






# Fixed networks under test

What do landline networks in Germany, Austria and Switzerland offer – both from nationwide and regionally focused providers? Our comprehensive test delivers the answers.



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For the third time in a row, we are using the sophisticated crowdsourcing process of our network testing partner umlaut for our renowned broadband and fixed-line network test. However, the fixed-line test itself has been around since 2009 – for Germany. Benchmarks for the providers in Austria followed in 2019 and for those in Switzerland in 2020. Because various updates and further developments took some time, this year the Germany test was postponed by a few months. This provided an opportunity to combine it with the results in the two Alpine countries. We are therefore proud to present a “DACH fixed-line test” this time, similar to our mobile network test. It not only shows which providers are leading in each country, but also allows comparisons across national borders thanks to the uniform crowdsourcing methodology used.

**Practice-oriented methodology updates**

As we have done many times before, we have significantly refined the methodology of our test this year (see “Methodology” on page 82). A completely new feature is the evaluation of the



geographical coverage or service range of the providers. We presented the underlying methodology for the first time last year as a case study, and this year the results obtained in this way are included in the overall rating with a weighting of 10 percent. The reason for this is that we want to reward those providers who offer their services not only in lucrative urban areas, but across the entire country.

This new category of our evaluation was amended by further updates. The most important one: Since comparatively high data rates are available on landlines, we have removed the passive monitoring of upload and download speeds (i.e., background logging of the data rates currently being received or sent by the app active in the foreground) for our fixed-line test. Instead, our speed evaluations are now based exclusively on active tests, which better determine the maximum performance values of the Internet connection used. The ratings for latency and the determination of transmission stability, which are familiar from previous years, remain unchanged.

Incidentally, the performance data determined in our test clearly show that if you want fast and stable Internet access at home, there is no alternative to a classic fixed-line broadband connection. If you rarely make phone calls, you can also use your smartphone for this and very occasionally also its mobile connection within your own four walls. For surfing, emailing, shopping, and gaming—especially on a desktop PC or a powerful notebook—mobile communications at home in most cases do not offer the same speeds and latencies as a connection via coaxial broadband cable, (V)DSL, or fiber optics.

**Many providers have made great efforts**

The new methodology has led to some shifts in the rankings and, for some regional providers, to a loss of points (due to the changes mentioned above, the scores from 2024 and from 2025 are not directly comparable anyway). Nevertheless, this year’s test results prove that some of the providers have worked hard to significantly improve their results and, above all, the performance of their networks. We will go into detail on this in the following chapters of this test. In any case, we are delighted for the providers and their customers if our critical tests contribute to an objective improvement in the products offered.

But now it’s time to reveal the results of our 2025 broadband and fixed-line test. On the following pages, you will find the results of nine nationwide and twelve regional fixed-net operators from three countries.

**Hannes Ruegheimer**

**KEY FIGURES GERMANY**

|                                 |   |   |
|---------------------------------|---|---|
| <b>1 993</b><br>million samples | <b>3 605 473</b><br>Internet lines considered | <b>24</b><br>weeks (early April until early September 2025) |
|---------------------------------|---|---|

**KEY FIGURES AUSTRIA**

|                                 |   |   |
|---------------------------------|---|---|
| <b>75,56</b><br>million samples | <b>234 524</b><br>Internet lines considered | <b>24</b><br>weeks (early April until early September 2025) |
|---------------------------------|---|---|

**KEY FIGURES SWITZERLAND**

|                                  |   |   |
|----------------------------------|---|---|
| <b>102,39</b><br>million samples | <b>262 062</b><br>Internet lines considered | <b>24</b><br>weeks (early April until early September 2025) |
|----------------------------------|---|---|



”  
**Hakan Ekmen**, Global Networks Lead - Comms Industry and CEO of umlaut

*In the performance data, we see increases across the board compared to the previous year. Among the nationwide providers, our congratulations go to Deutsche Telekom, Magenta, and Swisscom. Among the regional providers, Deutsche Glasfaser, Kabelplus, and Salt are at the top of our ranking.*”

# Nationwide Providers

We evaluate fixed-line providers that offer their services nationwide and have correspondingly high market shares in a separate category.

We consider two categories of providers: nationwide and regional fixed-line operators. To be classified as a nationwide fixed-line operator, a provider must meet two criteria: its lines must be available in all German federal states, and its offering must have a market share of at least 5 percent in relation to the entire federal territory or the respective country. For the German market, we refer to the industry-recognized market study by VATM (Verband der Anbieter von Telekom-munikations- und Mehrwert-diensten – Association of Telecommunications and Value-Added Service Providers; [www.vatm.de/marktstudien](http://www.vatm.de/marktstudien)).

Our rationale: connect is convinced that regionally oriented fixed-net offerings cannot be compared with nationwide networks for reasons of fairness – because it is considerably easier for an operator to provide Internet connections to a limited regional area than to be present nationwide, even in smaller communities or rural areas.

In addition, nationwide services usually result in the total number of considered lines containing more connections with slower transmission speeds. This is because rolling out faster lines is often not profitable in rural regions – neither for very large nor for smaller, regionally operating network operators.

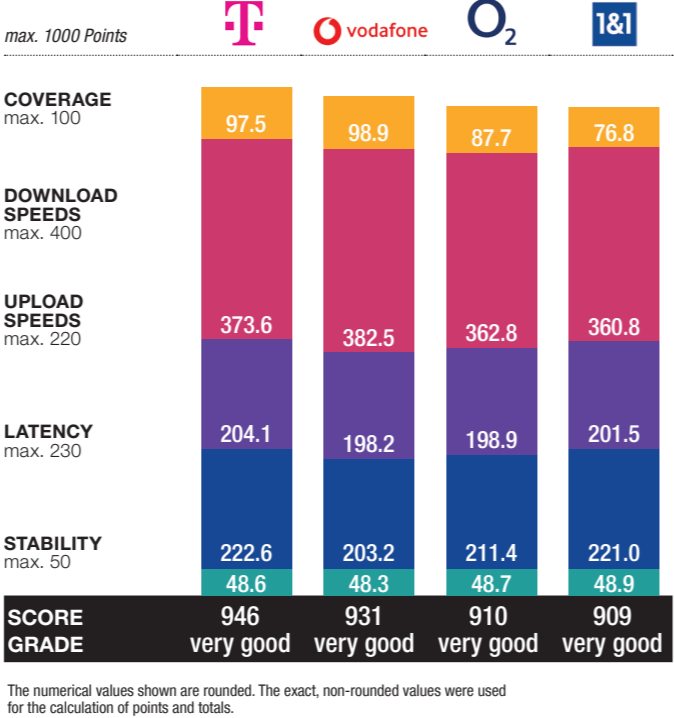
Although the coverage metric introduced this year as part of the evaluation partially compensates for this, we have retained the separation of the test candidates into nationwide and regional categories for a fairer comparison.

### Check available offers individually

However, even providers operating nationwide are not able to supply an Internet connection in every location—let alone with the customer’s preferred technology, such as fiber optics, (V)DSL, or coaxial broadband cable, and with the preferred connection speed. Anyone who wants an Internet connection must therefore check which options are available at their address in which technologies and in which speed classes.

Another criterion is the rates offered, which our purely technical evaluation does not take into account. However, the test results provide very good indications of the level of performance that can be expected from a provider.

It may happen that customers of individual providers book a larger proportion of slower lines than others, which would have some impact on the results of our crowdsourced data collection. However, in the case of those operators that achieve top results in our mix survey covering the entire market,



you can definitely expect above-average performance when choosing a product from the upper class.

### Significant improvements compared to the previous year at the top

The introduction of the “coverage” category and other updates to our testing methodology have resulted in a slight shift in the maximum points achievable in the individual subcategories. This means that last year’s results are not directly comparable with the current results. Providers with low geographical coverage in particular fall

somewhat behind in a direct comparison.

This makes it all the more remarkable how the four nationwide German providers have improved in comparison to last year. 1&1 gained 9 points over last year’s result. However, the biggest jumps were made by the overall winner and O2, both of which improved by 26 points. O2 thus managed to narrowly overtake 1&1 and push it out of third place. Second-placed Vodafone also improved by an impressive 25 points. And with 946 points, Telekom is already very close to the threshold for our top rating of “outstanding”.



The market leader from Bonn has once again come out on top in nationwide tests.



Thanks to its gigabit cable connections, Vodafone ranks second overall.



The Munich-based provider also improved on last year’s performance, coming in third this time around.



In the overall ranking, the provider from Montabaur comes in fourth place, just behind O2.



► With 15.2 million fixed-net customers and a market share of 40.6 percent according to the VATM study, Deutsche Telekom is the clear market leader in the German landline market.

DSL and VDSL lines continue to dominate the portfolio, but the Bonn-based company is also pushing ahead with its fiber optic roll-out: it could already supply around 10.9 million households via

FTTH, with a further 2.5 million to be added annually in the coming years. However, the actual booking figures are considerably lower.

In our test, Telekom came out on top in terms of actively measured upload data rates and latencies – this is likely due to the growing share of fiber optics in the Bonn-based company’s network on the one hand, and the increase in upload speeds for DSL tariffs on

the other. In terms of coverage determined by crowdsourcing, Telekom is at a very high level, but is narrowly beaten by Vodafone. The same applies to the determination of download data rates.

In terms of stability, 1&1 and O2 perform slightly better. Overall, however, the Bonn-based company achieved victory in the nationwide evaluation and improved once again on the previous year’s results.

► With 10.1 million customers, which according to the VATM study corresponds to a market share of 27.0 percent, Vodafone is the second-largest fixed-line provider in Germany. The Düsseldorf-based company supplies the majority of its private landline customers via broadband or coaxial cable, even though it also offers VDSL connections (primarily via resale) as well as fiber optics. Vodafone owes its high

share of coaxial cable connections to the acquisitions of its former competitors Unitymedia and Kabel Deutschland.

The provider benefits from this very high proportion of broadband cable, especially in terms of download data rates – here, both the average value and P10 (90% faster than) and P90 (10% faster than) are at the top of the test field. The fact that Vodafone can also keep up

well with the usually rather limited upload speeds in cable networks is thanks to the increases in these values in its network that have been implemented for some time. Only the latencies fall slightly behind, as is typical for cable.

In our new coverage rating, Vodafone is at the top of the nationwide German providers. And overall, the Düsseldorf-based company has also improved significantly.

► O2/Telefónica’s fixed-line business has 2.4 million customers, which, according to the VATM study, corresponds to a market share of 6.4 percent and thus ranks fourth among nationwide providers in Germany. To provide customer connections, Telefónica leases lines from national network operators such as Telekom and from regional providers. This results in a colorful bouquet of access technologies,

including fiber optics, behind which the Munich-based provider operates its own core network. This mix is reflected in our crowdsourced data pool.

