

The 2023 Mobile Network Test in Belgium



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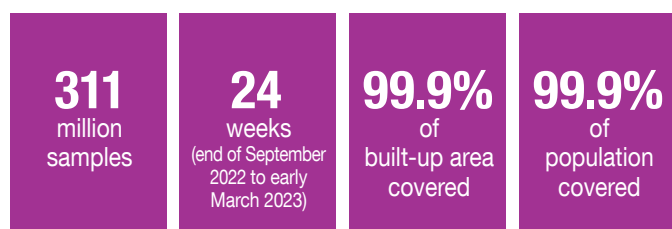
For the first time, umlaut, part of Accenture, and connect take a closer look at the performance of the mobile networks in Belgium. It reveals a close race between three very good operators by umlaut's assessment.

For the first time in Belgium, umlaut and connect have used umlaut's sophisticated crowdsourcing approach to offer a comprehensive look at the user experience of mobile customers in this country. The results show a strong level of performance – with Proximus, BASE and Orange scoring closely together and all three of them achieving the grade “very good”. The ultimate winner of a very close race for the top position is Proximus.

Scope

For its assessment of the Belgian mobile operators, umlaut has conducted crowd-sourced analyses based on data gathered between calendar weeks 39 (end of September), 2022, and 10 (early March), 2023. A total of 310,952,779 samples from 89,936 users has been considered in the analysis. This statistically represents 99.9% of the built-up area of Belgium and 99.9% of the country's population. Our detailed methodology is described on page 7.

CROWDSOURCING FACTS



Shown scores are rounded.

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The Belgian Mobile Network Operators



Proximus is the brand name under which the former incumbent Belgacom (originally RTT – Regie voor Telegraaf en Telefoon/Régie des Télégraphes et Téléphones) operates. Since 2015, the Proximus is both used for the company's mobile communications offering as well as its fixed-line activities.

The Belgian state is still the company's largest shareholder, and Proximus is Belgium's largest telecommunications provider. In its 2022 financial report, the company published to have issued 4.8 million postpaid SIM cards, which makes the company the largest mobile operator in Belgium.

The company offers 2G, 3G, 4G, 4G+, and 5G technologies. Proximus launched the first public 5G network in Belgium in 2020. After a 5G spectrum auction in summer 2022, the company has started a fast 5G roll-out, which includes an infrastructure cooperation with Orange. In the Proximus network, 5G is already available in over 94 cities and municipalities, mainly in Flanders.



Base is competing with Orange for the second rank in terms of customer numbers on the Belgian mobile market. The company was founded in 1998 under the name „KPN Orange“ as a subsidiary of the Dutch KPN and the British Orange plc. From 1999, it offered mobile services on the Belgian market under the brand name Orange. In the course of the acquisition of Orange by France Télécom, Orange's 50% share in Base fell to France Télécom. As France Télécom already had a stake in Mobistar, it sold its share to KPN in 2000. Subsequently, KPN Orange was renamed Base. Since 2015, Base Belgium belongs to the Telenet Group.

In its 2022 financial report, Telenet reports to have approx 2.9 million mobile subscribers in Belgium. This is close to the number stated by Orange Belgium, so both operators are competing over being the second largest contender on the Belgian mobile communications market. Base offers 2G, 3G, 4G and 4G+ technologies. The company has offered its first 5G installations since April 2022, and plans to offer countrywide 5G coverage by 2025.



Orange Belgium is a subsidiary of the French Orange S.A, successor of France Telecom. The company offers mobile and fixed-line telecommunications in Belgium as well as in Luxembourg. In 2016, the former offering under the name Mobistar has been rebranded to Orange. The company states to have over 3 million customers in Belgium and Luxembourg. According to the company's 2022 financial statement, approx. 2.8 million of these are located in Belgium. This is almost the same customer count which is also published by Base, so both companies are fighting for the second rank in terms of size on the Belgian mobile communications market.

Orange Belgium offers 2G, 3G, 4G, 4G+ and 4.5G („5G ready“) technologies. In Belgium's 5G spectrum auction in summer 2022, the company secured a considerable share of spectrum and has since started to deploy 5G over the country. To this end, the company has announced an infrastructure cooperation with Proximus, which aims at a faster 5G roll-out of both operators. In mid-2023, Orange plans to phase out 3G in favor of 4G and 5G implementations.

