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The 2023 Fixed-Line Network Test in the Netherlands

umlaut Part of Accenture

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For the second time, umlaut, part of Accenture, and connect take a closer look at the performance of the fixed-line networks in the Netherlands. It shows very good results – by umlaut's assessment, all three nationwide operators and one regional player achieve this grade.

For the second time in the Netherlands, umlaut and connect have used umlaut's sophisticated crowdsourcing approach to offer a comprehensive look at the user experience of fixed-line customers in this country. The results of this analysis reflect a high level of performance – with all three considered operators and one regional player achieving the grade "very good".

Scope

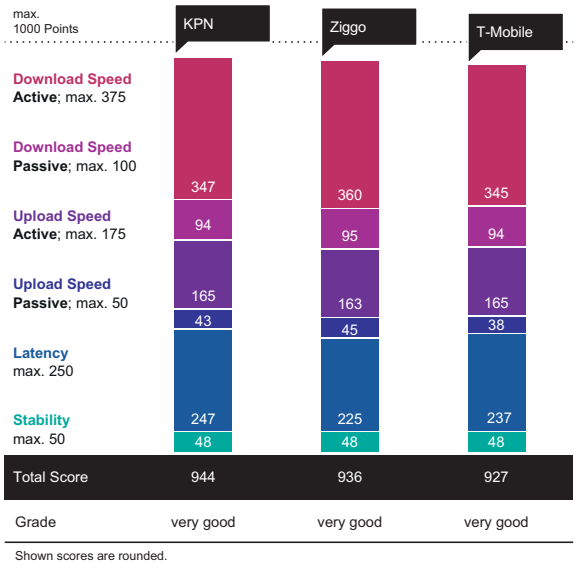
For its assessment of the Dutch fixed-line operators, umlaut has conducted crowd-sourced analyses based on data gathered between calendar weeks 34/2022 (mid-August) and 05/2023 (early February). A total of 18,063,894 samples captured from 83,024 different lines was considered in the nationwide analyses. The detailed methodology of our assessment is described on page 8.

Crowdsourcing Facts

18.1 million samples

83,024 number of lines considered

24 weeks (mid-August 2022 to early February 2023)



Shown scores are rounded.

The Dutch Fixed-Line Operators

Ziggo

The Dutch subsidiary of the international Vodafone Group acquired the operator Libertel in 2003, forming Vodafone Netherlands. In 2016, it merged with the cable and fibre operator Ziggo. Today, 50 per cent of the joint company Vodafone- Ziggo is owned by the Vodafone Group and another 50 per cent by Liberty Global.
In its Q3 2022 report, Vodafone-Ziggo specifies 3.7 million fixed (broadband, video and telephony) subscribers.
1.5 million of these households are designated as “converged households“ – meaning that they use both the mobile and the fixed-line network of the operator. Based on these numbers, Vodafone-Ziggo has currently the biggest fixed-line market share in the Netherlands.
Also according to Vodafone-Ziggo‘s latest publications, the company‘s fixed-line network reaches approx. 7.3 million “homes passed“ – the theoretical number of households to which the operator could provide its fixed-line services.

kpn

The Koninklijke PTT Nederland N.V. emerged from the privatisation of the formerly state-owned PTT in 1998. For 2022, the company reported approx. 3.1 million fixed-line customers.
56 percent of these are designated as fixed-mobile households. Based on these numbers, KPN is the second largest fixed-line operator in the Netherlands.
KPN‘s fibre network covers approx. 3.6 million “homes passed”, which according to the operator corresponds to about 47 percent of the Netherlands.
In early 2021, KPN and the Dutch pension fund APG announced the start of their joint fibre company “Glaspoort”, which is scheduled to invest more than 1 billion Euros in the construction of approximately one million fibre connections in villages, small residential areas and business parks. According to latest reports, approx. 196,000 households were passed with a fibre line of this joint venture.