In terms of download data rates, the O2 fixed network is just ahead of 1&1, but behind Vodafone and Telekom. In terms of actively measured uploads, O2 ranks third after Telekom and 1&1, but ahead of Vodafone. The same applies to the

measured latencies. In the stability rating, O2 achieves a strong second place, behind the leading 1&1, but ahead of Telekom in a neck-and-neck race.

In the coverage category, which was newly added to our test, the Munich-based company also achieves a very good third place – behind Telekom and Vodafone, but ahead of 1&1. And that’s how their overall result looks as well.

► With around 4 million customers, 1&1 has a share of around 10.7 percent of the German broadband fixed-line market, making the Montabaur-based company the third-largest German fixed-line provider. Although 1&1 also leases access lines from Telekom, Vodafone, and other network operators, the provider operates its own core network and its own carrier inter-connects. 1&1 also runs its own

fiber optic network since 2014, which it markets under the Versatel brand. The data pool used for the crowdsourcing analysis conducted by umlaut reflects this access constellation.

In the active download measurements, the result determined for 1&1 falls slightly behind those of the other nationwide providers. In terms of upload data rates and latencies, the Montabaur-based

company ranks second behind the overall winner, Telekom. This indicates a high proportion of fiber optic lines in the data pool analyzed by umlaut.

In the stability rating, 1&1 even leads the nationwide providers by a small margin.

Only in our new coverage category does the provider fall slightly behind, but it still ranks relatively high.

DETAILED RESULTS **NATIONWIDE**

A comparison of the results in the individual disciplines reveals differences in performance that can largely be explained by the respective technology mix in the access networks.

A comparison of the results in the individual disciplines reveals differences in performance that can largely be explained by the respective technology mix in the access networks.

Crowdsourcing reflects actual distribution

However, one of the characteristics of crowdsourcing is that the results obtained reflect the actual distribution of connections in the market. If, for example, a provider has a significantly higher proportion of customers who only book the smallest product variant, this also affects the average values determined by umlaut in the individual evaluation categories. However, a look at the values determined shows that they very clearly reflect the characteristics of the respective networks.

Vodafone is far ahead in the actively performed data rate measurements, which confirms the Düsseldorf-based com-

pany's strong focus on gigabit cable connections. Looking at the data rate classes required for certain applications (such as at least 20 Mbit/s for UHD video), all providers achieve high levels of fulfillment.

Telekom once again outperforms the rest of the field in terms of upload data rates and latency – here, the V(DSL) technology, which is widely used by the Bonn-based company, has an advantage over the coaxial cable technology that is very common at Vodafone and also used by other providers.

All operators are likely to contribute growing shares of fast fiber optic connections, which explains why all nationwide providers have improved significantly compared to last year.

The success rates determined in the stability category are high for all nationwide operators, but 1&1 achieved the best result here, followed by O2 and then Telekom.

In the new coverage rating, differences are particularly evident in availability by data rates – this KPI is also likely to be influenced by customer booking behavior.

| KPI Values                                  | Deutsche Telekom | Vodafone | O2 Telefónica | 1&1 Versatel |
|---|------------------|----------|---------------|--------------|
| Coverage [%]                                |                  |          |               |              |
| Basic Availability                          | 99.1             | 98.7     | 98.5          | 96.8         |
| Speed Availability                          | 77.0             | 88.2     | 50            | 32.8         |
| Download Speed [Mbps]                       |                  |          |               |              |
| Average Data Rate                           | 105.2            | 171.7    | 94.4          | 90.1         |
| 90% of Measurement Values above (P10)       | 42.7             | 43.3     | 37.9          | 37.7         |
| 10% of Measurement Values above (P90)       | 223.1            | 414.8    | 187.6         | 184.7        |
| UHD Video Class (min.20 Mbps) [%]           | 97.4             | 97.4     | 96.8          | 97.0         |
| Highspeed Class (min.50 Mbps) [%]           | 89.5             | 89.7     | 86.6          | 86.3         |
| Upload Speed [Mbps]                         |                  |          |               |              |
| Average Data Rate                           | 40.6             | 36.9     | 31.6          | 33.6         |
| 90% of Measurement Values above (P10)       | 20.5             | 11.5     | 13.5          | 18.2         |
| 10% of Measurement Values above (P90)       | 52.7             | 55.3     | 48.4          | 44.1         |
| HD Video Class (min.5 Mbps) [%]             | 99.1             | 98.2     | 98.3          | 99.0         |
| UHD Video Class (min.20 Mbps) [%]           | 91.2             | 80.3     | 82.4          | 87.3         |
| Latency [%]                                 |                  |          |               |              |
| Standard Gaming Class (max.50ms)            | 98.8             | 97.7     | 97.7          | 98.8         |
| Highend Gaming Class (max.20ms)             | 84.5             | 69.6     | 73.8          | 84.4         |
| Ultra Low Latency Class (max.10ms)          | 44.5             | 13.8     | 29.6          | 40.9         |
| Stability [%]                               |                  |          |               |              |
| Transaction Success                         | 98.8             | 98.5     | 98.9          | 99.1         |
| Download Basic Internet Class (min. 2 Mbps) | 99.9             | 99.9     | 99.9          | 99.9         |

The numerical values shown are rounded. The exact, non-rounded values were used for the calculation of points and totals.

Reliability

When it comes to separating mandatory and optional performance, Telekom and 1&1 even achieve a rating of “outstanding.”

The “Reliability” chapter is not based on additional test points, but rather takes a different look at the results of the various test categories. The analysis is based on the fact that umlaut distinguishes between ‘qualifier KPIs’ (mandatory) and ‘differentiator KPIs’ (optional) for all KPIs – see page 83.

Telekom also comes out on top in this evaluation and can even increase its score to ‘outstanding’ when converted to the maximum possible 600 points. 1&1 moves up from fourth to second place and also achieves an “outstanding” rating. Vodafone and O2/Telefónica are close together and are rated ‘very good’.

| Reliability     | max.  | Deutsche Telekom | 1&1 Versatel    | Vodafone      | O2 Telefónica |
|-----------------|-------|------------------|-----------------|---------------|---------------|
| Coverage        | 60    | 59.5             | 58.1            | 59.2          | 59.1          |
| Download Speeds | 240   | 227.6            | 225.4           | 227.8         | 225.3         |
| Upload Speeds   | 132   | 123.1            | 122.2           | 117.8         | 118.7         |
| Latency         | 138   | 135.8            | 135.7           | 133.5         | 133.6         |
| Stability       | 30    | 28.8             | 29.1            | 28.5          | 28.9          |
| Total           | 600P. | 575 outstanding  | 570 outstanding | 567 very good | 566 very good |

The numerical values shown are rounded. The exact, non-rounded values were used for the calculation of points and totals.

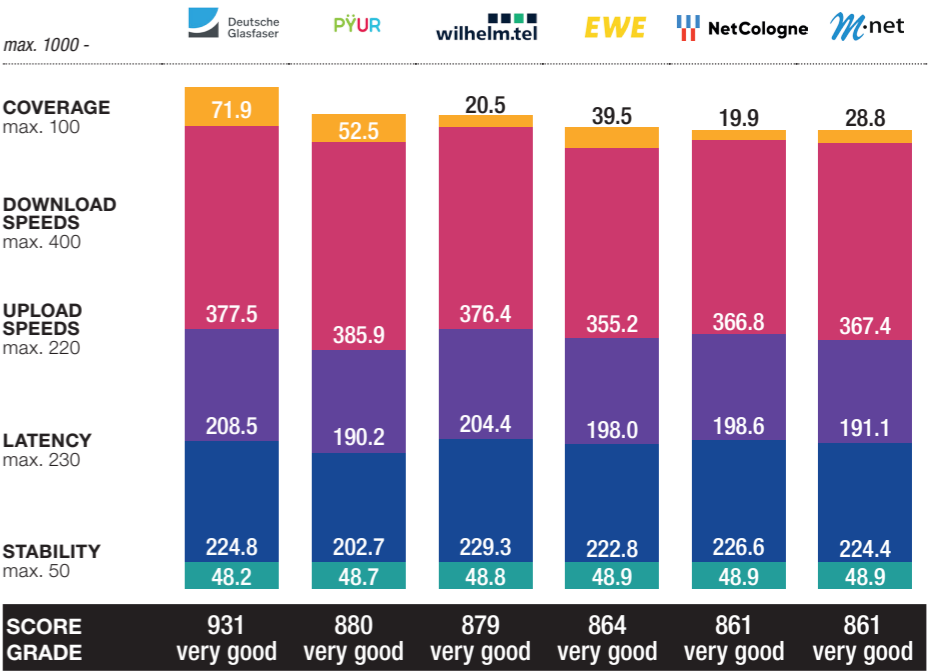
Regional Providers



The expansion strategies of the providers are also reflected to a certain extent in their test results.

As explained on page 68, we believe it is only fair to consider nationwide and regional providers separately. Even if a network operator is represented in most federal states, it does not necessarily roll out its network across the entire area, but may concentrate on lucrative regions and hotspots such as new construction sites or network expansion areas. Market share and coverage are therefore important criteria.

Some smaller providers concentrate on specific federal states or cities – for example, wilhelm.tel, EWE, NetCologne and M-net. Deutsche Glasfaser and PYUR, on the other hand, are working towards a significantly larger footprint. Their rankings prove that this strategy is paying off.



The numerical values shown are rounded. The exact, non-rounded values were used for the calculation of points and totals.

With its focus on FTTH, Deutsche Glasfaser has once again achieved victory in the regional ranking.



Although Deutsche Glasfaser is represented in almost all German federal states, the VATM study shows that it has 0.8 million customers and a market share of 2.1 per cent, which makes it a regional player in our classification. The network operator plans to connect around 400,000 additional households each year. As its name suggests, the company offers exclusively (FTTH) fibre

optic connections. This focus is also reflected in the test results – in our rating, Deutsche Glasfaser comes out on top in terms of upload data rates and is among the leaders in terms of downloads speeds (just behind PYUR) and latency (just behind Wilhelm.tel). The company also achieved a comparatively high score in our newly added coverage rating, which reflects the fact that the

provider has customer locations spread across the entire country. Deutsche Glasfaser performs very well in the stability rating, even though it lags behind its competitors in this category. Overall, the provider has won the regional title in Germany for the third time in a row.

Clear improvements to its network catapult PYUR to second place among German regional providers.



PYUR is the brand name under which broadband provider Tele Columbus operates on the market. This company was formed from the merger of several regional cable providers. With 0.8 million broadband customers, it has a market share of 2.1 per cent and is therefore classified by us as a regional provider – even though its broadband cable and fibre optic connections are


available in numerous federal states of Germany. There are two reasons why PYUR was able to improve its position from last place in the German regional league in the previous year to second place this year: firstly, this provider's comparatively good performance in the new coverage category. Secondly, improvements in the data rates of cable connections

and an increase in the share of fibre optic lines. PYUR achieved the highest score in our download rating among German regional providers and also significantly improved its upload and latency scores compared to the previous year. This would hardly have been possible without significant optimisation measures in the network infrastructure.




