# Alpine competition

For Austria and Switzerland, too, we have switched the evaluation of our fixed-network test to umlaut's crowdsourcing methodology. What does a look at the Alpine countries show?

For the fifth time in a row, connect is examining the quality and performance of fixed-network services in Austria and for the fourth time in Switzerland. As in Germany (see connect 9/23), we are also using a new test methodology for the two Alpine countries – the crowdsourcing-based evaluation developed by our test partner umlaut, part of Accenture. You can read all the details and which conclusions can be derived from this evaluation on the right-hand side.

We focus on which performance and quality actually reach the users of each individual provider. To this end, the analyses look at millions of individual measured values from tens of thousands of lines considered per country – see key figures below on the right. Another advantage of crowdsourcing is that it now allows comparisons to be made between the Alpine countries, Germany and fixed-network services in other countries.

However, comparisons with the results of the connect fixed-network test for Austria and Switzerland from the previous year are not meaningful this time, due to the change in methodology. We will be able to analyze developments in the respective markets in the subsequent Alpine fixed-network test next year. This time, our focus will be on the performance of the nationwide and regional providers in each country.

**Hannes Rügheimer**

*"Top grades prove the overall high performance level in the two Alpine countries. In Austria, Magenta achieves the highest score nationwide and Kabelplus regionally - but all the other candidates are also convincing. The Swiss fixed-network providers are in a league of their own - four out of five achieve the rare grade ‚outstanding'. Swisscom is ahead in the nationwide rating, Salt in the regional one. And the other candidates also perform very convincingly in Switzerland."*

**Hakan Ekmen**, Global Networks Lead, Comms Industry, and at the same time CEO umlaut, part of Accenture

**KEY FIGURES AUSTRIA**

| 22,2 Million Samples | 26 896 Internet lines considered | 24 Weeks (Early February to mid-July 2023) |
|---|---|---|

**KEY FIGURES SWITZERLAND**

| 24,8 Million Samples | 35 572 Internet lines considered | 24 Weeks (Early February to mid-July 2023) |
|---|---|---|

# Methodology

umlaut Part of Accenture connect

**Using its crowdsourcing metrics, already familiar from our mobile network tests, umlaut, part of Accenture, also analyzes KPIs of fixed network services.**

The results of this test are based on a comprehensive analysis of crowdsourcing data performed by umlaut, part of Accenture.

### Fixed Line Crowdsourcing

The data basis for the analyses is gathered on smartphones and tablets. When thousands of popular apps are used on them, the parameters described below are collected in the background – provided that the user has consented to the completely anonymous data gathering. Samples are generated at specific intervals (from one second to 15 minutes) and sent daily to umlaut's cloud servers, where the data is further processed.

By filtering the network access technology for samples collected during a Wi-Fi connection (as opposed to mobile network connections) and identifying the network operator, the samples can be limited to fixed network connections. A complex set of rules and extensive checks then ensure the validity of the evaluations. For example, conspicuously slow connections are filtered out – the threshold value is derived from the average performance of all lines observed in a country.

The analysis of Wi-Fi connections takes into account the fact that most Internet connections today take place this way. Since the Wi-Fi speeds achievable with current smartphones are also usually significantly higher than the observed overall data rates, the influence of the Wi-Fi link speed on the measurement results is negligible.

### Passive Data Rates

The passive collection of *data rates for downloads and uploads* takes place in the background while the user is using everyday applications such as web browsing, streaming or gaming on their device.

In order to classify the observed data rates, umlaut has defined application-related speed classes: *UHD Video* requires 20 Mbps and *High Speed Bulk Downloads* require 50 Mbps. In contrast, for the typically slower uploads, the speed classes *HD Video* (min. 5 Mbps) and *UHD Video* (min. 20 Mbps) are considered. *Passively observed download speeds* account for 9% of the overall result, while the according *upload speeds* contribute 5%.

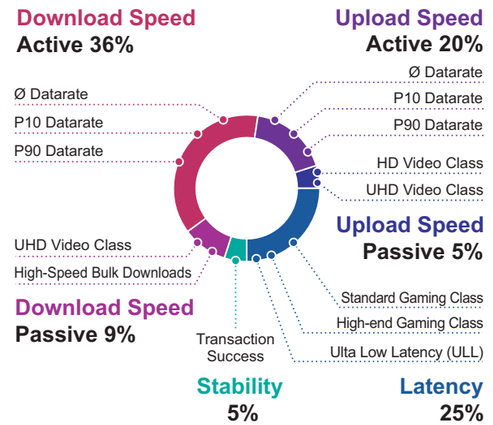
### Active Data Rates

In addition to the passive observations of the data rates requested by apps, *active measurements of the upload and download data rates* also take place once a month.

They determine the amount of data that can be transferred in 3.5 seconds and derive the data rate from this.

Our scoring considers the *average data rate*, the *P10 value* (90% of the values are above the specified threshold, a good approximation of the typical minimum speed) and the *P90 value* (10% of the values are above this threshold, a look at the peak values) for the determined measurements.

The determined active download speeds account for 36% of the overall result, and the active upload tests contribute 20% to it.




### Balanced requirements

The recorded key performance indicators take into account both day-to-day basic requirements as well as peak values focused on higher performance.

### Latencies

Latency measurements are taken every 15 minutes – for this purpose, "pings" are performed directly after the connection tests. The first "hop", which is affected by Wifi, is corrected. umlaut also assigns the results of the latency determinations to an application-related class: Roundtrip times of less than 50 ms qualify a sample for *standard gaming* and less than 20 ms for *high-end gaming*.

If the latency is shorter than 10 ms, the sample is counted as *Ultra Low Latency (ULL)*, which is sufficient for near-real-time applications. Our tables show the percentage of connections that reached the required thresholds in the mentioned classes or performed better.

The latency score accounts for 25% of the result.

### Stability

Based on the determined data rates and additional browsing and connection tests, umlaut also examines when a broadband connection is available at all. The averaged and weighted results define the percentage of the Internet transaction success rate and account for 5% of the total score.

### Reliability

umlaut divides all measured values into basic requirements ("Qualifier KPIs") and values related to peak performance ("Differentiator KPIs"). The presentation of reliability takes only the "Qualifier KPIs" into account and thus allows a statement to be made about how well a provider's network meets the purely basic requirements.

