

Assessment of mobile coverage, upload/download speeds, video streaming and conversations

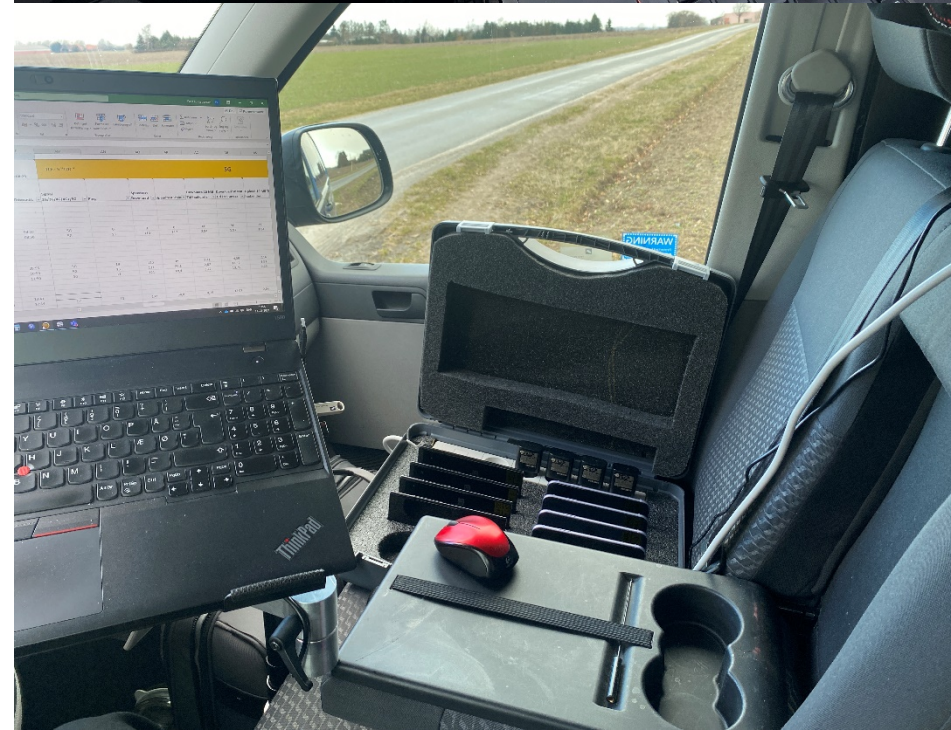
The measurements were carried out in Denmark from 4 – 26 March 2021



A van from Danish Technological Institute at one of the randomly selected test locations – here west of Hedensted

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Extent and test method



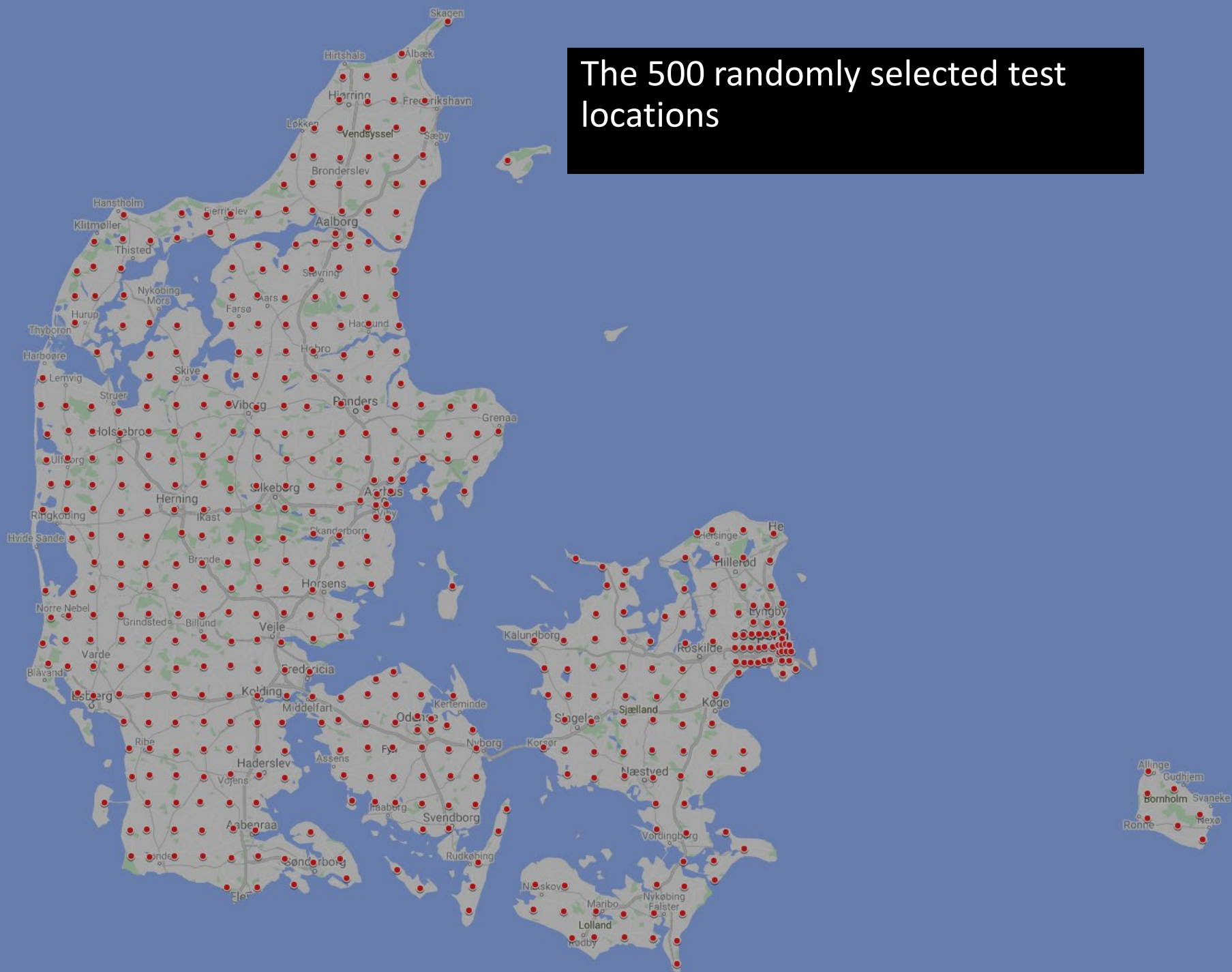
- TDC NET commissioned and paid for the assignment. It was performed in the same way as the surveys in 2014, 2015, 2016, 2017, 2018 and 2019. In 2021, the survey was extended to a double measurement with 4G and 5G phones, respectively. On 5G, an extra measurement was carried out of upload and download speeds of 50 MB. The time limit was 90 seconds.
- The assignment was commissioned to have a large geographical spread with stationary measurements of the mobile network experience throughout Denmark with 2 of the most popular mobile phones:
 - iPhone 11 - 4G and Samsung Galaxy Note20 Ultra – 5G**
- TDC NET defines a **good mobile network experience** as:
 - **A 30 sec. stable mobile conversation** (where you can hear the recipient) is defined as approved. In case of failure, one redial is made. If redial is successful, then the phone call is approved.
 - **10 MB download within 8 sec. (15 sec. in the 2019 survey)**. TDC NET considers 60 seconds or more as poor mobile coverage.
 - **10 MB upload within 15 sec. (30 sec. in the 2019 survey)**. TDC NET considers 60 seconds or more as poor mobile coverage.
 - **60 sec. YouTube video without buffering waiting time**, corresponding to previous surveys. A buffering waiting time of 0.1-10 sec. is categorised as failure. TDC NET compares a buffering waiting time of more than 10 sec. with video streaming not being possible. The video quality was not measured. YouTube adapts the quality in relation to the download speed at the location.

Extent and test method



- The 500 test locations were evenly distributed in 10x10 km squares **throughout** Denmark. The test locations comprised the countryside, towns, islands, forests and beaches – and always in places where it was possible to park the van. See map on the next page.
- The density of the measurements was doubled in the larger towns, as large buildings can affect the coverage locally. The number of measurements was increased in the Capital Region of Denmark to ensure adequate statistic validity.
- Test locations were selected at random by Danish Technological Institute without knowledge of/ consideration for antenna locations – and always in places where it was possible to park the van. The test locations were typically moved 1.5 – 2.5 km compared to the 2019 survey. TDC NET was informed about the GPS coordinates of the test locations **AFTER** the measurement.
- TDC NET, Telenor, Telia and 3 were tested at all 500 test locations **with a 4G and a 5G smartphone.**
- Stationary measurements were carried out in a van with the telephone in a holder.
- An iPhone 11 4G and a Samsung Galaxy Note20 Ultra 5G were used. TDC NET supplied the cell phones in unopened packaging to Danish Technological Institute. Danish Technological Institute bought SIM cards from the four network providers. The SIM cards were inserted at random in the supplied smartphones.
- Before the test started, Danish Technological Institute informed Telenor, Telia and 3 that a mobile phone coverage survey would be conducted for an anonymous client; i.e., the four network providers were put on an equal footing.

The 500 randomly selected test locations



Summary of results



- Nationally, TDC NET has the best mobile network experience* with 4G and 5G mobile phones. Telenor comes in second, and Telia took third place. 3 came in fourth.
- In general, the 2021 result matches the level of the 2019 result. Thus, the network providers have extended the capacity, and the increased mobile data traffic of app. 40% has not influenced the mobile network experience.
- Ordinary mobile phone conversations are almost error-free. There are no statistically measureable differences between TDC NET, Telenor, Telia and 3. Differences compared to previous surveys can be due to statistical coincidences.
- TDC NET, Telenor and Telia have 99% access to 4G with a 4G phone.
- Nationally, TDC NET has faster and more error-free download and upload speeds than Telenor, Telia and 3.
- Nationally, TDC NET has the fastest and most error-free download and upload speeds of 50 MB.
- Download and upload speeds are by and large the same as in 2019 except for 3 who has lost ground on download speed.
- Video streaming with a 4G mobile phone via TDC NET, Telenor, Telia and 3 is at the same high level.
- Video streaming with a 5G mobile phone via TDC NET, Telenor and Telia is at the same high level.

Summary of 4G and 5G results



- TDC NET is the only network provider with a national and fully developed 5G network with 98.4% access.
- If it is not necessary to upload and download large data amounts, then the survey shows no marked difference between 4G and 5G. That is because:
 - Ordinary phone conversations require very small capacity that easily can be managed by 2G, 3G, 4G and 5G.
 - When downloading and uploading 10 MB, the systems have a short start-up time, so in practice the advantage of the high 5G speed is not experienced. Typically, 1-2 seconds will be saved.
 - In combination with a buffer in the phone, 4G has sufficient capacity to stream videos.
 - Access to 5G becomes noticeable when the network systems are challenged with downloads and uploads of large 50 MB data amounts (corresponding to an average movie of 10-15 min.).
- The survey shows that the applied 5G mobile phone has slightly poorer access to 4G than the applied 4G phone in all regions. Whether that is due to the mobile phone and/or the network systems did not form part of this survey.

- The results in this report are national and regional results and therefore AVERAGE FIGURES.
- The regional results have considerable statistic uncertainty which appears from the specifications of the statistic confidence interval.
- **Coverage where you currently are using your smartphone might give a different result than the average figures of the region.**
- No updated figures are available from the Danish Energy Agency's telephone statistics. It is assumed that a significant increase in data traffic (40%) has occurred since the previous survey took place 16 months ago.
- Although Telenor and Telia share masts and frequencies, their results differ. That might be due to only in-part joint ownership of the underlying transmission technology.
- When comparing the 2021 results with the 2019 results it is important to bear in mind that the criteria for a good mobile network experience improved in 2021.
- There are 16 months between the survey in 2019 and 2021, and no survey was carried out in 2020.



A van from Danish Technological Institute at one of the randomly selected test locations – here at Kærgaard Plantage, Western Jutland

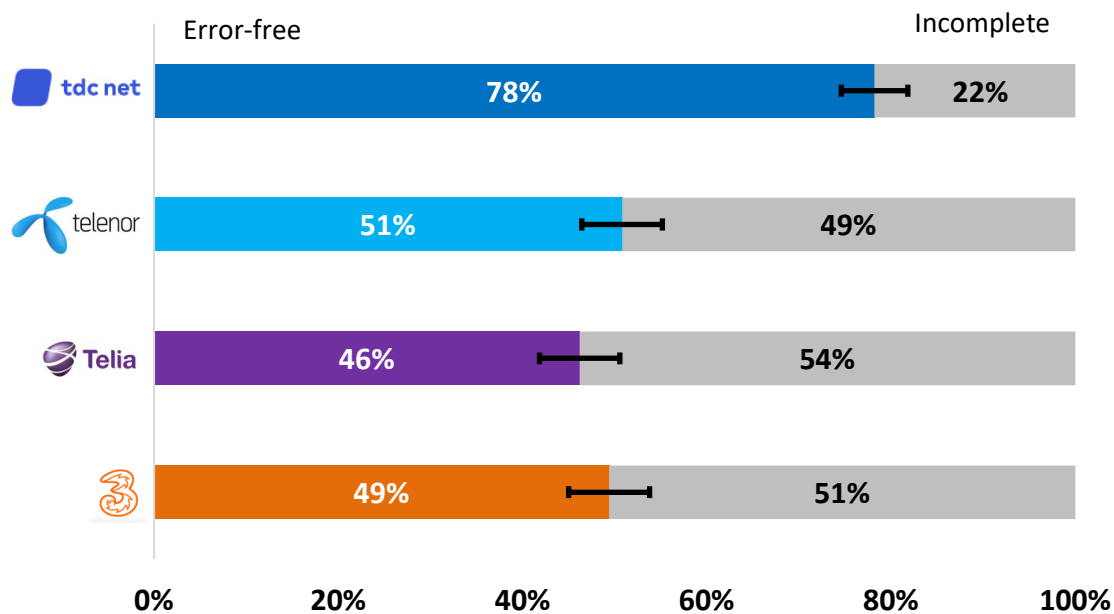
National result of mobile network experience in 2021 with a 5G and 4G phone



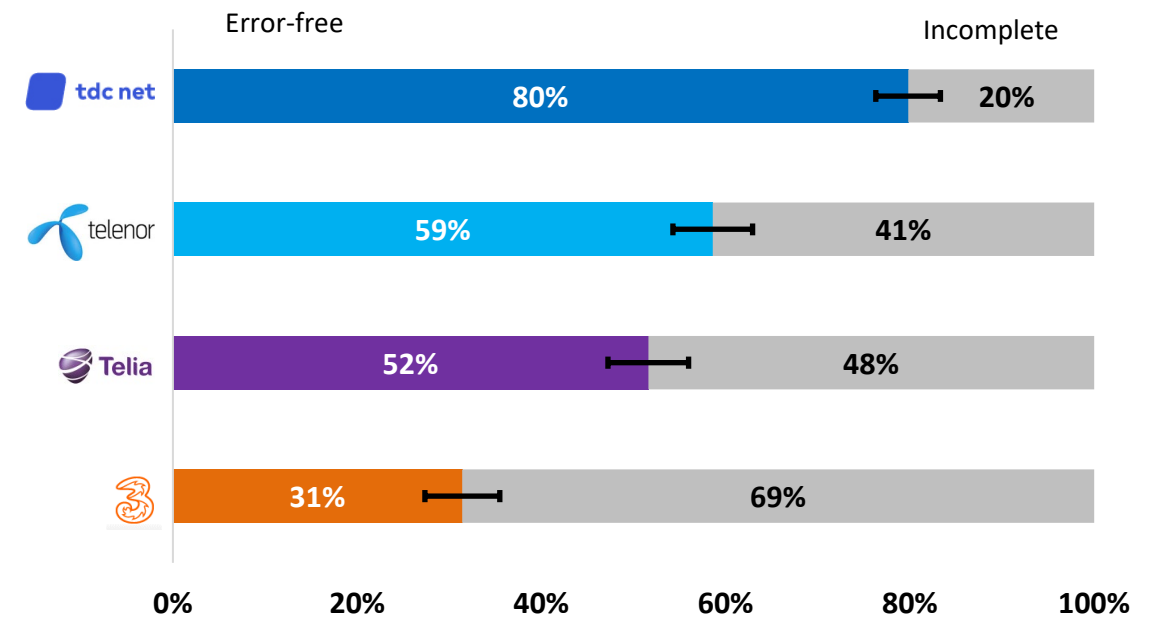
TDC NET has a better mobile network experience* than Telenor, Telia and 3.

Note that the criteria for a good mobile network experience improved in 2021* when compared to the 2019 survey.

2021 THROUGHOUT DENMARK: 5G PHONE THE GOOD MOBILE NETWORK EXPERIENCE



2021 THROUGHOUT DENMARK: 4G PHONE THE GOOD MOBILE NETWORK EXPERIENCE



In 2021, TDC NET defined a good mobile network experience as: 30 sec. stable mobile telephon conversation - 10 MB download within 8 sec. - 10 MB upload within 15 sec. - 60 sec. YouTube video without buffering waiting time. Horizontal black lines indicate a 95% statistic confidence interval.

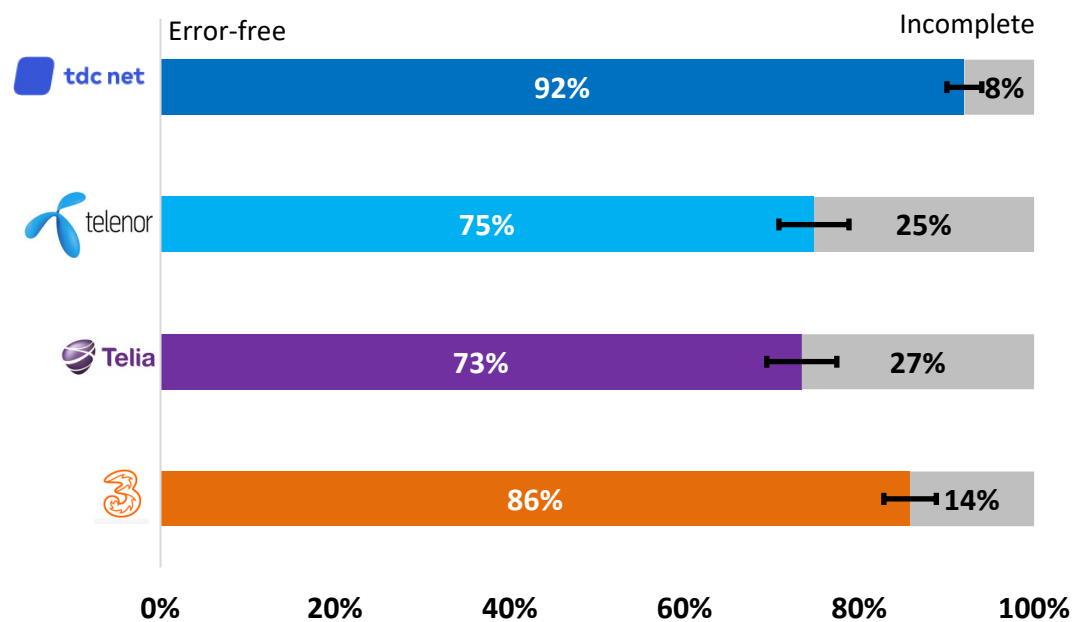
National result of mobile network experience in 2019 and 2018



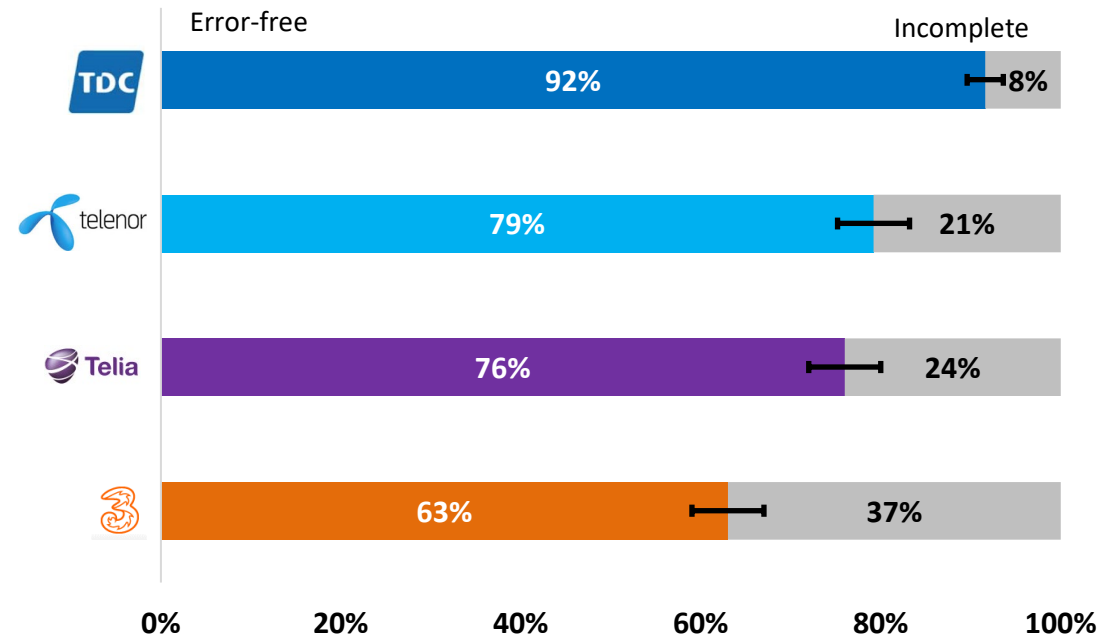
TDC NET has a better mobile network experience* than Telenor, Telia and 3.
3 has progressed and comes in second. Telenor and Telia have lost a little ground.

