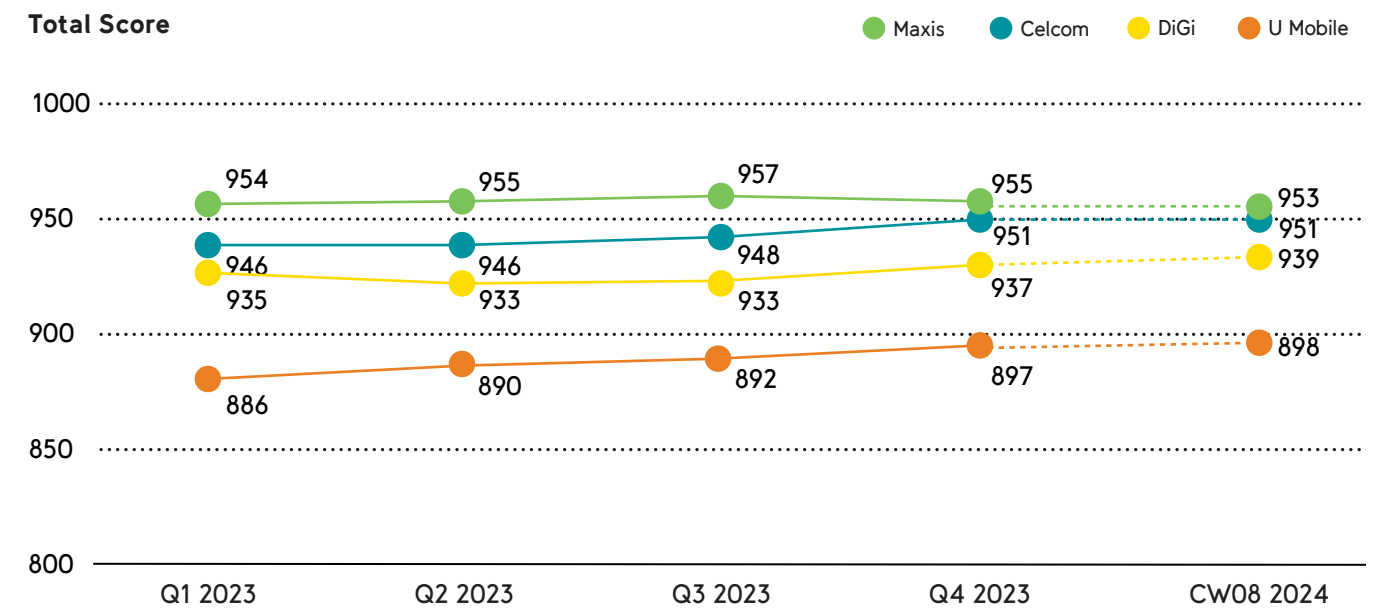
Johor Bahru	KPI name	max.	Maxis	Celcom	DiGi	U Mobile
Broadband Coverage	Coverage Quality	67,5	65,6	66,0	65,4	65,6
	Coverage Reach	135,0	135,0	135,0	135,0	135,0
	Time on broadband	247,5	244,8	245,3	243,7	244,6
Download Speed	Basic internet class	165,0	148,9	152,5	150,5	145,0
	HD video class	101,3	93,3	93,0	91,4	83,3
	UHD video class	33,8	29,7	27,8	28,0	23,6
Latency	OTT voice class	110,0	100,2	99,9	93,2	88,2
	Gaming class	90,0	86,7	84,1	84,8	64,8
Voice	HD voice	50,0	48,6	47,7	47,0	48,2
Total		1000	953	951	939	898

Achieved values of all networks under test in each of the relevant Crowd Key Performance Indicators (KPIs) in Johor Bahru. Shown scores are rounded.



Trend view — 4G/5G

Johor Bahru

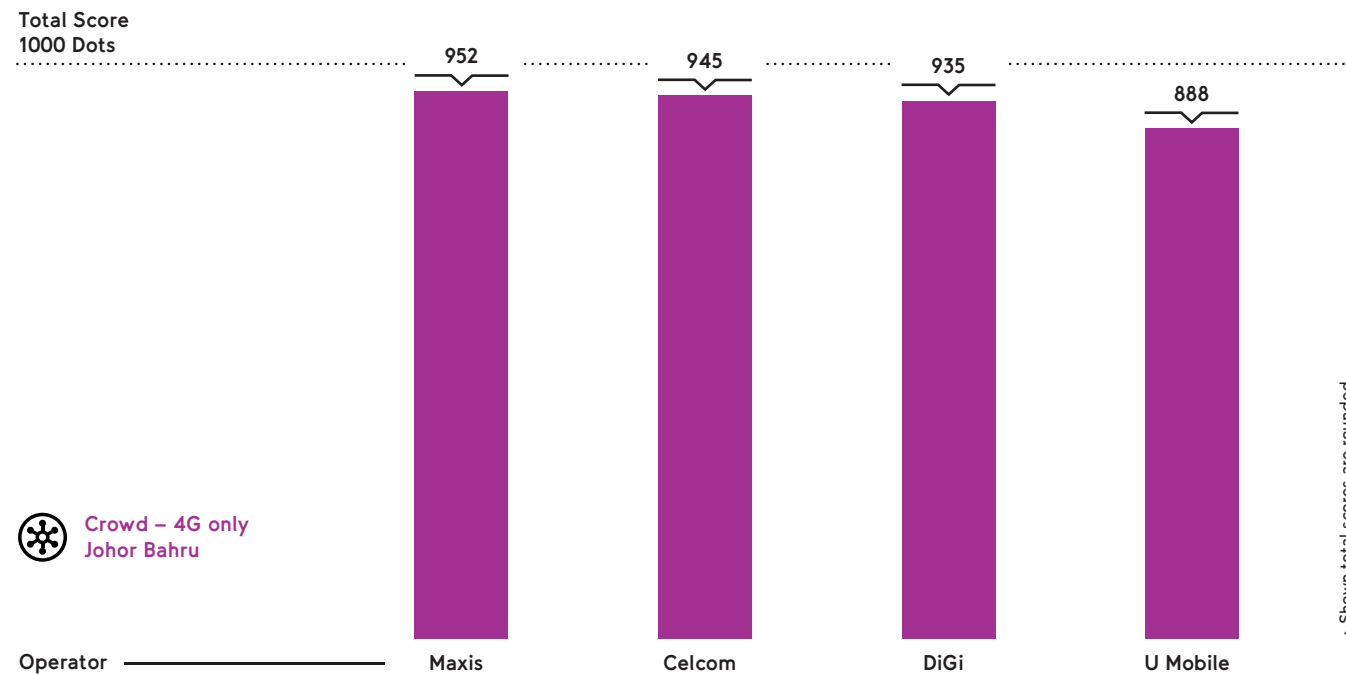


Score achieved by the networks under test in Johor Bahru. We measure smartphone data performance based on extensive drive- and crowdtests.