# **Austria:** Nationwide Operators

**We rate fixed-network providers that provide their services throughout Austria and have correspondingly high market shares in a separate category.**

As in Germany (see connect 9/23), we also rate providers in Austria with a nationwide presence and a predominantly regional focus in two different categories. From connect's point of view, this is an imperative in order to ensure fairness, because the provision of fixed-network lines in a regionally limited area is incomparably less demanding for a provider than providing its service nationwide and thus also in smaller towns and communities as well as in the countryside. in addition, this has the consqeuence that the customer base of providers operating nationwide usually includes more slow lines than that of regional providers, who can concentrate on more lucrative and technically easier-to-reach destinations when rolling out their services.

In the Alpine Republic as well, two criteria are applied to make this distinction: To be counted among the nationwide providers, lines of the fixed-network operator in question must be available in all Austrian provinces. And secondly, the provider must have a market share of at least four percent.

Since no authoritative figures on the market shares of individual providers are available for Austria from a neutral source, we make this decision on the basis of the customer figures published by the operators and the number of samples we see in the crowdsourcing analyses conducted by umlaut.

Of course, even nationwide network operators cannot deliver an Internet connection in actually every location, and certainly not in every desired technology such as (V)DSL, broadband cable or fiber optics. Prospective customers must therefore check which options are available at what cost for the chosen location of the connection. We do not take the offered tarrifs into account in our purely technically-oriented performance assessment. However, the test results make clear what level of performance customers can expect from a provider – especially if they choose a product from the premium class.

## Clear ranking overall

Performance requirements relevant to everyday life take up the larger share of our evaluation, while looking at peak performance above and beyond these basic requirements serves to provide additional differentiation.

Regarding the requirements of everyday smartphone applications, which are primarily reflected in the passively observed data rates, test winner Magenta Telekom and A1 are almost on a par – Magenta scores one point more in the stability rating. Hutchison Three loses points in the download data rates, but keeps up with the top duo in the passively measured uploads and stability.

The differences become much clearer in the active measurements of download and upload throughputs – there is a clear hierarchy here, which corresponds to the overall ranking: Magenta is leading, A1 follows with some distance, and Drei falls behind more clearly. In terms of latency, A1, with its high proportion of fiber-optic and DSL lines, is ahead.

Magenta's higher proportion of cable lines puts it in second place in this category. At the same time, this is where Drei, which also offers a lot of DSL and fiber, shows its greatest potential for improvement.


Shown latency, download speed, upload speed and total scores are rounded.

## Two-tier society

While test winners Magenta Telekom and A1 Telekom achieve an overall rating of "very good," Hutchison Drei only scores "satisfactory". Drei falls behind in download data rates and especially in latencies.

| KPI Values | Magenta | A1 Telekom | Hutchison Drei |
|---|---|---|---|
| Download Speed Active [Mbps] | | | |
| Ø Datarate | 92.2 | 56.9 | 42.4 |
| P10 Datarate | 14.5 | 14.9 | 9.4 |
| P90 Datarate | 214.0 | 111.6 | 76.9 |
| Download Speed Passive [%] | | | |
| UHD Video Class | 44.0 | 44.8 | 31.7 |
| Bulk Download | 11.2 | 11.8 | 10.0 |
| Upload Speed Active [Mbps] | | | |
| Ø Datarate | 29.3 | 19.0 | 16.5 |
| P10 Datarate | 10.4 | 8.1 | 6.2 |
| P90 Datarate | 52.2 | 30.0 | 28.5 |
| Upload Speed Passive [%] | | | |
| HD Video Class | 48.2 | 53.6 | 49.5 |
| UHD Video Class | 37.2 | 33.3 | 36.7 |
| Latency [%] | | | |
| Standard Gaming Class | 96.0 | 95.3 | 89.3 |
| Highend Gaming Class | 62.6 | 70.1 | 19.2 |
| ULL Class | 27.3 | 27.0 | 3.8 |
| Stability [%] | | | |
| Transaction Success | 98.7 | 98.5 | 98.3 |

Prozentsätze werden auf eine Dezimalstelle und Punkte auf ganze Zahlen gerundet. Für die Berechnung von Punkten und Summen wurden die genauen, nicht gerundeten Werte verwendet.

## A Look into the Details

The active download measurements show a clear tiering, while Magenta and A1 are on par in the passive observations. A1 has the lead in latencies, while Three misses out on a lot of points.

# Magenta Telekom

**With strong results in the actively determined data rates and in the stability rating, Magenta takes first place nationwide.**

In 2019, T-Mobile Austria, a wholly owned subsidiary of Deutsche Telekom, had merged with the former Liberty Global subsidiary UPC. The resulting Magenta Telekom offers (V)DSL, cable and fiber-optic connections. At the end of 2022, it counted 663,000 broadband lines in the Alpine Republic and thus is the second-largest fixed-network provider in the country after A1, the successor to the former state-owned postal and telephone company.

With the exception of latency, where A1 Telekom scores better, Magenta is either best or on a par with one or more of its nationwide competitors in all other rating categories. This lead is particularly pronounced in the download and upload data rates determined by the active measurements. Here, Magenta Telekom even beats the Austrian regional providers, which tend to perform somewhat better. The provider also takes a top position in terms of stability. Overall, Magenta Telekom thus deservedly wins in the nationwide category.

**connect** VERDICT
VERY GOOD (895 Points)

# A1 Telekom

**The Austrian market leader achieves a very good second place nationwide with its (V)DSL and fiber-optic-based fixed-network offering.**

A1 Telekom, which was formed in 2010 from the merger of Telekom Austria and mobilkom Austria, is the market leader in the Austrian fixed network. At the end of 2022, it had 1.7 million fixed-network lines, serving 2.9 million revenue-generating units (RGUs) – for example, Internet and TV connections realized over the same line are counted separately in this metric. Its network is based on (V)DSL and a growing number of fiber-optic lines.