Note that the criteria for a good mobile network experience improved in 2021* by comparison.

2019 THROUGHOUT DENMARK: THE GOOD MOBILE NETWORK EXPERIENCE (%)



2018 THROUGHOUT DENMARK: THE GOOD MOBILE NETWORK EXPERIENCE (%)



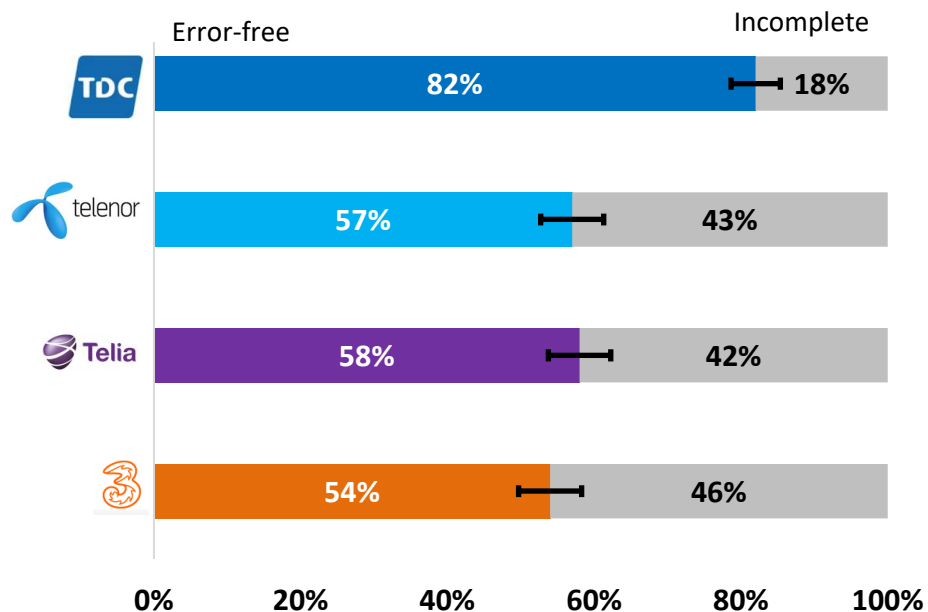
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National result of mobile network experience in 2017 and 2016

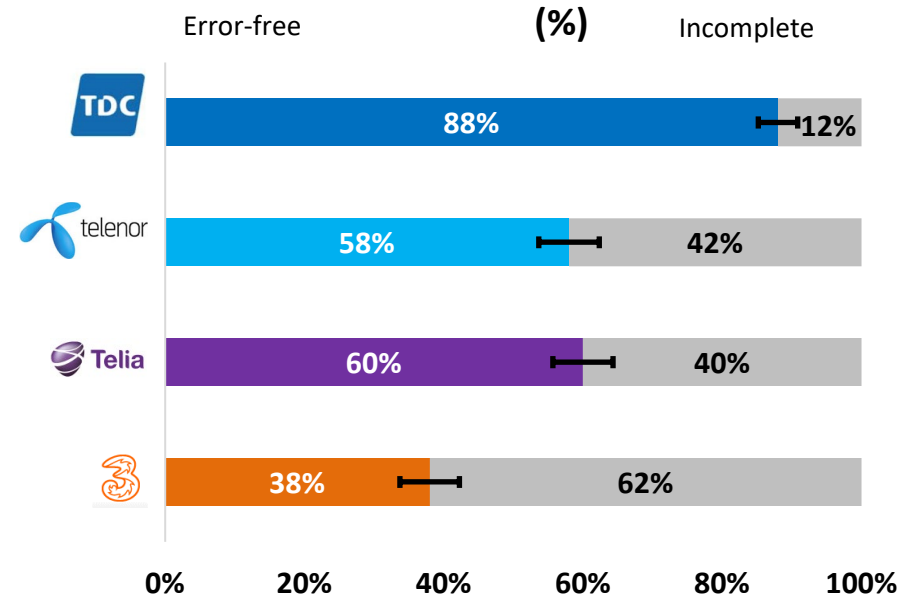


TDC has a better mobile network experience* than Telenor, Telia and 3. Telenor and Telia come in second. All network providers have progressed significantly since 2017.

2017 THROUGHOUT DENMARK: THE GOOD MOBILE NETWORK EXPERIENCE (%)



2016 THROUGHOUT DENMARK: THE GOOD MOBILE NETWORK EXPERIENCE (%)

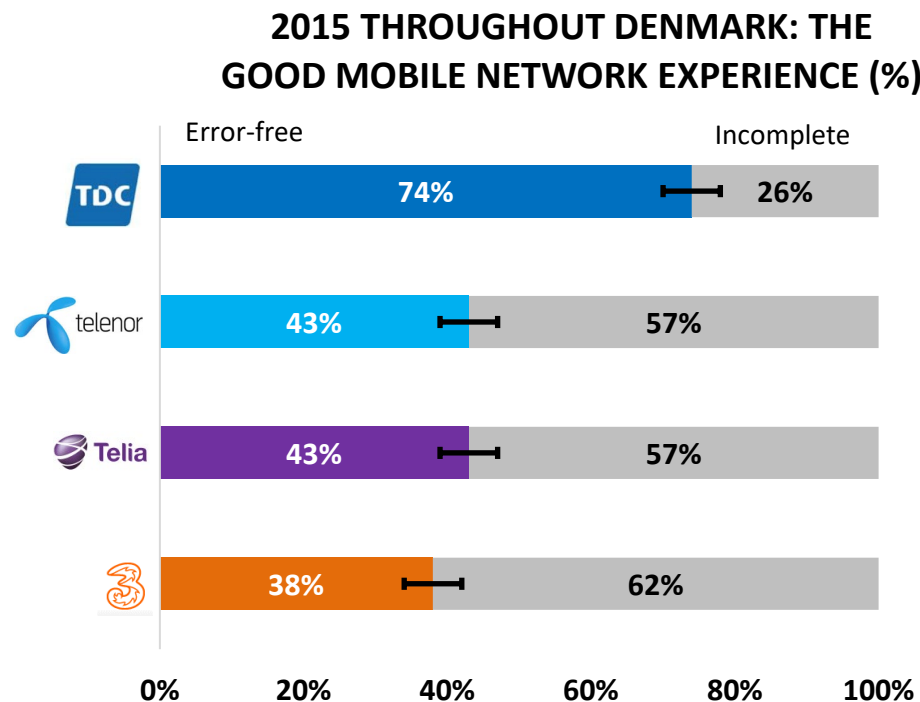


*TDC defined a good mobile network experience as: 30 sec. stable mobile conversation - 10 MB download within 15 sec. - 10 MB upload within 30 sec. - 60 sec. YouTube video without buffering waiting time. **Horizontal black lines indicate a 95% statistic confidence interval.**

National result of mobile network experience in 2015



TDC had a better mobile network experience* than Telenor, Telia and 3. Telenor and Telia came in second.



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A van from Danish Technological Institute at one of the randomly selected test locations – here, Vejle Fjord with the building *Bølgen* (the Wave) in the background

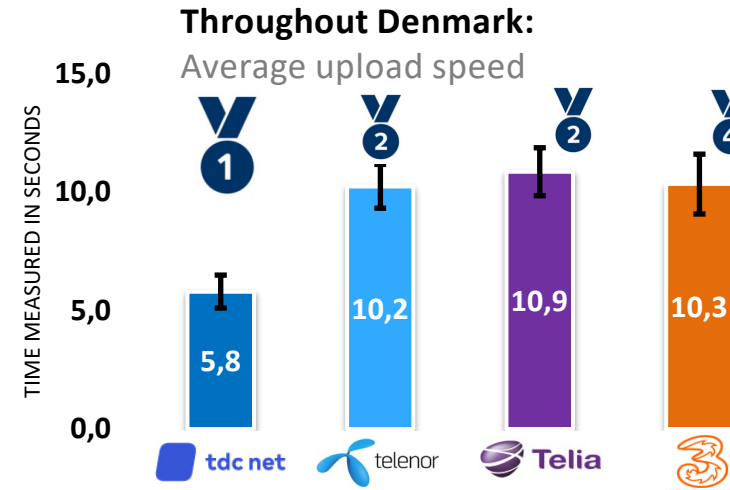
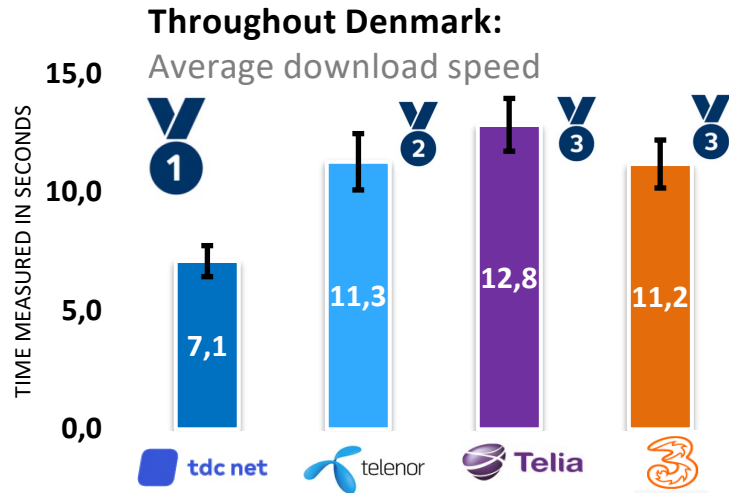


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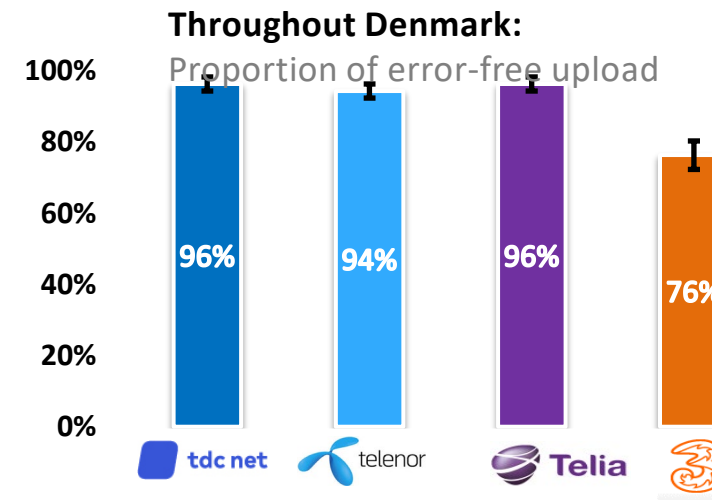
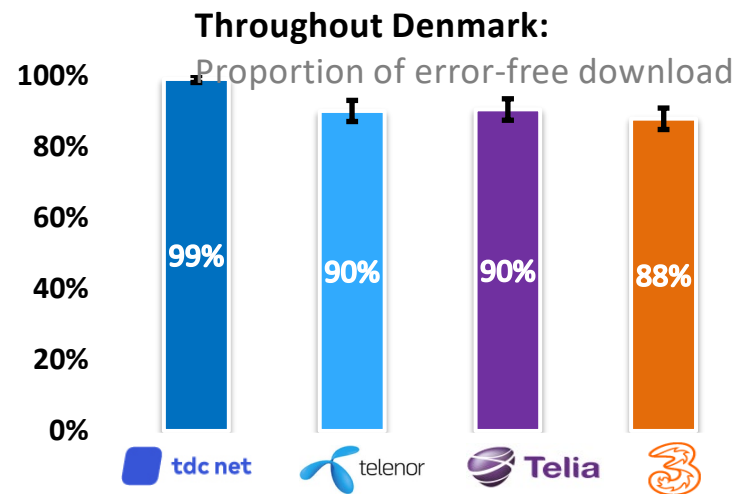
National result of download and upload speeds in 2021 with a 5G phone



TDC NET has faster download and upload speeds than Telenor, Telia and 3.



← Medals for total assessment of average speed and error-free application

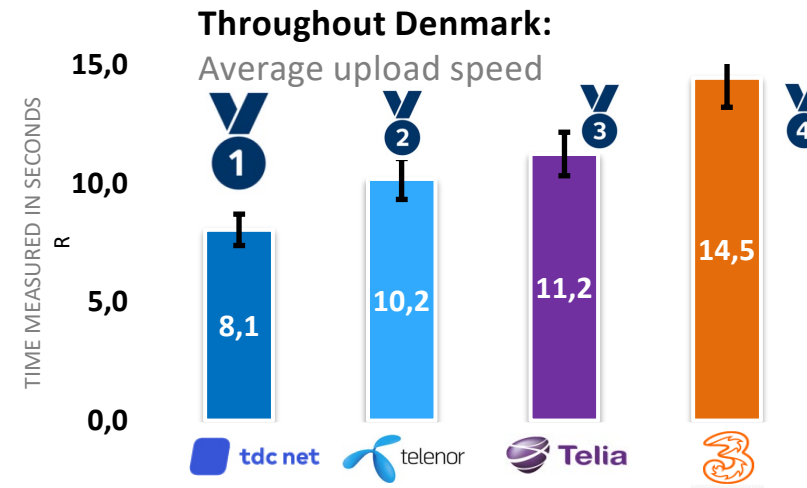
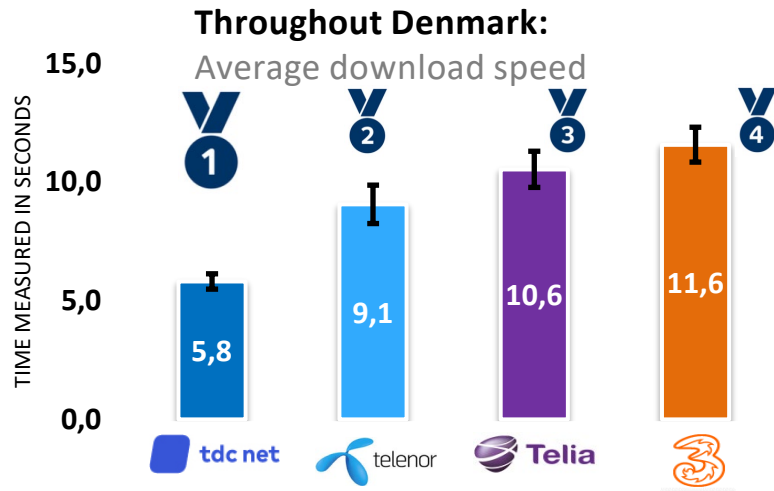


In 2021, TDC NET defined a good mobile network experience as: 30 sec. stable mobile telephon conversation - 10 MB download within 8 sec. - 10 MB upload within 15 sec. - 60 sec. YouTube video without buffering waiting time. **Vertical black lines indicate a 95% statistic confidence interval.**

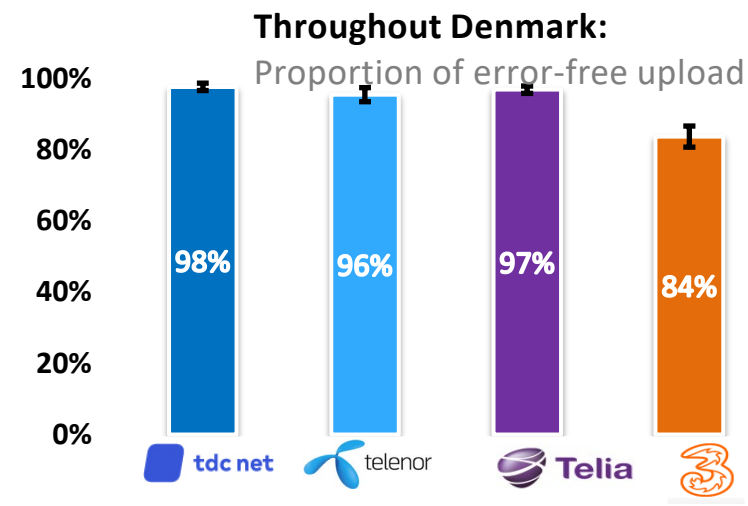
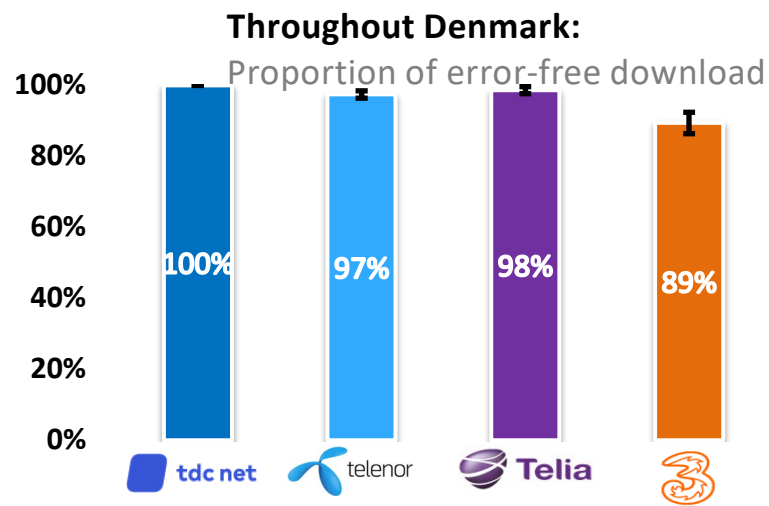
National result of download and upload speeds in 2021 with a 4G phone



TDC NET has faster and more error-free* download and upload speeds than Telenor, Telia and 3.