Total Score — 4G only

Johor Bahru — Overall results

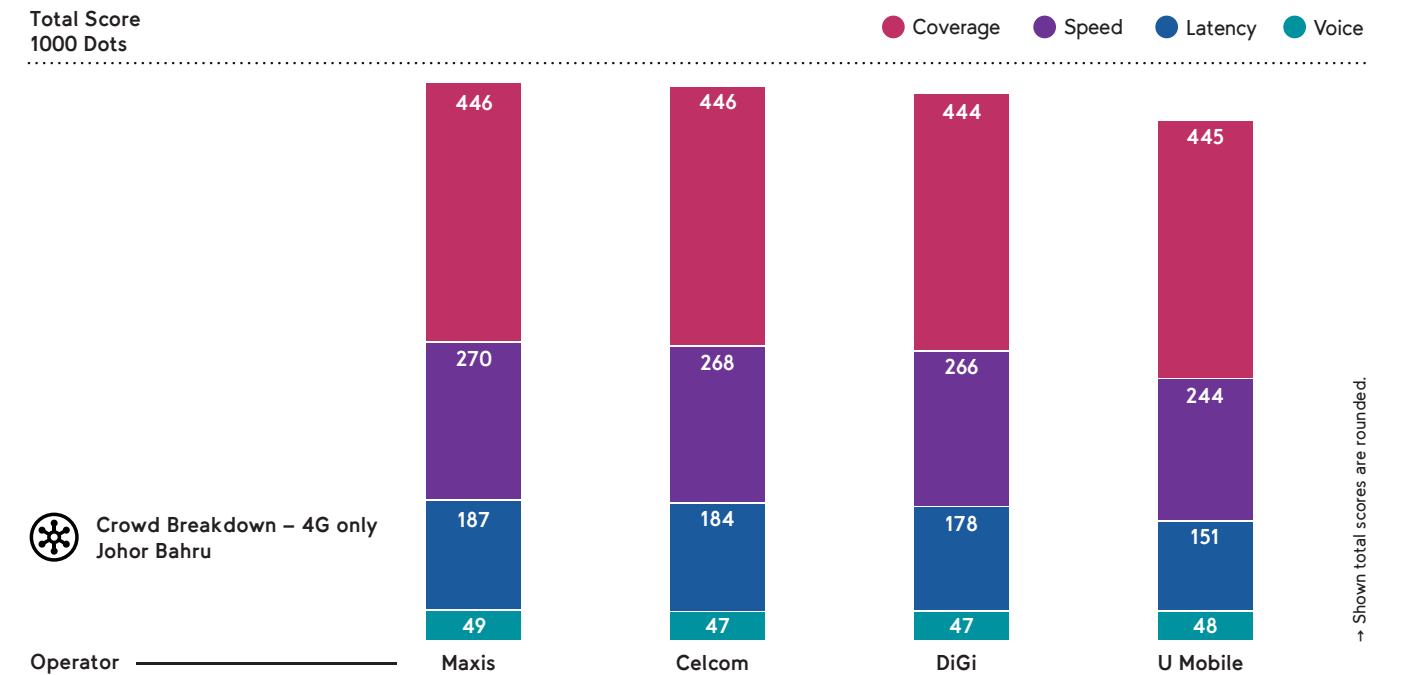


Score achieved by the networks under test in Johor Bahru.
 Score achievement in school grades: outstanding (>950), very good (>850 and <950), good (>750 and <850), satisfactory (<650 and <750), sufficient (<550 and <650).



Score Breakdown — 4G only

Johor Bahru — Coverage, Speed, Latency and Voice



Score achieved by the networks under test in Johor Bahru, considering Coverage, Latency, Speed and Voice.
 Score achievement in school grades: outstanding (>950), very good (>850 and <950), good (>750 and <850), satisfactory (<650 and <750), sufficient (<550 and <650).



Crowd KPI overview — 4G only

Johor Bahru

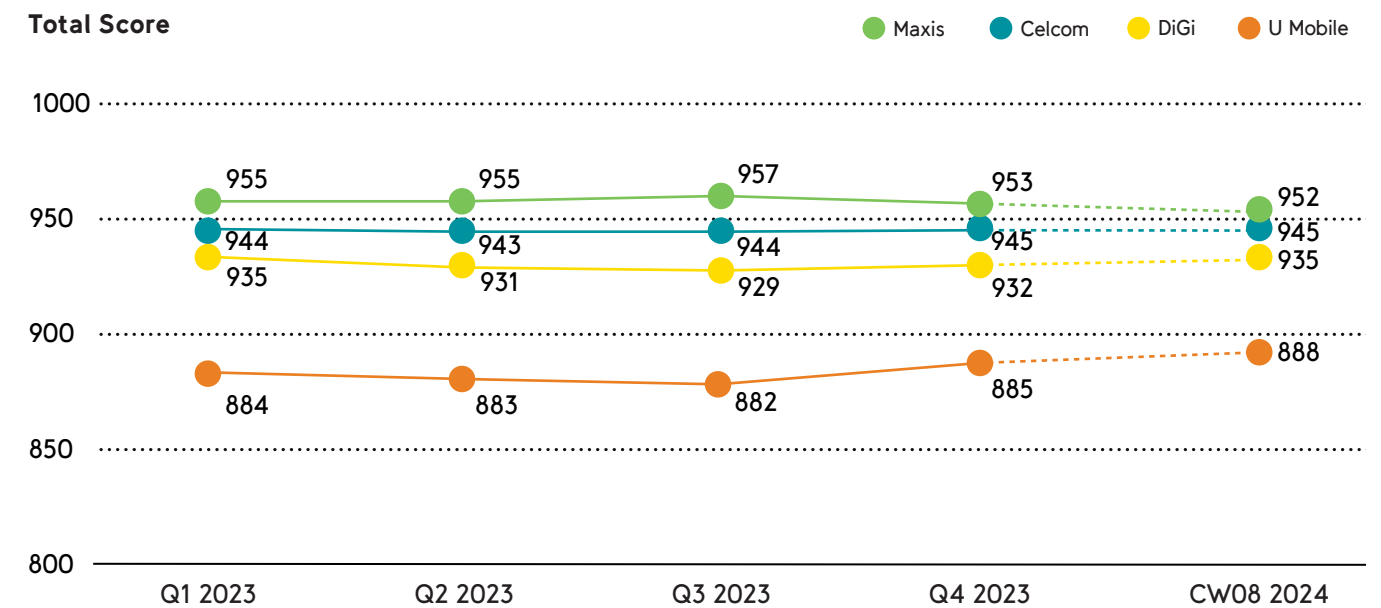
Johor Bahru 4G only	KPI name	max.	Maxis	Celcom	DiGi	U Mobile
Broadband Coverage	Coverage Quality	67,5	65,7	65,9	65,3	65,5
	Coverage Reach	135,0	135,0	135,0	135,0	135,0
	Time on broadband	247,5	244,7	245,2	243,8	244,4
Download Speed	Basic internet class	165,0	148,8	152,0	150,6	144,1
	HD video class	101,3	93,1	92,4	90,1	80,4
	UHD video class	33,8	28,5	23,4	25,4	19,1
Latency	OTT voice class	110,0	100,2	99,5	92,8	87,1
	Gaming class	90,0	86,8	84,1	84,8	63,5
Voice	HD voice	50,0	48,6	47,4	47,0	48,3
Total		1000	952	945	935	888

Achieved values of all networks under test in each of the relevant Crowd Key Performance Indicators (KPIs) in Johor Bahru. Shown scores are rounded.