T

In 2000, Deutsche Telekom bought a minority of the Dutch mobile network operator Ben, which was later extended to a 100 per cent acquisition. In 2003, Ben was renamed T-Mobile Netherlands, with the brand “Ben“ becoming a “no-frills“ offer within its portfolio. In 2007, T-Mobile NL additionally acquired Orange. The acquisition of Thuis in 2016 marked T-Mobile NL‘s entry into the fixed broadband market.
At the end of 2018, the company completed its acquisition of the smallest Dutch operator, Tele2, which brought both its own mobile as well as its own fixed-line network to the merger. By now, also the technical infrastructure of the formerly separate carriers has been merged, with Telekom holding 75 per cent and Tele2 holding 25 per cent of the assets.
The company also announced a strategic partnership with Open Dutch Fiber in 2021. In the fall of 2021, T-Mobile Netherlands was acquired by the private equity investors Apax and Warburg Pincus.
In Q1 2022, the company reported figures for T-Mobile Netherlands for the last time. In these, it disclosed a number of around 800,000 fixed-line customers. Based on these numbers, T-Mobile NL is the third-largest fixed-line broadband operator in the country.

Results at a Glance

KPN is the winner of our comparison, achieving the grade “very good”. The second largest fixed-line operator in the Netherlands wins due to showing convincing results in all of the assessment categories with a particularly strong result in the Latency category. In the actively performed upload measurements, KPN shares the discipline lead with T-Mobile. In the passive capturing of download data rates, KPN scores closely behind Ziggo, and on a par with T-Mobile.

Ziggo ranks second with the overall grade “very good”. The largest fixed-line operator in the country achieves this result with the best scores in the actively as well as the passively collected Download Speeds and the passively collected Upload Speeds. Furthermore, Ziggo shows a strong performance in all of our other assessment categories. In the passively observed Uploads Speeds, Ziggo ranks closely behind KPN and T-Mobile, who score on a par in this discipline.

T-Mobile Netherlands takes third place, also with the overall grade “very good”. The Netherland‘s smallest fixed-line operator scores strongly together with winner KPN in the actively determined Upload Speeds. Also, T-Mobile shows very good results in most of our other assessment categories. In the passively observed Download Speeds, T-Mobile follows closely behind Ziggo and on a par with overall winner KPN.

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Results

Overall Results	max.	KPN	Ziggo	T-Mobile
Download Speed Active	375P.	347	360	345
Ø Datarate	112.5	103.1	108.2	103.6
P10 Datarate	206.25	193.8	198.3	191.2
P90 Datarate	56.25	50.1	53.9	50.2
Download Speed Passive	100P.	94	95	94
HD Video Class	55.0	51.7	52.0	51.1
UHD Video Class	30.0	28.5	28.8	28.6
Highspeed Class	15.0	14.0	13.8	14.0
Upload Speed Active	175P.	165	163	165
Ø Datarate	52.5	50.7	48.2	50.8
P10 Datarate	96.25	88.5	90.7	88.0
P90 Datarate	26.25	25.8	23.8	25.8
Upload Speed Passive	50P.	43	45	38
HD Video Class	27.5	22.0	23.9	17.9
UHD Video Class	22.5	20.6	20.7	20.4
Latency	250P.	247	225	237
Standard Gaming Class	137.5	136.3	136.0	135.3
Highend Gaming Class	92.8	92.8	88.3	91.2
ULL Class	19.7	17.8	1.1	10.8
Stability	50P.	48	48	48
Transaction Success	50.0	47.9	48.2	48.0
Total	1000P.	944	936	927

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

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BEST IN TEST

KPN
2/2023

FIXED LINE NETWORK TEST IN THE NETHERLANDS
www.connect-testlab.com

"Congratulations to KPN for achieving the ‚best in test' accolade among the Netherlands' fixed-line providers in a highly competitive and technologically top-level environment. Ziggo and T-Mobile also achieve very good results. Delta/Caiway as a regional player has shown the strongest results in three provinces. In addition, the high scores for Stability are excellent news for Dutch fixed-line customers."
Hakan Ekmen, CEO Telecommunication at umlaut, part of Accenture

Photo: Ingus Kruklitis, shutterstock

Detailed Results

Active Download Speeds

In the active Download measurements conducted by umlaut, Ziggo takes the lead with the highest measurement values in all viewpoints. In the average data rates, T-Mobile ranks second and KPN third. In the P90 values, which indicate the top performances in the statistical distribution of the download datarates, KPN ranks second behind Ziggo. In the P10 evaluation, which indicates the threshold surpassed by 90 percent and thus the majority of the samples, T-Mobile comes in second, followed by KPN at a very close distance.