The regionally focused provider ranks third overall with top results in the performance disciplines.






Thanks to continuous fibre optic rollout, the energy supplier has improved its ranking again this year.





The proportion of fibre optic connections is also growing at the Cologne-based provider. Overall, its results are very good.





The Munich-based provider delivers a high level of performance – especially with its fibre optic connections.



► wilhelm.tel is a brand of Stadtwerke Norderstedt (Norderstedt municipal utilities) and also has its headquarters there. The provider is also active in Hamburg and parts of Lower Saxony, North Rhine-Westphalia and Schleswig-Holstein. Its market share is not reported in the VATM study, which means that it is likely to be one per cent or less on a nationwide scale. The company also cooperates with local cable

providers, but for its own offerings relies almost exclusively on fibre optics. This also explains its very good test results. Although the provider falls slightly behind Deutsche Glasfaser in download and upload measurements, it is clearly ahead in the latency discipline. And in the stability rating, this provider ranks just behind the leaders in this category.

However, the distinctly regional focus described at the beginning becomes clear in our new coverage category. Similar to the comparably positioned NetCologne, wilhelm.tel only achieves about 20 percent of the possible score in this discipline. Nevertheless, the provider is only one point behind PYUR.

► Originally, EWE stood for ‘Energieversorgung Weser-Ems’ (Weser-Ems Energy Supply) – but now the brand name stands on its own. According to the VATM market analysis for 2025, the EWE Group has 0.5 million customers and thus a market share of 1.3 per cent. The provider is primarily active in north-western Germany – between the Ems and Elbe rivers, in Bremen,

parts of Brandenburg, Lower Saxony and North Rhine-Westphalia, and on the island of Rügen – offering both VDSL and fibre optic connections. Together with Telekom, it plans to connect up to 1.5 million households with FTTH via the Glasfaser Nordwest joint venture. The development compared to the previous year suggests that this expansion is already showing some

success, even though VDSL and/or slower fibre optic connections still dominate the portfolio at present. In terms of download speeds, EWE ranks at the bottom of the German regional test field, but is in the middle of the pack for uploads and latency. EWE leads the way in terms of stability alongside NetCologne and M-net, and its coverage score is surprisingly high given its regional focus.

► NetCologne counts 0.5 million customers and thus has a market share of around 1.3 per cent according to the VATM study. The company was founded by RheinEnergie, Sparkasse Köln/Bonn and Kölner Verkehrsbetriebe. Since 2004, NetCologne has been a wholly owned subsidiary of the holding company GEW Köln AG. The provider supplies fibre optic

and VDSL lines primarily in the Cologne/Bonn region, but is also represented in Rhineland-Palatinate. The second-highest latency score after wilhelm.tel is an indication that the proportion of fibre optic connections in NetCologne’s portfolio has also increased. The scores in the download and upload disciplines are correspondingly high – although they lag slightly

behind the frontrunners in the regional rankings. In the stability category, however, NetCologne is back among the very top, together with EWE and M-net. Only in the new coverage category does the score fall behind its German regional competitors. This is the provider’s regional focus comes into play. In the overall ranking, NetCologne scores on a par with M-net.

► With half a million fixed-network customers and a market share of 1.3 per cent, M-net is also a typical regional provider. The company is backed by the municipal utilities of Munich and Augsburg, Allgäuer Überlandwerk and other shareholders. M-net offers fibre optic and VDSL connections in the greater Munich, Augsburg, Ulm and Erlangen areas, many other regions in Bavaria and in the Main-Kinzig

district of Hesse. In larger residential complexes, the provider also relies on the transmission of FTTB lines via G.fast. This mix of technologies is particularly reflected in the category of upload data rates, whereas the provider can certainly keep up with its regional competitors in Germany in terms of download and latency measurements. In the stability rating, M-net leads the German regio-

nal league together with EWE and NetCologne. The score achieved in the new coverage rating is ahead of wilhelm.tel and NetCologne, but behind EWE, PYUR and Deutsche Glasfaser. This is in line with expectations given the rollout areas described. Overall, M-net scores on a par with NetCologne.

## DETAILED RESULTS REGIONAL

The higher the proportion of fibre optics, the better the performance, as a rule. This becomes also clearly evident in the regional category – even though coverage also plays an important role.

The detailed results underscore the superiority of fibre optic access technology: this is most evident in the regional rankings, where Deutsche Glasfaser comes out on top. This provider supplies its customers entirely or at least predominantly with FTTH connections (fibre to the home, i.e. fibre optic to the customer’s connection). This puts Deutsche Glasfaser in first place, as in previous years. The fact that this time, unlike before, it did not quite make it to the top rating of ‘outstanding’ is primarily due to the point shifts resulting from our updated test methodology.

### Results reflect technology mix

The strengths of fibre technology are most evident in active throughput measurements: here, a high proportion of fibre optics has a beneficial effect, especially in the upload direction. In the downlink direction, cable connections can still keep up quite well, as can be seen in

particular from PYUR’s good result in this discipline. The latencies determined in the analysis largely follow this trend – here, too, better measurement values can be explained primarily by higher fibre proportions in

the overall mix. In the stability category, the six regional providers are ranking closely together. Success rates of around 99% show that, despite all the differences in performance, fixed-line connections offer

predominantly stable connections. In terms of coverage, differences are already apparent in basic availability, but especially in the analysis based on the observed data rates.

| KPI Values                                  |  | Deutsche Glasfaser | PYUR | wilhelm.tel | EWE  | Net-Cologne | M-net |
|---|--|--------------------|------|-------------|------|-------------|-------|
| Coverage [%]                                |  |                    |      |             |      |             |       |
| Basic Availability                          |  | 60.1               | 44.3 | 10.4        | 32.6 | 14.1        | 33    |
| Speed Availability                          |  | 62.7               | 45.3 | 25          | 34.8 | 20          | 15.8  |
| Download Speed [Mbps]                       |  |                    |      |             |      |             |       |
| Average Data Rate                           |  | 179                | 208  | 133.7       | 91.6 | 101.2       | 101.2 |
| 90% of Measurement Values above (P10)       |  | 32.3               | 44.1 | 41.3        | 34.9 | 39.8        | 38.6  |
| 10% of Measurement Values above (P90)       |  | 415.3              | 463  | 276         | 161  | 189.7       | 199   |
| UHD Video Class (min.20 Mbps) [%]           |  | 87.7               | 90.1 | 89.1        | 85.2 | 85.8        | 83.7  |
| Highspeed Class (min.50 Mbps) [%]           |  | 96.1               | 97.5 | 97.7        | 96.5 | 97.4        | 97.2  |
| Upload Speed [Mbps]                         |  |                    |      |             |      |             |       |
| Average Data Rate                           |  | 116.1              | 38.9 | 46.5        | 40.3 | 32.7        | 43.4  |
| 90% of Measurement Values above (P10)       |  | 22.2               | 8.1  | 20.2        | 10   | 10.1        | 8.8   |
| 10% of Measurement Values above (P90)       |  | 232.5              | 71.2 | 60.3        | 76.7 | 50.8        | 100.2 |
| HD Video Class (min.5 Mbps) [%]             |  | 98.8               | 96.8 | 99.2        | 98.4 | 98.9        | 97.7  |
| UHD Video Class (min.20 Mbps) [%]           |  | 91.9               | 59.4 | 89.3        | 68.4 | 68.1        | 47.7  |
| Latency [%]                                 |  |                    |      |             |      |             |       |
| Standard Gaming Class (max.50ms)            |  | 99.1               | 97.4 | 99.6        | 98.6 | 99.2        | 99    |
| Highend Gaming Class (max.20ms)             |  | 88.6               | 67.7 | 97.1        | 84.3 | 91.5        | 88.1  |
| Ultra Low Latency Class (max.10ms)          |  | 50.5               | 20.4 | 80.2        | 53.6 | 62.1        | 48.8  |
| Stability [%]                               |  |                    |      |             |      |             |       |
| Transaction Success                         |  | 98.4               | 98.9 | 99          | 99.1 | 99.1        | 99.1  |
| Download Basic Internet Class (min. 2 Mbps) |  | 99.9               | 99.9 | 99.9        | 99.9 | 99.9        | 99.9  |

The numerical values shown are rounded. The exact, non-rounded values were used for the calculation of points and totals.

## Reliability

In the reliability rating, the ranking changes in the overall very good German regional test field.

In the assessment focused on basic performance and the mandatory programme (see also page 83), Deutsche Glasfaser and PYUR are in the lead, as they are in the overall results.

However, M-net moves up to third place thanks to its top results in data rates and latency. The same applies to EWE, which is tied with M-net in terms of reliability and thus also ranks

third here. All providers benefit from the high proportion of fibre optics in their networks. Wilhelm.tel and NetCologne

follow closely behind – presumably because of more coax in their connection mix. However, as in the overall ranking, all six

regional providers achieve a ‘very good’ rating in this assessment.

| Reliability     | max.  | Deutsche Glasfaser | PYUR          | M-net         | EWE           | wilhelm.tel   | Net-Cologne   |
|-----------------|-------|--------------------|---------------|---------------|---------------|---------------|---------------|
| Coverage        | 60    | 36.0               | 26.6          | 19.8          | 19.6          | 6.3           | 8.5           |
| Download Speeds | 240   | 231.5              | 233.4         | 231.8         | 232.0         | 229.9         | 233.0         |
| Upload Speeds   | 132   | 128.3              | 124.5         | 123.4         | 121.9         | 124.3         | 104.9         |
| Latency         | 138   | 135.3              | 136.6         | 135.7         | 135.4         | 133.9         | 132.9         |
| Stability       | 30    | 47.6               | 48.2          | 48.1          | 47.7          | 47.3          | 47.7          |
| Total           | 600P. | 546 very good      | 529 very good | 526 very good | 526 very good | 523 very good | 520 very good |

The numerical values shown are rounded. The exact, non-rounded values were used for the calculation of points and totals.

# Austria: Nationwide Providers

In Austria, too, we evaluate nationwide and regionally oriented fixed-line operators in separate categories.

As in Germany, we evaluate nationwide providers and those with a predominantly regional focus in two different categories. In Austria, there are also two criteria for differentiation: to be considered a nationwide provider, a fixed-line operator must make its connections available in all Austrian federal states and have a market share of at least five per cent.