Trend view — 4G only

Johor Bahru

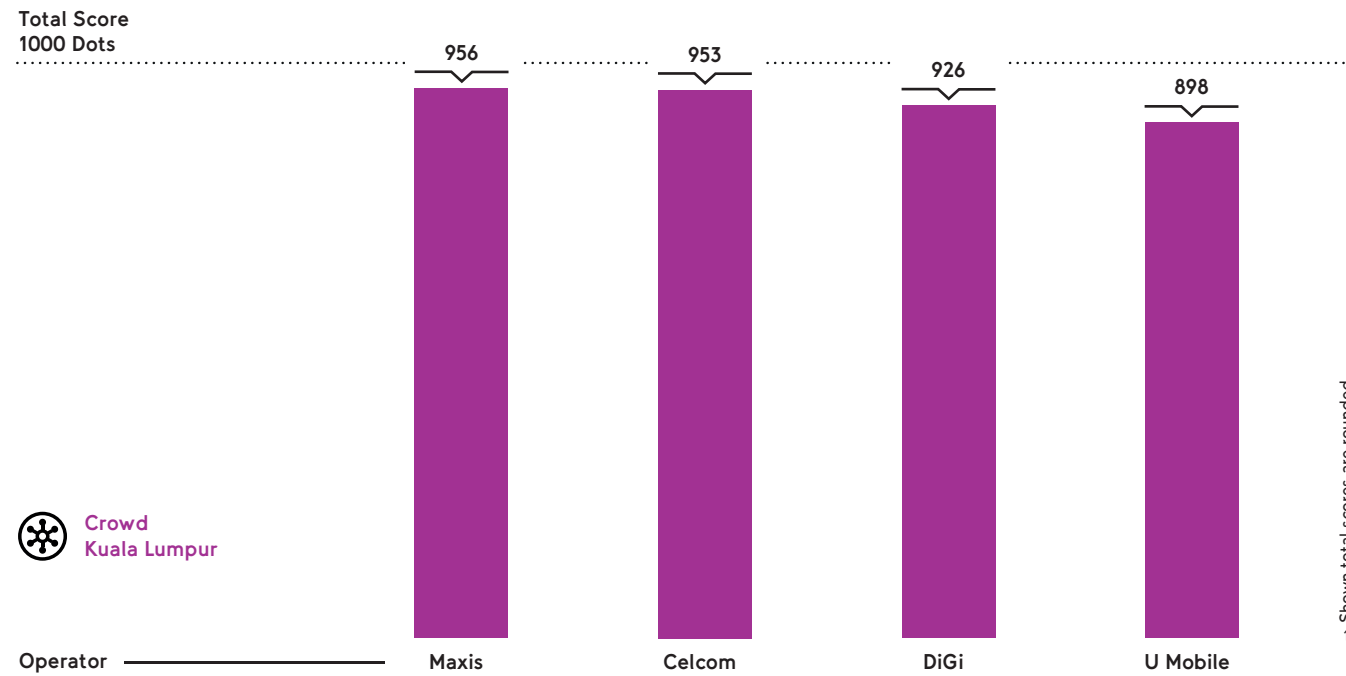


Score achieved by the networks under test in Johor Bahru. We measure smartphone data performance based on extensive drive- and crowdtests.



Total Score — 4G/5G

Kuala Lumpur — Overall results



Crowd Kuala Lumpur

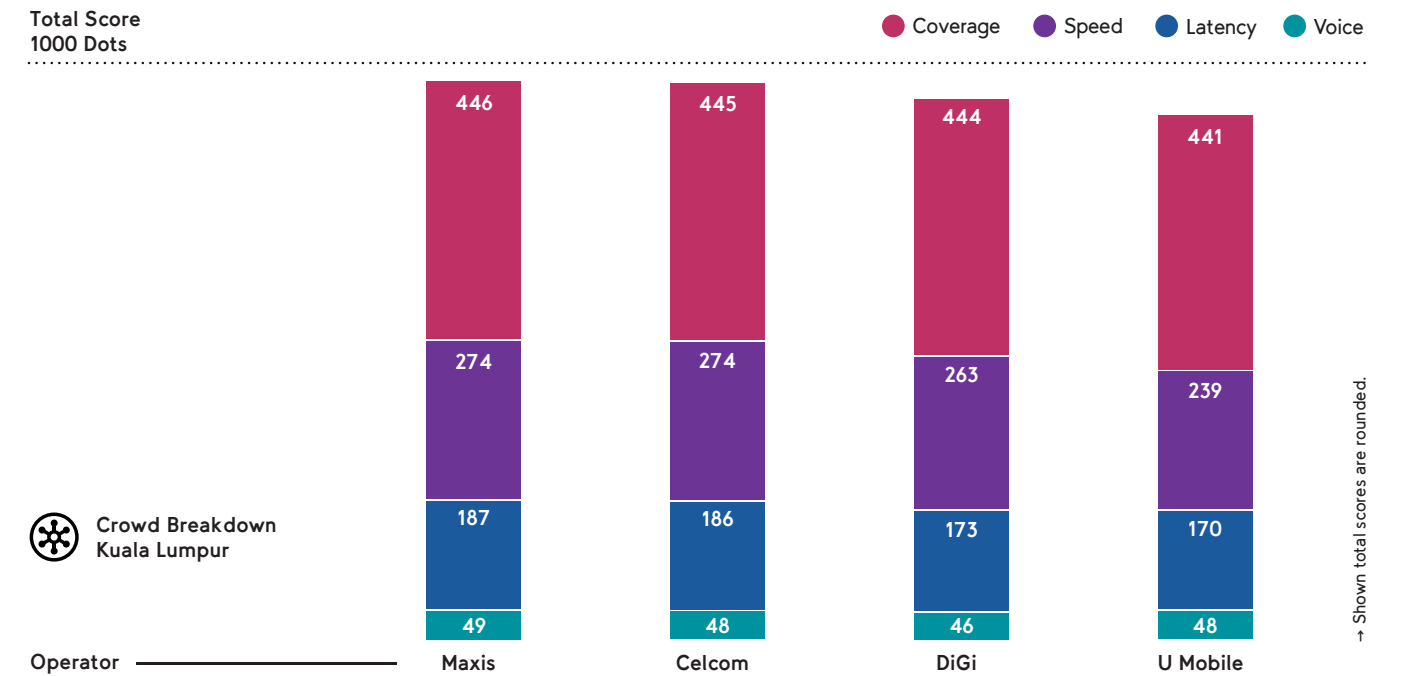
→ Shown total scores are rounded.

Score achieved by the networks under test in Kuala Lumpur.
 Score achievement in school grades: outstanding (>950), very good (>850 and <950), good (>750 and <850), satisfactory (<650 and <750), sufficient (<550 and <650).



Score Breakdown — 4G/5G

Kuala Lumpur — Coverage, Speed, Latency and Voice



Crowd Breakdown Kuala Lumpur

→ Shown total scores are rounded.

Score achieved by the networks under test in Kuala Lumpur, considering Coverage, Latency, Speed and Voice.
 Score achievement in school grades: outstanding (>950), very good (>850 and <950), good (>750 and <850), satisfactory (<650 and <750), sufficient (<550 and <650).



Crowd KPI overview — 4G/5G

Kuala Lumpur

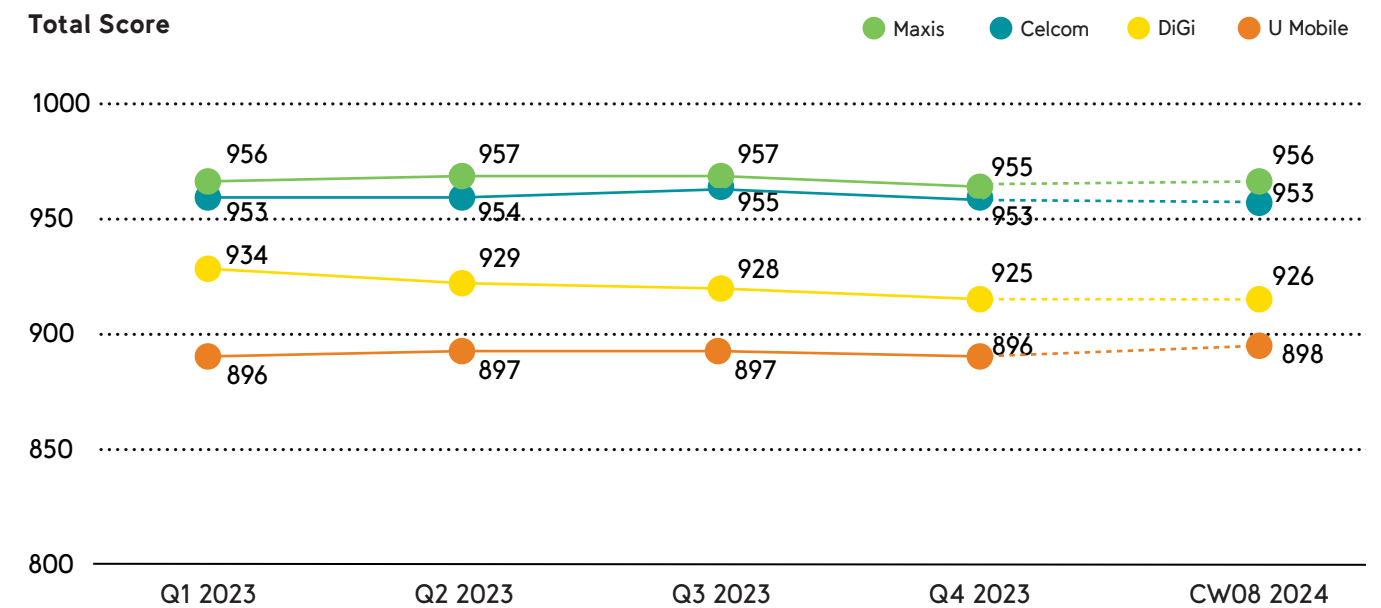
Kuala Lumpur	KPI name	max.	Maxis	Celcom	DiGi	U Mobile
Broadband Coverage	Coverage Quality	67,5	66,2	65,6	65,2	63,6
	Coverage Reach	135,0	135,0	135,0	135,0	135,0
	Time on broadband	247,5	245,2	244,4	243,6	242,6
Download Speed	Basic internet class	165,0	149,0	151,1	149,8	143,9
	HD video class	101,3	94,6	92,6	86,4	73,1
	UHD video class	33,8	30,4	30,4	26,5	22,1
Latency	OTT voice class	110,0	99,8	99,5	87,9	91,0
	Gaming class	90,0	86,8	86,0	84,7	79,0
Voice	HD voice	50,0	48,7	47,8	46,1	47,8
Total		1000	956	953	926	898