In the passively observed download and upload data rates geared to everyday requirements, A1 Telekom is on a par with test winner Magenta. In the active measurements focusing on peak performance, it falls slightly behind the first-placed company. In the latency measurements, however, A1 Telekom achieves the best result among the nationwide providers – the fact that A1 does not use broadband cable, which is weaker in this respect, probably has an effect here. Overall, the provider thus achieved a very good second place in the nationwide ranking.

**connect** VERDICT
VERY GOOD (854 Points)

# Hutchison Drei

**The latency rating of the smallest nationwide fixed-network provider in the Alpine Republic is the main obstacle to a better overall result.**

In 2017, Hutchison Drei, which until then had been active solely as a mobile communications provider, took over its competitor Tele 2 Austria. Its fixed-network customers, who counted around 210,000 at the time, are the basis for its third place in nationwide fixed-network market shares.

The provider has not published exact figures since then, but in 2021 the number of its DSL customers had grown by 21 percent. In addition, Drei is committed to fiber-optic deployment and has formed partnerships with ÖGIG (Österreichische Glasfaser-Infrastruktur-Gesellschaft) and A1.

While Drei is on a par with the other two nationwide Austrian fixed-network providers in the passively determined upload data rates and with A1 in the stability rating, the provider shows clear potential for improvement in the other evaluation categories. This becomes particularly clear in the latency rating - here, especially the number of samples that can be assigned to the upper classes of high-end gaming and ultra-low latency is considerably lower than those of the competitors.

**connect** VERDICT
SATISFACTORY (666 Points)

# Reliability

**Looking at the mandatory program alone, excluding the freestyle section, Magenta and A1 Telekom are very close to each other.**

The "Reliability" chapter is not based on additional test items, but is rather a different look at the results of the various test categories. The analysis is based on the fact that umlaut distinguishes between ""ualifier KPIs" (the mandatory, so to speak) and "Differentiator KPIs" (optional) for all KPIs - see also page 57.

Providers who perform well in the mandatory program deliver reliable services, regardless of any top performance in the freestyle section. In this evaluation, there are only two points between Magenta and A1 Telekom. However, the gap between Hutchison Three and Magenta remains clear.

| Reliability | max. | Magenta | A1 Telekom | Hutchison Drei |
|---|---|---|---|---|
| Download Speed active | 198.0 | 180.4 | 180.6 | 156.3 |
| Download Speed passive | 49.5 | 45.2 | 45.4 | 30.7 |
| Upload Speed active | 110.0 | 99.8 | 98.1 | 85.2 |
| Upload Speed passive | 27.5 | 25.3 | 25.7 | 25.4 |
| Latency | 137.5 | 129.8 | 128.6 | 112.2 |
| Stability | 50.0 | 47.8 | 47.4 | 47.2 |
| Total | 573P. | 528 | 526 | 457 |

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.

# **Austria:** Regional Operators

**The results for regional providers in the Alpine Republic are encouraging: Here, our analyses show two very good and one good provider.**

As already explained on page 58, we make the distinction between nationwide and regional providers in order not to compare apples with blueberries. In other words, providers that are only active in certain regions naturally find it easier to achieve better results there on average. The overall scores achieved by the best providers in this category, Kabelplus and Liwest, are higher than those of the nationwide winners in Austria.

In any case, of course, interested parties can only book the offers that are available at their place of use – and must also take into account the tariff costs of the offers, which did not play a role in our purely technically oriented evaluation. However, the points scored in the individual categories also give a good indication of what customers of these three providers can expect overall

### Regionally barely overlapping footprints

In order to be able to compare the regional providers in Austria with one another, we evaluated their results independently of their respective footprints. However, there is little overlap in the coverage areas of the three providers considered in this category anyway. Kabelplus, for example, is primarily active in Lower Austria and Burgenland, Liwest in Upper Austria and the western part of Lower Austria, while Salzburg AG supplies customers in most municipalities in the province of Salzburg and also in some surrounding regions. These coverage areas are indicated by the providers themselves on their websites, but they are also clearly reflected in the distribution of the samples collected by umlaut.

A relevant number of users or lines have been identified by umlaut for Kabelplus in Burgenland, Lower Austria, Styria and in Vienna.

Liwest can be seen in the analyses mainly in Lower Austria and Upper Austria.

And Salzburg AG is of course represented in Salzburg, but also with connections in Upper Austria, Styria and Tyrol.

### Different performances despite focus on cable

The regional comparison in Austria is also interesting because here three providers are competing that supply a large proportion of their customers with broadband cable. The overall quite high scores for download data rates are typical for broadband cable offerings with a gradually growing share of FTTH fiber.

However, while Liwest is ahead in the download category, Kabelplus leads in the upload category. The results of Salzburg AG fall somewhat behind the leading duo in both categories on the average of all customers included in our crowdsourcing. This also applies to the latency rating.

Finally, in the stability ranking, the three regional providers are on a par in terms of the number of points achieved. Despite the differences in the performance profile described above, their current and potential customers can therefore expect to receive an overall stable Internet connection from all three providers.


Shown latency, download speed, upload speed and total scores are rounded.

### Twice very good, once good

Kabelplus wins the regional category with a seven-point lead over Liwest, which is also very good. Salzburg AG shows potential for improvement in the active data rate measurements and latencies,receiving the grade good.

| KPI Values | Kabelplus | Liwest | Salzburg AG |
|---|---|---|---|
| Download Speed Active [Mbps] | | | |
| Ø Datarate | 72.7 | 79.6 | 61.3 |
| P10 Datarate | 22.3 | 22.4 | 21.5 |
| P90 Datarate | 147.3 | 150.1 | 123.5 |
| Download Speed Passive [%] | | | |
| UHD Video Class | 47.3 | 49.4 | 43.7 |
| Bulk Download | 11.2 | 11.4 | 11.2 |
| Upload Speed Active [Mbps] | | | |
| Ø Datarate | 21.9 | 16.8 | 12.7 |
| P10 Datarate | 9.3 | 9.0 | 4.6 |
| P90 Datarate | 39.9 | 30.5 | 24.9 |
| Upload Speed Passive [%] | | | |
| HD Video Class | 57.6 | 59.4 | 55.4 |
| UHD Video Class | 43.3 | 57.9 | 56.6 |
| Latency [%] | | | |
| Standard Gaming Class | 97.4 | 98.6 | 97.9 |
| Highend Gaming Class | 88.5 | 86.6 | 85.3 |
| ULL Class | 51.4 | 41.0 | 32.2 |
| Stability [%] | | | |
| Transaction Success | 98.8 | 98.9 | 98.6 |

Prozentsätze werden auf eine Dezimalstelle und Punkte auf ganze Zahlen gerundet. Für die Berechnung von Punkten und Summen wurden die genauen, nicht gerundeten Werte verwendet.