Medals for total assessment of average speed and error-free application

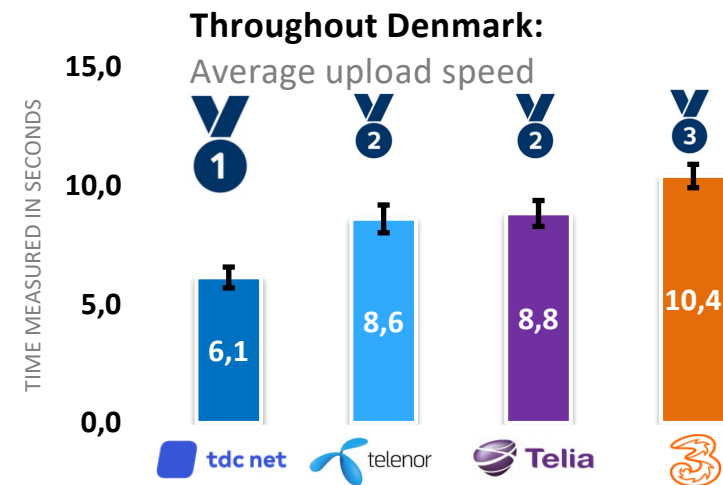
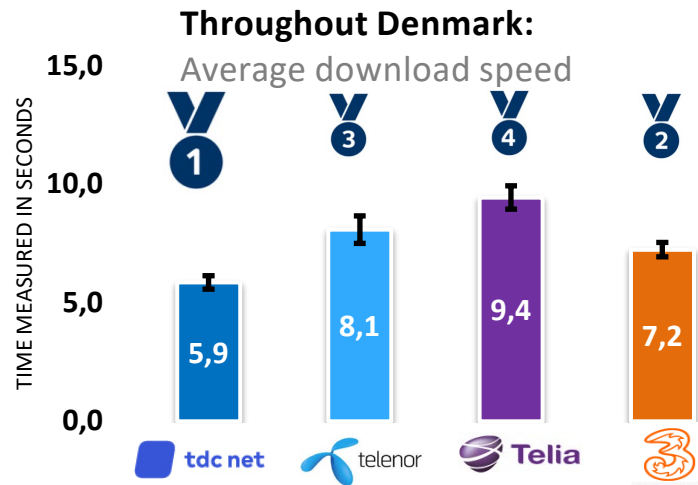


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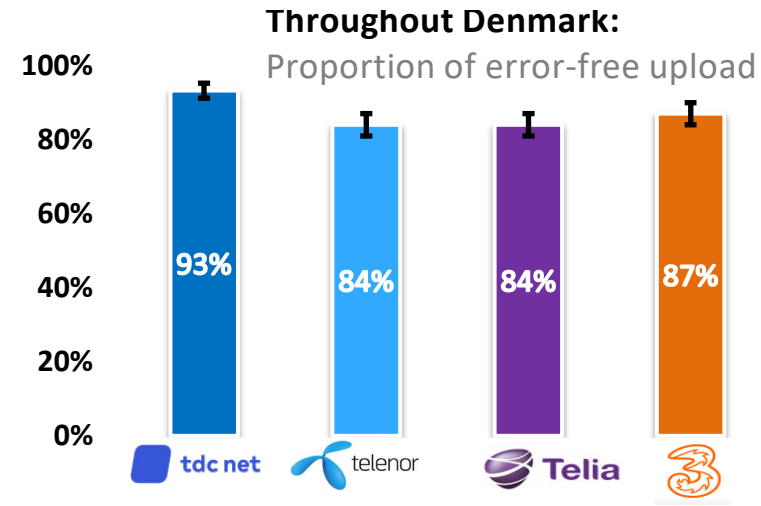
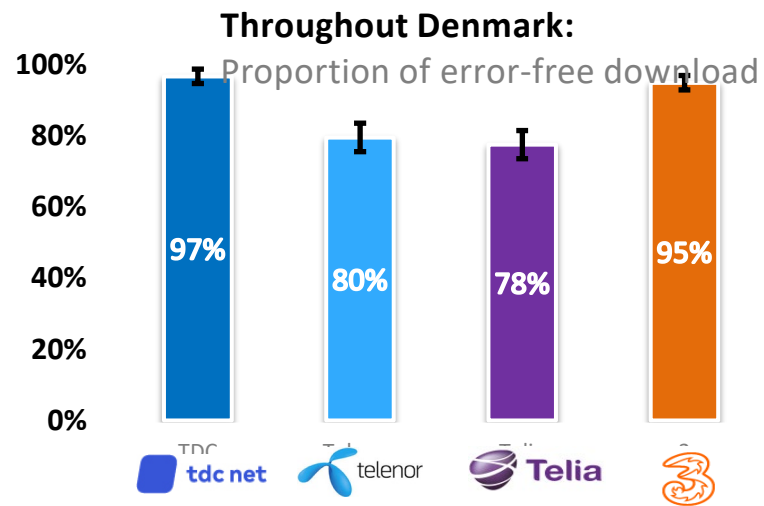
National result of download and upload speeds in 2019



TDC NET has faster and more error-free* download and upload speeds than Telenor, Telia and 3.



Medals for total assessment of average speed and error-free application

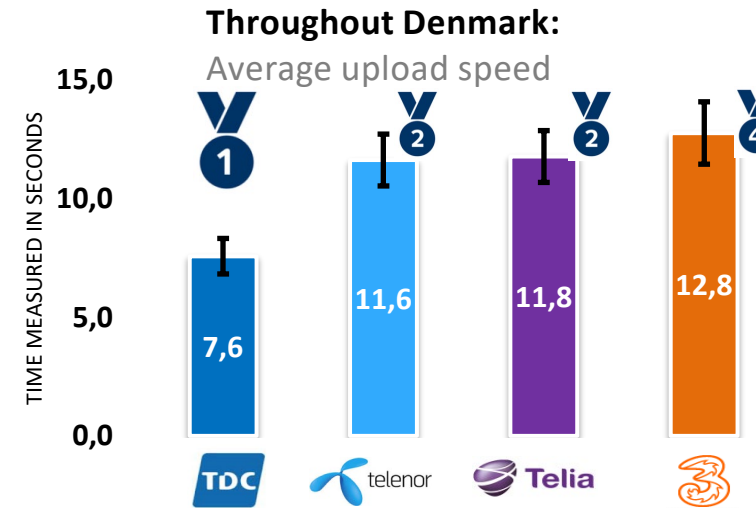
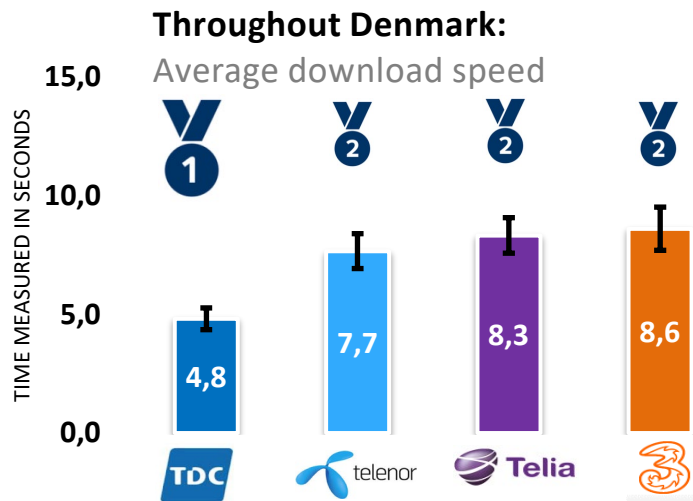


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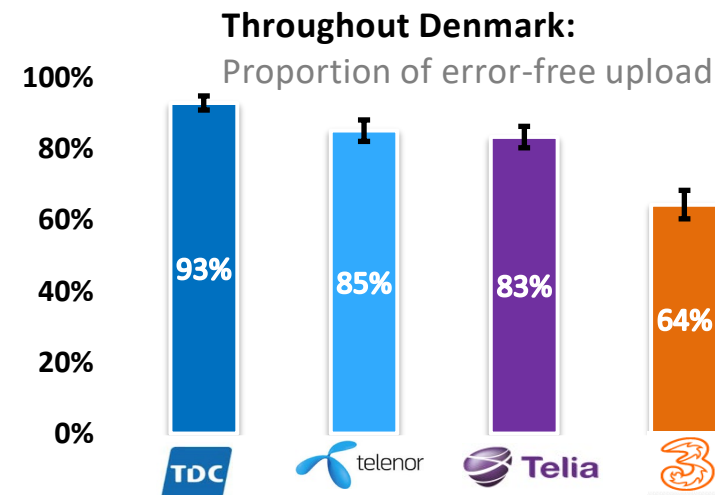
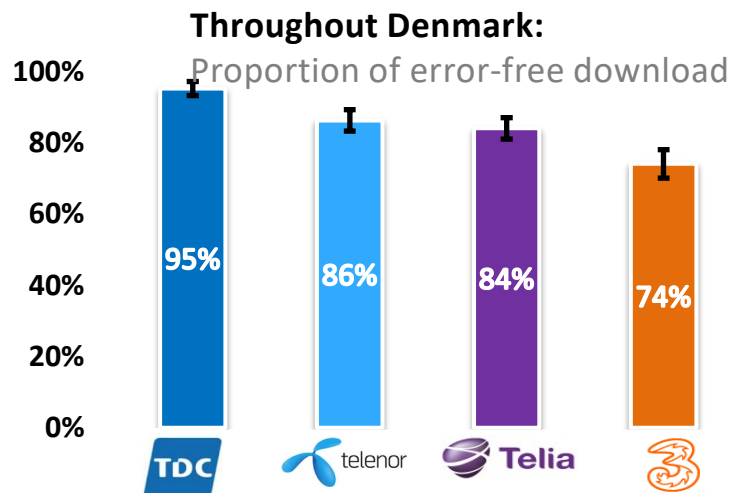
National result of download and upload speeds in 2018



TDC had faster and more error-free* download speeds and significantly faster and more error-free* upload speeds than Telenor, Telia and 3.



Medals for total assessment of average speed and error-free application

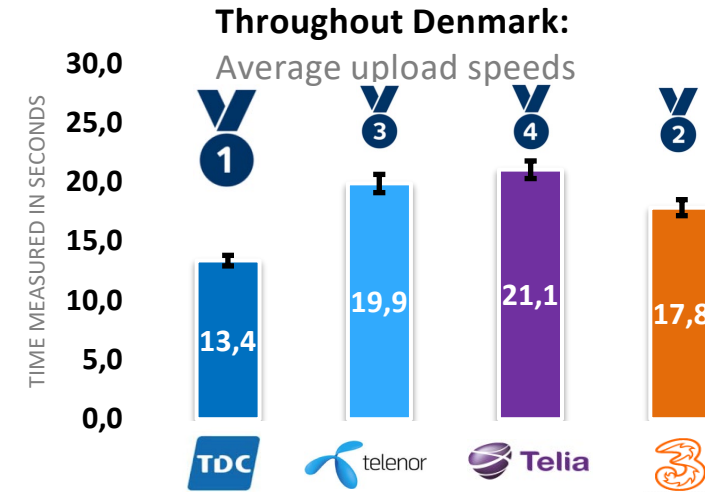
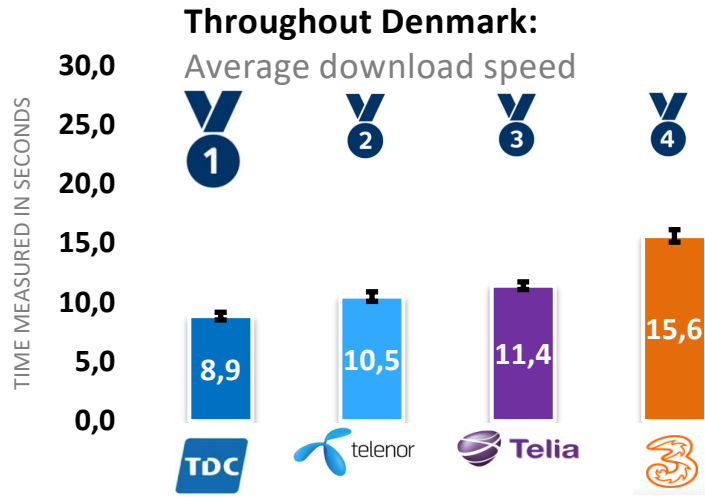


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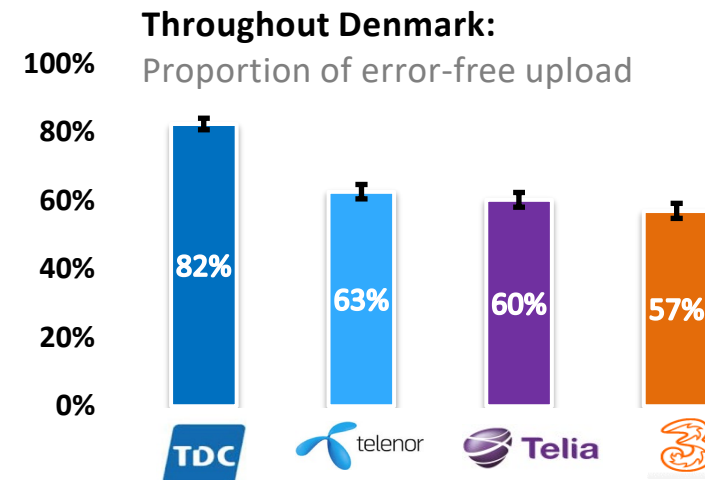
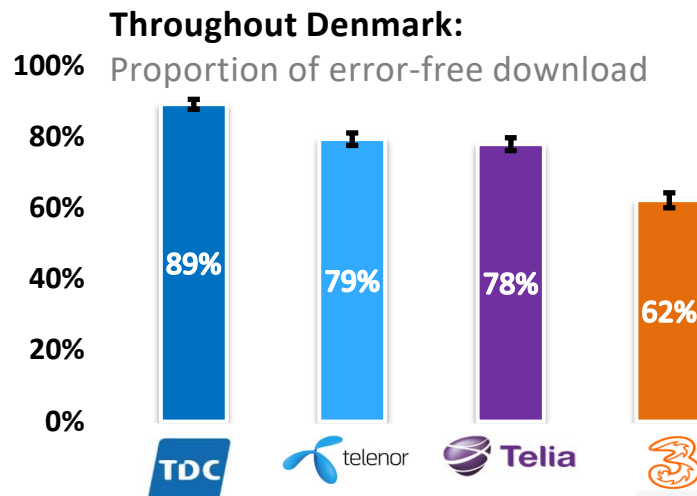
National result of download and upload speeds in 2017



TDC had faster and more error-free* download speeds and significantly faster and more error-free* upload speeds than Telenor, Telia and 3.



Medals for total assessment of average speed and error-free application

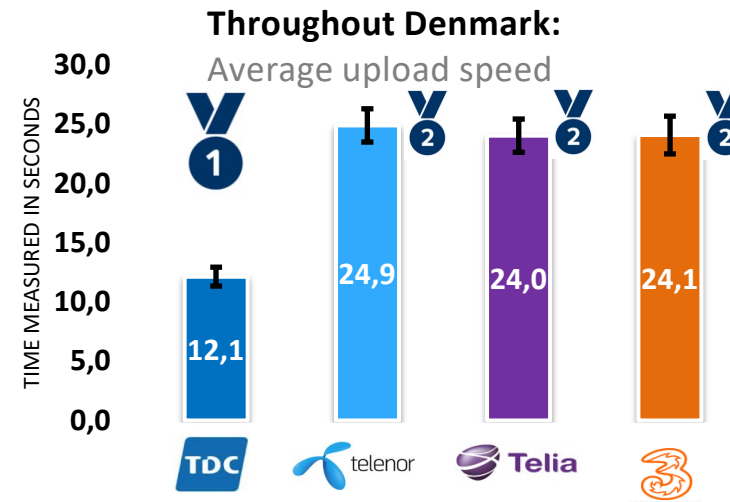
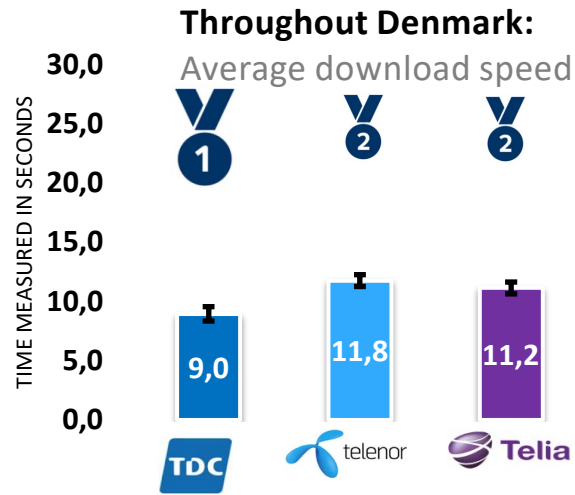


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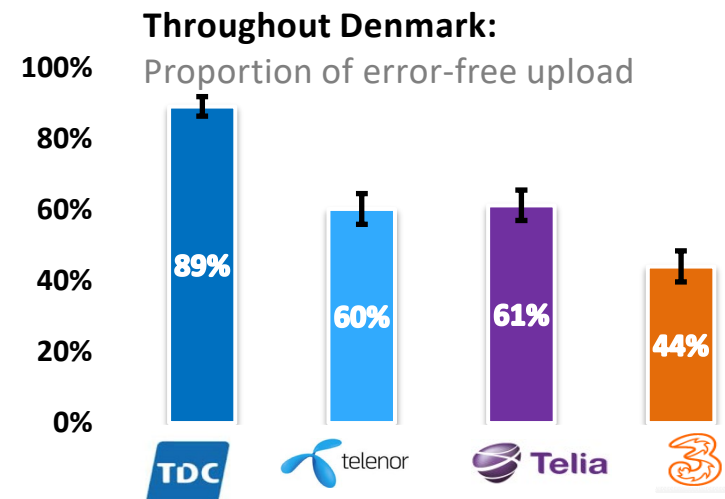
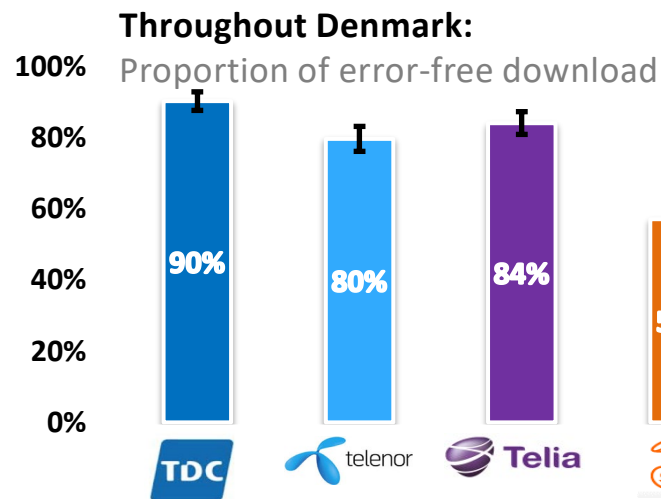
National result of download and upload speeds in 2016



TDC had faster and more error-free* download speeds and significantly faster and more error-free* upload speeds than Telenor, Telia and 3.



Medals for total assessment of average speed and error-free application

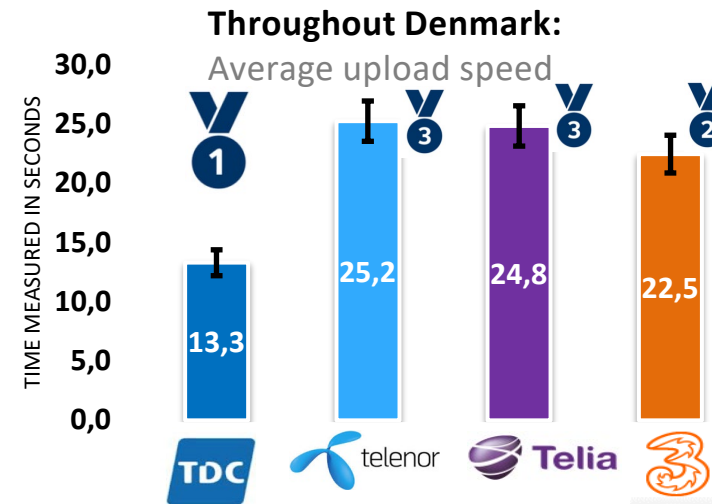
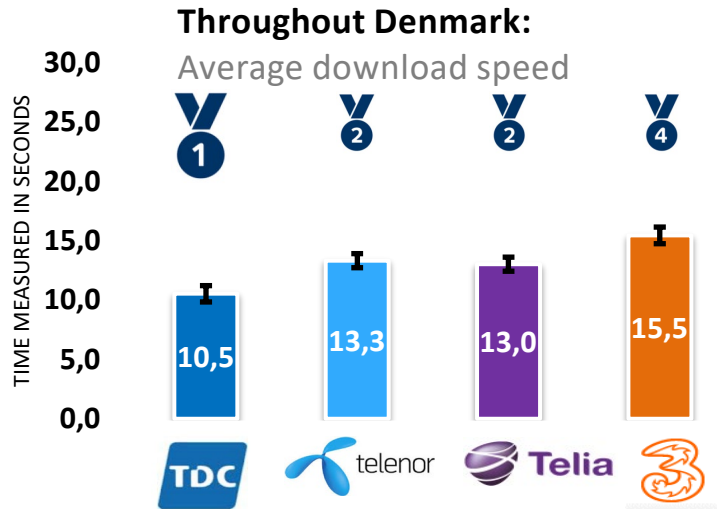


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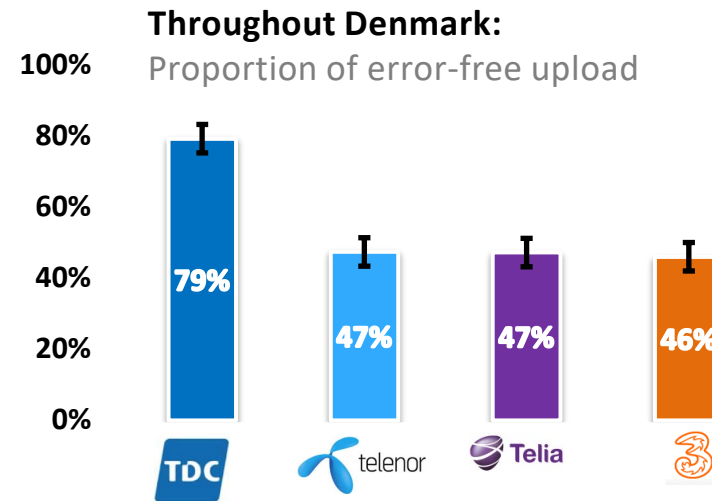
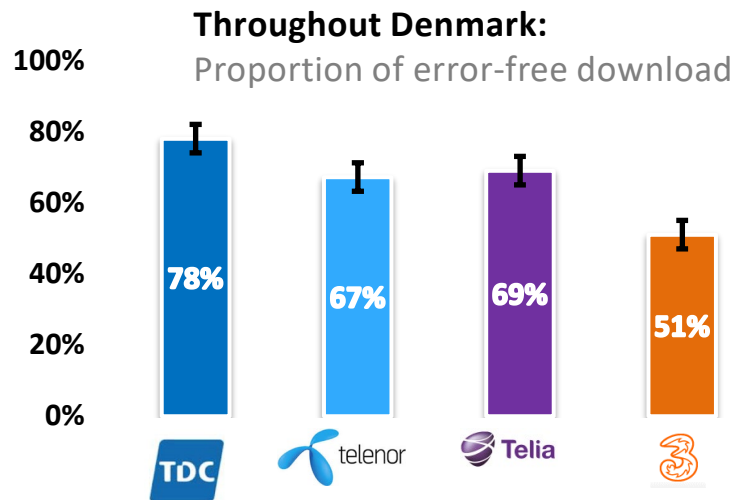
National result of download and upload speeds in 2015



TDC had faster and more error-free* download speeds and significantly faster and more error-free* upload speeds than Telenor, Telia and 3.