Achieved values of all networks under test in each of the relevant Crowd Key Performance Indicators (KPIs) in Kuala Lumpur. Shown scores are rounded.



Trend view — 4G/5G

Kuala Lumpur

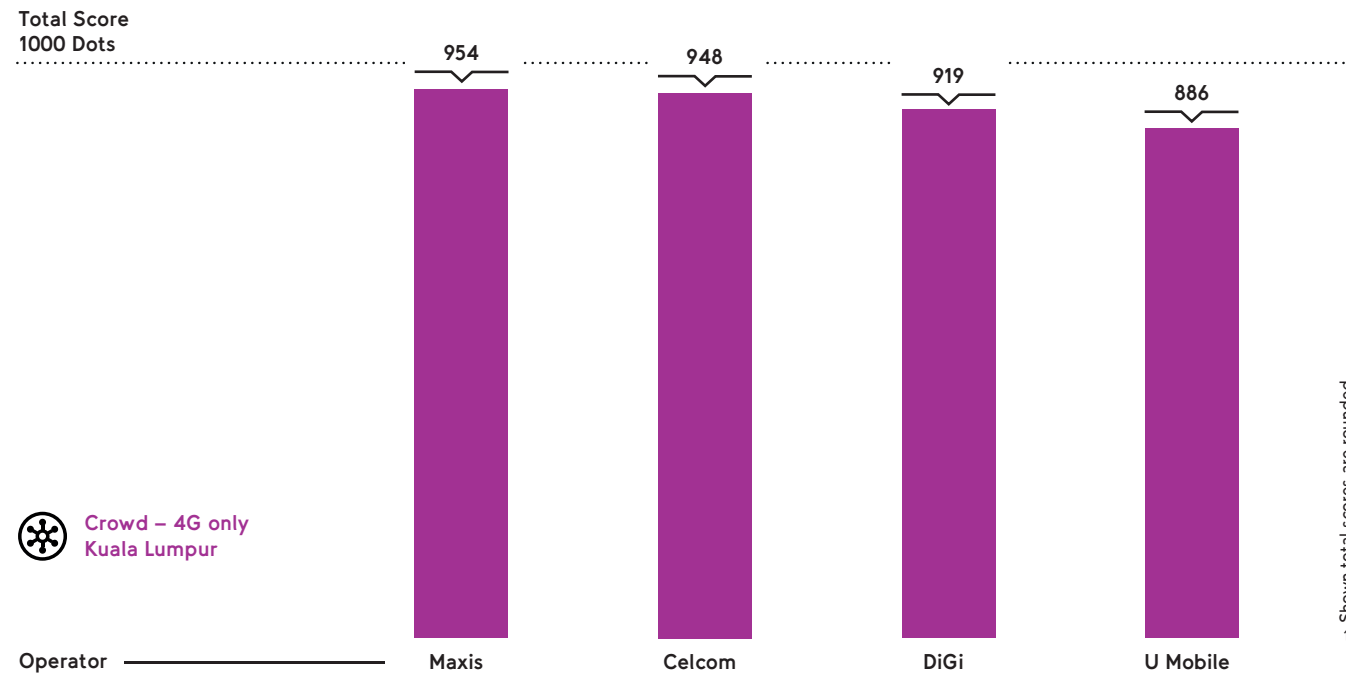


Score achieved by the networks under test in Kuala Lumpur. We measure smartphone data performance based on extensive drive- and crowdtests.



Total Score — 4G only

Kuala Lumpur — Overall results

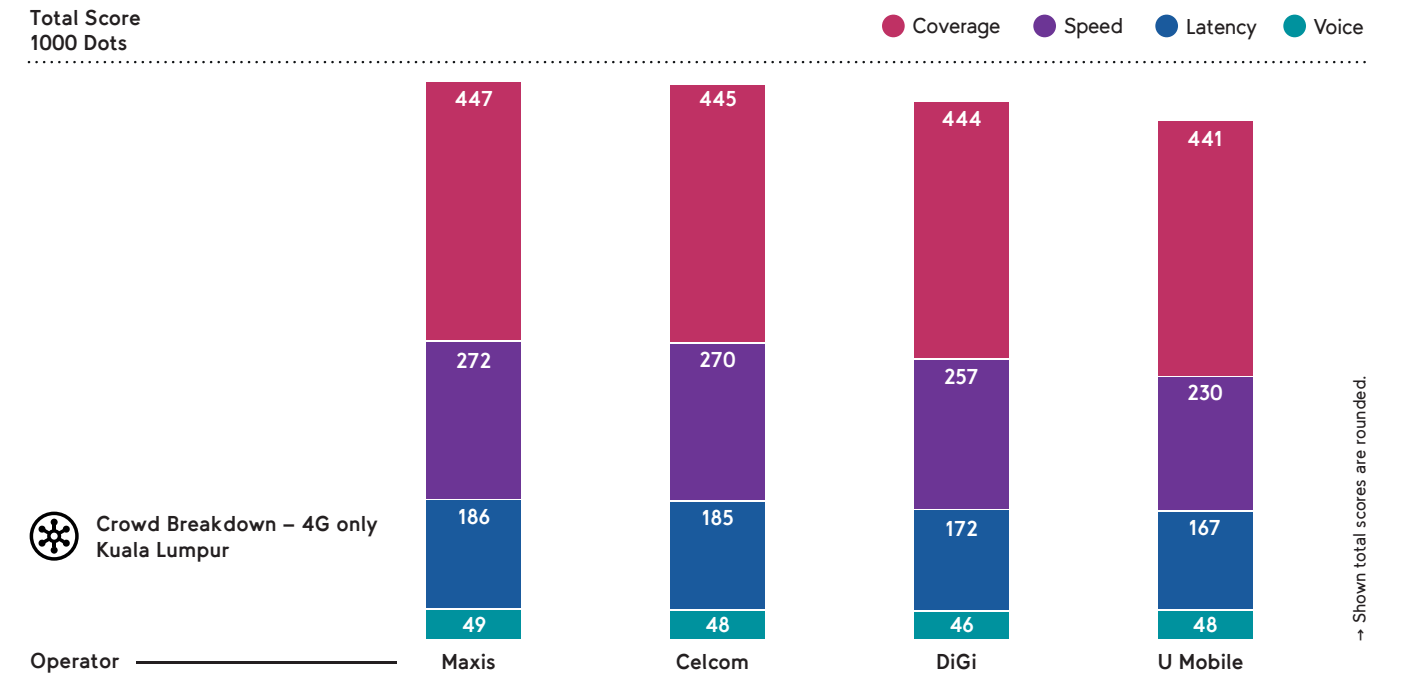


Score achieved by the networks under test in Kuala Lumpur.
 Score achievement in school grades: outstanding (>950), very good (>850 and <950), good (>750 and <850), satisfactory (<650 and <750), sufficient (<550 and <650).