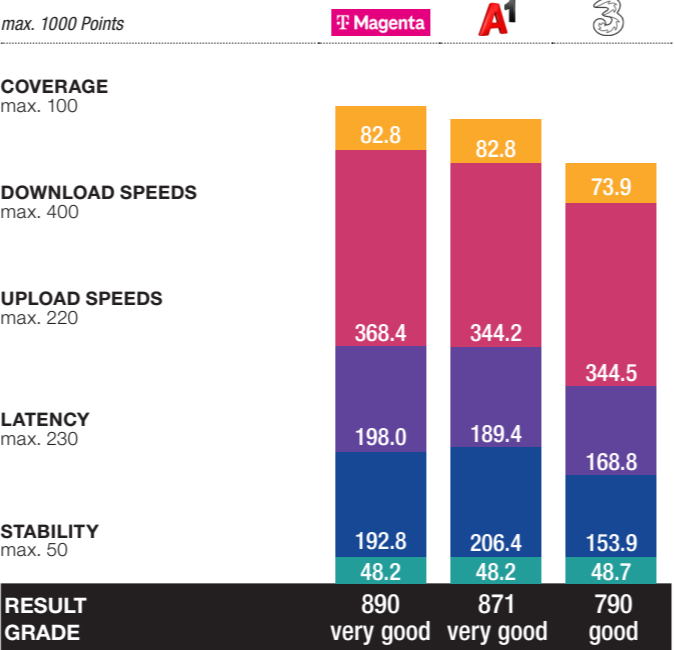
Since no binding figures on the market shares of individual providers are published for Austria from a neutral source, we make this decision based on the customer numbers provided by the operators and the number of samples we see in the crowdsourcing analyses carried out by umlaut.

Of course, even nationwide network operators cannot provi-

de Internet connections in every location – and certainly not in every desired technology such as (V)DSL, broadband cable or fibre optics. Interested parties must therefore check which options are available at what cost for their desired connection location.

We do not take the respective tariffs into account in our purely technical performance evaluation. Since our benchmarks determine the actual speed provided, the results also represent the distribution in the market – i.e. the lines that the respective customers have chosen.

However, the results give some clear indications of the level of performance customers can expect from a provider – especially if they choose a high-end product.



## Twice very good, once good

This year, we see a fairly clear ranking in Austria: Magenta takes first place unchallenged, followed by A1 Telekom at some distance. Both nationwide candidates in Austria achieve a rating of 'very good'. Hutchison Drei once again ranks third among nationwide providers, some way behind, and receives an overall rating of 'good'.

While the top two are neck and neck in terms of coverage and stability, the race is primarily decided by data rates. Here, Magenta benefits above all from a higher proportion of broadband cable connections in the category of download speeds.

In the latency rating, on the other hand, A1 Telekom is ahead

with its high proportion of fibre optic and DSL lines.

In terms of download data rates, Hutchison Drei, which offers a large number of DSL connections as well as a growing number of fibre optic connections, is still just ahead of A1 – but then loses valuable points, particularly in the latency rating. In the new network coverage rating, Drei also lags significantly behind Magenta and A1 Telekom.

In the stability assessment, all three nationwide Austrian providers are almost on a par, with Hutchison Drei scoring half a point ahead of its competitors.

## T Magenta

With fast downloads and uploads, Magenta is the test winner among the Austrian nationwide broadband providers.



## A1

Austria's broadband market leader achieves a very good second place.



## 3

The smallest nationwide fixed-line provider in the Alpine republic has clearly improved compared to the previous year.



► In 2019, T-Mobile Austria, a wholly owned subsidiary of Deutsche Telekom, merged with the former Liberty Global subsidiary UPC. The resulting Magenta Telekom offers (V)DSL, cable, and fiber optic connections. By mid-2025, it had 1.1 million broadband connections in Austria, making it the second-largest fixed-line provider there. Together with French investor Meridiam, Magenta has also

founded Alpen Glasfaser GmbH, which aims to supply around 650,000 households and businesses with fiber optics by 2030. Magenta ranks ahead of its nationwide competitors in the download and upload categories. However, A1 Telekom performs better in terms of latency. The gap between Magenta and Drei is more pronounced. In the stability rating, Magenta is on par with A1, but

slightly behind Drei. Magenta and A1 are also neck and neck in the coverage rating, both ahead of Drei. Due to the further development of our methodology, the current results can only be compared to a limited extent with the points achieved in the previous year. However, Magenta has visibly improved in terms of technical performance.

► A1 Telekom, formed in 2010 from the merger of Telekom Austria and Mobilkom Austria, is the market leader in the Austrian fixed-line network. In spring 2025, it had over 2.3 million landline connections. According to its own figures, the provider reaches around 850,000 households via fiber optics ("homes passed" – only some of them actually have customer contracts).

In addition to the growing number of fiber optic lines, A1's landline network is primarily based on (V)DSL. In terms of download and upload data rates, the results determined by umlaut are slightly behind those of Magenta. A1 is ahead in the latency category – here, the access technologies used offer an advantage over the cable connections commonly used by its competitors.

In terms of coverage and stability, A1 is exactly on par with Magenta, but half a point behind Drei in the latter category. Compared to the previous year, which cannot be done on a 1:1 basis due to the changed methodology, A1 has essentially maintained its technical performance level.

► In 2017, Hutchison Drei, which until then had been active solely as a mobile phone provider, took over its competitor Tele 2 Austria. Its approximately 210,000 landline customers at the time form the basis for its third place in the nationwide landline market share. The provider has not published exact figures for its landline network since then, but states that its fibre optic offering

potentially reaches around one million households ("homes passed"). Drei is cooperating with ÖGIG (Österreichische Glasfaser-Infrastruktur-Gesellschaft – Austrian Fibre Optic Infrastructure Company), öFIBER and A1 on the expansion of its fibre optic network. In the stability rating, Drei is half a point ahead of Magenta and A1, and the provider achieves a slightly

better result than A1 in terms of download data rates. However, the Hutchison brand falls behind in the ratings for uploads and latencies. Coverage also leads to a lower score than its two larger competitors. Even though a comparison with the previous year is partly possible due to the expanded methodology, Drei shows the clearest improvement among Austrian nationwide providers.

| KPI Values                                  |  | Magenta Telekom | A1 Telekom | Hutchison Drei |
|---|--|-----------------|------------|----------------|
| Coverage [%]                                |  |                 |            |                |
| Basic Availability                          |  | 96.2            | 96.8       | 93.7           |
| Speed Availability                          |  | 43.9            | 43.1       | 31             |
| Download Speeds [Mbps]                      |  |                 |            |                |
| Average Data Rate                           |  | 138.2           | 84.6       | 88.4           |
| 90% of Measurement Values above (P10)       |  | 31.5            | 26.9       | 23.2           |
| 10% of Measurement Values above (P90)       |  | 282.9           | 175.9      | 187.6          |
| UHD Video Class (min.20 Mbps) [%]           |  | 76.2            | 67.3       | 65.6           |
| Highspeed Class (min.50 Mbps) [%]           |  | 95.4            | 94.7       | 93.4           |
| Upload Speeds [Mbps]                        |  |                 |            |                |
| Average Data Rate                           |  | 35.5            | 26.7       | 22.6           |
| 90% of Measurement Values above (P10)       |  | 13.1            | 9.9        | 7.4            |
| 10% of Measurement Values above (P90)       |  | 63.5            | 60.8       | 42.5           |
| HD Video Class (min.5 Mbps) [%]             |  | 98.2            | 97.7       | 93.8           |
| UHD Video Class (min.20 Mbps) [%]           |  | 69.2            | 42.8       | 42.5           |
| Latency [%]                                 |  |                 |            |                |
| Standard Gaming Class (max.50ms)            |  | 95.7            | 94.8       | 93.3           |
| Highend Gaming Class (max.20ms)             |  | 61.8            | 70.4       | 42.6           |
| Ultra Low Latency Class (max.10ms)          |  | 25.1            | 33.5       | 8.6            |
| Stability [%]                               |  |                 |            |                |
| Transaction Success                         |  | 98.7            | 98.8       | 99.0           |
| Download Basic Internet Class (min. 2 Mbps) |  | 99.8            | 99.7       | 99.8           |

The numerical values shown are rounded. The exact, non-rounded values were used for the calculation of points and totals.

## Reliability

Even when considering only the compulsory programme, the ranking from the overall evaluation is confirmed.

The reliability analysis, which focuses not on peak performance but on mandatory requirements ('qualifier KPIs', see also page 83), shows the same ranking for nationwide Austrian providers as the overall result. There are hardly any surprises within the individual KPIs. In terms of basic coverage, A1 has a slight lead ahead of Magenta, and in terms of download data rates, A1 is ahead of Drei. In the latency category, Magenta is just ahead of A1.

| Reliability     | max.  | Magenta          | A1 Telekom       | Hutchison Drei   |
|-----------------|-------|------------------|------------------|------------------|
| Coverage        | 60    | 57.7             | 58.1             | 56.2             |
| Download Speeds | 240   | 221.6            | 219.2            | 216.7            |
| Upload Speeds   | 132   | 118.2            | 115.9            | 99.8             |
| Latency         | 138   | 129.8            | 128.1            | 125.2            |
| Stability       | 30    | 28.7             | 28.8             | 29.0             |
| Total           | 600P. | 556<br>very good | 550<br>very good | 527<br>very good |

The numerical values shown are rounded. The exact, non-rounded values were used for the calculation of points and totals.

# Austria: Regional Providers

Among regional providers in Austria, the analyses by umlaut show that Kabelplus, Liwest and Salzburg AG maintained their performance in terms of technical KPIs.

As explained on pages 74/75, we distinguish between nation-wide and regional providers primarily for reasons of fairness: providers that are only active in certain regions find it easier to achieve better results there on average. Even though we take this effect into account to a certain extent with our newly introduced coverage rating, it makes sense to differntiate between providers that are active nation-wide and those that are active regionally.

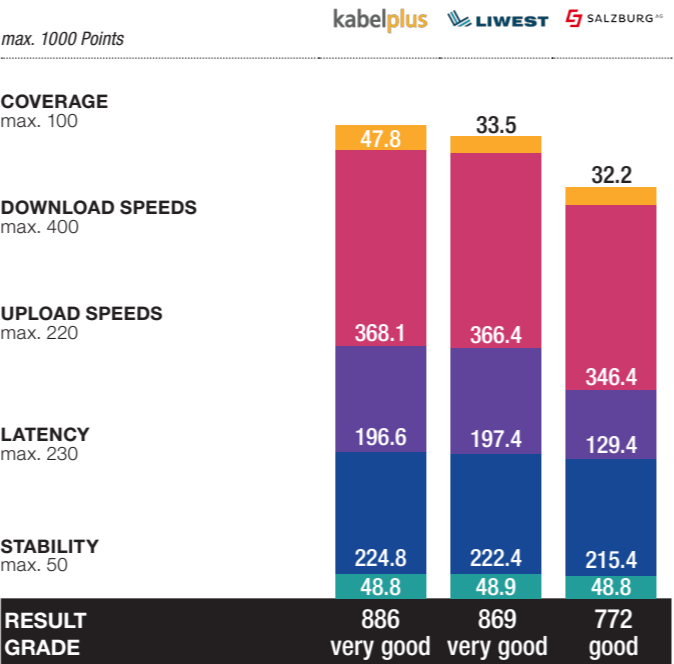
However, customer figures in Austria are only available from the providers themselves and not from official and neutral sources. Therefore, when assessing whether a provider is more regionally active, we base our assessment not least on the sample figures that umlaut sees

in its crowdsourcing data. The samples observed by umlaut confirm that Kabelplus is mainly active in Lower Austria, Burgenland and Vienna, while Liwest is mainly active in Upper Austria and the western part of Lower Austria. Salzburg AG is, of course, represented in Salzburg and the surrounding municipalities, but also has connections in Upper Austria, Styria and Tyrol.