### Different strengths and weaknesses

Kabelplus achieves better results in the upload category, Liwest shows strengths in the download rating. Both providers are on par in terms of latencies and stability. Salzburg AG comes in a good third place.

## Kabelplus

**With a lead in actively measured upload data rates and very good results in the other disciplines, Kabelplus wins among the regional providers in Austria.**

The subsidiary of energy provider EVN AG offers broadband cable and fiber-optic connections in Lower Austria and the Burgenland. According to its own information, Kabelplus is also the largest cable provider in these two provinces. According to the latest figures published by the company, from September 2021, Kabelplus provides broadband Internet to around 102,000 customers. In a growing number of communities, Kabelplus also already offers FTTH.

The provider secured the test victory in the regional category in Austria primarily in the actively measured upload data rates – here it is well ahead of its regional competitors. In the actively and passively measured download data rates and passive upload throughputs, the results are still very good, but fall slightly behind the regionally second-placed Liwest. In terms of latencies and stability, both providers are on a par. Overall, Kabelplus thus achieves a well-deserved test victory in the regional category Austria.

**connect** VERDICT
VERY GOOD (911 Points)

## Liwest

**The provider, which operates in Upper Austria and western Lower Austria, achieves a very good result in the regional ranking with high download data rates and short latencies.**

The company name includes the three municipalities in which this cable provider was founded: **Li**nz, **We**ls and **St**eyr. In the meantime, the company has expanded its coverage area to include all of Upper Austria and western Lower Austria, where it says it supplies around 144,000 customers with TV, high-speed Internet and fixed-network telephony. In addition, further local networks are being connected via franchise agreements.

Typical for broadband cable and the slowly increasing share of FTTH fiber are the very high download data rates, where Liwest is ahead of the regional providers in both the active and the passive measurements. In the passively determined uploads, the provider scores one point more than its two competitors in the regional discipline. In the latency rating, Liwest is on a par with Kabelplus, and in the stability rating, all three Austrian regional providers achieve the same high score. All in all, a very good and convincing result!

**connect** VERDICT
VERY GOOD (904 Points)

## Salzburg AG

**The provider active in the city and province of Salzburg does not quite keep up with the other regional providers in terms of data rates and latencies, but scores good overall.**

Salzburg AG is owned by the city and state of Salzburg. In addition to energy, water and heat, the company also supplies Internet, TV and telephone services.
To do this, it relies on broadband cable and fiber optics (FTTH).
Its connections are available in 116 of Salzburg's 119 municipalities and also in Mondseeland, Ausseerland and the Schladming area. The number of customers is likely to be well over 100,000; the company does not provide more precise details.

Compared with its two competitors in the Austrian regional category, Salzburg AG is on a par in terms of stability, but falls slightly behind in the other evaluation categories. This is somewhat more pronounced in the active measurements of download and upload data rates, which are pushed to the performance limits, than in the passively observed throughputs, which are more oriented toward everyday requirements. The provider also falls behind a bit in terms of latencies, especially in the most demanding ultra-low latency category. Overall, however, its test result is good.

**connect** VERDICT
GOOD (839 Points)

## Reliability

**In the separation of compulsory and freestyle programs, Liwest has a slight lead in the compulsory section. Salzburg AG remains in third place.**

The reliability rating only takes into account the KPIs that are required for everyday use and ignores the peak performance considered for further differentiation. In this compulsory program or the view of the basic services, the overall winner in the regional discipline Kabelplus and Liwest, which came second overall here, are neck-and-neck.

Liwest wins this ranking by a narrow margin – thanks to slightly better results for download data rates and latencies. Salzburg AG also achieves a good third place in this consideration.

| Reliability | max. | Kabelplus | Liwest | Salzburg AG |
|---|---|---|---|---|
| Download Speed active | 198.0 | 184.9 | 185.0 | 184.5 |
| Download Speed passive | 49.5 | 46.1 | 46.7 | 45.1 |
| Upload Speed active | 110.0 | 99.4 | 99.3 | 72.4 |
| Upload Speed passive | 27.5 | 26.1 | 26.2 | 25.9 |
| Latency | 137.5 | 132.6 | 134.9 | 133.5 |
| Stability | 50.0 | 48.0 | 48.1 | 47.6 |
| Total | 573 P. | 537 | 540 | 509 |

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.

# **Switzerland:** Nationwide Operators

**Two outstanding providers are battling for the top spot nationwide in Switzerland. In a high-level competition, Swisscom wins the race.**

Only two Swiss fixed-network operatorsmeet our criteria for nationwide candidates: Swisscom and Sunrise. Both offer their fixed-network products virtually all over Switzerland. The figures from the Federal Communications Commission ComCom also confirm this classification: according to these figures, Swisscom had a 48 percent market share of fixed-network broadband lines in Switzerland at the end of 2022, while Sunrise reached 28 percent. The subsequent providers in the statistics are then the network operators Salt and Quickline, which we have classified as regional providers, each with a market share of four percent.

In Switzerland too, for reasons of fairness, operators who also offer their lines in smaller communities and rural regions should not be thrown into the same pot as regionally focused competitors. The distinction between speed categories (up to 1 Gbps and up to 10 Gbps), which we still had to make in the methodology used until last year, is no longer necessary with crowd sourcing. which is carried out across all customers of a provider and thus across all speed classes. However, the fact that these very fast lines are represented in the analyzed samples is one of the explanations for the very high performance level overall.