Score Breakdown — 4G only

Kuala Lumpur — Coverage, Speed, Latency and Voice



Score achieved by the networks under test in Kuala Lumpur, considering Coverage, Latency, Speed and Voice.
 Score achievement in school grades: outstanding (>950), very good (>850 and <950), good (>750 and <850), satisfactory (<650 and <750), sufficient (<550 and <650).



Crowd KPI overview — 4G only

Kuala Lumpur

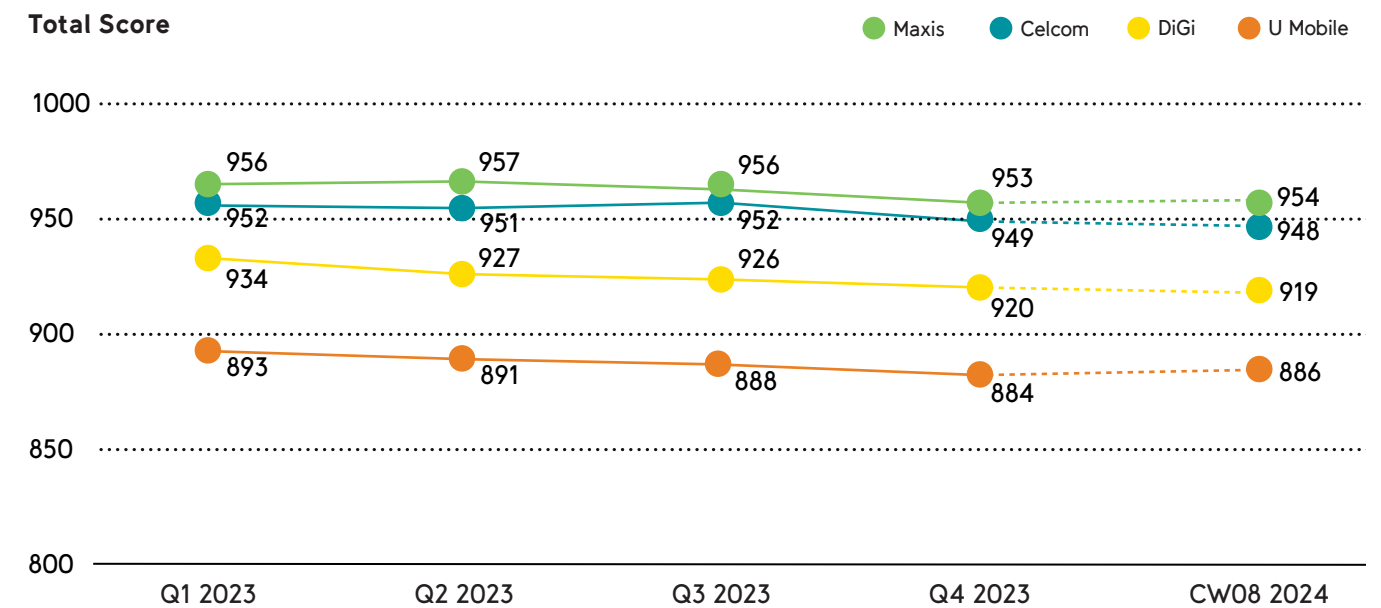
Kuala Lumpur 4G only	KPI name	max.	Maxis	Celcom	DiGi	U Mobile
Broadband Coverage	Coverage Quality	67,5	66,2	65,5	64,9	63,2
	Coverage Reach	135,0	135,0	135,0	135,0	135,0
	Time on broadband	247,5	245,2	244,3	243,5	242,5
Download Speed	Basic internet class	165,0	148,8	150,2	149,5	142,9
	HD video class	101,3	94,4	91,8	83,5	69,1
	UHD video class	33,8	29,2	27,5	24,0	17,8
Latency	OTT voice class	110,0	99,5	98,9	87,4	89,7
	Gaming class	90,0	86,8	86,1	84,6	77,7
Voice	HD voice	50,0	48,7	47,9	46,1	47,9
Total		1000	954	948	919	886

Achieved values of all networks under test in each of the relevant Crowd Key Performance Indicators (KPIs) in Kuala Lumpur. Shown scores are rounded.



Trend view — 4G only

Kuala Lumpur

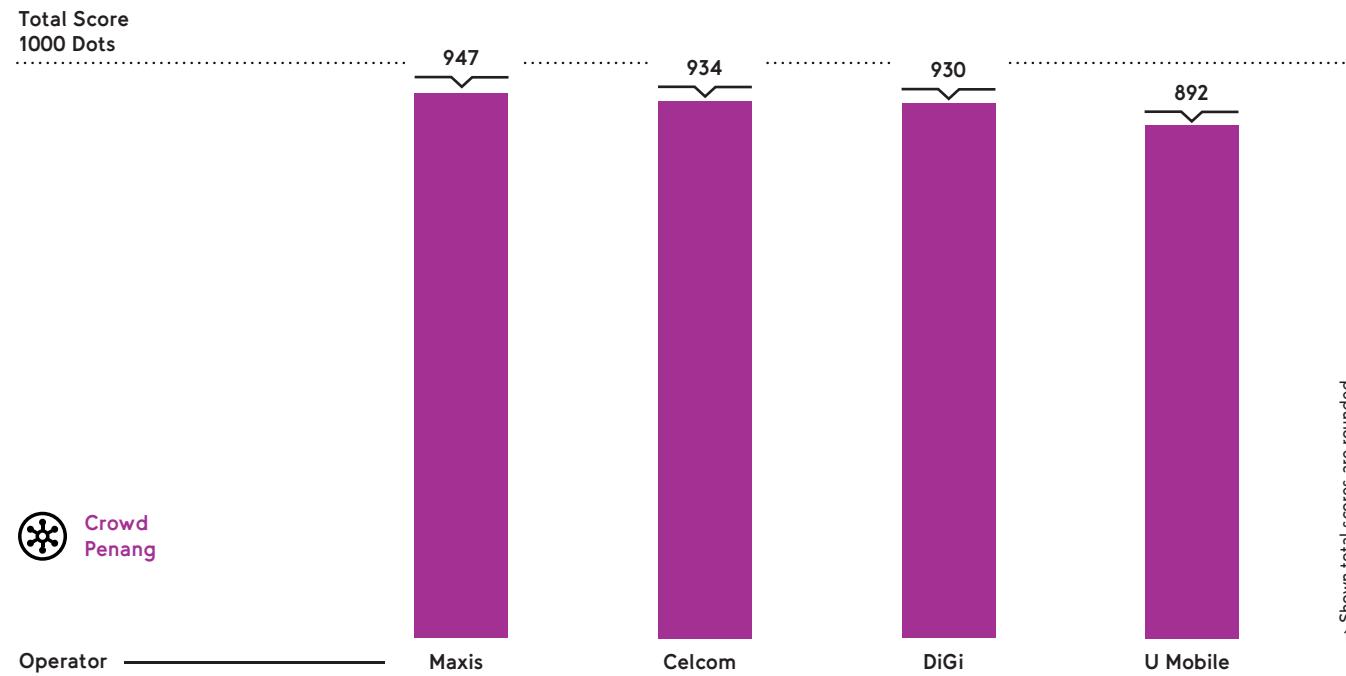


Score achieved by the networks under test in Kuala Lumpur. We measure smartphone data performance based on extensive drive- and crowdtests.