ACTIVE DOWNLOADS

ZIGGO

KPI Values	KPN	Ziggo	T-Mobile
Download Speed Active			
Ø Datarate [Mbps]	66.6	112.3	71.0
P10 Datarate [Mbps]	15.1	18.7	12.9
P90 Datarate [Mbps]	124.0	283.7	124.7

Percentages are rounded to one decimal place 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 measurements, KPN and T-Mobile take the lead, scoring on a par. Ziggo follows at close distance of two score points. In the average datarates, as well as in the P90 values, T-Mobile is closely ahead, followed at a narrow gap by KPN. In the P10 value (90 percent of the samples better than the determined threshold) Ziggo is leading, with KPN ranking second and T-Mobile coming in third.

ACTIVE UPLOADS

KPN & T-MOBILE

KPI Values	KPN	Ziggo	T-Mobile
Upload Speed Active			
Ø Datarate [Mbps]	55.0	26.9	56.5
P10 Datarate [Mbps]	7.4	12.6	6.4
P90 Datarate [Mbps]	129.1	40.4	130.9

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

Passive Download Speeds

As in the passively determined Download Speeds, all three operators rank very close together. Overall, Ziggo takes a narrow lead by a gap of one score point, KPN and T-Mobile follow closely behind, scoring on a par. Ziggo manifests its lead in the HD Video class (minimum 5 Mbps) and UHD Video class (minimum 20 Mbps). In the HD Video class, KPN follows on second place. In UHD video, KPN ranks behind Ziggo. In the most demanding Highspeed class (mininum 50 Mbps), T-Mobile leads, closely followed by KPN and at a little wider gap by Ziggo.

PASSIVE DOWNLOADS

ALL OPERATORS

KPI Values	KPN	Ziggo	T-Mobile
Download Speed Passive			
HD Video Class [%]	89.7	90.2	88.6
UHD Video Class [%]	43.1	44.4	43.7
Highspeed Class [%]	12.5	11.3	12.6

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

Passive Upload Speeds

In the passively observed Upload speeds, the differences are a little more pronounced than in the Passive Download category. Here, Ziggo takes the lead with the highest fulfillment rates both in the HD video class (at least 5 Mbps) as well as in the UHD video class (at least 20 Mbps). KPN ranks second in this consideration, and T-Mobile achieves the third rank, both a a distinct score gap ahead of the respective higher placed contender.

PASSIVE UPLOADS

ZIGGO

KPI Values	KPN	Ziggo	T-Mobile
Upload Speed Passive			
HD Video Class [%]	38.0	40.4	32.8
UHD Video Class [%]	26.8	28.6	24.2

Percentages are rounded to one decimal place 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, KPN gains the highest amount of score points. This is particularly due to its high fulfillment level in the most demanding Ultra Low Latency (ULL) Class with roundtrip times not exceeding 10 ms. In the Standard Gaming class (not slower than 50 ms), KPN also takes the lead, with Ziggo and T-Mobile following at narrow gaps. In the Highend Gaming Class (latency below or equal 20 ms), KPN leads, followed by T-Mobile on second and Ziggo on third rank, each at a noticeable distance between them.

LATENCY

KPN

KPI Values	KPN	Ziggo	T-Mobile
Latency			
Standard Gaming Class [%]	96.9	96.7	96.1
Highend Gaming Class [%]	76.0	61.0	69.9
ULL Class [%]	29.7	1.6	16.4

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

Stability

Although there are slight variances in the percentages of fulfillment, in our scoring, all three nationwide Dutch fixed-line operators are awarded 48 out of 50 points in the stability category. This high level of Transaction Successes is good news for Dutch fixed-line customers – they can rely an stable, highly available internet connections, regardless of which operator they choose.