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Results at a Glance



Proximus is the overall winner of our first Mobile Network Test in Belgium. The operator achieves convincing results in all parts of our assessment, but leads especially in the Active Download Speed category as well as achieving a top score in the passively observed Download Speed (on a par with Orange). These results may be an indication of the 5G roll-out that is already somewhat advanced in this mobile network. Together with Base and Orange, Proximus offers a high share of voice calls in high-definition quality. With these results, Proximus deservedly achieved the grade “very good” and the first position in our ranking.



Base achieves the second place in our assessment, scoring just three points behind the overall winner Proximus. Base competes with Orange for the position of being the second largest Belgian mobile network in terms of customer numbers. This operator also performs strong in all considered disciplines, but shows a slight lead in terms of Broadband coverage, as well as in our Stability assessment. Together with Proximus and Orange, Base also provides a compellingly high share of voice calls in high-definition quality. Overall, base achieves the grade “very good” and a strong second rank in our comparison.



Orange ranks third in a close race with a still excellent overall result and the grade “very good”. The operator competes with Base for the position of being the second largest Belgian mobile network in terms of customer numbers. Orange takes the lead in the Latency and Active Upload Speed categories and co-leads with Proximus in the passively observed Download Speeds. Together with Proximus and Base, Orange also offers a high share of voice calls in high-definition quality and also a high degree of Stability in its mobile network.



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Results

Overall Results	max.	Proximus	BASE	Orange
Broadband Coverage	400P.	384	385	380
Coverage Quality	60.0	52.8	53.4	51.4
Coverage Reach	120.0	118.3	117.1	117.0
Time on Broadband	220.0	212.5	214.9	211.5
Download Speed	200P.	184	183	184
Basic Internet Class	110.0	99.4	98.8	99.7
HD Video Class	67.5	64.1	63.9	64.0
UHD Video Class	22.5	20.7	20.6	20.6
Download Speed Active	50P.	41	38	33
Ø Datarate	27.5	21.9	20.5	19.1
P10 Datarate	11.3	10.1	8.8	7.2
P90 Datarate	11.25	9.5	8.6	7.1
Upload Speed Active	50P.	42	43	44
Ø Datarate	27.5	21.4	23.1	24.3
P10 Datarate	11.25	10.7	10.4	10.5
P90 Datarate	11.25	9.5	9.1	9.2
Latency	200P.	189	187	190
Gaming Class	90.0	87.0	86.3	86.7
OTT Voice Class	110.0	102.1	100.4	102.7
Voice	50P.	46	46	46
HD Voice	50.0	46	46	46
Stability	50P.	46	47	46
Transaction Success	50.0	46	47	46
Total	1000P.	932	929	923

Percentages and points rounded to integer numbers.

For the calculation of points and totals, the accurate, unrounded values were used.



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Detailed Results

Broadband Coverage

In the Broadband Coverage category, BASE takes a lead at a narrow distance ahead of Proximus. This lead is won by slightly better results in the Coverage Quality and Time on Broadband KPIs (see definitions on page 7). In terms of Coverage Reach, Proximus is ahead, overall reaching a solid second rank in this discipline, just one score point behind BASE. Orange comes in third with also very good results that only rank at minor distances behind BASE and Proximus.

BROADBAND COVERAGE

BASE

KPI Values	Proximus	BASE	Orange
Broadband Coverage			
Coverage Quality [%]	97.0	97.2	96.4
Coverage Reach [%]	97.2	95.2	95.1
Time on Broadband [%]	97.7	98.5	97.4

Percentages and points rounded to integer numbers.
For the calculation of points and totals, the accurate, unrounded values were used.

Passive Download Speeds

In the passively observed Download Speeds, Proximus and Orange score on a par, with BASE following closely at a distance of just one score point. The results of all three operators are very close together: Orange leads in the Basic Internet Class (min. 2 Mbps), while Proximus is slightly ahead in the HD (min. 5 Mbps) and UHD Video Classes (min. 20 Mbps). In the latter, in terms of score points, BASE and Orange rank on a par.