Medals for total assessment of average speed and error-free application



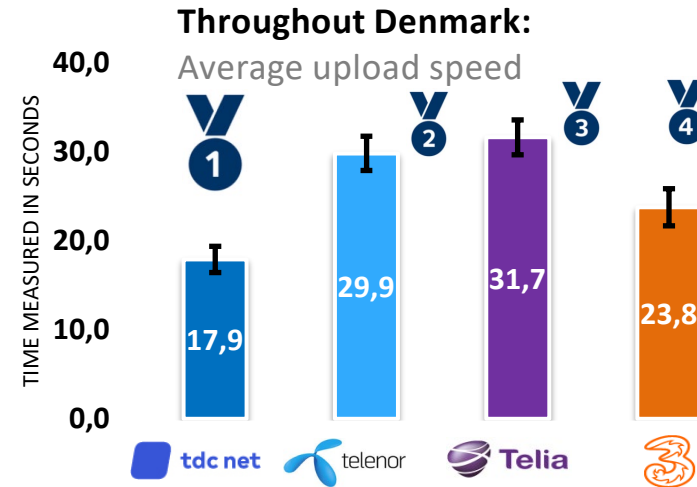
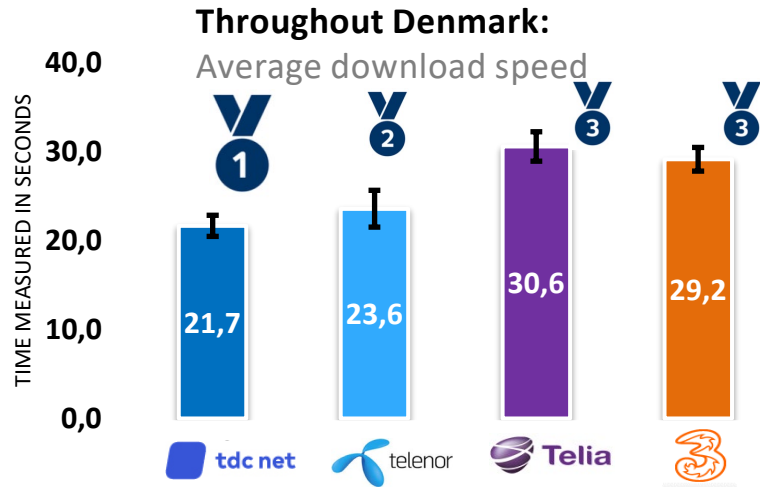
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A van from Danish Technological Institute at one of the randomly selected test locations – here between Lemvig and Harboøre. The well-known VLTJ train runs between Lemvig and Thyborøn

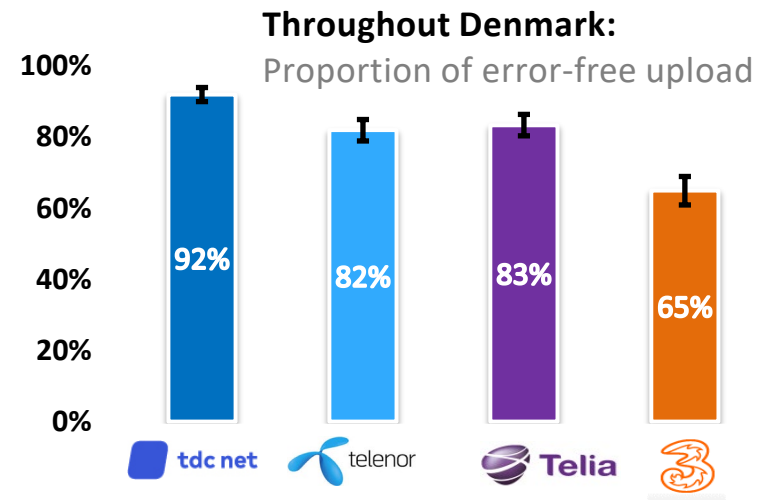
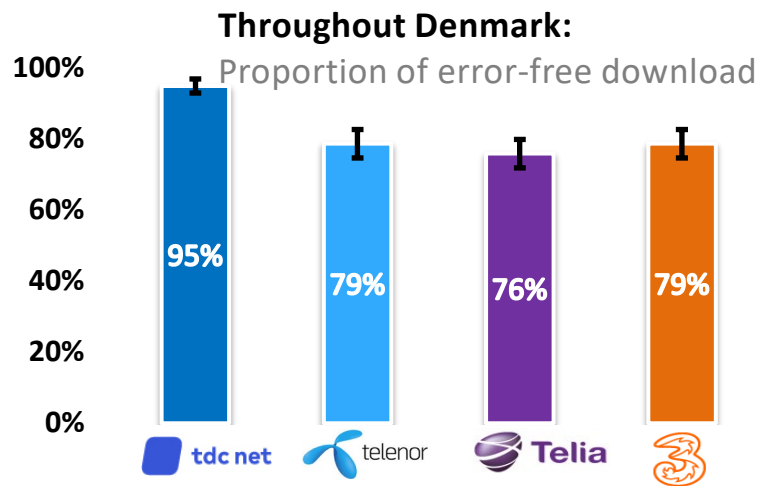


National result of download and upload speeds of 50 MB in 2021 with a 5G phone

TDC NET has the fastest and most error-free download and upload speed of 50 MB. Telenor comes in second.



Medals for total assessment of average speed and error-free application



*In 2021, TDC NET defined a good mobile network experience as: 50 MB download or upload within 90 sec. Vertical black lines indicate at 95% statistical confidence interval.

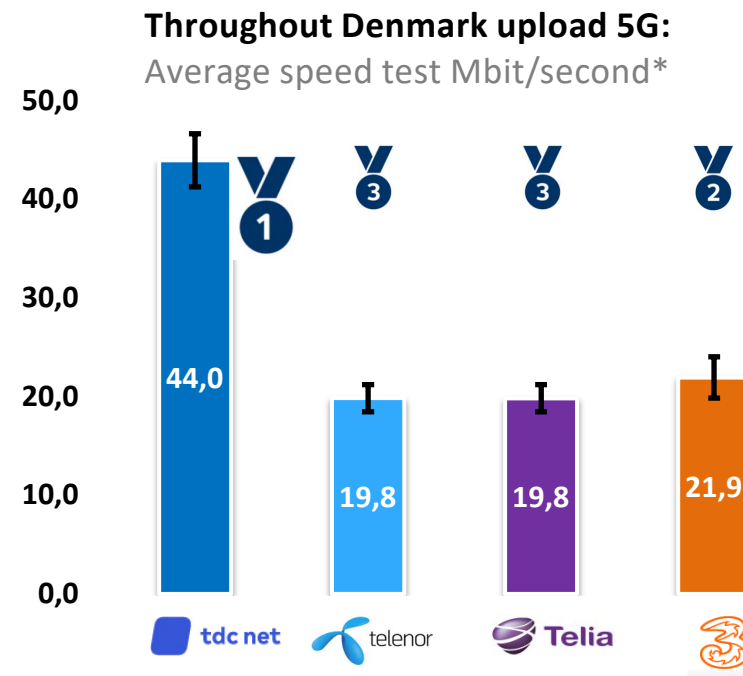
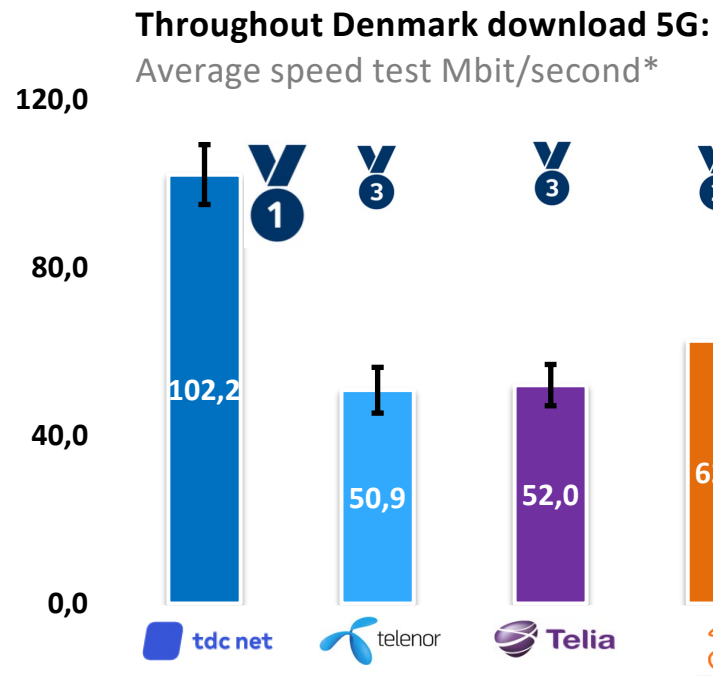


A van from Danish Technological Institute at one of the randomly selected test locations – here at Skærbæk Power Station near Fredericia



National result of speed test with a 5G phone

Speed test shows that TDC NET has a significantly faster download and upload speed.

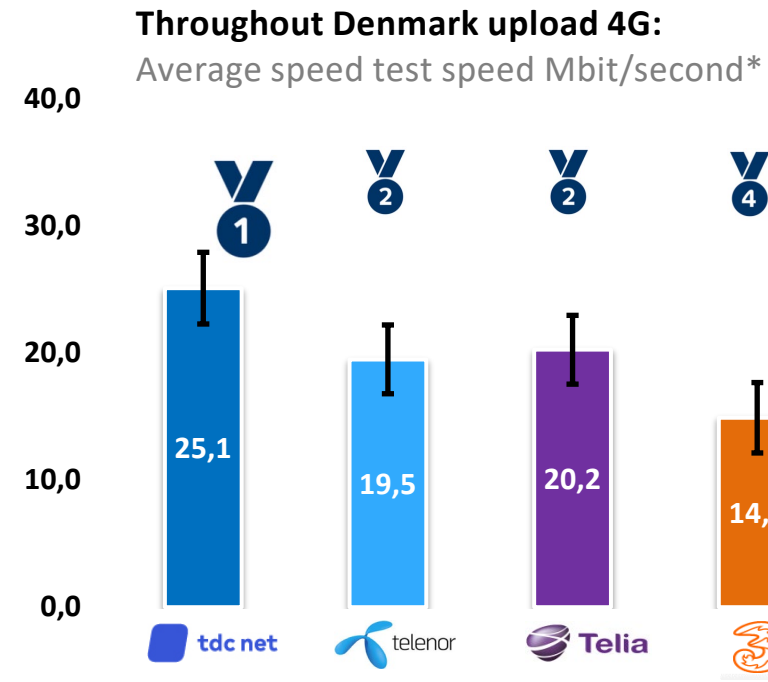
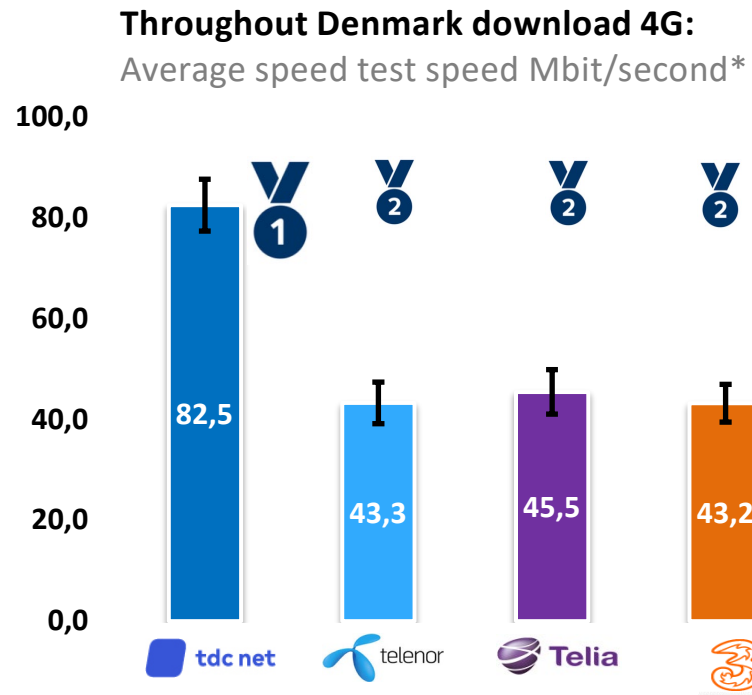


*Megabit can be converted to Megabyte by dividing by 8. Vertical black lines indicate a 95% statistical confidence interval.

National result of speed test with a 4G phone



Speed test shows that TDC NET has significantly faster download and upload speeds.



*Megabit can be converted to Megabyte by dividing by 8. **Vertical black lines indicate a 95% statistical confidence interval.**

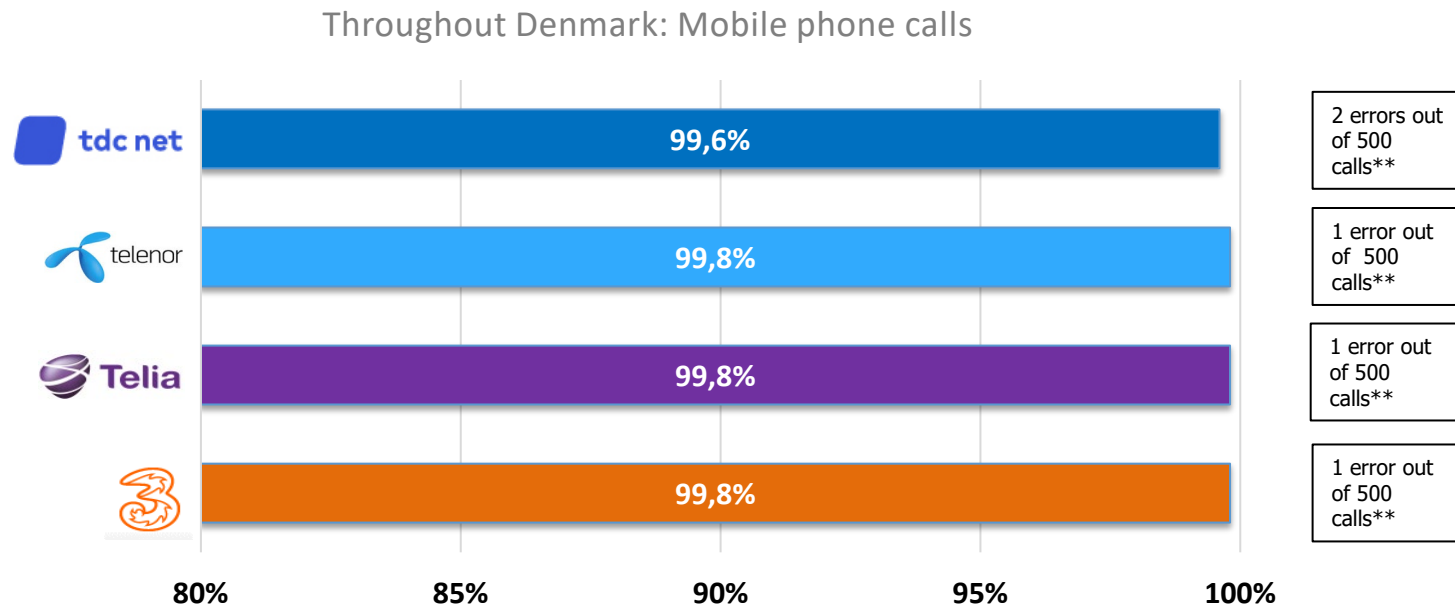


A van from Danish Technological Institute at one of the randomly selected test locations – here near Air Base Karup in Central Jutland

National result of ordinary mobile phone conversations in 2021 with a 5G phone



Ordinary mobile phone conversations* show no significant differences between TDC NET, Telenor, Telia and 3.



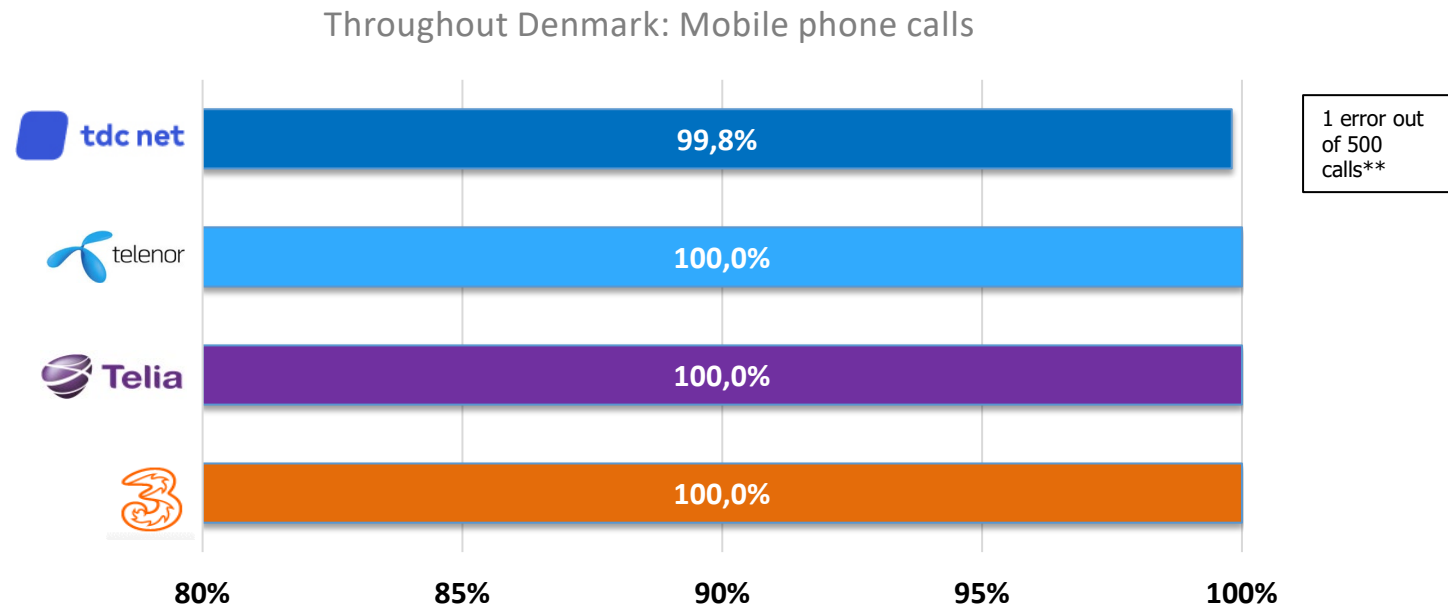
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** In case of failure, one redial is made. If redial is successful, then the phone call is approved.