STABILITY

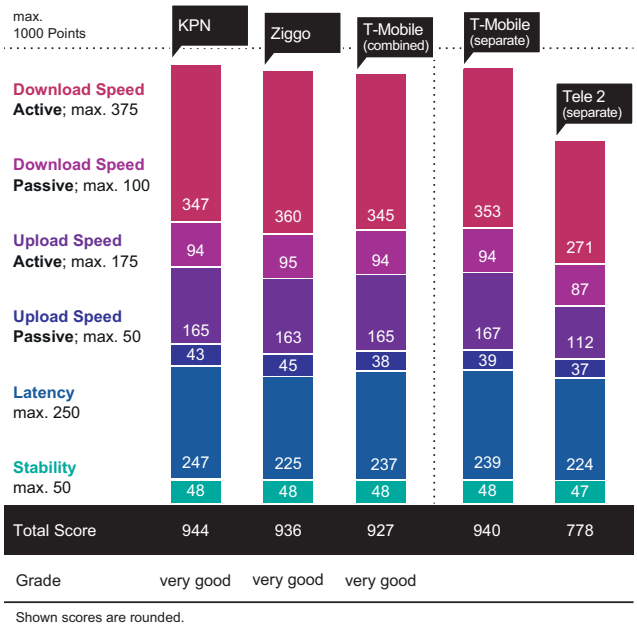
ALL OPERATORS

KPI Values	KPN	Ziggo	T-Mobile
Stability			
Transaction Success [%]	97.9	98.2	98.0

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

Special Analysis

In our previous year's Fixed-Line Network Test in the Netherlands, we had still reported separate results for T-Mobile Netherlands and Tele 2. As you can read on page 2, both networks have been commercially merged for some time now, which is why we state a common result for them from this year on.
For the sake of comparison, on the right we show the separate results for the two aforementioned network designations. It must however be emphasized that this view is provided for informational purposes only and does not reflect an official result of our evaluation.



Shown scores are rounded.

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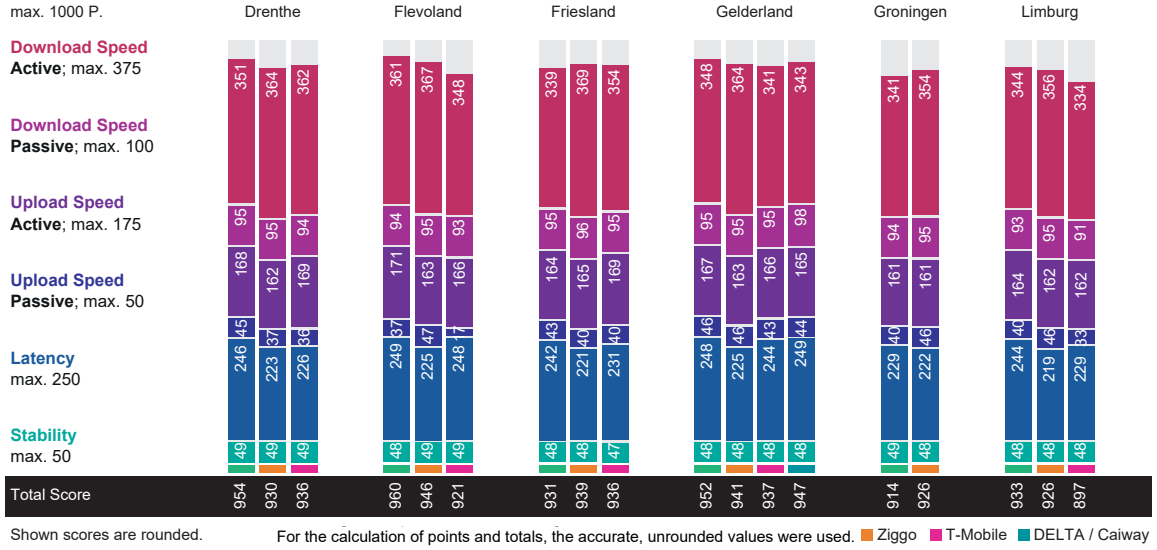
Score Results per Province



In addition to the nationwide assessment, umlaut has also evaluated the local results achieved in the larger of the Dutch provinces. With these analyses, inhabitants of the included parts of the country can check which operator may locally be the best choice. If a result is not published for a particular operator in a particular province, the number of samples for this confinement was too low to specify a statistically reliable result.