The scores in our new coverage rating (see also page 83) also give an indication of the respective ‘footprint’ covered. Of course, the same principle applies here: interested parties can only book offers that are actually available at their place of use – and must also take into account the tariff costs of the offers, which are not relevant to our purely technical rating.

| KPI Values                                  |  | kabelplus | LIWEST Kabelmedien | Salzburg AG |
|---|--|-----------|--------------------|-------------|
| Coverage [%]                                |  |           |                    |             |
| Basic Availability                          |  | 36.7      | 17.7               | 24.1        |
| Speed Availability                          |  | 45.0      | 40.0               | 31.0        |
| Download Speeds [Mbps]                      |  |           |                    |             |
| Average Data Rate                           |  | 119.5     | 110.9              | 90.9        |
| 90% of Measurement Values above (P10)       |  | 30.7      | 32.9               | 28.9        |
| 10% of Measurement Values above (P90)       |  | 275.2     | 232.7              | 193.4       |
| UHD Video Class (min.20 Mbps) [%]           |  | 78.4      | 76                 | 59.3        |
| Highspeed Class (min.50 Mbps) [%]           |  | 95.9      | 96.1               | 94.5        |
| Upload Speeds [Mbps]                        |  |           |                    |             |
| Average Data Rate                           |  | 34.5      | 26.3               | 18.1        |
| 90% of Measurement Values above (P10)       |  | 10.8      | 12.4               | 4.6         |
| 10% of Measurement Values above (P90)       |  | 68.0      | 41.6               | 35.1        |
| HD Video Class (min.5 Mbps) [%]             |  | 98.6      | 99.0               | 82.0        |
| UHD Video Class (min.20 Mbps) [%]           |  | 60.2      | 74.4               | 28.1        |
| Latency [%]                                 |  |           |                    |             |
| Standard Gaming Class (max.50ms)            |  | 98.4      | 98.6               | 98.2        |
| Highend Gaming Class (max.20ms)             |  | 92.2      | 89.7               | 83.8        |
| Ultra Low Latency Class (max.10ms)          |  | 55.8      | 41.4               | 29.9        |
| Stability [%]                               |  |           |                    |             |
| Transaction Success                         |  | 99.1      | 99.3               | 99.3        |
| Download Basic Internet Class (min. 2 Mbps) |  | 99.8      | 99.8               | 99.7        |

The numerical values shown are rounded. The exact, non-rounded values were used for the calculation of points and totals.



The numerical values shown are rounded. The exact, non-rounded values were used for the calculation of points and totals.

However, the points achieved in the individual categories provide an indication of what customers can expect overall from these three providers.

## Still strong focus on broadband cable

The regional comparison in Austria is also interesting because three providers compete here that supply a large proportion of their customers with broadband cable, but are increasingly expanding their networks with FTTH fibre optics.

In the technical categories, i.e. downloads, uploads and latencies, Kabelplus and Liwest are once again neck and neck this year. Kabelplus is ahead in the download and latency disciplines, while Liwest achieves a

slightly higher score in the upload data rates.

Kabelplus's ranking is then decided in the coverage rating. On the other hand, Liwest ranks slightly ahead of the other two providers in the stability discipline. Salzburg AG ranks third in all technical KPIs.

Direct comparisons with last year's results are not easily possible due to the updated and expanded methodology. Nominally, all three Austrian regional providers have lost some points compared to last year. However, a closer look at the KPI values shows that they have largely maintained their technical performance.

## kabelplus

This year, Kabelplus managed to overtake its rival Liwest and claim the regional victory.



Last year's Austrian regional winner achieves a very good second place this time around.



The provider, which operates in the city and province of Salzburg, does not quite keep up with the top two regional providers, but is still good.



FTTH fibre optics in a growing number of municipalities.

In terms of download data rates, Kabelplus is just ahead of its competitor Liwest, mainly due to slightly higher transmission rates (average value and P90 as well as share in the UHD video class). Kabelplus also has a slight advantage in the latency rating.

In terms of uploads, however, the provider scores just behind Liwest.

In the stability rating, all three Austrian regional providers rank close together, although Liwest achieves a slightly higher score in this discipline.

Kabelplus then secures the overall victory in our new coverage category. Here, its score is more than 14 points ahead of Liwest and more than 15 points ahead of Salzburg AG.

networks are connected via franchise agreements.

While the operator was still ahead last year, this time it ranks second behind Kabelplus. In terms of technical KPIs, the two rivals score neck and neck, with Liwest slightly ahead in the upload category and Kabelplus ahead in downloads and latency. In the stability discipline, Liwest once again outperforms its

competitors Kabelplus and Salzburg AG by a tenth of a point.

However, the gap to the regional winner becomes apparent in the new coverage discipline. Here, the score for the footprint and the data rates offered falls a clear 14 points behind Kabelplus.

► The City and Province of Salzburg hold stakes in Salzburg AG. In addition to energy, water and heating, the company also provides internet, TV and telephone services. To this end, it relies on broadband cable and fibre optics (FTTH) under the brand name ‘CableLink’. Its connections are available in 116 of 119 Salzburg municipalities and also in the Mondseeland region, the

Ausseerland region and the Schladming area. The company does not publish exact customer figures, but connect estimates that it has well over 100,000 internet customers.

Compared to its two regional competitors, Salzburg AG can still keep up well in the download discipline, but falls behind somewhat in the categories of upload speeds

and latencies. In the upload category, this is evident in all KPI values recorded, and in the case of latency, particularly in the more demanding ‘high-end gaming’ and ‘ultra-low latency’ classes.

In terms of stability, the provider can keep up with its regional competitors, but in the coverage rating it lags slightly behind Liwest and significantly behind Kabelplus.

## Reliability

Even when compulsory and freestyle are separated, the ranking in the Austrian regional league remains unchanged.

The evaluation of basic requirements alone does not lead to any significant changes among the Austrian regional providers. In terms of basic coverage, Salzburg AG ranks second ahead of Liwest, while Liwest performs slightly better than kabelplus and Salzburg AG in the download category. And in terms of latency, Liwest overtakes the overall winner Kabelplus. Converted to the maximum 600 points in this category, kabelplus and Liwest achieve a rating of ‘very good’, while Salzburg AG achieves the grade ‘good’.

| Reliability     | max.  | kabelplus     | LIWEST Kabelmedien | Salzburg AG |
|-----------------|-------|---------------|--------------------|-------------|
| Coverage        | 60    | 22.0          | 10.6               | 14.4        |
| Download Speeds | 240   | 221.8         | 222.7              | 219.8       |
| Upload Speeds   | 132   | 118.6         | 120.1              | 71.6        |
| Latency         | 138   | 135.0         | 135.3              | 134.6       |
| Stability       | 30    | 29.1          | 29.3               | 29.3        |
| Total           | 600P. | 527 very good | 518 very good      | 470 good    |

The numerical values shown are rounded. The exact, non-rounded values were used for the calculation of points and totals.

# Switzerland: Nationwide Providers

Two outstanding providers are battling it out for the top spot in Switzerland. In a high-level battle, Swisscom has once again come out on top.

Only two Swiss fixed-net providers meet our criteria for nationwide operators: Swisscom and Sunrise. Both offer their landline products throughout virtually the whole of Switzerland. Figures from the Federal Communications Commission (ComCom) confirm this classification: At the end of 2024, Swisscom had a 45 percent market share of Swiss fixed-line broadband connections, while Sunrise had 30.5 percent. The next providers in the statistics are the network operators Salt (6 percent market share) and Quickline (4 percent), which we classify as regional providers.

In Switzerland, operators who also provide their lines in smaller municipalities and rural regions should also not be thrown into the same pot as competitors who are

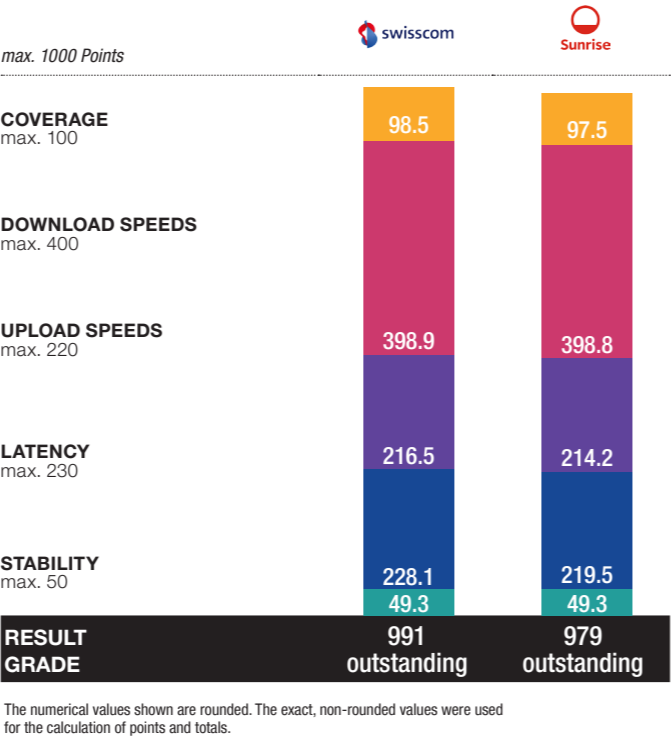
predominantly active in metropolitan areas for reasons of fairness.

Unlike in Germany and Austria, even connections with a nominal data rate of 10 Gbps are available on the Swiss fiber optic network. All providers participating in our test, both nationwide and regional, have such lines in their range – albeit with quite different regional coverage. This becomes also evident from the distribution of the samples collected by umlaut, which show the respective coverage areas of the providers and thus confirm our classification into nationwide or regionally focused network operator groups.

The fact that 10-gigabit lines are represented in the samples analyzed is definitely one of the explanations for the overall very high performance level in Switzerland.

| KPI Values                                  | Swisscom | Sunrise UPC |
|---|----------|-------------|
| Coverage [%]                                |          |             |
| Basic Availability                          | 97.4     | 96.2        |
| Speed Availability                          | 94.8     | 88.7        |
| Download Speeds [Mbps]                      |          |             |
| Average Data Rate                           | 278.7    | 338.6       |
| 90% of Measurement Values above (P10)       | 90.9     | 92.8        |
| 10% of Measurement Values above (P90)       | 637.4    | 703.2       |
| UHD Video Class (min.20 Mbps) [%]           | 97.3     | 97.2        |
| Highspeed Class (min.50 Mbps) [%]           | 99.2     | 99.2        |
| Upload Speeds [Mbps]                        |          |             |
| Average Data Rate                           | 158.5    | 137.6       |
| 90% of Measurement Values above (P10)       | 33.5     | 28.6        |
| 10% of Measurement Values above (P90)       | 348.0    | 310.6       |
| HD Video Class (min.5 Mbps) [%]             | 99.6     | 99.5        |
| UHD Video Class (min.20 Mbps) [%]           | 96.8     | 96.6        |
| Latency [%]                                 |          |             |
| Standard Gaming Class (max.50ms)            | 99.4     | 98.9        |
| Highend Gaming Class (max.20ms)             | 94.1     | 83.0        |
| Ultra Low Latency Class (max.10ms)          | 66.3     | 37.8        |
| Stability [%]                               |          |             |
| Transaction Success                         | 99.4     | 99.4        |
| Download Basic Internet Class (min. 2 Mbps) | 100.0    | 100.0       |

The numerical values shown are rounded. The exact, non-rounded values were used for the calculation of points and totals.