National result of ordinary mobile phone conversations in 2021 with a 4G phone



Ordinary mobile phone conversations* show no significant differences between TDC NET, Telenor, Telia and 3.



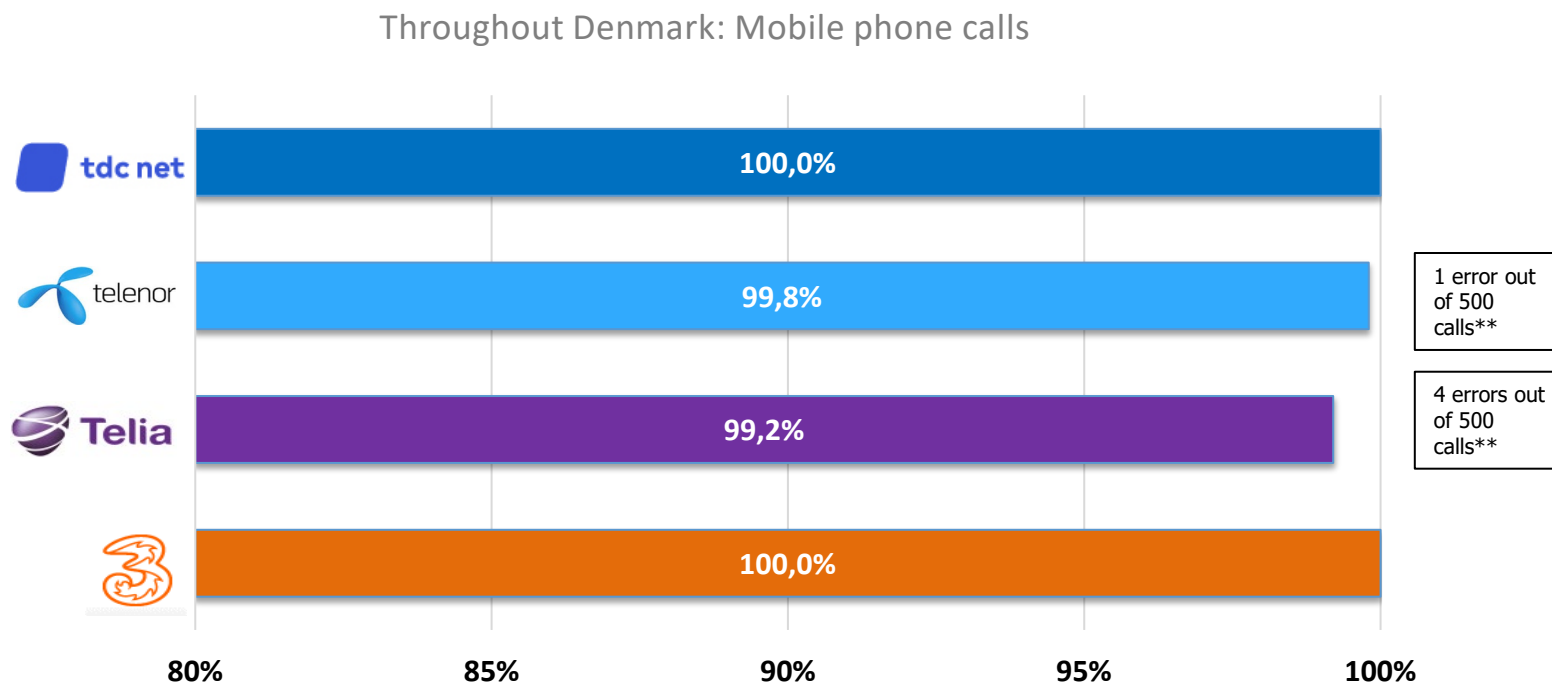
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National result of ordinary mobile phone conversations in 2019



Ordinary mobile phone conversations* show no significant differences between TDC NET, Telenor, Telia and 3.



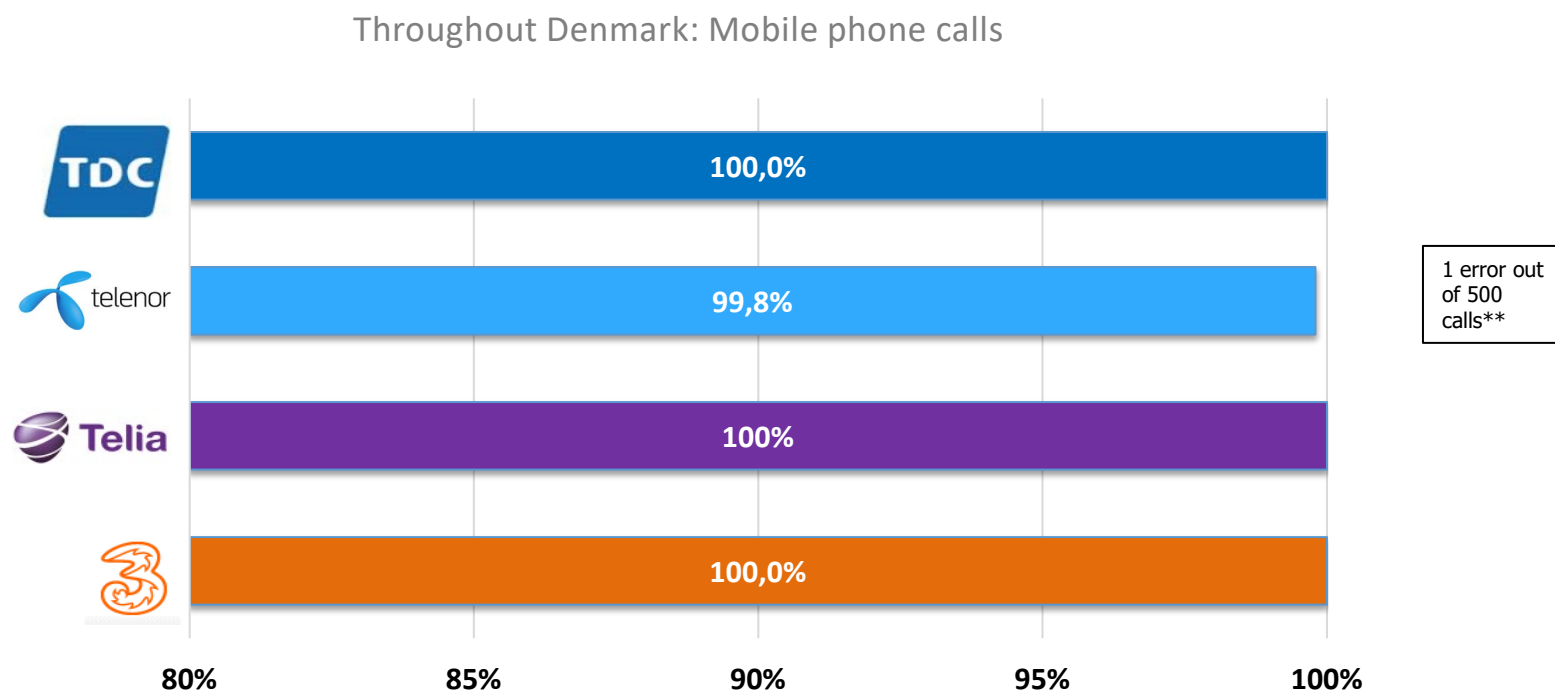
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National result of ordinary mobile phone conversations in 2018

Ordinary mobile phone conversations* show no significant differences between TDC NET, Telenor, Telia and 3.



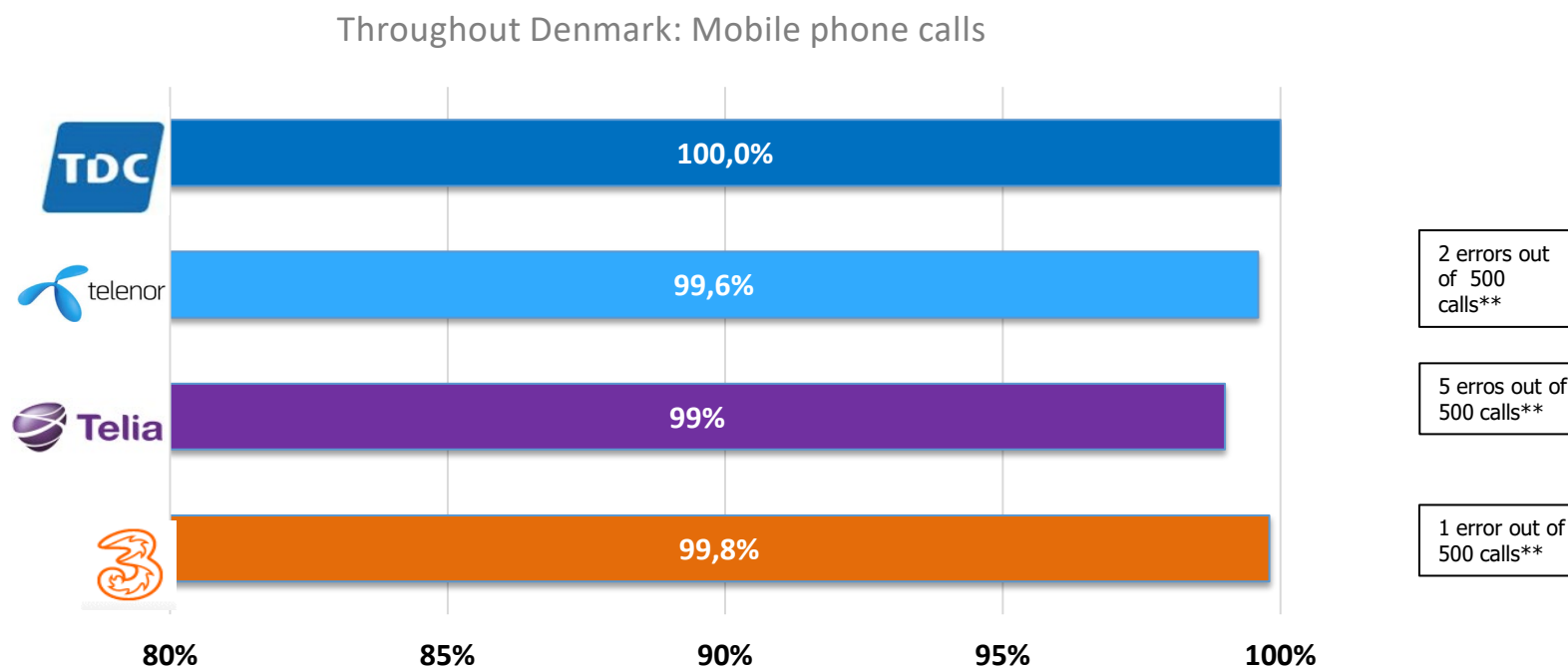
*TDC defined a good mobile network experience as: 30 sec. stable mobile telephon conversation - 10 MB download within 15 sec. - 10 MB upload within 30 sec. - 60 sec. YouTube video without buffering waiting time.

** In case of failure, one redial is made. If redial is successful, then the phone call is approved.



National result of ordinary mobile phone conversations in 2017

Ordinary mobile phone conversations* show no significant differences between TDC NET, Telenor, Telia and 3.



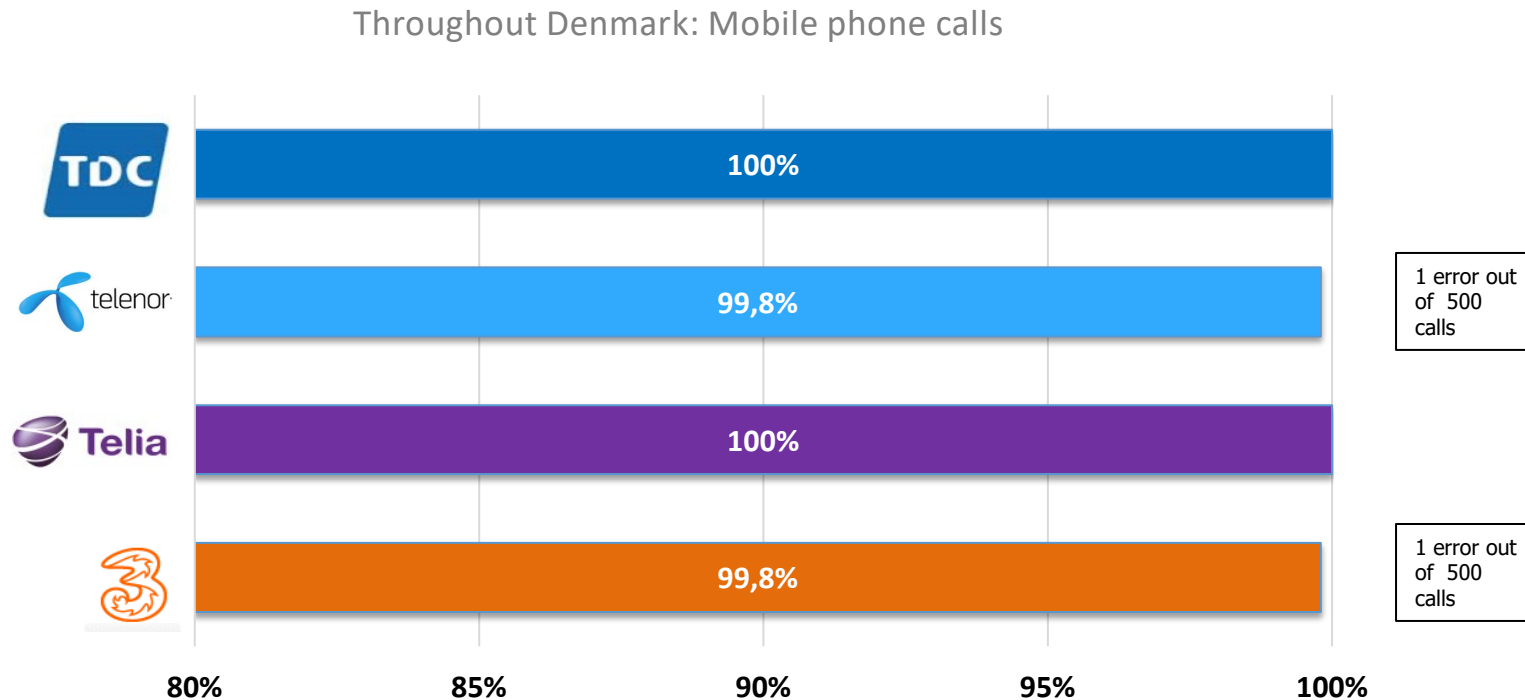
*TDC defined a good mobile network experience as: 30 sec. stable mobile telefon conversation - 10 MB download within 15 sec. - 10 MB upload within 30 sec. - 60 sec. YouTube video without buffering waiting time.

** In case of failure, one redial is made. If redial is successful, then the phone call is approved.

National result of ordinary mobile phone conversations in 2016



Ordinary mobile phone conversations* show no significant differences between TDC NET, Telenor, Telia and 3.

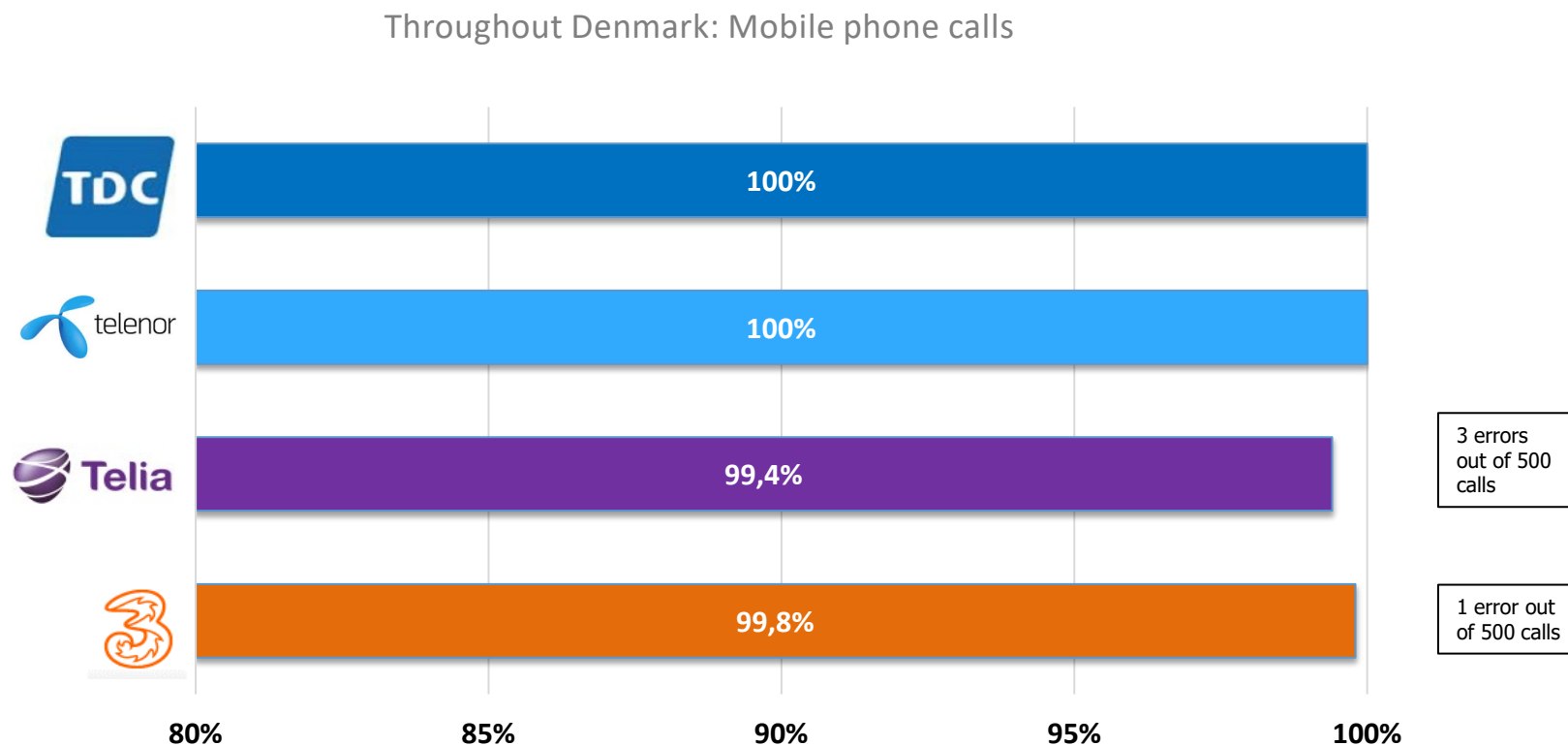


*TDC defined a good mobile network experience as: 30 sec. stable mobile telephon conversation - 10 MB download within 15 sec. - 10 MB upload within 30 sec. - 60 sec. YouTube video without buffering waiting time.



National result of ordinary mobile phone conversations in 2015

Ordinary mobile phone conversations* show no significant differences between TDC NET, Telenor, Telia and 3.



*TDC defined a good mobile network experience as: 30 sec. stable mobile telephon conversation - 10 MB download within 15 sec. - 10 MB upload within 30 sec. - 60 sec. YouTube video without buffering waiting time.