### Competition at the highest level

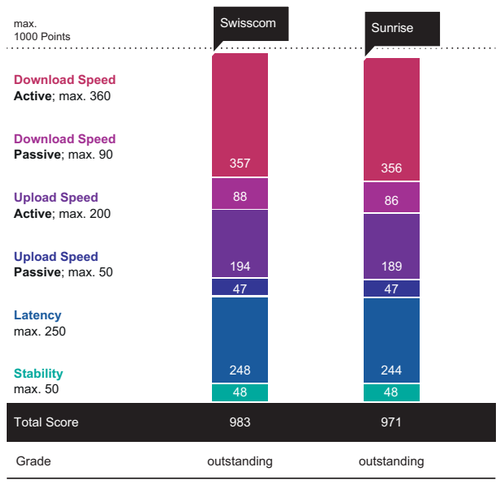
As already known from our mobile network tests, the competition in the Swiss fixed network also takes place at the highest level: Twice the rather rarely awarded grade “outstanding“ speaks for itself.

A look at the individual categories shows how close the race was in each case – even if Swisscom secured a clear lead of twelve points over Sunrise in the overall rankings. But for exampl, Swisscom can only keep a few points between itself and its competitor in the download data rates. In the average data rates and the fastest ten percent of the measured values, Sunrise scores even slightly higher. However, because Swisscom‘s threshold value for 90 percent of the measured values is somewhat better, Swisscom gains a narrow lead of one point here. In the passive download measurements, Swisscom leads by two points due to a higher proportion of samples in the high-speed download category (at least 50 Mbps).

In the active upload tests, Swisscom‘s lead is somewhat clearer; in the passive measurements, both competitors are on a par in terms of points – even if the percentages achieved by Sunrise are slightly higher.

In the latency rating, Swisscom has a lead of four points. The provider achieves slightly better scores than Sunrise in all individual sub-categories. This is most obvious in the ultra-low latency class (max. 10 ms), where Swisscom‘s result of 75 percent is downright breathtaking for a nationwide operator.

In the stability rating, Swisscom and Sunrise are then on a par again – not only in the score, but also in the achieved success rate of 99.0 percent. Given the overall high performance, however, this is hardly surprising.




Shown latency, download speed, upload speed and total scores are rounded.

### Outstanding twice

The high scores and the rare grade “outstanding“ for both nationwide providers demonstrate the overall extremely high level of performance in the Swiss fixed network as well. Swisscom crosses the finish line with a twelve-point lead.

| KPI Values | Swisscom | Sunrise |
|---|---|---|
| Download Speed Active [Mbps] | | |
| Ø Datarate | 201.6 | 225.1 |
| P10 Datarate | 41.0 | 38.5 |
| P90 Datarate | 478.0 | 494.2 |
| Download Speed Passive [%] | | |
| UHD Video Class | 51.8 | 51.2 |
| Bulk Download | 17.5 | 14.3 |
| Upload Speed Active [Mbps] | | |
| Ø Datarate | 112.2 | 88.9 |
| P10 Datarate | 30.4 | 21.1 |
| P90 Datarate | 223.2 | 177.1 |
| Upload Speed Passive [%] | | |
| HD Video Class | 50.6 | 52.4 |
| UHD Video Class | 38.9 | 42.1 |
| Latency [%] | | |
| Standard Gaming Class | 99.5 | 99.2 |
| Highend Gaming Class | 93.3 | 88.1 |
| ULL Class | 75.0 | 44.7 |
| Stability [%] | | |
| Transaction Success | 99.0 | 99.0 |

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.

### Challenging Duel

The fact that also Sunrise is sometimes ahead of Swisscom in individual categories is further evidence of the overall high level at which the duel between the two nation-wides Swiss fixed network operators is taking place.

## Swisscom

**The small leads over Sunrise in the individual assessment categories add up to a twelve-point gap and the nationwide test victory.**

In the fall of 2022, Swisscom reported a stock of just over two million fixed-network broadband lines. According to the regulatory authority ComCom, this corresponds to a market share of 48 percent – making Swisscom the clear market leader in the Swiss fixed network.

The provider‘s product portfolio ranges from (V)DSL to fiber-optics, with the latter lines also available with connection speeds of up to 10 Gigabits per second. 1.6 million customers also receive TV from Swisscom. The company aims to be able to reach 50 to 55 percent of Swiss households with fiber optics (FTTH) by 2025, and 70 to 80 percent by 2030.

The stability rating shows a success rate of 99.0 percent in the crowdsourcing analyses carried out by umlaut – a very good value. In the direct duel with the competitor Sunrise, which also scored “outstanding“, Swisscom has an advantage of a few points in each of the categories of actively and passively measured downloads and actively measured uploads. In the passively measured uploads, the competitors are on an equal footing in terms of points. In the latency rating, Swisscom once more achieves slightly higher shares in the various latency classes, especially in the demanding ultra-low latency class.

Overall, this competition fought at the highest level adds up to a lead of twelve points and the test victory in the nationwide category in Switzerland.

**connect** VERDICT
OUTSTANDING (983 Points)

## Sunrise

**In the competition at the highest level, Sunrise also shows excellent results and thus achieves the second place nationwide with the grade “outstanding“.**

In November 2020, Sunrise and UPC merged under the umbrella of the parent company Liberty Global. Since spring 2022, they have been jointly offering cable connections and fiber optic lines (FTTH) under the Sunrise brand. Here, too, the offering extends up into the 10-gigabit class. With around 1.25 million fixed-network customers (as of March 2023), the company has a market share of around 28 percent in the fixed broadband network – ComCom also confirms this figure. This makes Sunrise number two in the Swiss fixed network market. The company counts around 1.3 million “revenue generating units“ (RGUs) in the distribution of TV connections.

Sunrise shares the high figure of 99.0 percent success rate across all crowdsourcing measurements together with Swisscom. In actively measured download data rates, Sunrise achieves a slightly higher average value and a higher threshold value for ten percent of all samples – but then falls one point behind because the majority of the measured values (P10 – 90% of measured values above...) are slightly lower. Sunrise also shows slightly higher values in the passive determination of upload data rates, but is then on a par with Swisscom in the points ranking for this category. The provider is also beaten by a few points in the passive download measurements, active uploads and latencies. However, Sunrise can be proud of an overall outstanding test result nationwide.