KPN Local Champion in six Provinces

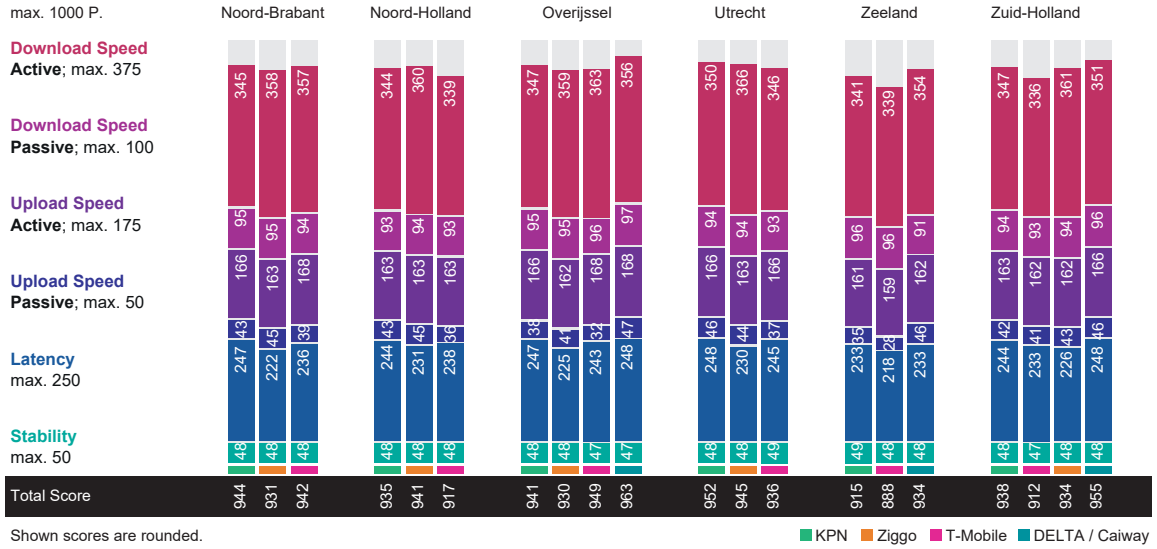
In the detailled analysis, KPN takes the lead in six of the considered Dutch provinces. In Drenthe, Flevoland, Gelderland and Utrecht, the operator even achieves outstanding results with the locally derived scores ranging at 950 points or above. In these provinces KPN's lead ahead of the respective second-placed contender is quite pronounced in each case. In Limburg and Noord-Brabant, KPN achieves very good results. The score gap in Noord-Brabant is comparatively narrow, with T-Mobile following at a distance of two points.

Ziggo Winner in three Provinces

Ziggo takes the lead with very good results in Friesland, Groningen and Noord-Holland. In Friesland, Ziggo leads at a gap of three points over runner-up T-Mobile. In Groningen and Noord-Holland, Ziggo's lead ahead of KPN, which is in both the cases the second placed operator, is more prononunced.

DELTA/Caiway ahead in three provinces

DELTA is a still locally operating provider which has acquired its former competitors Caiway and ZeelandNet. Although these networks partially still operate under their original designations, we have aggregated their results under the DELTA/Caiway denomination. The operator achieves outstanding results in Overijssel (ahead of T-Mobile) and Zuid-Holland (ahead of KPN) and as the successor of the former ZeelandNet a very good result in Zeeland, ahead of KPN.



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Methodology

The umlaut connect Fixed-Line Network Test is based on a sophisticated crowdsourcing approach. The analysis considers data gathered over a period of 24 weeks and represents the real-life user experience of fixed-line customers.