## A neck-and-neck race at the highest level

As already known from our mobile network tests, the battle between Swiss broadband providers is also taking place at the highest level. This year, the two supra-regional providers have once again achieved the rarely awarded rating of “outstanding.” A look at the individual evaluation categories shows how close the race was in the nationwide group – although Swisscom secured a 12-point lead over Sunrise in the overall ranking.

When we look at the individual KPIs, the differences are small – but with the exception of the stability rating, in which the two nationwide competitors are scoring on a par, and the download discipline, in which there is also

almost a tie, Swisscom is slightly ahead of Sunrise in each case – and even more pronounced in the latency category.

The newly introduced coverage rating gives Swisscom a one-point lead, but both fixed-line network operators score are at an extremely high level in this category as well.

Even though a direct comparison with last year’s results is only valid to a limited extent due to the adjusted and expanded test methodology, a look at the scores nevertheless shows that both nationwide Swiss providers have improved their performance levels once again significantly.



This year, the market leader once again tops the nationwide rankings in Switzerland with an outstanding result.



Sunrise also performs excellently in the competition at the highest level, achieving second place nationwide with a rating of ‘outstanding’.



► At the end of 2024, Swisscom reported a total of around two million fixed-line broadband connections. According to the regulatory authority ComCom, this corresponds to a market share of 45 per cent, making Swisscom the clear market leader in the Swiss fixed-line network.

The provider’s product portfolio ranges from (V)DSL to fibre optics, with the latter offering connection speeds of up to 10 Gbps. Around 1.5 million customers also receive TV reception from Swisscom. By the end of 2025, Swisscom aims to

reach 57 per cent of households in Switzerland with fibre optics (FTTH), and between 75 and 80 per cent by 2030.

In a direct battle with its competitor Sunrise, which also performed ‘outstandingly’, Swisscom is ahead in all technical evaluation categories this time. Its lead is razor-thin in the download category, but slightly more pronounced in the upload and latency categories.

Although Sunrise has slightly higher download data rates, Swisscom has a slight advantage when it comes to allocating samples to the

demanding UHD video class. In the stability rating, both competitors are neck and neck, as evidenced by impressive success rates of 99.4 per cent.

Apart from its lead in downloads, uploads and latency, Swisscom also scores one point more than Sunrise in the new coverage category. This adds up to a 12-point lead over its competitor – and results in an overall victory nationwide.

► 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 fibre optic lines (FTTH) under the Sunrise brand. This offering also extends to the 10 gigabit class. With 1.36 million fixed-line customers (as of June 2025), the company has a market share of around 30.5 per cent in terms of fixed-line broadband connections – ComCom confirms this figure. This makes Sunrise the number two in the Swiss fixed-line market.

The company has around 1.15 million revenue generating units (RGUs) for broadband Internet connections.

Sunrise shares a success rate of 99.4 per cent across all internet transactions with Swisscom. In terms of download data rates, only one tenth of a score point separates Sunrise’s result from Swisscom, which is ahead by this narrow margin. The gap is slightly wider in the categories of upload data rates and latency, but Sunrise’s results are still at the highest level in these categories.

The gap in the latency rating can probably be explained by the fact that Sunrise’s fixed network has a slightly higher proportion of coaxial broadband cable connections.

In our new network coverage assessment, Sunrise scores one point less than Swisscom – but its result of 97.5 points is still impressive. Once again, coming second in Switzerland is still an ‘outstanding’ achievement and would catapult providers in other countries to the top of the ranking.

## Reliability

When separating compulsory and optional performance, Swisscom is four points ahead of Sunrise. Both are ‘outstanding’ here too.

The competition at the highest level is also evident in the reliability evaluation, which only considers the fulfilment of basic requirements. Here, Swisscom and Sunrise come even closer together, which proves that the overall ranking is more strongly determined by top performance. The two providers rank close to each other in all KPIs and are having a neck and neck race in the stability rating. Nevertheless, Swisscom manages to pull slightly ahead of Sunrise in this assessment as well.

| Reliability     | max.  | Swisscom        | Sunrise         |
|-----------------|-------|-----------------|-----------------|
| Coverage        | 60    | 58.5            | 57.7            |
| Download Speeds | 240   | 239.3           | 239.2           |
| Upload Speeds   | 132   | 128.7           | 126.8           |
| Latency         | 138   | 136.9           | 135.9           |
| Stability       | 30    | 29.4            | 29.4            |
| Total           | 600P. | 593 outstanding | 589 outstanding |

The numerical values shown are rounded. The exact, non-rounded values were used for the calculation of points and totals.

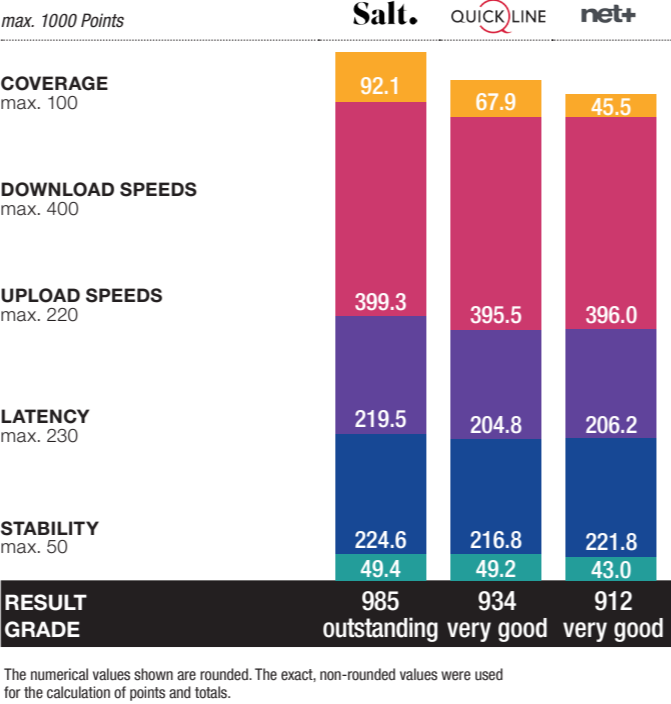
# Switzerland: Regional Providers



The competition among Swiss regional providers is also taking place at a very high level of performance. Salt is clearly in the lead.

In mobile communications, according to ComCom, Salt is the number three provider in the Swiss mobile market with 2.1 million customers and a market share of 17 per cent, but it is definitely one of the major players. In the Swiss fixed-line market, the situation is somewhat different. There, the provider who offers exclusively 10 Gbps fibre optic lines with ‘Salt Fiber’ achieves a market share of six per cent according to ComCom. However, as Salt’s presence is rather fragmented when looking at the country as a whole, we classify Salt’s fixed-line offering as regional. This also applies to Quickline, which has a market share of 4 per cent according to ComCom. The provider Netplus (see right-hand page) also clearly belongs to the regional segment.

In addition to customer numbers and market shares, this is also confirmed by the number of samples collected by umlaut as part of its crowdsourcing – even though Salt achieved a fairly high score of 92.1 out of 100 points in our coverage rating. As in Austria and Germany, prospective customers must choose a fixed-line provider that is actually available at their desired location. While the coverage areas of Salt and Quickline overlap to a certain extent and also include the French-speaking part of Switzerland in at least some locations, Netplus is almost exclusively active in Western Switzerland, specifically in the cantons of Bern, Jura, Neuchâtel, Fribourg, Valais, Vaud and Geneva.



We would like to point out once again that our purely technical performance assessment does not take into account the rates offered by the providers. However, our test results clearly show what prospective customers who are particularly interested in a more powerful fixed-line broadband service can expect from the individual providers. However, the values for Quickline and Netplus, which offer classic DOCSIS cable connections in addition to FTTH, are also impressive. When it comes to latency ratings, higher fibre optic shares definitely offer an advantage. This becomes also particularly evident in Salt’s KPI values. Netplus and Quickline are more on a par with broadband providers in other countries, where the proportion of 10-gigabit fibre optics is likely to be significantly lower. Even though a direct comparison with last year’s scores is not valid due to changes in the testing methodology, the Swiss regional providers also show some improvements in the technical evaluation disciplines.

**More fiber is better**

A look at the detailed results shows what it means to offer exclusively FTTH lines with 10 Gbps: ten percent of the measured values (‘P90 value’) at Salt are above 807 Mbps. At such speeds, some of the local Wi-Fi connections could also have a somewhat slowing effect.

| KPI Values                                  |  | Salt  | Quickline | netplus |
|---|--|-------|-----------|---------|
| Coverage [%]                                |  |       |           |         |
| Basic Availability                          |  | 89.7  | 57.7      | 29.5    |
| Speed Availability                          |  | 78.0  | 58.3      | 48.6    |
| Download Speeds [Mbps]                      |  |       |           |         |
| Average Data Rate                           |  | 413.6 | 187.0     | 228.7   |
| 90% of Measurement Values above (P10)       |  | 94.6  | 71.9      | 81.6    |
| 10% of Measurement Values above (P90)       |  | 807.9 | 412.7     | 436.3   |
| UHD Video Class (min.20 Mbps) [%]           |  | 98.1  | 95.8      | 95.1    |
| Highspeed Class (min.50 Mbps) [%]           |  | 99.5  | 98.8      | 97.9    |
| Upload Speeds [Mbps]                        |  |       |           |         |
| Average Data Rate                           |  | 275.5 | 95.0      | 128.2   |
| 90% of Measurement Values above (P10)       |  | 52.0  | 12.2      | 41.1    |
| 10% of Measurement Values above (P90)       |  | 591.4 | 243.4     | 290.6   |
| HD Video Class (min.5 Mbps) [%]             |  | 99.9  | 99.1      | 95.7    |
| UHD Video Class (min.20 Mbps) [%]           |  | 97.4  | 78.2      | 74.2    |
| Latency [%]                                 |  |       |           |         |
| Standard Gaming Class (max.50ms)            |  | 98.7  | 98.7      | 97.5    |
| Highend Gaming Class (max.20ms)             |  | 87.8  | 80.7      | 88.2    |
| Ultra Low Latency Class (max.10ms)          |  | 62.6  | 33.8      | 52.9    |
| Stability [%]                               |  |       |           |         |
| Transaction Success                         |  | 99.4  | 99.4      | 95.8    |
| Download Basic Internet Class (min. 2 Mbps) |  | 100.0 | 99.9      | 98.6    |

The numerical values shown are rounded. The exact, non-rounded values were used for the calculation of points and totals.