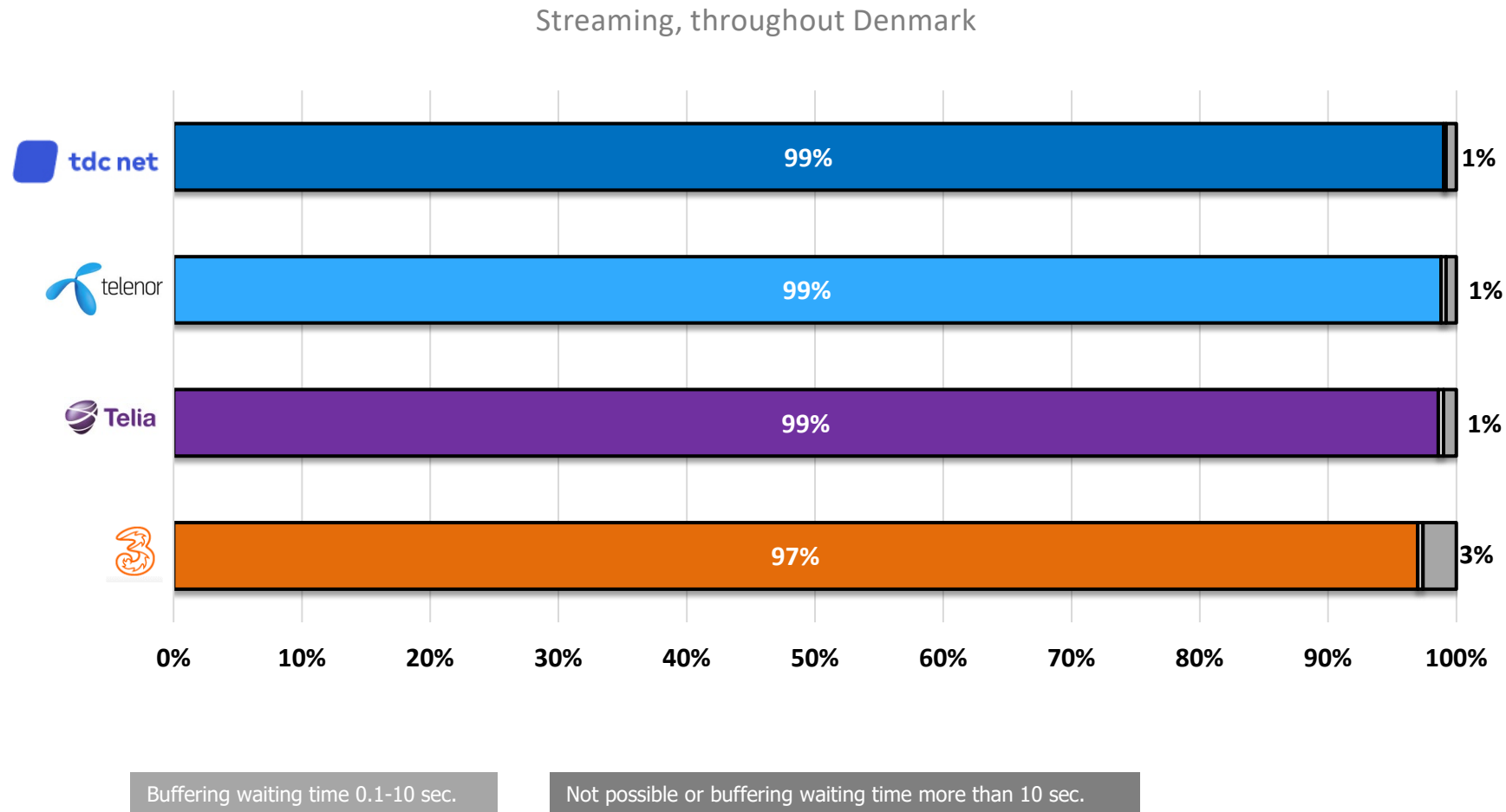


A van from Danish Technological Institute at one of the randomly selected test locations – here at Midskov, Fyns Hoved. Lindø appears on the horizon.

National result of video streaming in 2021 with a 5G phone



At national level, video streaming with a 5G phone has the same high level for TDC NET, Telenor and Telia. 3 is slightly below.

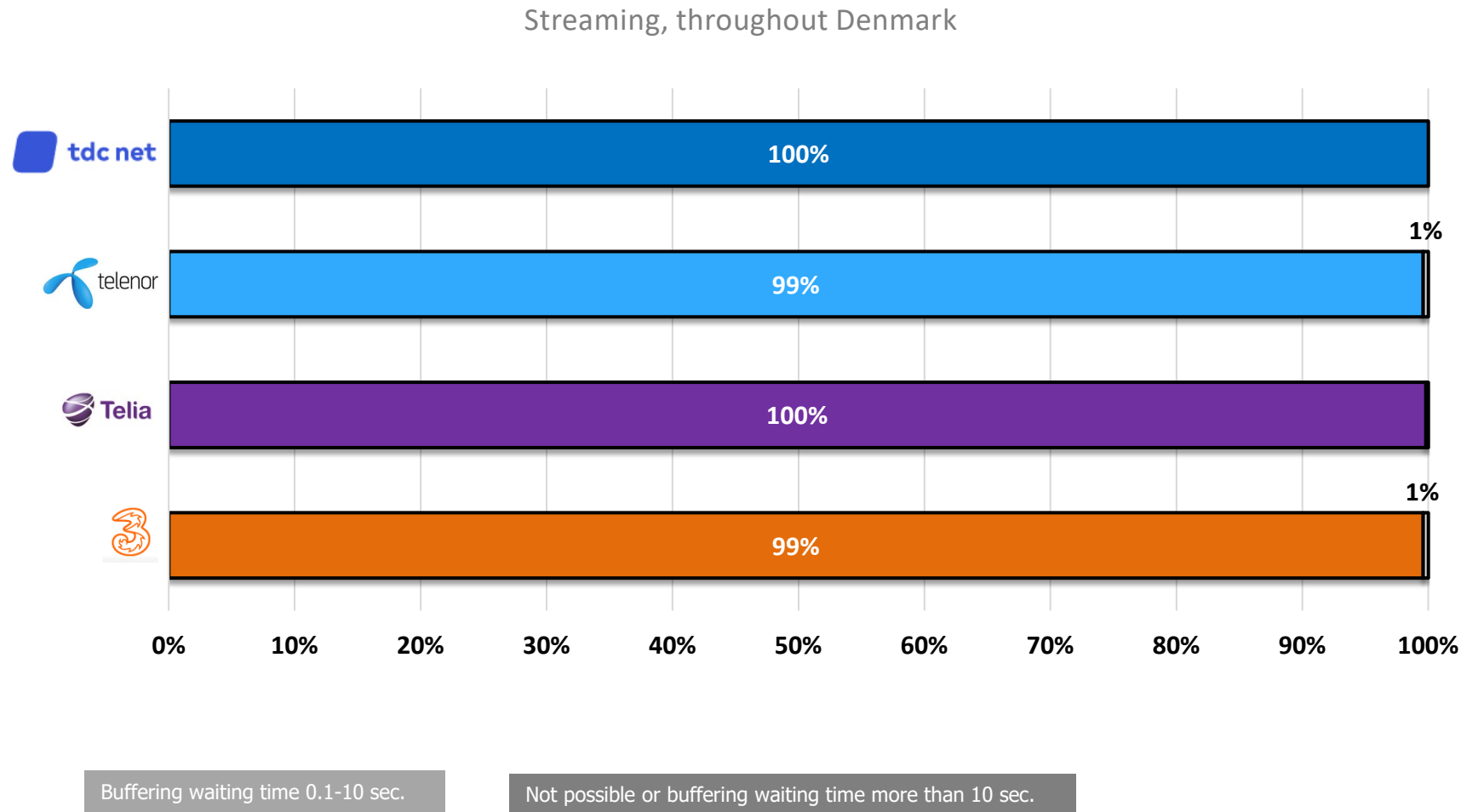


*TDC NET defined a good mobile network experience as: 30 sec. stable mobile telephon conversation - 10 MB download within 8 sec. - 10 MB upload within 15 sec. - 60 sec. YouTube video without buffering waiting time.

National result of video streaming in 2021 with a 4G phone



At national level, video streaming with a 4G phone has the same high level.

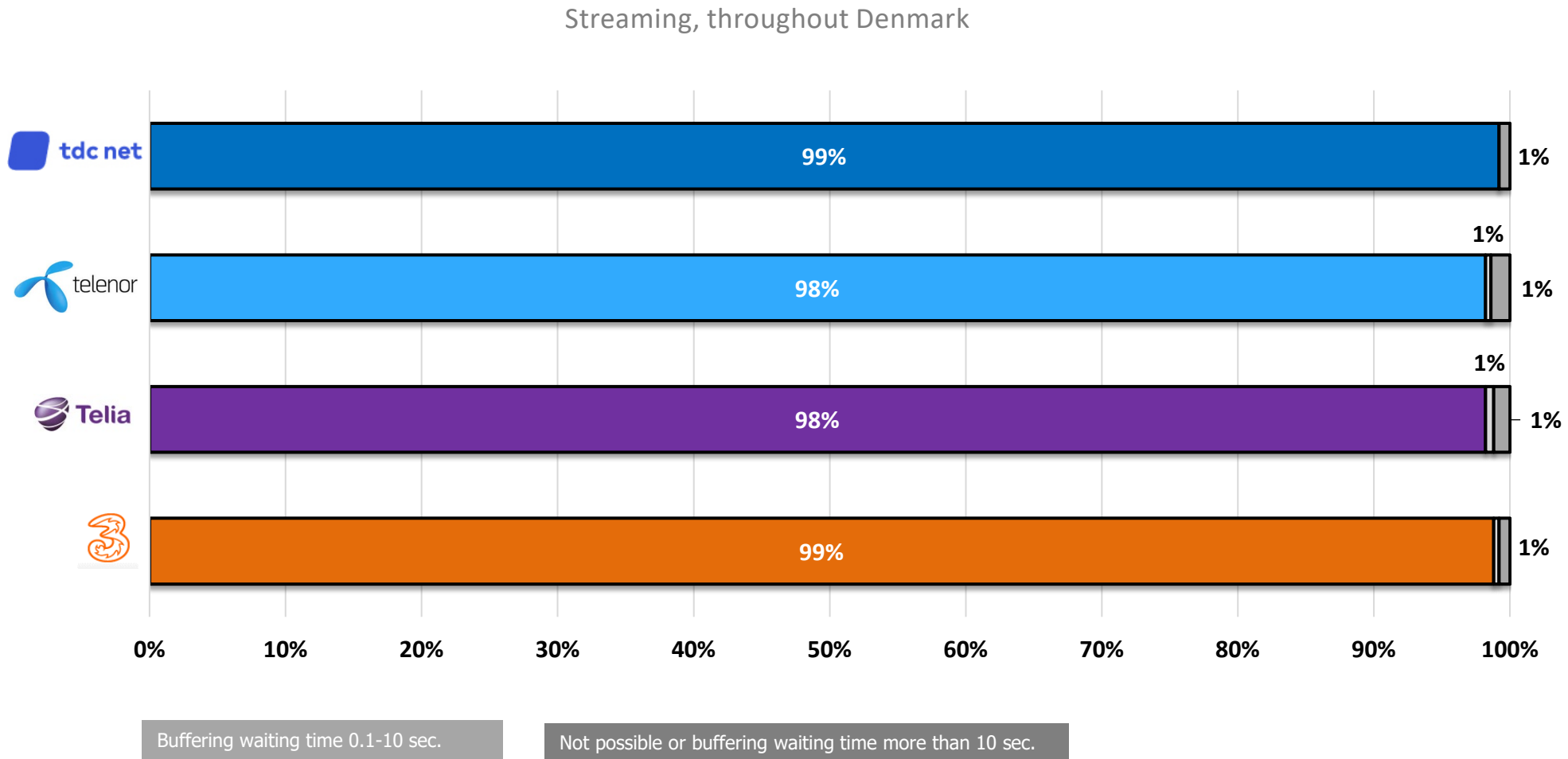


*TDC NET defined a good mobile network experience as: 30 sec. stable mobile telephon conversation - 10 MB download within 8 sec. - 10 MB upload within 15 sec. - 60 sec. YouTube video without buffering waiting time.

National result of video streaming in 2019



At national level, TDC NET, Telenor and Telia have the same high level of video streaming. 3 has progressed.

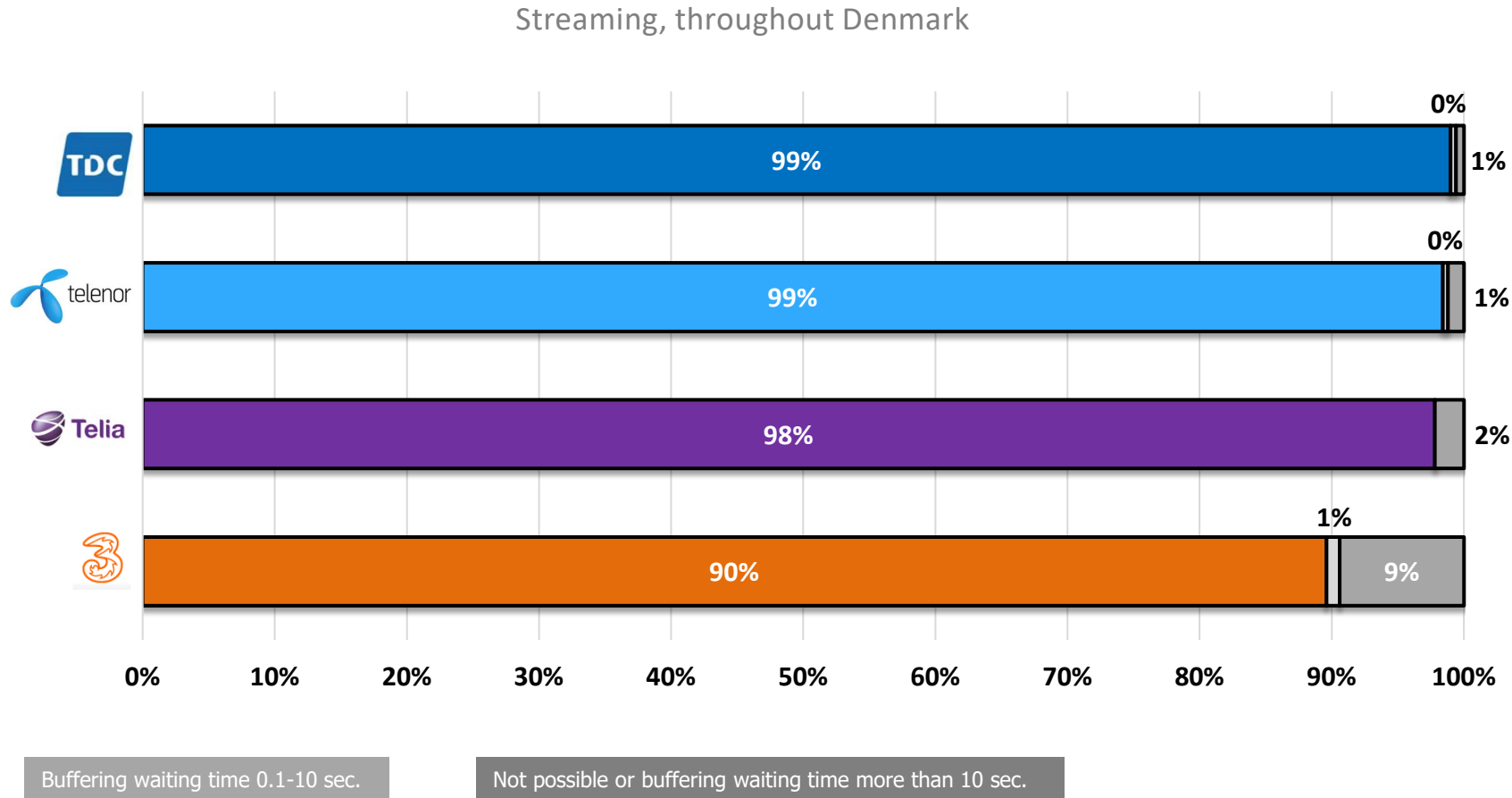


*TDC NET defined a good mobile network experience as: 30 sec. stable mobile telephon conversation - 10 MB download within 15 sec. - 10 MB upload within 30 sec. - 60 sec. YouTube video without buffering waiting time.

National result of video streaming in 2018



At national level, TDC, Telenor and Telia have the same high level of video streaming. All four network providers have progressed.

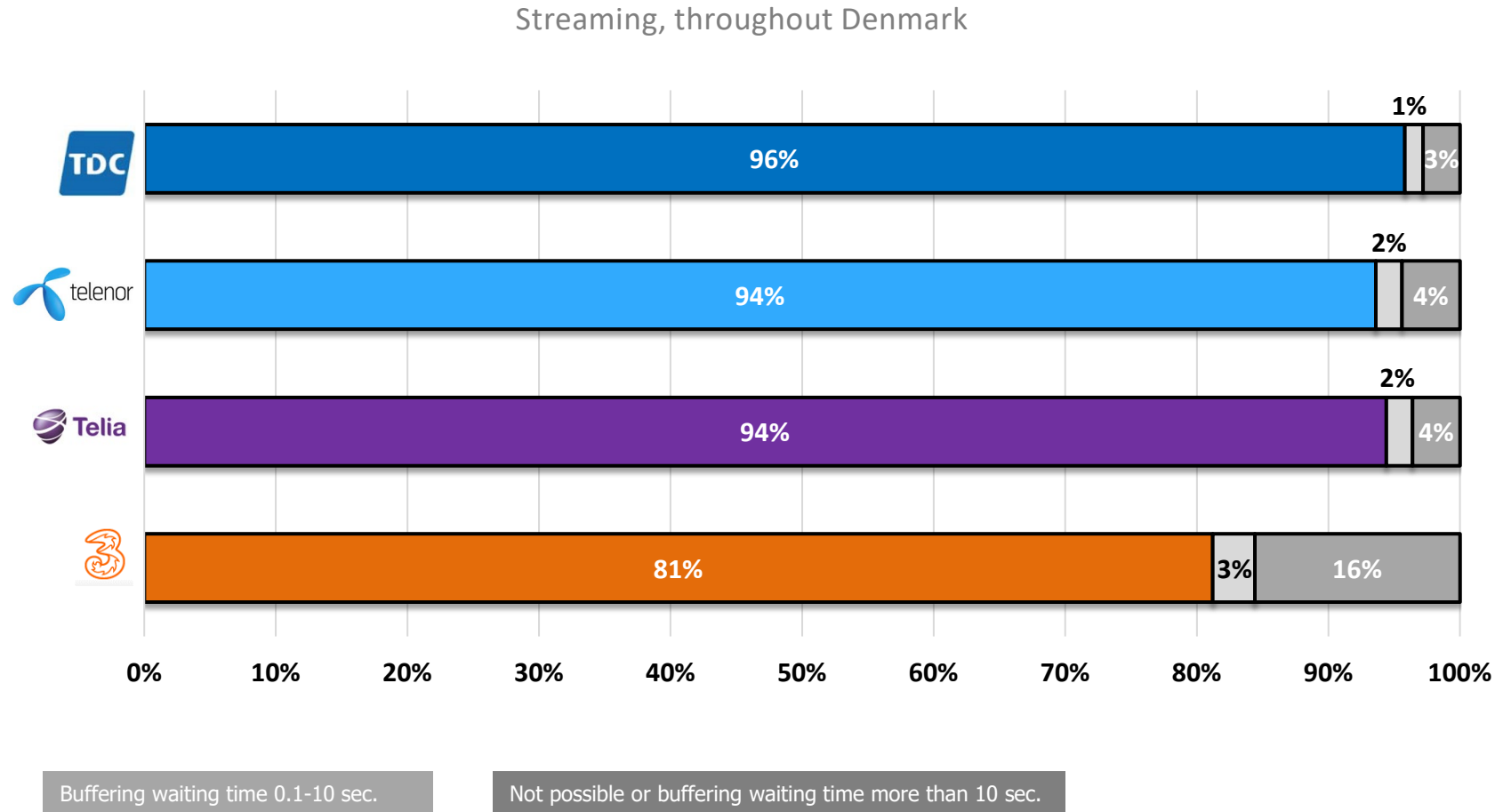


*TDC defined a good mobile network experience as: 30 sec. stable mobile telephon conversation - 10 MB download within 15 sec. - 10 MB upload within 30 sec. - 60 sec. YouTube video without buffering waiting time.

National result of video streaming in 2017



At national level, TDC delivered better video streaming than Telenor, Telia and 3. All four network providers have lost a little ground compared to 2016.