Total Score — 4G/5G

Penang — Overall results

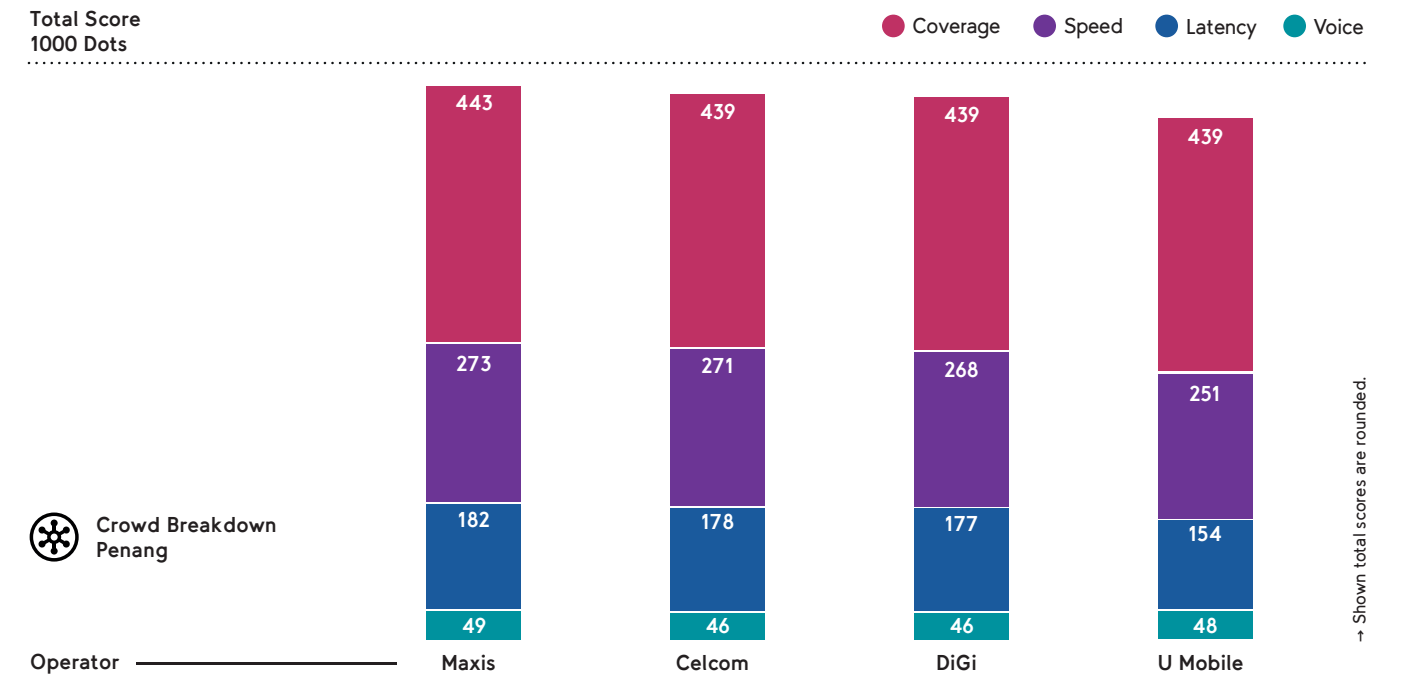


Score achieved by the networks under test in Penang.
 Score achievement in school grades: outstanding (>950), very good (>850 and <950), good (>750 and <850), satisfactory (<650 and <750), sufficient (<550 and <650).



Score Breakdown — 4G/5G

Penang — Coverage, Speed, Latency and Voice



Score achieved by the networks under test in Penang, considering Coverage, Latency, Speed and Voice.
 Score achievement in school grades: outstanding (>950), very good (>850 and <950), good (>750 and <850), satisfactory (<650 and <750), sufficient (<550 and <650).



Crowd KPI overview — 4G/5G

Penang

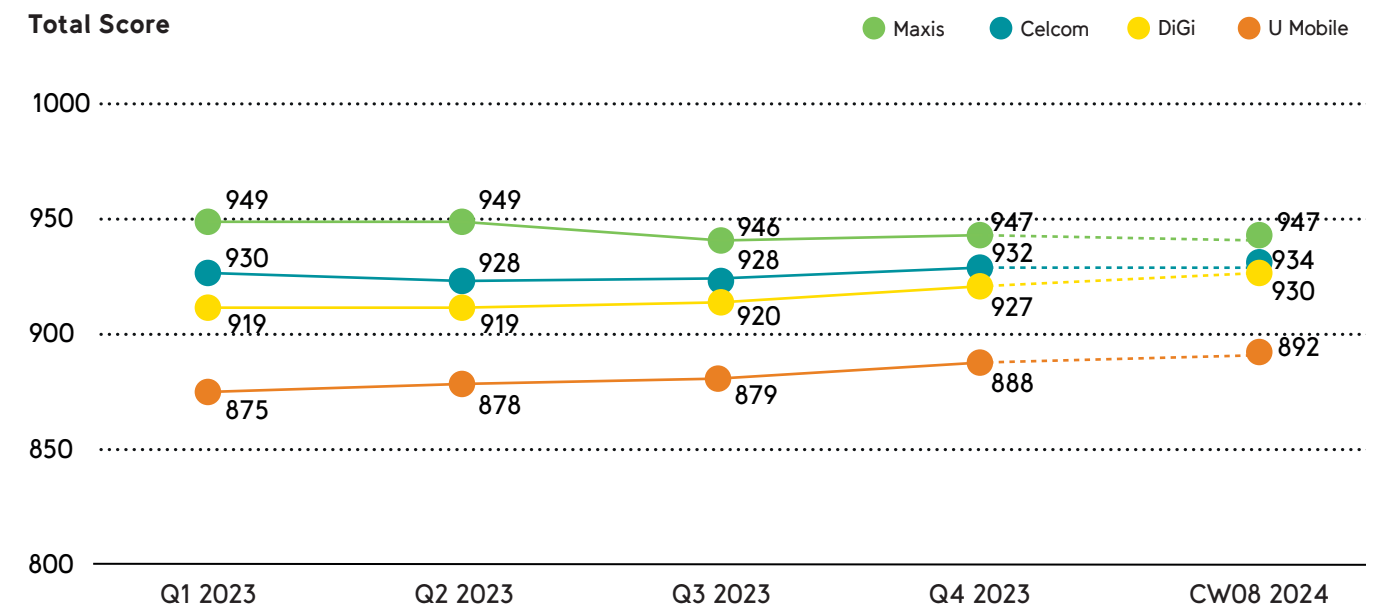
Penang	KPI name	max.	Maxis	Celcom	DiGi	U Mobile
Broadband Coverage	Coverage Quality	67,5	65,6	64,2	63,5	64,6
	Coverage Reach	135,0	132,7	132,0	132,7	129,6
	Time on broadband	247,5	244,7	242,5	242,6	244,0
Download Speed	Basic internet class	165,0	151,2	152,0	152,8	147,0
	HD video class	101,3	93,0	92,6	88,7	82,9
	UHD video class	33,8	29,0	26,8	26,9	21,4
Latency	OTT voice class	110,0	96,4	93,7	91,8	87,9
	Gaming class	90,0	85,5	83,8	84,9	66,1
Voice	HD voice	50,0	48,5	46,3	46,0	48,2
Total		1000	947	934	930	892

Achieved values of all networks under test in each of the relevant Crowd Key Performance Indicators (KPIs) in Penang. Shown scores are rounded.