**connect** VERDICT
OUTSTANDING (971 Points)

## Reliability

**Swisscom is also a few points ahead of Sunrise when it comes to the separation of compulsory and freestyle performances.**

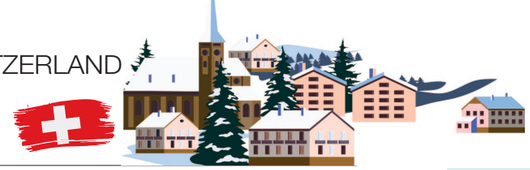
In the “Reliability“ rating, umlaut analyzes the crowdsourcing results with a sole focus on the mandatory program (“Qualifier KPIs“ – what is necessary in everyday life?). The freestyle part (“Differentiator KPIs“ - which top performances serve to differentiate?) is left out of this consideration.

Swisscom is also five points ahead of Sunrise in this analysis. The result shows that the two competitors who operate all over Switzerland are not giving each other anything at any level. In both the tests relevant to everyday operation and those pushing the performance limits, these two providers compete at the highest level.

| Reliability | max. | Swisscom | Sunrise |
|---|---|---|---|
| Download Speed active | 198.0 | 195.7 | 194.3 |
| Download Speed passive | 49.5 | 47.3 | 47.1 |
| Upload Speed active | 110.0 | 106.7 | 103.5 |
| Upload Speed passive | 27.5 | 25.5 | 25.6 |
| Latency | 137.5 | 136.6 | 136.1 |
| Stability | 50.0 | 48.4 | 48.4 |
| Total | 573P. | 560 | 555 |

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.

# **Switzerland:** Regional Operators



**The competition among the Swiss regional providers is also taking place at an impressive performance level. Salt clearly wins the race.**

In the Swiss mobile communications market, the provider Salt, with around 1.5 million subscribers and a market share of 16 percent, is number three according to ComCom, but definitely one of the big players. The situation is somewhat different in the fixed network market. There, the provider offers "Salt Fiber", the provider exclusively offers 10 Gbps fiber optic lines and thus achieves a market share of four percent according to ComCom.

Since these lines are also only available in defined locations, we assign the fixed network provider Salt to our regional category. This applies anyway to Quickline, which also achieves a four percent market share according to ComCom. The provider Netplus (see right-hand page) also clearly belongs to the regional segment.

In addition to the customer figures and market shares, this is also confirmed by the number of samples surveyed by umlaut as part of its crowd sourcing.

For Salt, the analyses saw samples in many cantons. No or only a very small number of samples were observed in Appenzell Innerrhoden, Glarus, Jura, Neuchâtel, Nidwalden, Obwalden and Uri.

Quickline was represented with a relevant number of connections in Aargau, Basel Landschaft, Bern, Graubünden, Lucerne, Nidwalden, St. Gallen, Solothurn, Thurgau, Valais and Zurich.

For Netplus, the crowdsourcing saw a relevant number of connections in Bern, in Fribourg, in Valais and in Vaud.

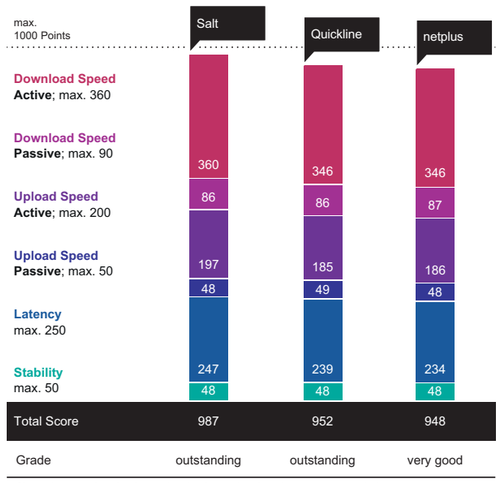
As is also the case in Austria and Germany, interested parties must in any case choose among the providers that are available at all in the intended place of use when it comes to a fixed-network connection. While the coverage areas of Salt and Quickline overlap to a certain extent, including at least some locations in French-speaking Switzerland, netplus is active exclusively in the latter region.

Once again, we would like to emphasize that our purely technical performance rating does not take into account the tariffs offered by the providers. However, what prospective customers who opt for a more powerful fixed-network broadband service can expect in particular from the individual providers can be seen very clearly from our test results.

### More fiber is better

A look at the detailed results shows what it means to offer FTTH lines with 10 Gbps exclusively: ten percent of the measured values ("P90 value") are above 573.8 Mbps at Salt. In such magnitudes, the respective WLAN connections on site could also have a small braking effect. However, the values at Quickline and Netplus, which also have classic DOCSIS cable connections in their portfolios in addition to FTTH, are also impressive. In the latency scores, on the other hand, higher fiber shares definitely bring an advantage. This can be seen impressively at Salt, but the results from Quickline and Netplus are also in orders of magnitude that fixed network providers in other countries can only dream of.

Another reason for satisfaction among Swiss customers is the high success rates in the stability category. Here, all Swiss providers score 48 out of 50 points.




Shown latency, download speed, upload speed and total scores are rounded.

### Competition at the highest level regionally as well

Salt leads the regional category by a clear margin, with the regional mergers Quickline and Netplus following close behind. However, Quickline still makes it over the threshold for "outstanding", Netplus lands just below it.

| KPI Values | Salt | Quickline | netplus |
|---|---|---|---|
| Download Speed Active [Mbps] | | | |
| Ø Datarate | 258.8 | 131.0 | 145.5 |
| P10 Datarate | 53.4 | 37.5 | 34.7 |
| P90 Datarate | 573.8 | 280.0 | 310.0 |
| Download Speed Passive [%] | | | |
| UHD Video Class | 50.7 | 50.6 | 51.3 |
| Bulk Download | 15.4 | 15.4 | 15.7 |
| Upload Speed Active [Mbps] | | | |
| Ø Datarate | 161.8 | 65.0 | 78.4 |
| P10 Datarate | 32.6 | 12.8 | 11.7 |
| P90 Datarate | 371.3 | 154.8 | 204.2 |
| Upload Speed Passive [%] | | | |
| HD Video Class | 51.8 | 59.3 | 62.0 |
| UHD Video Class | 43.4 | 48.6 | 37.2 |
| Latency [%] | | | |
| Standard Gaming Class | 99.3 | 98.2 | 99.0 |
| Highend Gaming Class | 90.9 | 85.1 | 75.9 |
| ULL Class | 69.7 | 39.4 | 31.7 |
| Stability [%] | | | |
| Transaction Success | 99.1 | 98.7 | 98.8 |

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.