## Salt.

Salt offers exclusively 10 Gbps FTTH lines. Their top results make the provider the regional winner.



The alliance of regional operators achieved a very good overall result.



The merger of eleven regional networks from French-speaking Switzerland is performing very well.



► Since 2018, Switzerland’s third-largest mobile network operator has also been offering fibre optic landline connections in partnership with companies such as SFN (Swiss Fiber Net). Only 10 Gbps lines are available, and these are offered in most major cities in Switzerland. At the end of 2024, Salt reported 265,000 fixed-line customers, with ComCom estimating its market

share in the fixed-line sector at six per cent. Salt’s focus on the FTTH premium segment is paying off: the provider ranks at the top in terms of download and upload speed measurements – the peak values (P90) of the actively measured data rates are particularly impressive. Salt also achieves the highest score among Swiss regional providers in the latency rating – even in

the demanding ‘ultra-low latency’ class, the provider still has a share of 62.6 per cent. Salt also has a slight advantage over its competitors in the stability rating. In addition, it achieved a comparatively high score in the coverage rating. With its overall result, Salt achieved an ‘outstanding’ rating and plays in the same league as Swisscom and Sunrise in terms of performance.

► Quickline is an association of 24 regional network operators and energy suppliers. It supplies its 187,600 broadband Internet customers with cable and fibre optic connections (FTTH) and also offers 10 Gbps fibre lines. The operator also offers landline telephony, TV and mobile phone services. ComCom reports that Quickline has a four per cent share

of the Swiss broadband fixed-line market. In terms of download data rates, Quickline is around four points behind Salt and half a point behind Netplus. In terms of uploads, it scores almost 15 points behind Salt, with Netplus also around 1.5 points ahead of Quickline. In the latency rating, Quickline keeps up well with the strong

competition, but ends up just under eight points behind Salt and five points behind Netplus. In the stability category, Quickline is on a par with Salt and just over six points ahead of Netplus. The score of 67.9 out of a possible 100 points in the coverage rating shows good, but still expandable, regional coverage of connections.

► Netplus.ch AG is also an association of regional network operators – in this case, eleven from the cantons of Fribourg, Vaud and Valais. The offered connections are based on broadband cable and FTTH technology. The company claims to have more than 220,000 customers, making it the leading provider in French-speaking Switzerland according to its own figures – although these do not

differentiate between the number of customers for internet, landline telephony, TV and mobile communications. ComCom does not publish the exact market share. Based on this, it is in any case less than four per cent. In the download measurements, Netplus is slightly ahead of Quickline, but around three points behind regional winner Salt. Netplus also scores around 1.5 points more than

Quickline in uploads, and five points more in latency. However, the association falls slightly behind its two competitors in the regional league in terms of its score in the stability category. Its score in our new coverage category is also lower than that of its two regional competitors. The KPIs show that this is due to both the actual network coverage and the speeds provided.

## Reliability

The reliability rating also reflects the overall result for Swiss regional providers.

As with the nationwide providers, our assessment of reliability and thus basic performance in the regional league does not differ significantly from the overall ranking. Salt also achieves an ‘outstanding’ rating here, with Quickline and Netplus following some way behind with ‘very good’ ratings. There are only minor deviations in the rankings for the individual KPIs: Quickline scores slightly higher than Netplus for downloads and latency, while both are on a par in the upload category.

| Reliability     | max.  | Salt               | Quickline        | netplus          |
|-----------------|-------|--------------------|------------------|------------------|
| Coverage        | 60    | 53.8               | 34.6             | 17.7             |
| Download Speeds | 240   | 239.5              | 238.8            | 238.0            |
| Upload Speeds   | 132   | 131.7              | 120.4            | 120.4            |
| Latency         | 138   | 135.5              | 135.4            | 133.2            |
| Stability       | 30    | 29.4               | 29.4             | 25.8             |
| Total           | 600P. | 590<br>outstanding | 559<br>very good | 535<br>very good |

The numerical values shown are rounded. The exact, non-rounded values were used for the calculation of points and totals.

# Methodology

umlaut is continuously developing its crowdsourcing methodology. Based on this, we analyse the quality, performance and availability of fixed-line connections.



The results of this test are based on a comprehensive analysis of crowdsourcing data conducted by the independent benchmarking company umlaut.

### Fixed Network Crowdsourcing

The data basis for the analyses is determined on smartphones and tablets. To this end, the parameters described below are recorded in the background when thousands of popular apps are used – provided that the user has consented to the completely anonymous collection of data. At specific intervals (from one second to 15 minutes), random samples are generated and sent daily to umlaut’s cloud servers, where the data is then processed.

By filtering samples collected during a Wi-Fi connection (as opposed to mobile network connections) and identifying the network operator, the measured values can be limited to landline connections. A complex set of rules and extensive checks ensure the validity of the evaluations. For example, conspicuously slow connections are filtered out for the data rate and latency determinations – 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 are made via Wi-Fi. Since the Wi-Fi speeds possible with current smartphones are usually significantly higher than the observed overall data

### Download Speeds

40%

Average Data Rate

90% of Measurement Values above

10% of Measurement Values above

Highspeed Class

UHD Video Class

Basic Availability

Speed Availability

### Coverage

10%

### Upload Speeds

22%

Average Data Rate

90% of Measurement Values above

10% of Measurement Values above

UHD Video Class

HD Video Class

Standard Gaming Class

Highend Gaming Class

Ultra Low Latency Class

### Latency

23%

### Stability

5%

Transaction Success

Download Basic Internet Class

rates, the influence of the Wi-Fi link speed on the measurement results is negligible.

### Active Data rates

In addition to passive observations of the data rates requested by apps, *active measurements of upload and download data rates* are also carried out regularly. They determine the amount of data that can be transferred in 3.5 seconds and derive the data rate from this.

Our scoring takes into account 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 measured values determined.

We supplement the determined active download and upload speeds with a classification of these KPIs into application-related speed classes.

For this purpose, umlaut has defined speed classes that reflect suitability for specific applications:

*UHD video* requires 20 Mbps, *high speed* requires 50 Mbps. For uploads, which are typically slower, the speed classes *HD video* (min. 5 Mbps) and *UHD video* (min. 20 Mbps) are taken into account. Download speed measurements account for 40 per cent of the overall result, while upload data rates contribute 22 per cent.

### Latency

Latency measurements are taken every 15 minutes – pings are performed immediately after the connection tests. The first ‘hop’ affected by Wi-Fi is calculated out.

umlaut also assigns the results to an application-specific class: round-trip 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 less 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 samples that meet or exceed the required thresholds for each of the classes mentioned.

The latency rating accounts for 23 per cent of the result.

### Stability

Based on browsing and connection tests as well as additionally passively observed data transfers, umlaut also examines when a broadband connection is actually available. In addition, umlaut takes into account the (passively determined) download data rates in the *basic internet speed class* (min. 2 Mbps).

These do not serve as performance KPIs, but rather to check whether data is flowing at all. They supplement the percentage success rate of Internet transactions. The averaged and weighted results contribute 5 per cent to the overall result.

### Coverage

When assessing fixed networks, their geographical availability is an important factor. On the one hand, the best network performance is of little use if potential customers cannot actually sign up for the service in question. On the other hand, it makes a

big difference to the roll-out and operation of a network whether it is offered across virtually the entire country or whether connections are limited to a few lucrative metropolitan areas.

We take this fact into account with the network coverage metric newly introduced this year, which contributes ten per cent to the overall result.

The coverage assessment is based on the 2x2 km tiles (‘evaluation areas’) also used in our mobile network test. umlaut combines 8x8 of these to form a ‘super tile’.

Background: As a result of our crowdsourcing approach, providers with a small market share are also represented with a smaller share among the observed users. In order to achieve reliable results in determining network coverage even with a relatively small number of customers, we have therefore chosen comparatively large tiles for this analysis.

In fact, a single observed participant in a 16 x 16 km zone is sufficient for the corresponding

super tile to be counted as covered by the respective provider.

The maximum number of super tiles for the area of Germany is 681, in Austria it is 158 and in Switzerland 78.

From the respective total number, those super tiles that are uninhabited or undeveloped are deducted for each country. This value is then used as a reference value for calculating *basic availability*.

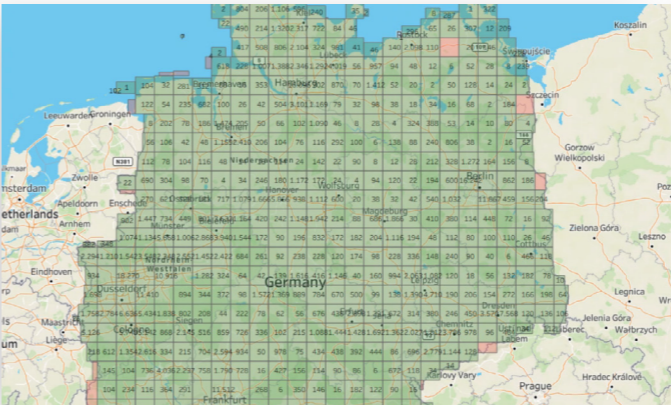
In addition, we determine the highest download data rate recorded during the observation period for each subscriber connection. This value is assigned to a speed class and converted into the *Speed Availability* score using a weighted formula. The higher the data rates observed in the respective super tile, the higher the score.

This indicator thus provides information about the geographical availability of high-bitrate services from the respective network operator. The Coverage metric accounts for 10 per cent of the overall result.

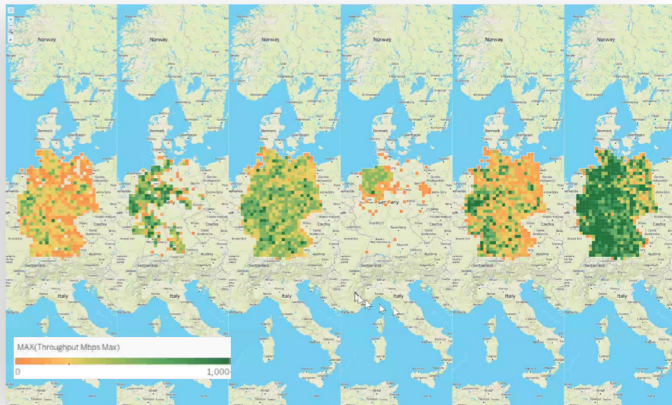
### Reliability

All measured values collected and described above are divided into basic requirements (‘qualifier KPIs’) and values related to maximum performance (‘differentiator KPIs’).