Trend view — 4G/5G

Penang

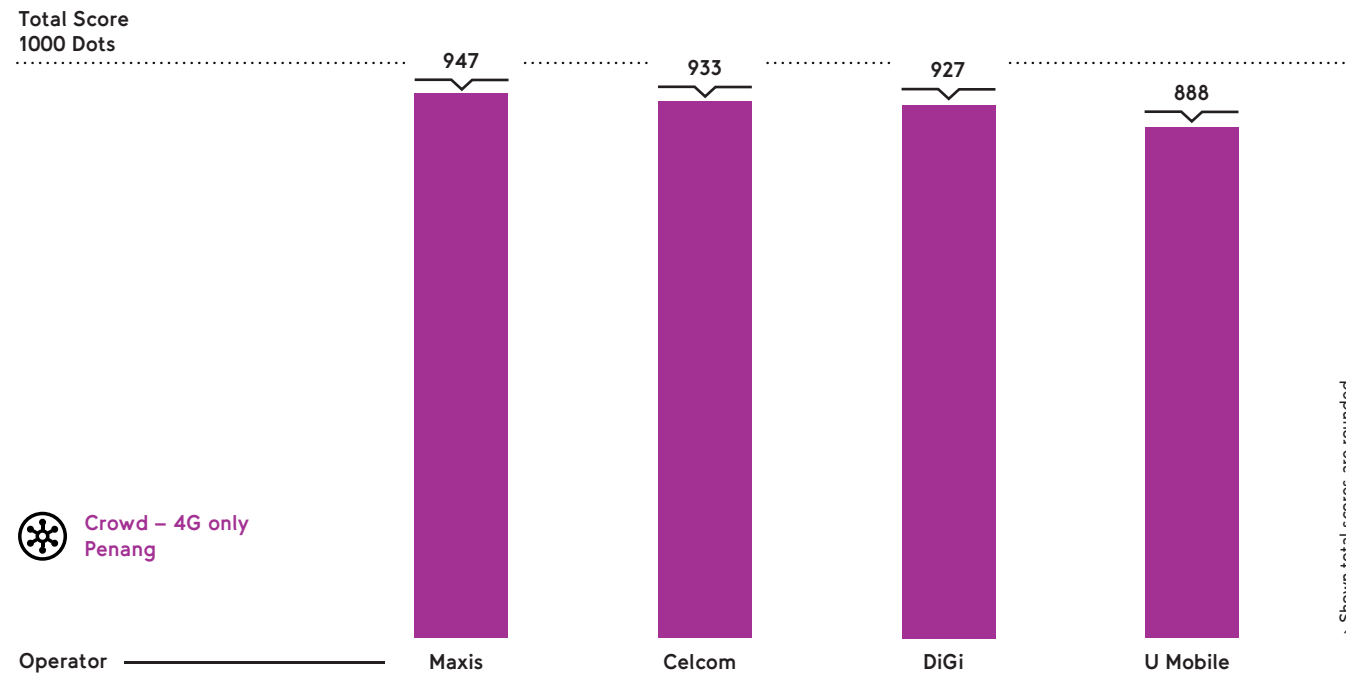


Score achieved by the networks under test in Penang. We measure smartphone data performance based on extensive drive- and crowdtests.



Total Score — 4G only

Penang — Overall results

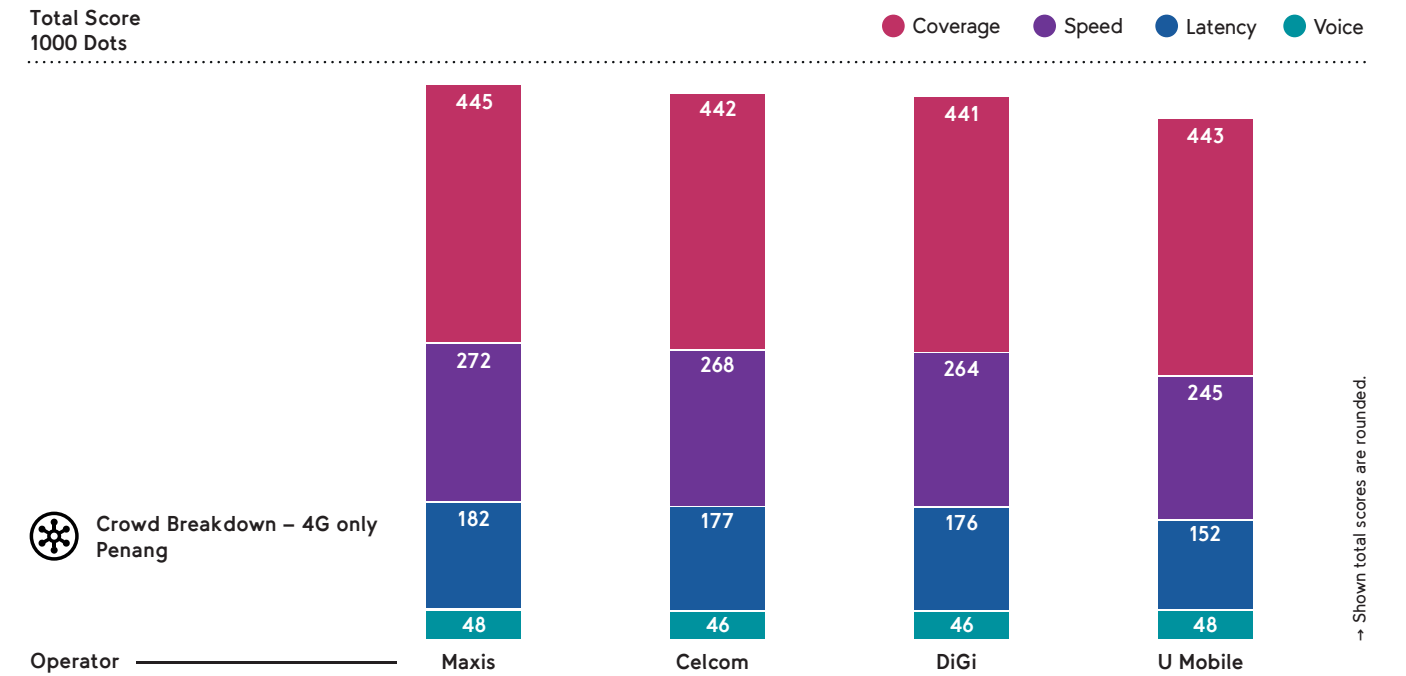


Score achieved by the networks under test in Penang.
 Score achievement in school grades: outstanding (>950), very good (>850 and <950), good (>750 and <850), satisfactory (<650 and <750), sufficient (<550 and <650).



Score Breakdown — 4G only

Penang — Coverage, Speed, Latency and Voice



Score achieved by the networks under test in Penang, considering Coverage, Latency, Speed and Voice.
 Score achievement in school grades: outstanding (>950), very good (>850 and <950), good (>750 and <850), satisfactory (<650 and <750), sufficient (<550 and <650).