### Top performance throughout

A look at the individual results reflects the overall high performance level. Above all, the high maximum data rates and even higher shares in the highest latency class secure Salt the overall regional victory.

## Salt

**Broadband fixed-network connections are only available from Salt as fiber-optic lines at 10 Gbps. These lines deliver top results and make the provider the regional test winner.**

Since 2018, Switzerland's third-largest mobile provider has also been offering fiber-optic fixed-network lines together with partners such as SFN (Swiss Fiber Net). Only 10 Gbps lines are offered - these are available in most major cities in Switzerland. At the time of going to press, Salt cited 200,000 fixed-network customers, and ComCom estimates its market share in the fixed network at four percent.

Its focus on the technological maximum is paying off for Salt: In the active measurements of download and upload speeds, the provider comes out on top, and Salt also achieves the best result among the Swiss regional providers in the latency ranking. The passive observations also show very good values, although Quickline scores one point more than Salt in the passively determined uploads. In the stability score, all Swiss fixed-network providers are soring on a par anyway. Still, Salt is slightly ahead in the exact measurement value. Overall, a convincing and outstanding result.

**connect** VERDICT
OUTSTANDING (987 Points)

## Quickline

**The group of 22 regional partners ranks second in the regional category and also receives an "outstanding" rating for its performance.**

Quickline is a consortium of 22 regional network operators and energy suppliers. It supplies its 177,500 broadband Internet customers with both cable and fiber-optic connections (FTTH). The range also includes 10 Gbps fiber lines. In addition, there are fixed network telephony and TV as well as mobile communications offerings. ComCom reports a broadband fixed network market share of four percent for Quickline.

In the active measurements of download and upload data rates, Quickline is slightly behind Salt and roughly on a par with its similarly structured competitor Netplus. In the passively determined speeds, Quickline achieves the same score as regional winner Salt for downloads and even one point more for uploads.

The latency score is five points better than for Netplus, which scores, however, eight points behind Salt. Stability achieves the same high score as all Swiss candidates. Overall an outstanding performance.

**connect** VERDICT
OUTSTANDING (952 Points)

## Netplus

**The association of eleven regional network operators from French-speaking Switzerland is only four points behind Quickline and scores a strong "very good" with its performance.**

Netplus.ch AG is an association of eleven regional networks from the cantons of Fribourg, Vaud and Valais. The connections are based on broadband cable and fiber optics (FTTH). The company has around 220,000 customers, making it the leading provider in French-speaking Switzerland according to its own information – although this figure does not differentiate how this number is distributed between Internet, fixed network telephony, TV and mobile communications. ComCom does not disclose the exact market share. Derived from this, however, it can in any case expected to be below four percent.

In the active measurements of downloads, Netplus is on a par with Quickline, and in uploads the provider even scores one point more. The reverse is true for the passively measured data rates: Netplus is one point ahead of Quickline for downloads and one point behind for uploads. The gap comes from the latency rating. It is almost bad luck that the overall result slips two points below the threshold for the grade "outstanding". However, there is also a strong "very good" here.

**connect** VERDICT
VERY GOOD (948 Points)

## Reliability

**In the regional evaluation reduced to basic requirements, Salt continues to lead – Quickline and Netplus score on a par.**

As with the nationwide evaluation of the basic requirements or "Qualifier KPIs", the same analysis also shows in the regional category that the strong Swiss fixed network providers achieve their lead not only with top performance – but also in the compulsory category.

Salt thus also maintains its clear lead in terms of points in the reliability rating. The already narrow gap between Quickline and Netplus melts away completely here – both regional networks score an outstanding 549 out of 573 points in this consideration.

| Reliability | max. | Salt | Quickline | netplus |
|---|---|---|---|---|
| Download Speed active | 198.0 | 198.0 | 193.7 | 192.0 |
| Download Speed passive | 49.5 | 47.0 | 47.0 | 47.2 |
| Upload Speed active | 110.0 | 107.5 | 100.6 | 100.2 |
| Upload Speed passive | 27.5 | 25.6 | 26.2 | 26.4 |
| Latency | 137.5 | 136.2 | 134.0 | 135.6 |
| Stability | 50.0 | 48.4 | 47.8 | 47.9 |
| Total | 573 P. | 563 | 549 | 549 |

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.

# HOME CONNECT: FIXED-LINE NETWORK TEST AUSTRIA/SWITZERLAND

## Austria Nationwide

| Overall Results | max. | Magenta | A1 Telekom | Hutchison Drei |
|---|---|---|---|---|
| Download Speed Active | 360.00 | 328 | 293 | 244 |
| Ø Datarate | 90.00 | 81.6 | 63.2 | 51.1 |
| P10 Datarate | 198.00 | 180.4 | 180.6 | 156.3 |
| P90 Datarate | 72.00 | 65.8 | 49.1 | 36.3 |
| Download Speed Passive | 90.00 | 82 | 82 | 65 |
| UHD Video Class | 49.50 | 45.2 | 45.4 | 30.7 |
| Bulk Download | 40.50 | 36.7 | 37.1 | 33.9 |
| Upload Speed Active | 200.00 | 181 | 161 | 144 |
| Ø Datarate | 50.00 | 45.2 | 37.4 | 33.9 |
| P10 Datarate | 110.00 | 99.8 | 98.1 | 85.2 |
| P90 Datarate | 40.00 | 36.1 | 25.9 | 24.8 |
| Upload Speed Passive | 50.00 | 47 | 47 | 47 |
| HD Video Class | 27.50 | 25.3 | 25.7 | 25.4 |
| UHD Video Class | 22.50 | 21.4 | 21.0 | 21.3 |
| Latency | 250.00 | 210 | 223 | 120 |
| Standard Gaming Class | 137.50 | 129.8 | 128.6 | 112.2 |
| Highend Gaming Class | 92.50 | 69.5 | 83.3 | 5.9 |
| ULL Class | 20.00 | 10.9 | 10.8 | 1.5 |
| Stability | 50.00 | 48 | 47 | 47 |
| Transaction Success | 50.00 | 47.8 | 47.4 | 47.2 |
| Total | 1000P. | 895 | 854 | 666 |

Prozentsätze werden auf eine Dezimalstelle und Punkte auf ganze Zahlen gerundet. Für die Berechnung von Punkten und Summen wurden die genauen, nicht gerundeten Werte verwendet.