The reliability rating only takes into account the ‘qualifier KPIs’ and thus allows a statement to be made about how well a provider’s network meets the basic requirements. The maximum points that can be achieved in the reliability rating are adjusted accordingly – a total of 600 out of 1000 points are awarded in the overall rating.



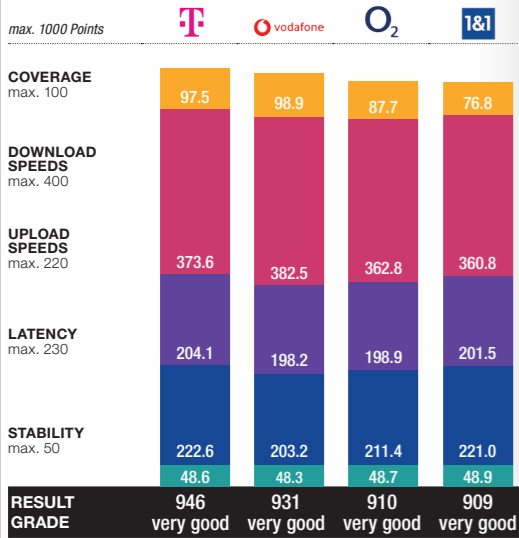
Country tiles: To determine coverage, umlaut divides the respective country (in this case, Germany) into ‘super tiles’ measuring 16 x 16 km. Red tiles are uninhabited or undeveloped.



Significant differences: A comparison of six different network operators in Germany shows that there is a wide range in terms of both coverage and the maximum delivered speed.



Germany nationwide

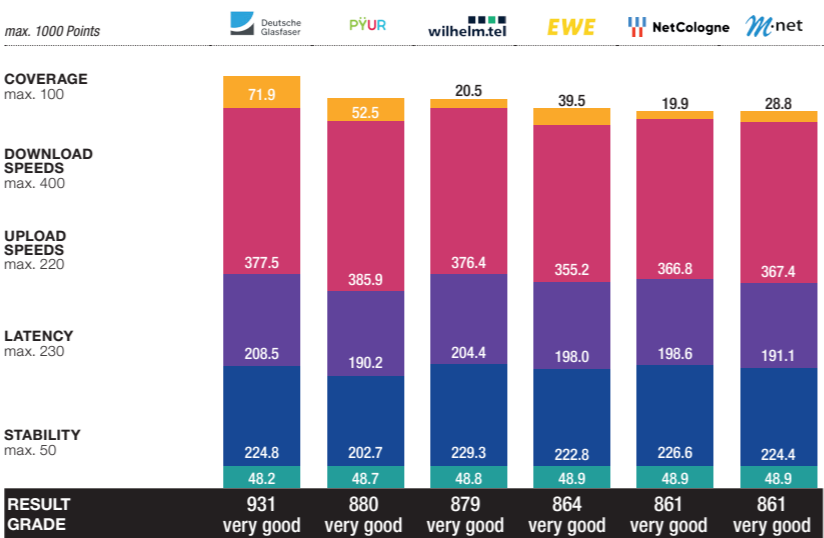


| Total results   | max. | Deutsche Telekom | Vodafone | O2 Telefónica | 1&1/ Versatel |
|-----------------|------|------------------|----------|---------------|---------------|
| Coverage        | 100  | 97.5             | 98.9     | 87.7          | 76.8          |
| Download Speeds | 400  | 373.6            | 382.5    | 362.8         | 360.8         |
| Upload Speeds   | 220  | 204.1            | 198.2    | 198.9         | 201.5         |
| Latency         | 230  | 222.6            | 203.2    | 211.4         | 221.0         |
| Stability       | 50   | 48.6             | 48.3     | 48.7          | 48.9          |
| Total 1000P.    |      | 946              | 931      | 910           | 909           |

The numerical values shown are rounded. The exact, non-rounded values were used for the calculation of points and totals.



Germany regional

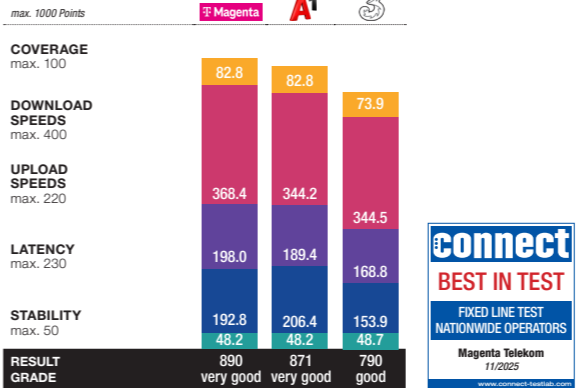


| Total Results   | max. | Deutsche Glasfaser | PYUR  | wilhelm.tel | EWE   | Net Cologne | M-net |
|-----------------|------|--------------------|-------|-------------|-------|-------------|-------|
| Coverage        | 100  | 71.9               | 52.5  | 20.5        | 39.5  | 19.9        | 28.8  |
| Download Speeds | 400  | 377.5              | 385.9 | 376.4       | 355.2 | 366.8       | 367.4 |
| Upload Speeds   | 220  | 208.5              | 190.2 | 204.4       | 198.0 | 198.6       | 191.1 |
| Latency         | 230  | 224.8              | 202.7 | 229.3       | 222.8 | 226.6       | 224.4 |
| Stability       | 50   | 48.2               | 48.7  | 48.8        | 48.9  | 48.9        | 48.9  |
| Total 1000P.    |      | 931                | 880   | 879         | 864   | 861         | 861   |

The numerical values shown are rounded. The exact, non-rounded values were used for the calculation of points and totals.

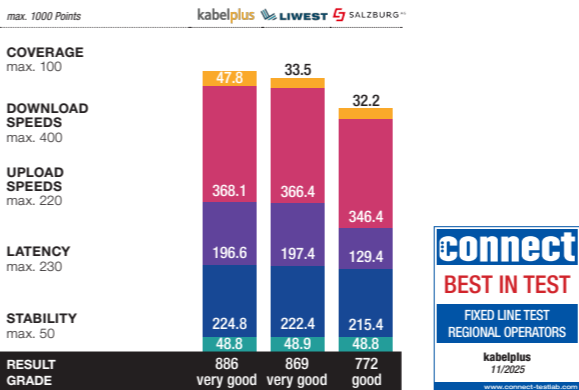


Austria



| Total Results   | max.   | Magenta Telekom | A1 Telekom | Hutchison Drei |
|-----------------|--------|-----------------|------------|----------------|
| Coverage        | 100    | 82.8            | 82.8       | 73.9           |
| Download Speeds | 400    | 368.4           | 344.2      | 344.5          |
| Upload Speeds   | 220    | 198.0           | 189.4      | 168.8          |
| Latency         | 230    | 192.8           | 206.4      | 153.9          |
| Stability       | 50     | 48.2            | 48.2       | 48.7           |
| Total           | 1000P. | 890             | 871        | 790            |

The numerical values shown are rounded. The exact, non-rounded values were used for the calculation of points and totals.



| Total Results   | max.   | kabelplus | LIWEST Kabelmedien | Salzburg AG |
|-----------------|--------|-----------|--------------------|-------------|
| Coverage        | 100    | 47.8      | 33.5               | 32.2        |
| Download Speeds | 400    | 368.1     | 366.4              | 346.4       |
| Upload Speeds   | 220    | 196.6     | 197.4              | 129.4       |
| Latency         | 230    | 224.8     | 222.4              | 215.4       |
| Stability       | 50     | 48.8      | 48.9               | 48.8        |
| Total           | 1000P. | 886       | 869                | 772         |

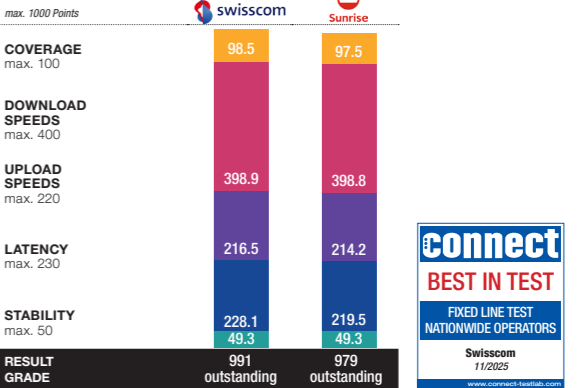
The numerical values shown are rounded. The exact, non-rounded values were used for the calculation of points and totals.



Hannes Rügheimer  
connect author

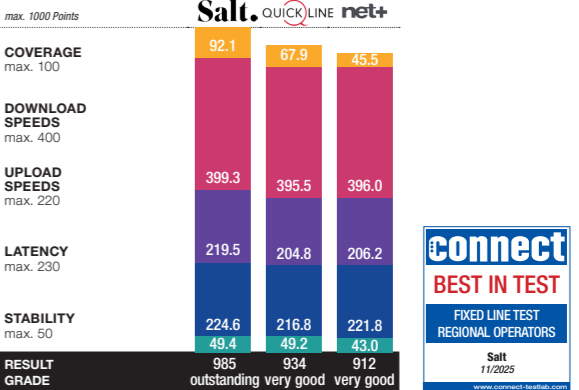
The results in all three countries are largely cause for delight – both for the network operators tested and, in particular, for their customers. In Germany, Deutsche Telekom is not far from the threshold of ‘outstanding’, while the other providers are all very good, with Deutsche Glasfaser once again leading the regional league. In Austria, Magenta defends its top position, while among the regional providers, Kabelplus manages to beat the equally very good Liwest.

Switzerland



| Total Results   | max.   | Swisscom | Sunrise UPC |
|-----------------|--------|----------|-------------|
| Coverage        | 100    | 98.5     | 97.5        |
| Download Speeds | 400    | 398.9    | 398.8       |
| Upload Speeds   | 220    | 216.5    | 214.2       |
| Latency         | 230    | 228.1    | 219.5       |
| Stability       | 50     | 49.3     | 49.3        |
| Total           | 1000P. | 991      | 979         |

The numerical values shown are rounded. The exact, non-rounded values were used for the calculation of points and totals.



| Total Results   | max.   | Salt  | Quickline | netplus |
|-----------------|--------|-------|-----------|---------|
| Coverage        | 100    | 92.1  | 67.9      | 45.5    |
| Download Speeds | 400    | 399.3 | 395.5     | 396.0   |
| Upload Speeds   | 220    | 219.5 | 204.8     | 206.2   |
| Latency         | 230    | 224.6 | 216.8     | 221.8   |
| Stability       | 50     | 49.4  | 49.2      | 43.0    |
| Total           | 1000P. | 985   | 934       | 912     |

The numerical values shown are rounded. The exact, non-rounded values were used for the calculation of points and totals.

As usual, the battle in Switzerland is fought at the highest level. Here, Swisscom wins the race against Sunrise, with both providers securing an ‘outstanding’ rating – as does the Swiss regional winner Salt. Direct comparisons with last year’s scores are not meaningful due to the changed and expanded test methodology. However, improvements in technical performance can be observed across the board at the top of the respective rankings.