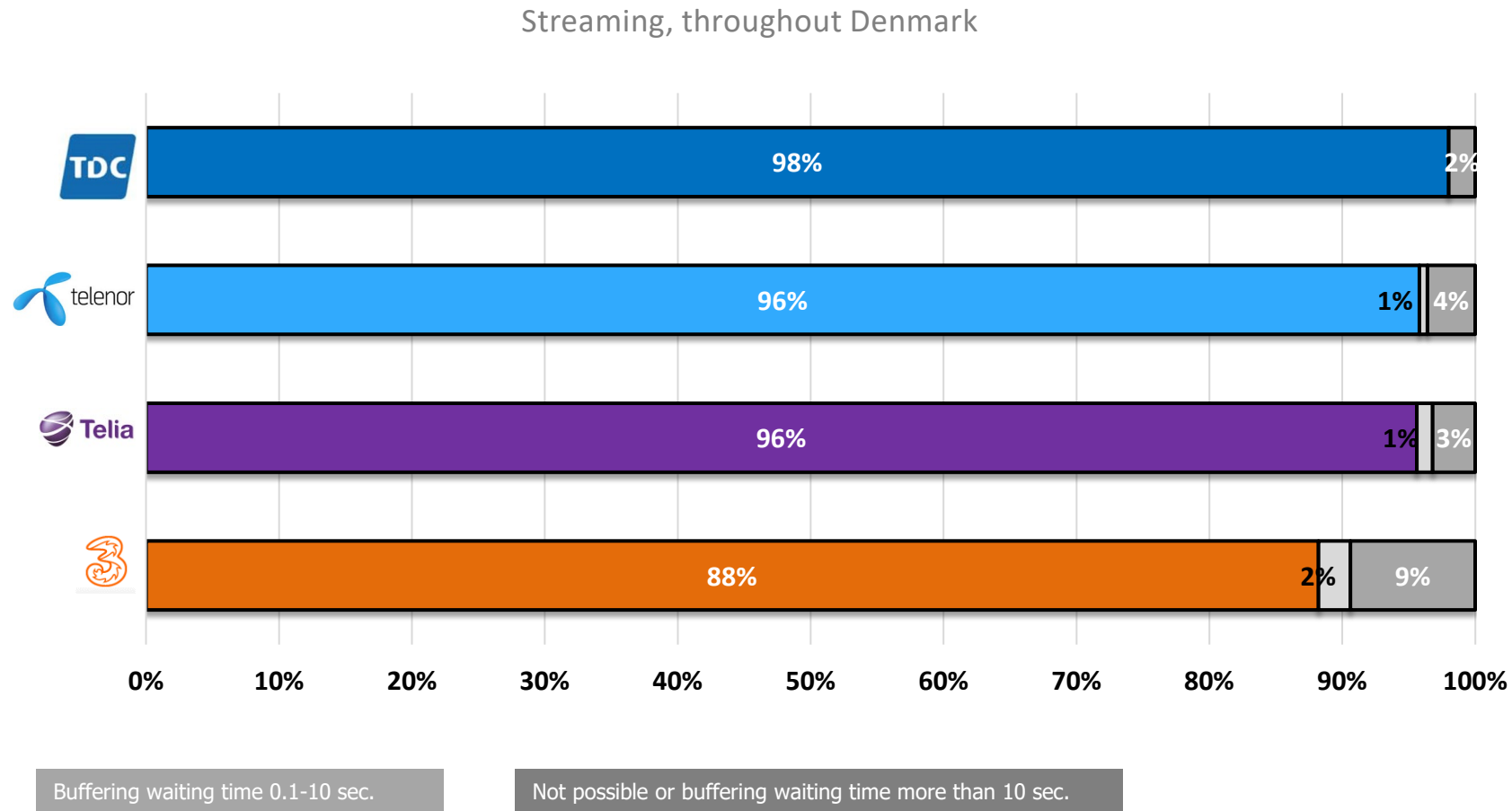


*TDC defined a good mobile network experience as: 30 sec. stable mobile telephon conversation - 10 MB download within 15 sec. - 10 MB upload within 30 sec. - 60 sec. YouTube video without buffering waiting time.

National result of video streaming in 2016



At national level, TDC delivered slightly better video streaming than Telenor, Telia and 3.

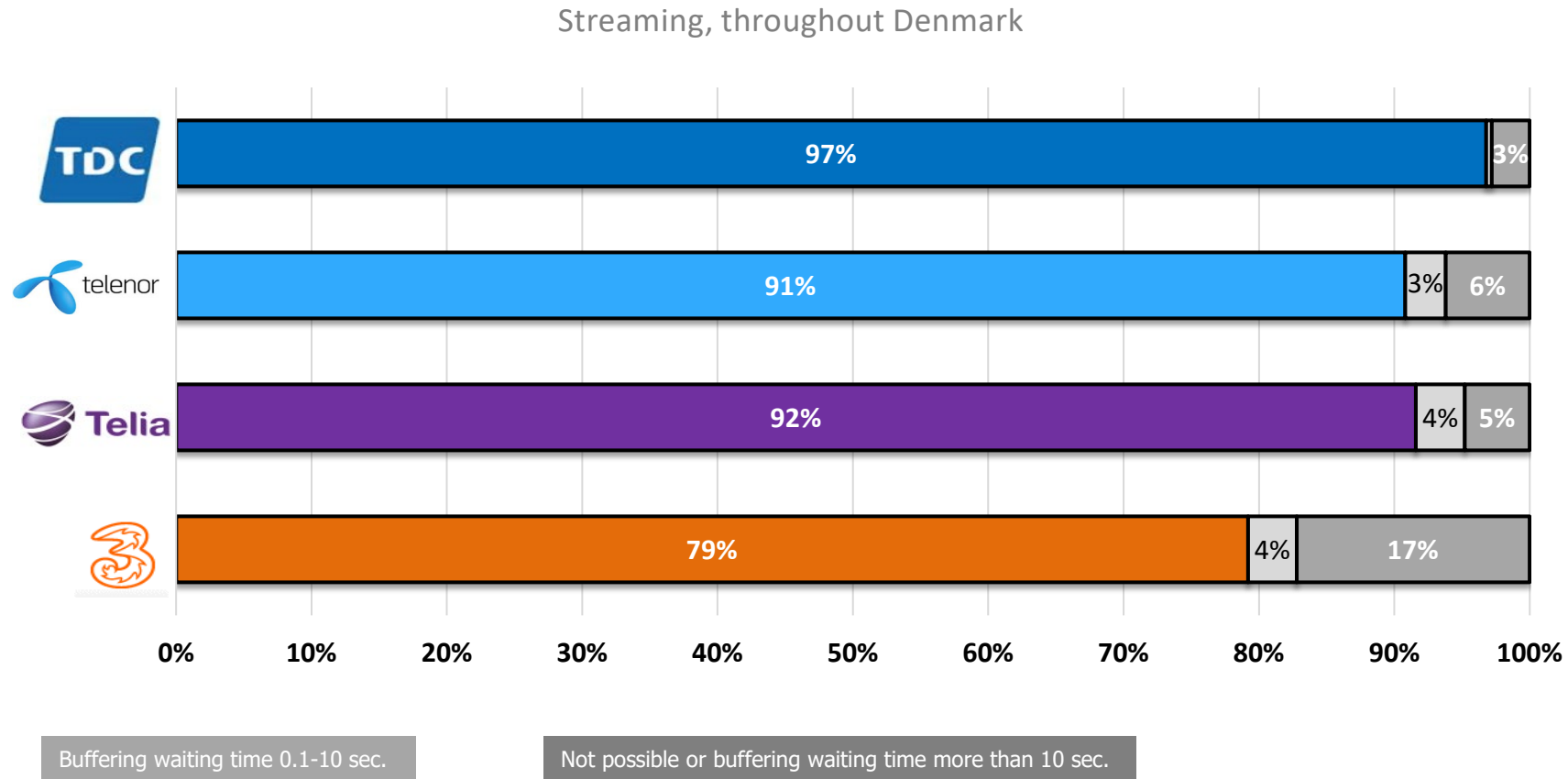


*TDC defined a good mobile network experience as: 30 sec. stable mobile telephon conversation - 10 MB download within 15 sec. - 10 MB upload within 30 sec. - 60 sec. YouTube video without buffering waiting time.

National result of video streaming in 2015



At national level, TDC delivered better video streaming than Telenor, Telia and 3.

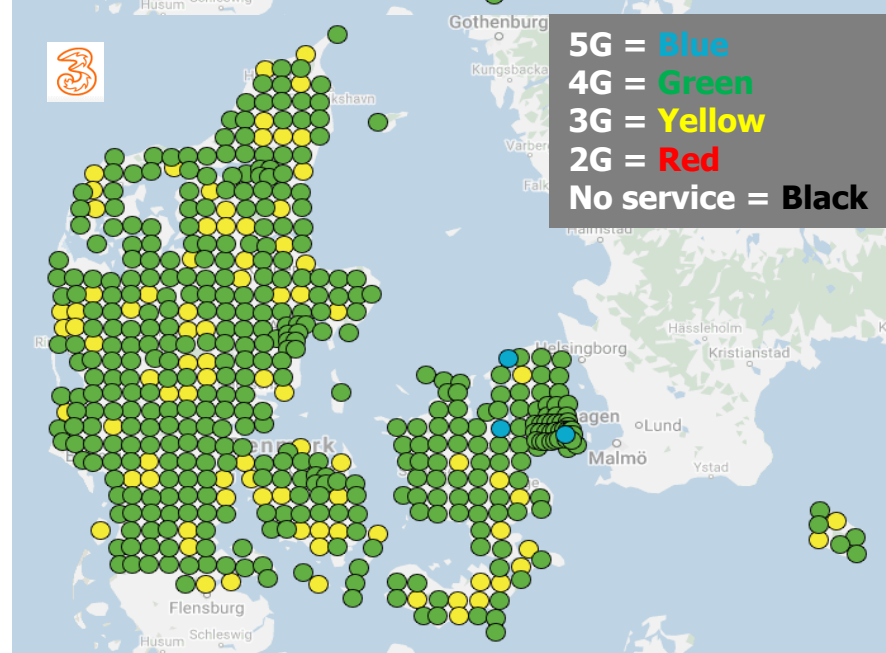
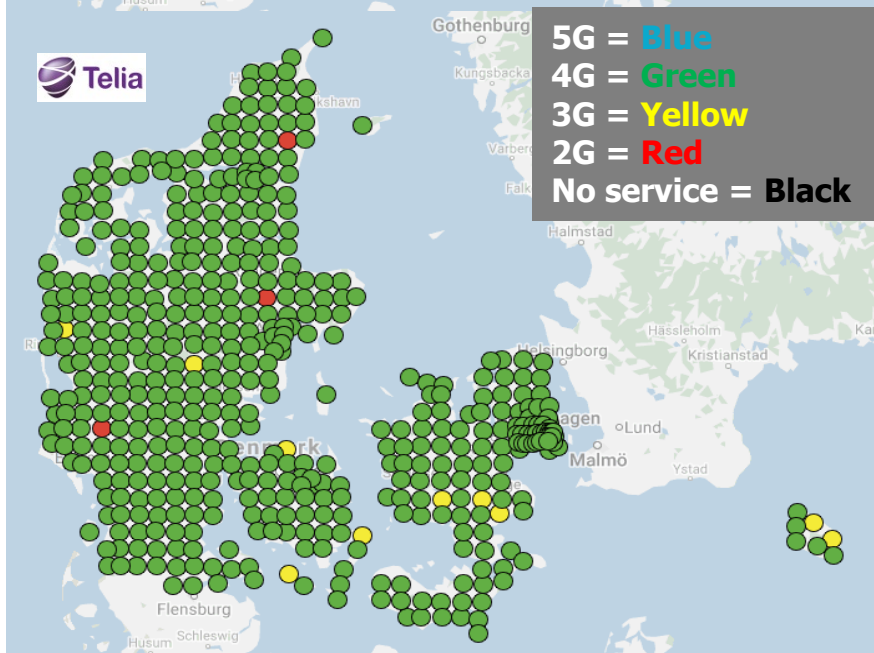
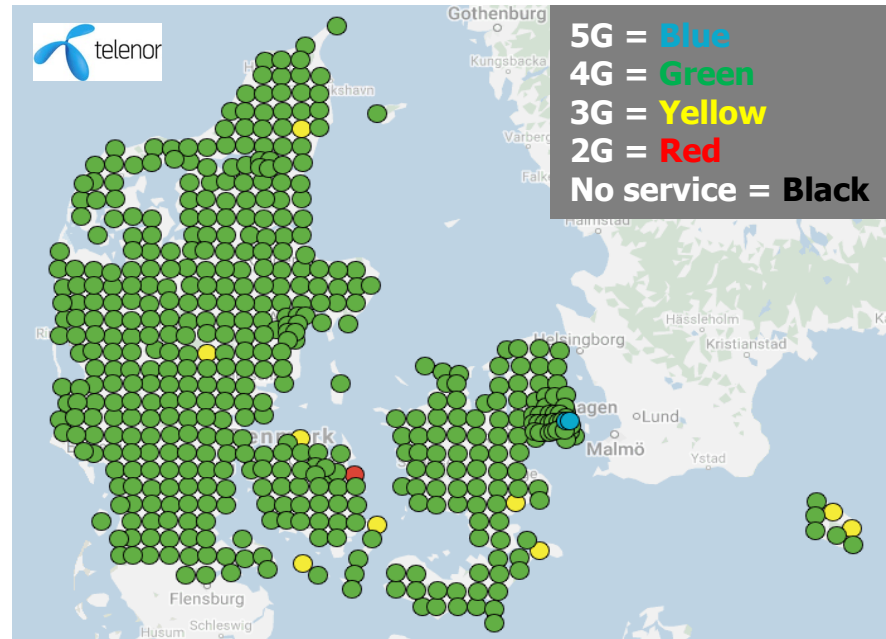
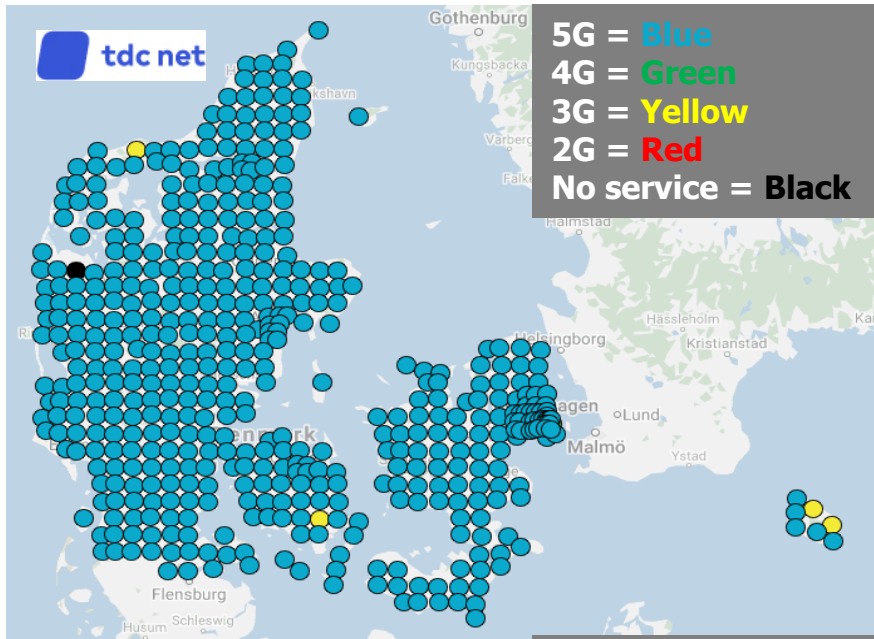


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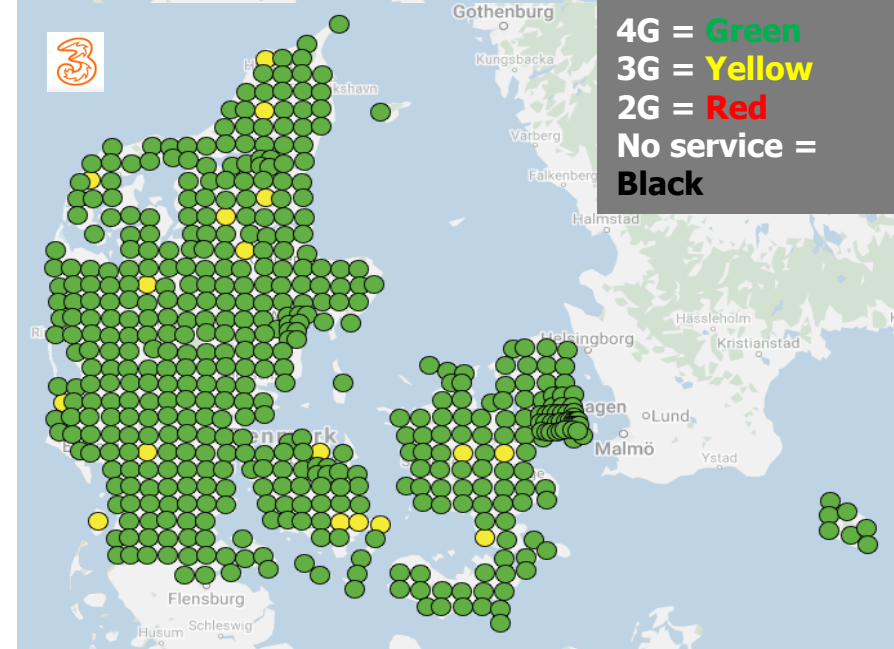
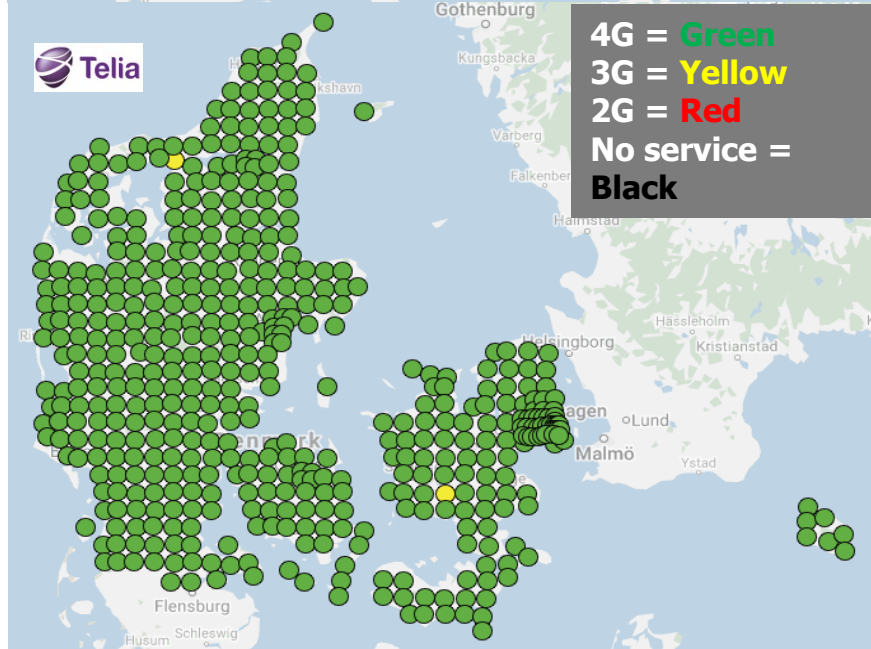
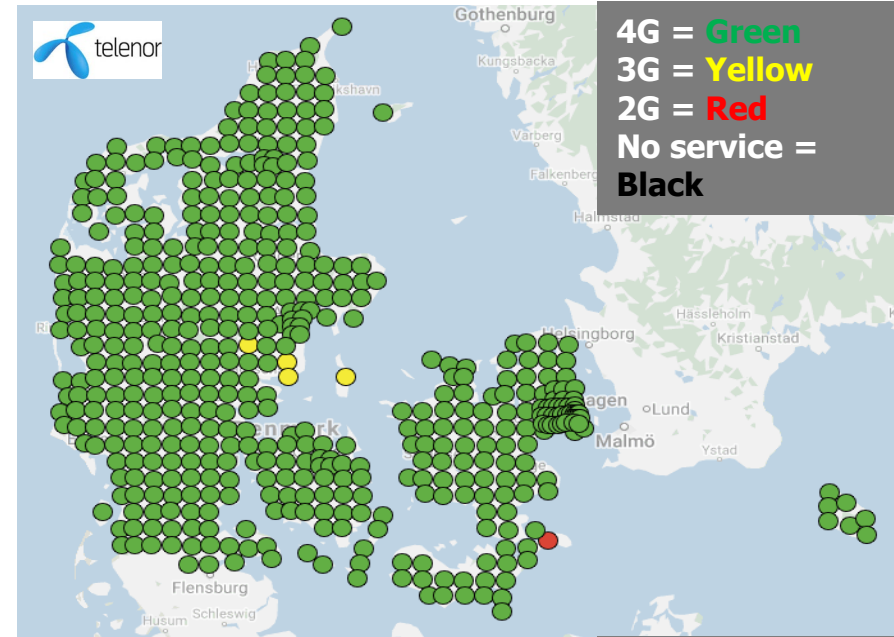
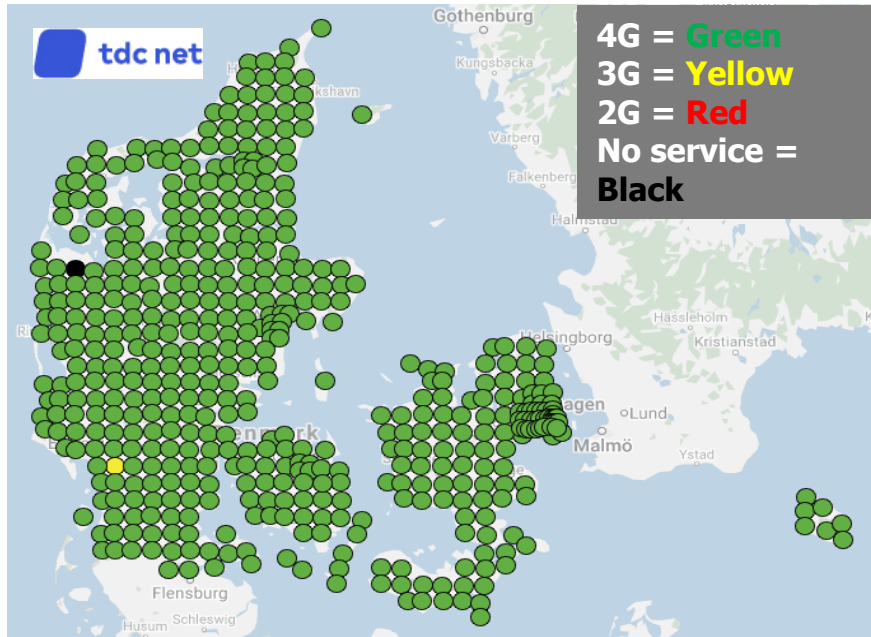
A van from Danish Technological Institute at one of the randomly selected test locations – here at Plejerup at Lammefjord between Holbæk and Nykøbing Sj.