## Austria Regional

| Overall Results | max. | Kabelplus | Liwest | Salzburg AG |
|---|---|---|---|---|
| Download Speed Active | 360.00 | 318 | 324 | 304 |
| Ø Datarate | 90.00 | 74.2 | 78.4 | 66.4 |
| P10 Datarate | 198.00 | 184.9 | 185.0 | 184.5 |
| P90 Datarate | 72.00 | 59.4 | 60.1 | 52.7 |
| Download Speed Passive | 90.00 | 83 | 84 | 82 |
| UHD Video Class | 49.50 | 46.1 | 46.7 | 45.1 |
| Bulk Download | 40.50 | 36.7 | 36.8 | 36.7 |
| Upload Speed Active | 200.00 | 173 | 160 | 122 |
| Ø Datarate | 50.00 | 41.2 | 34.3 | 27.8 |
| P10 Datarate | 110.00 | 99.4 | 99.3 | 72.4 |
| P90 Datarate | 40.00 | 32.2 | 26.3 | 21.9 |
| Upload Speed Passive | 50.00 | 48 | 49 | 48 |
| HD Video Class | 27.50 | 26.1 | 26.2 | 25.9 |
| UHD Video Class | 22.50 | 21.9 | 22.5 | 22.5 |
| Latency | 250.00 | 241 | 241 | 235 |
| Standard Gaming Class | 137.50 | 132.6 | 134.9 | 133.5 |
| Highend Gaming Class | 92.50 | 90.1 | 89.4 | 88.9 |
| ULL Class | 20.00 | 18.4 | 16.4 | 12.9 |
| Stability | 50.00 | 48 | 48 | 48 |
| Transaction Success | 50.00 | 48.0 | 48.1 | 47.6 |
| Total | 1000P. | 911 | 904 | 839 |

Prozentsätze werden auf eine Dezimalstelle und Punkte auf ganze Zahlen gerundet. Für die Berechnung von Punkten und Summen wurden die genauen, nicht gerundeten Werte verwendet.


## Switzerland Nationwide

| Overall Results | max. | Swisscom | Sunrise |
|---|---|---|---|
| Download Speed Active | 360.00 | 357 | 356 |
| Ø Datarate | 90.00 | 90.0 | 90.0 |
| P10 Datarate | 198.00 | 195.7 | 194.3 |
| P90 Datarate | 72.00 | 71.5 | 71.9 |
| Download Speed Passive | 90.00 | 88 | 86 |
| UHD Video Class | 49.50 | 47.3 | 47.1 |
| Bulk Download | 40.50 | 40.5 | 38.7 |
| Upload Speed Active | 200.00 | 194 | 189 |
| Ø Datarate | 50.00 | 48.5 | 47.5 |
| P10 Datarate | 110.00 | 106.7 | 103.5 |
| P90 Datarate | 40.00 | 38.8 | 38.1 |
| Upload Speed Passive | 50.00 | 47 | 47 |
| HD Video Class | 27.50 | 25.5 | 25.6 |
| UHD Video Class | 22.50 | 21.5 | 21.8 |
| Latency | 250.00 | 248 | 244 |
| Standard Gaming Class | 137.50 | 136.6 | 136.1 |
| Highend Gaming Class | 92.50 | 91.9 | 89.9 |
| ULL Class | 20.00 | 20.0 | 17.9 |
| Stability | 50.00 | 48 | 48 |
| Transaction Success | 50.00 | 48.4 | 48.4 |
| Total | 1000P. | 983 | 971 |

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.


## Switzerland Regional

| Overall Results | max. | Salt | Quickline | netplus |
|---|---|---|---|---|
| Download Speed Active | 360.00 | 360 | 346 | 346 |
| Ø Datarate | 90.00 | 90.0 | 84.7 | 85.8 |
| P10 Datarate | 198.00 | 198.0 | 193.7 | 192.0 |
| P90 Datarate | 72.00 | 72.0 | 67.2 | 67.9 |
| Download Speed Passive | 90.00 | 86 | 86 | 87 |
| UHD Video Class | 49.50 | 47.0 | 47.0 | 47.2 |
| Bulk Download | 40.50 | 39.5 | 39.5 | 39.7 |
| Upload Speed Active | 200.00 | 197 | 185 | 186 |
| Ø Datarate | 50.00 | 50.0 | 46.6 | 47.1 |
| P10 Datarate | 110.00 | 107.5 | 100.6 | 100.2 |
| P90 Datarate | 40.00 | 40.0 | 37.7 | 38.5 |
| Upload Speed Passive | 50.00 | 48 | 49 | 48 |
| HD Video Class | 27.50 | 25.6 | 26.2 | 26.4 |
| UHD Video Class | 22.50 | 21.9 | 22.4 | 21.4 |
| Latency | 250.00 | 247 | 239 | 234 |
| Standard Gaming Class | 137.50 | 136.2 | 134.0 | 135.6 |
| Highend Gaming Class | 92.50 | 91.0 | 88.8 | 85.4 |
| ULL Class | 20.00 | 19.6 | 15.8 | 12.7 |
| Stability | 50.00 | 48 | 48 | 48 |
| Transaction Success | 50.00 | 48.4 | 47.8 | 47.9 |
| Total | 1000P. | 987 | 952 | 948 |

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.


**Hannes Rügheimer**
connect author

Overall, the results of our new crowdsourcing-based methodology reflect the high level of performance and efforts of all providers in both Alpine countries. Congratulations to Magenta and Kabelplus for the test wins in Austria, and to Swisscom and Salt for the highest score in Switzerland.
Even though the competition in both countries was highly demanding, the test winners won by a clear margin in each case. Still, what we see in detail, especially in Switzerland, can make customers in other countries a little envious.
But it also becomes clear: Top performance in the fixed network is not possible without fiber-optic technology. This broadband and fixed network test should therefore serve as an incentive for all providers in all countries to expand this technology of the future as quickly as possible.