PASSIVE DOWNLOADS

PROXIMUS & ORANGE

KPI Values	Proximus	BASE	Orange
Download Speed			
Basic Internet Class [%]	95.2	94.9	95.3
HD Video Class [%]	87.2	86.2	86.6
UHD Video Class [%]	33.6	28.0	29.0

Percentages and points rounded to integer numbers.
For the calculation of points and totals, the accurate, unrounded values were used.

Active Download Speeds

In the actively performed tests of Download Speeds, Proximus takes a more distinct lead in comparison to the results of the passive assessments. Here, Belgium's largest mobile operator is ahead in all three considered KPIs. BASE follows on second position, again in all three KPIs, and Orange on the third.

ACTIVE DOWNLOADS

PROXIMUS

KPI Values	Proximus	BASE	Orange
Download Speed Active			
P10 Datarate [Mbit/s]	5.1	4.6	4.1
P90 Datarate [Mbit/s]	126.1	103.4	79.7
Ø Datarate [Mbit/s]	53.0	45.5	34.1

Percentages and points rounded to integer numbers.
For the calculation of points and totals, the accurate, unrounded values were used.

Active Upload Speeds

In the actively performed Upload Speed tests, it is Orange, who takes the lead in an overall tight comparison. BASE and Proximus follow on second and third rank in this category, each at a close distance of just one score point. Orange's lead is obtained with the strongest results in the average datarates. In the P10 (90% of the samples better than...) and P90 (10% better than...) assessments, Proximus is slightly ahead, with Orange following on the second place in both of these KPIs.

ACTIVE UPLOADS

ORANGE

KPI Values	Proximus	BASE	Orange
Upload Speed Active			
P10 Datarate [Mbit/s]	2.0	2.3	2.5
P90 Datarate [Mbit/s]	39.7	33.7	34.1
Ø Datarate [Mbit/s]	17.1	16.2	16.5

Percentages and points rounded to integer numbers.
For the calculation of points and totals, the accurate, unrounded values were used.

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Detailed Results

Latency

In the Latency category, all three Belgian operators achieve strong results. In a once more tight race, Orange leads the field, closely ahead of Proximus and then Base. This ranking order is already established in the more relaxed OTT Voice Class (roundtrip times up to 100 ms). In the more demanding Gaming Class (up to 50 ms), Proximus scores a little better than Orange, with BASE coming in third.

LATENCY

ORANGE

KPI Values	Proximus	BASE	Orange
Latency			
Gaming Class [%]	94.4	93.0	93.8
OTT Voice Class [%]	97.5	97.0	97.7
Percentages and points rounded to integer numbers. For the calculation of points and totals, the accurate, unrounded values were used.			

Voice

In our assessment of the proportion of voice calls established in high-definition quality (and thus via Voice over LTE or VoLTE in short), all three Belgian operators score on a par. In the actual KPI values, Proximus and BASE are together slightly ahead of Orange, but this minor gap is leveled out in the scoring. The overall result in this discipline shows that Belgian mobile customers can rely on a very good availability of voice calls in high-definition quality.

VOICE

ALL
OPERATORS

KPI Values	Proximus	BASE	Orange
Voice			
HD Voice [%]	95.7	95.7	95.1
Percentages and points rounded to integer numbers. For the calculation of points and totals, the accurate, unrounded values were used.			

Stability

In our assessment of the general availability of a mobile connection, all three contenders score very close together. Base takes a narrow lead in this category, but only with a distance of one score point ahead of the equally strong candidates Proximus and Orange. Again, this part of our assessment confirms the high level of reliability in all three Belgian mobile networks.

STABILITY

BASE

KPI Values	Proximus	BASE	Orange
Stability			
Transaction Success [%]	91.8	93.2	92.1
Percentages and points rounded to integer numbers. For the calculation of points and totals, the accurate, unrounded values were used.			



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Methodology

The umlaut connect Mobile Network Tests are the result of a sophisticated crowdsourcing analysis, based on data gathered over a period of 24 weeks and representing the real-life user experience of mobile customers.