The network tests conducted by umlaut, part of Accenture, and connect are widely accepted as the de-facto industry standard and for being highly objective. With a further refinement of the crowdsourcing methodology already known from umlaut's accredited mobile network tests, it became also possible to analyze relevant performance KPIs of fixed-line services.

Comprehensive crowdsourcing

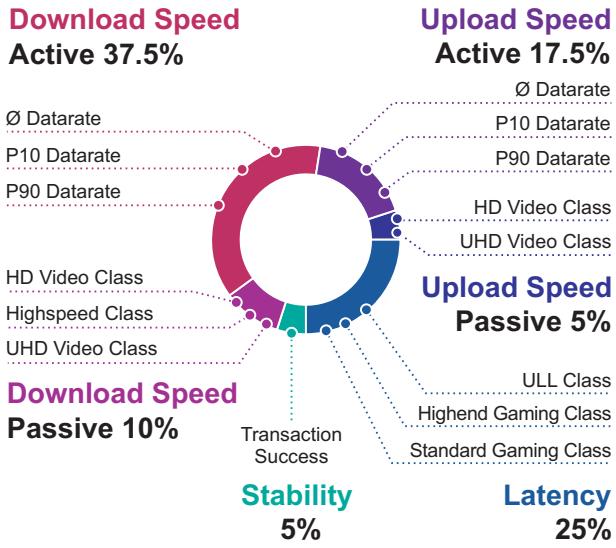
The results of this test are based on a comprehensive analysis of crowd-sourced data which is performed by umlaut, headquartered in Aachen, Germany. For the data collection, umlaut has integrated a background diagnosis process into thousands of popular Android apps. If one of these applications is installed on the end-user's phone and the user authorizes the background analysis, data collection takes place in the background during smartphone use. Samples are generated in specific intervals (from one second up to 15 minutes) and sent daily to umlaut's cloud servers, where the data is further processed. By filtering the network access technology to those samples collected via Wi-Fi (in contrast to mobile network connections) and identifying the network operator, the collected samples can be limited to fixed-line connections. Using a complex set of rules and comprehensive checks, umlaut hardens the validity of the evaluations. By using heuristic methods, this also filters out samples which were collected via FWA (fixed-wireless access) as best as possible. Among other steps, data recorded when the smartphone battery is low is filtered out, as are measurements when the transfer volume is too low or extremely low data rates indicate interference. Thus, the influence of the mobile devices is likely to be small. The Wi-Fi speeds achievable on current smartphones are usually significantly higher than the total data rates observed, the influence actual Wi-Fi link speed on the measurement results can be neglected.

Passive Data Rates

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 such as web browsing, streaming or gaming. In order to classify the observed speeds, umlaut has defined four application-related speed classes: "HD Video" requires 5 Mbps, "UHD Video" requires 20 Mbps and "Highspeed" requires 50 Mbps.
For the typically lower rates of data uploads, only the speed classes "HD Video" (min. 5 Mbps) and "UHD Video" (min. 20 Mbps) are considered. The observed passive download speeds make up 10% of the total result, the upload speeds contribute 5% to the total result.

Active Data Rates

In addition to the passive measurements, which register the throughputs requested by the apps running in the foreground, 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 measurement values, our scoring considers 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% of the values higher than this threshold, a view at the peak values). This measurement typically approaches the maximum possible throughput of a considered fixed line. The determined active download speeds make up 37.5% of the total score, the active upload tests contribute 17.5% of the total result.



Latency

The latency measurements are carried out every 15 minutes – "pings" are performed in direct succession to the connection tests. Their results are also assigned to an application-related class: Roundtrip times of less than 50 ms qualify a sample for "Standard Gaming" and less than 20 ms for "Highend Gaming". If the latency is faster than 10 ms, the sample is counted as "Ultra Low Latency" (ULL) which would qualify for near real-time applications.
The tables in this report show the percentage of the examined connections that were able to achieve the required threshold values in the different classes or did even better. The assessment of latency makes up 25% of the total score.

Stability

Based on the determined data rates and additional browsing and connection tests, umlaut also examined when a broadband connection could be used at all. The averaged and weighted results define the percentage of transaction success. The stability assessment makes up 5% of the total score.