Crowd KPI overview — 4G only

Penang

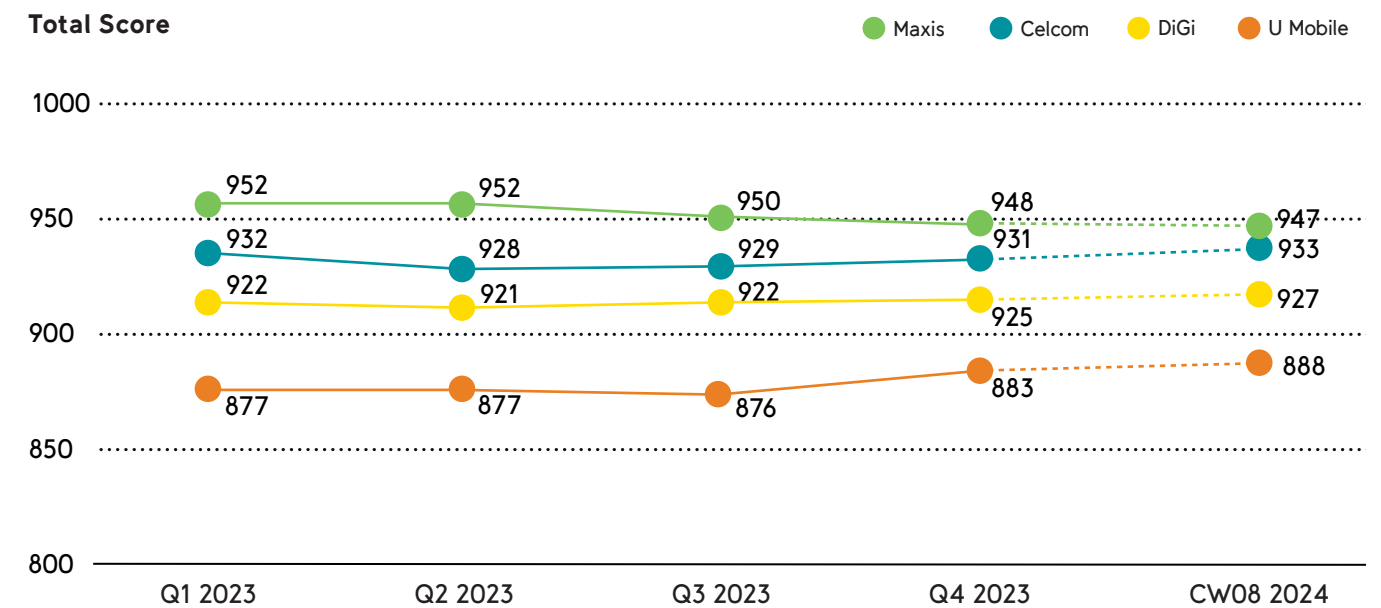
Penang 4G only	KPI name	max.	Maxis	Celcom	DiGi	U Mobile
Broadband Coverage	Coverage Quality	67,5	66,0	64,5	64,2	64,7
	Coverage Reach	135,0	134,6	134,5	134,5	134,1
	Time on broadband	247,5	244,7	242,7	242,5	243,8
Download Speed	Basic internet class	165,0	151,1	151,7	152,5	146,3
	HD video class	101,3	92,7	92,2	86,3	79,6
	UHD video class	33,8	27,8	24,0	24,9	18,6
Latency	OTT voice class	110,0	96,0	93,0	91,1	86,9
	Gaming class	90,0	85,5	83,9	84,9	65,1
Voice	HD voice	50,0	48,5	46,3	45,9	48,2
Total		1000	947	933	927	888

Achieved values of all networks under test in each of the relevant Crowd Key Performance Indicators (KPIs) in Penang. Shown scores are rounded.



Trend view — 4G only

Penang



Score achieved by the networks under test in Penang. We measure smartphone data performance based on extensive drive- and crowdtests.



Methodology

Crowdsourcing

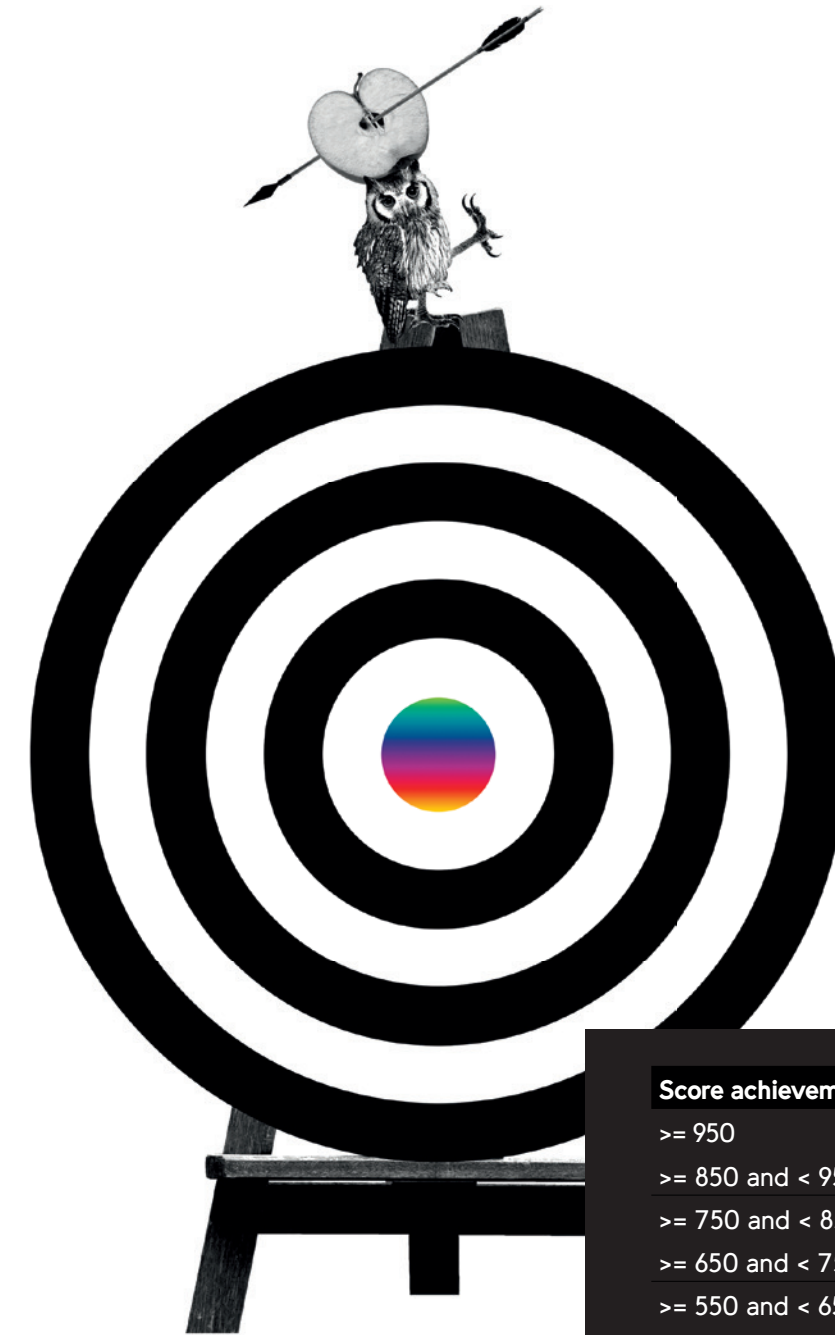
For the collection of crowd data, umlaut has integrated background diagnosis processes into 8000+ diverse Android apps. If one of these applications is installed on the end-user's phone and the user agrees, anonymous data collection takes place 24/7, 365 days a year on this device. Reports are generated for every 15 minutes and daily sent to umlaut's cloud servers. Such reports generate just a small number of bytes per message and do not

include any personal user data. The unique crowdsourcing technology allows umlaut to collect data about real-world customer experience in a truly passive way – wherever and whenever customers use their smartphones. By analyzing data according to predefined metrics, umlaut can provide information for the optimization of networks and also show if networks live up to the expectations of their customers.



Key takeaways

- ☰ Maxis achieves the highest umlaut Score in Malaysia with 930 points out of 1000, followed by Celcom with 910 points, DiGi with 899 points and U Mobile with 867 points.
- ☰ In Kuala Lumpur, Johor Bahru and Penang Maxis achieved the highest score in each city. Celcom achieves in all cities the second highest score, followed by DiGi and U Mobile.
- ☰ U Mobile shows an increasing performance trend nationwide and in each city. Maxis is showing overall a stable performance with very slight decrease in points. Celcom and Digi are losing 5 points each in the last 12 months in the nationwide assessment.



Score achievement	Qualification
>= 950	outstanding
>= 850 and < 950	very good
>= 750 and < 850	good
>= 650 and < 750	satisfactory
>= 550 and < 650	sufficient



umlaut – Part of Accenture

umlaut communications GmbH

Am Kraftversorgungsturm 3 · 52070 Aachen · Germany

Hakan Ekmen · Global Networks Lead, Comms Industry

cell +49 151 571 33 235 · hakan.ekmen@accenture.com

www.umlaut.com