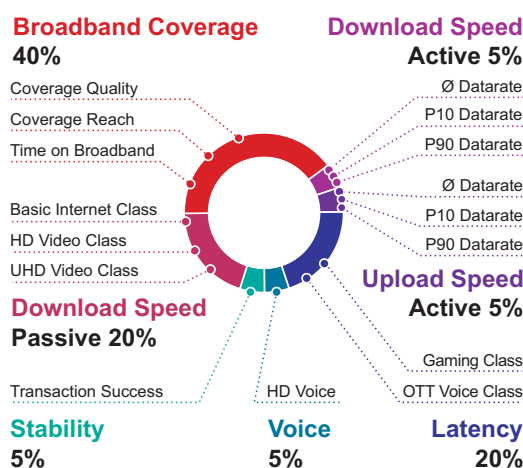
umlaut, Part of Accenture and headquartered in Aachen, Germany, is a world leader in mobile network testing. umlaut is partnering with the international telecommunications magazine connect, which has 30 years of editorial expertise and is one of the leading test authorities in Europe for telecommunication products and services. Together, we – umlaut and connect – have been conducting the most important network benchmark test in Germany for almost 20 years, extending it to other European countries since 2009. As the de-facto industry standard, our benchmarking methodology focuses on customer-perceived network quality.

Comprehensive crowdsourcing

The results of this benchmark are based on a comprehensive analysis of crowd-sourced data which is performed by umlaut, Part of Accenture. The data for their sophisticated analysis was gathered over a period of 24 weeks. To obtain this data, thousands of popular apps collect parameters in the background during smartphone use, such as the mobile technology of the connection, the data rates of downloads and the technology used for voice connections – provided the user has previously consented to this absolutely anonymous data collection. Measured values such as data throughput are aggregated in a 15-minute interval and regularly transmitted to the umlaut servers. The reports are only a few bytes in size, so that they have virtually no impact on the users' data volume. Samples that were captured via Wi-Fi or when the flight mode was active, for example, are filtered out before further analysis.

Broadband coverage

To determine the quality of broadband coverage, we look at several parameters: The analysis is based on Evaluation Areas (EAs) – tiles of two by two kilometers. An EA is considered valid if there are at least two sub-tiles with an edge length of 500 meters in it with at least two users, each of which has supplied at least 20 samples. This must be true for all network operators (MNOs). For the Coverage quality, we determine in which EAs 4G/5G samples are available for a network operator and in which tiles all providers are represented (“common footprint”). The KPI indicates the proportion of 4G/5G samples in relation to the average of all valid EAs. The Coverage Reach analyzes the size of the 4G/5G footprint: Here, the network used receives three points for 4G/5G coverage or one point for 3G. The sum of the points per network operator is divided by the possible number of points of all EAs in the “common footprint”. The time on broadband is not determined per underlying mobile network, but separately for each MVNO. It tells how often an individual user had 4G/5G reception in the period under consideration. To determine this, umlaut puts the samples that show 4G/5G coverage in relation to the total number of all samples. Important: These percentages reflect the fulfillment ratio of our coverage KPIs – not the percentage of 4G/5G coverage of area or population.



Passive Download Data Rates and Latency

The passive gathering of the data rates observed for downloads and uploads take place in the background while the user's employ everyday applications on their devices. In order to take into account that many mobile tariffs limit the usable speed, umlaut has defined application-related speed classes for evaluating data rates: For basic Internet, a minimum of 2 Mbps must be achieved, for HD video 5 Mbps and for UHD video 20 Mbps. For a sample to be valid, a minimum amount of data must have flowed in a 15-minute period. Similarly, the latency of the data packets is assigned to application-specific classes: Roundtrip times up to 100 ms are sufficient for OTT Voice services, less than 50 ms qualify a sample for Gaming.

Active Download and Upload Data Rates

In addition to the passive measurements, umlaut also conducts active measurements of upload and download data rates once a month. They determine the amount of data that could be transferred in 3.5 seconds. For the determined values, we consider the average data rate, the P10 value (90% of the values higher than the specified threshold, a good approximation of the typical minimum speed) and the P90 (10% above this threshold, a view at the peak values).

Voice

The parameter HD Voice indicates what proportion of the voice calls made by the user were made in high-definition quality (transported via VoLTE, Voice over LTE). An assessment is only made if the smartphone used supports the respective standard.

Stability

Based on the determined data rates and additional browsing and connection tests, umlaut also examined when a mobile connection could be used at all. The averaged and weighted results define the percentage of transaction success.