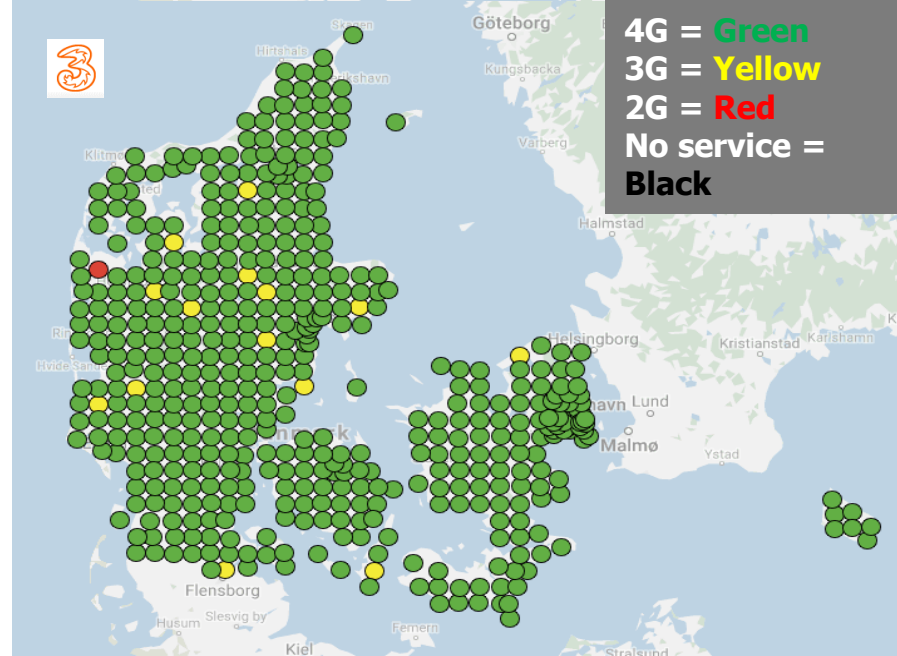
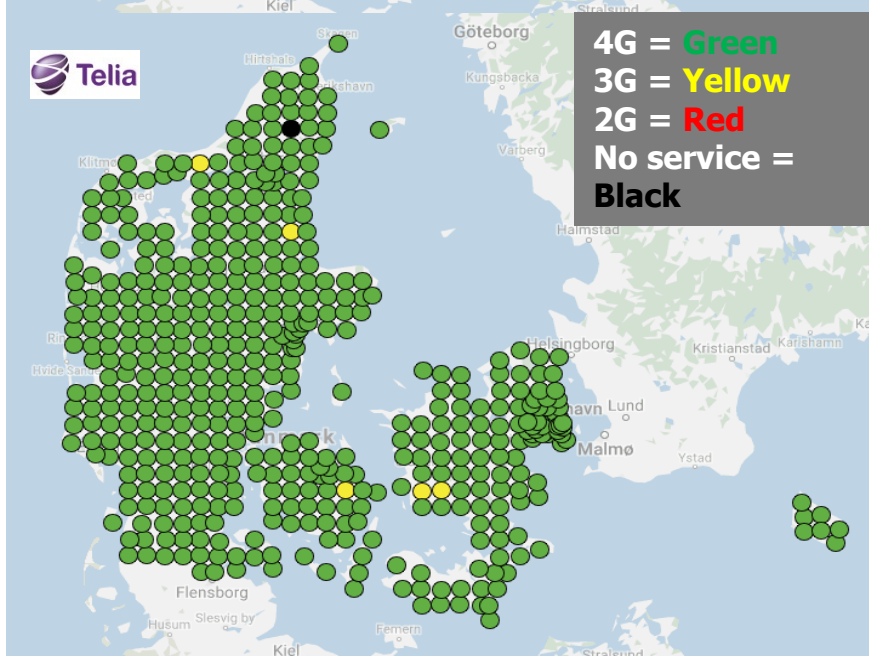
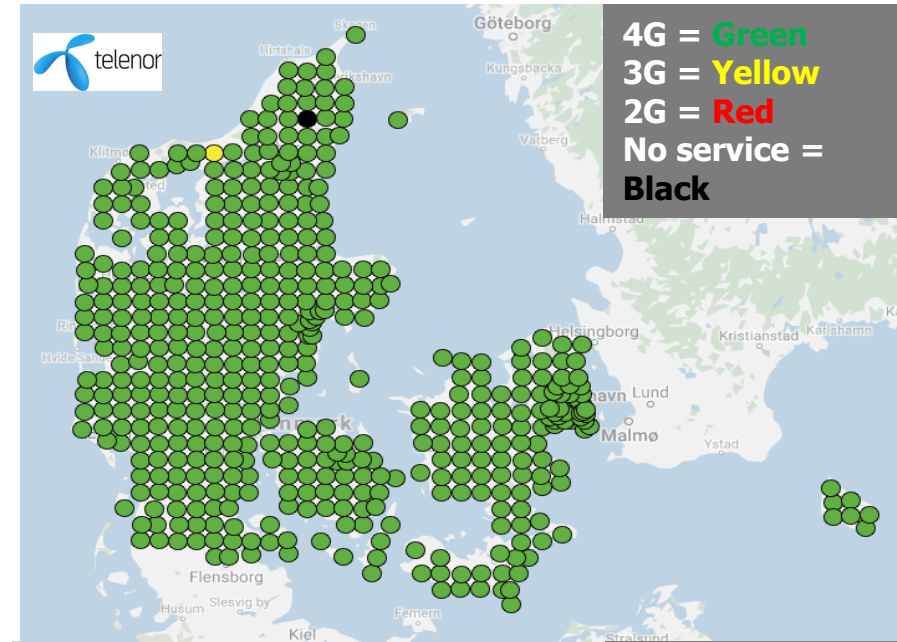
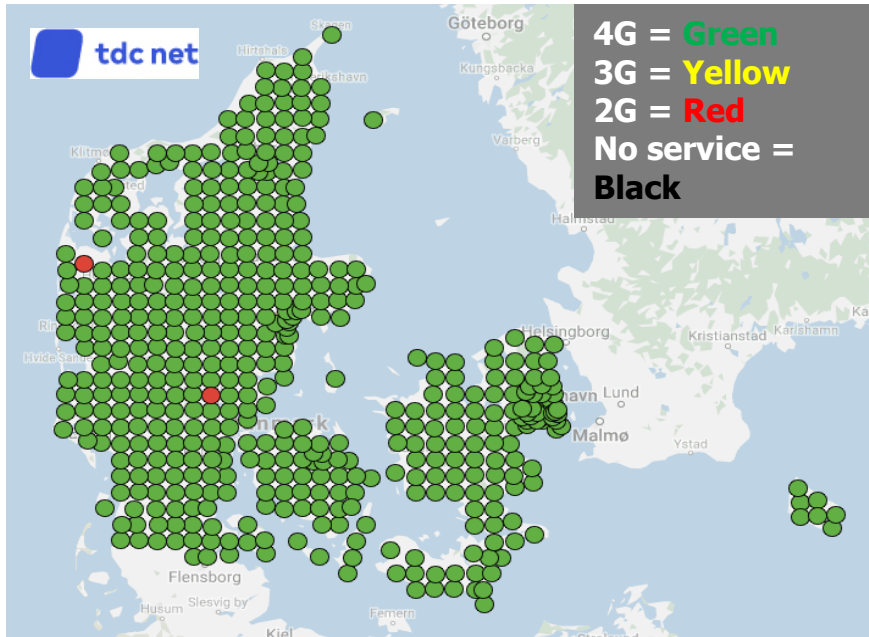
2021: Access to 5G, 4G, 3G and 2G with a 5G phone



2021: Access to 4G, 3G and 2G with a 4G phone



2019: Access to 4G, 3G and 2G



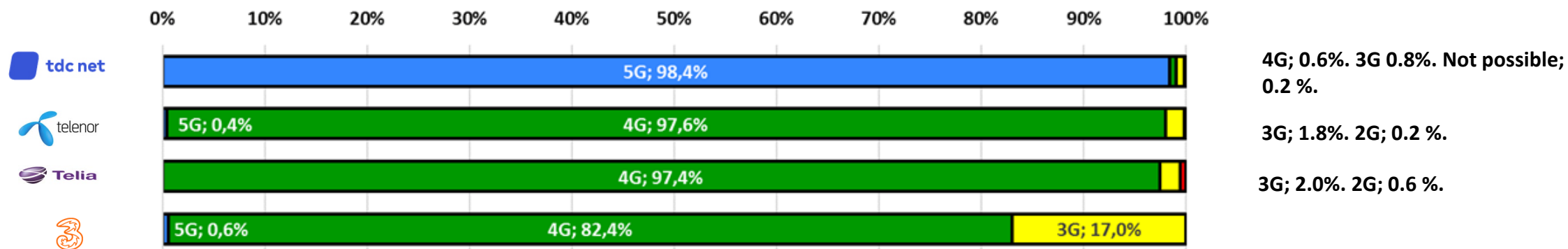
National result of access to 5G and 4G in 2021



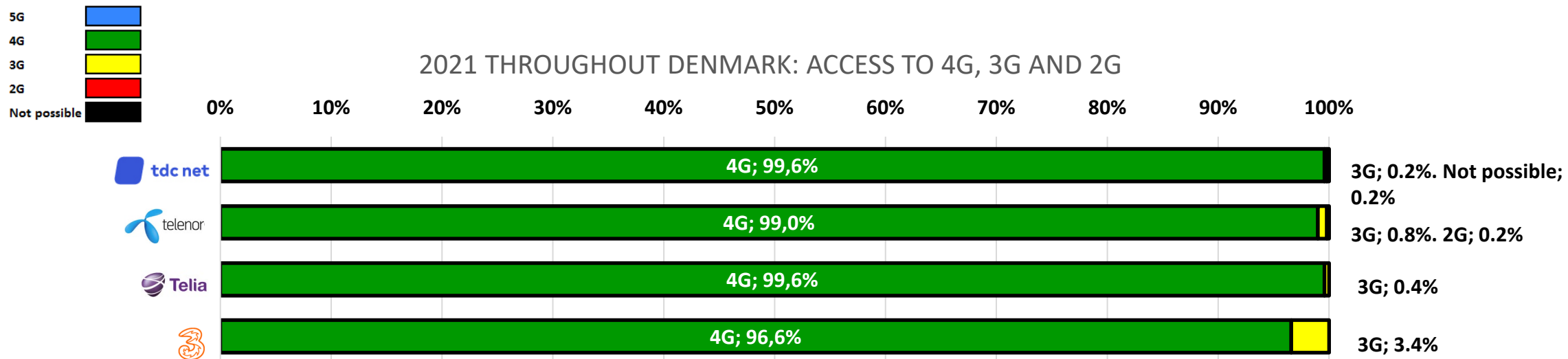
In general, TDC NET is the only network provider with access to 5G.

TDC NET, Telenor and Telia by and large have the same access to 4G with a 4G phone.

2021 THROUGHOUT DENMARK: ACCESS TO 5G, 4G, 3G AND 2G



2021 THROUGHOUT DENMARK: ACCESS TO 4G, 3G AND 2G

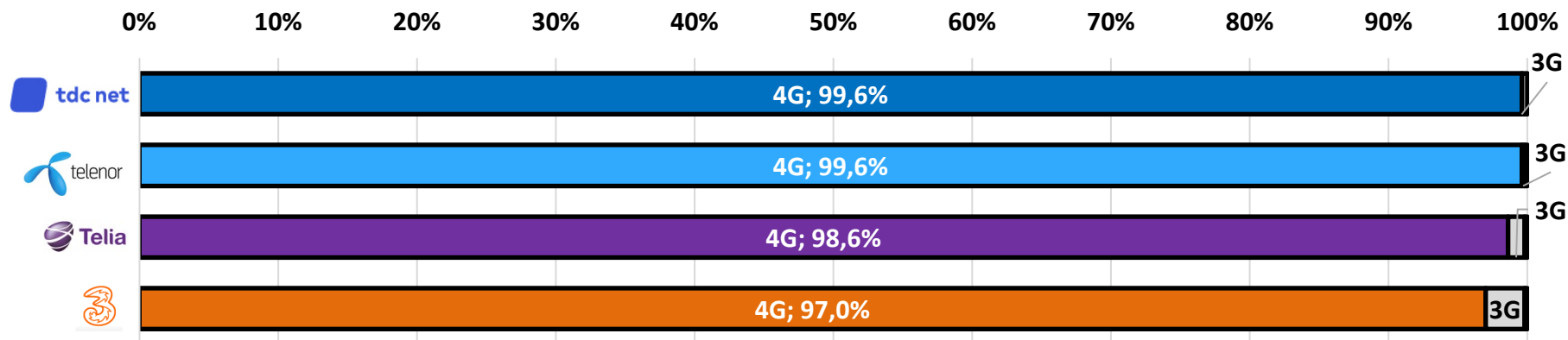


National result of access to 4G in 2019 and 2018

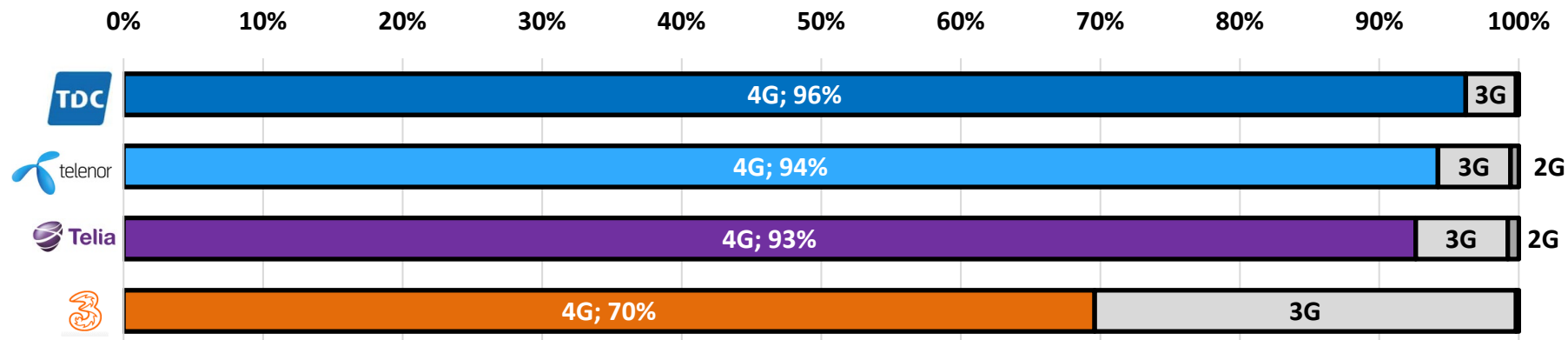


In 2019, all 4 network providers by and large had the same access to 4G.

2019 THROUGHOUT DENMARK: ACCESS TO 4G, 3G AND 2G



2018 THROUGHOUT DENMARK: ACCESS TO 4G, 3G AND 2G

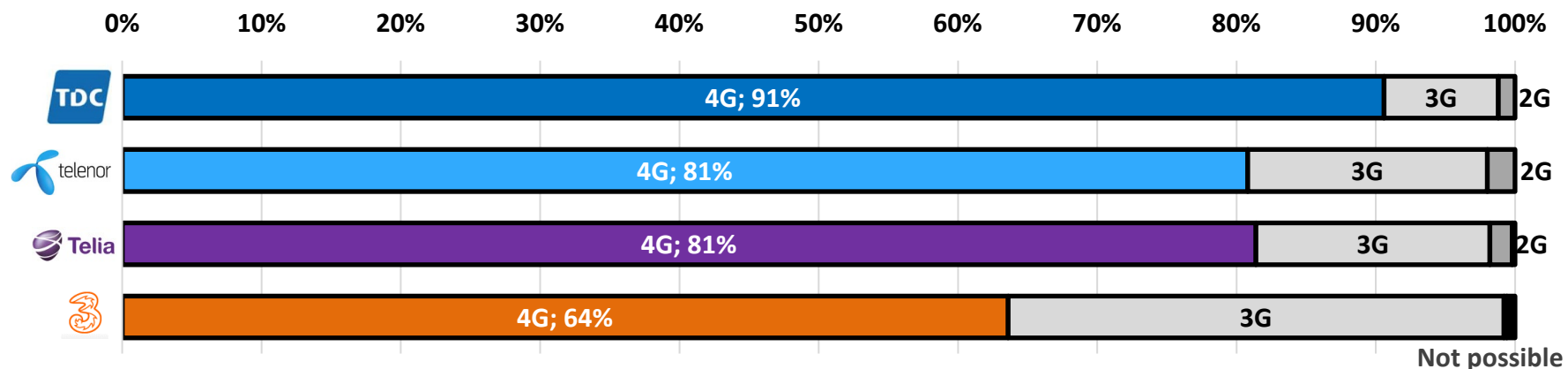


National result of access to 4G in 2017 and 2016

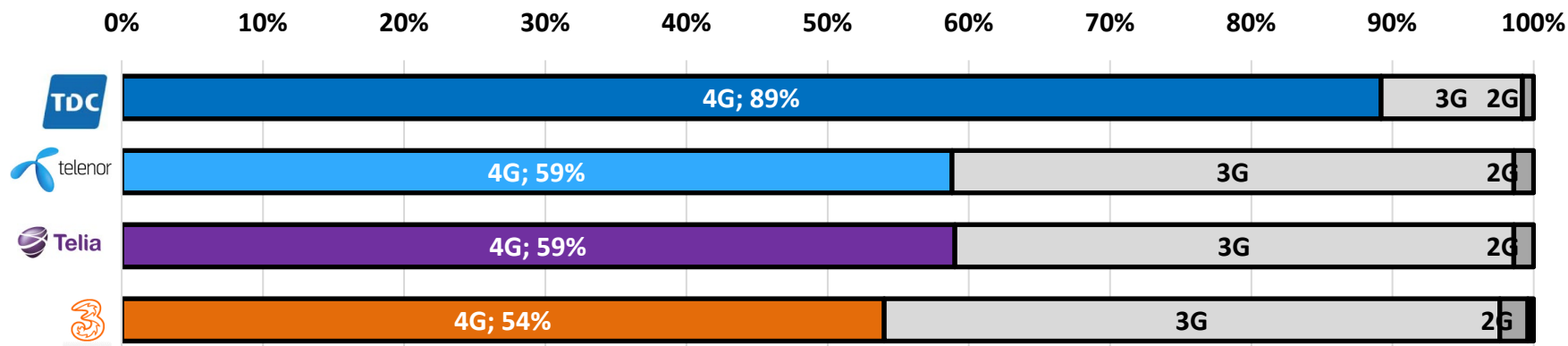


Nationally, TDC had slightly better access to 4G than the other network providers.

2017 THROUGHOUT DENMARK: ACCESS TO 4G, 3G AND 2G



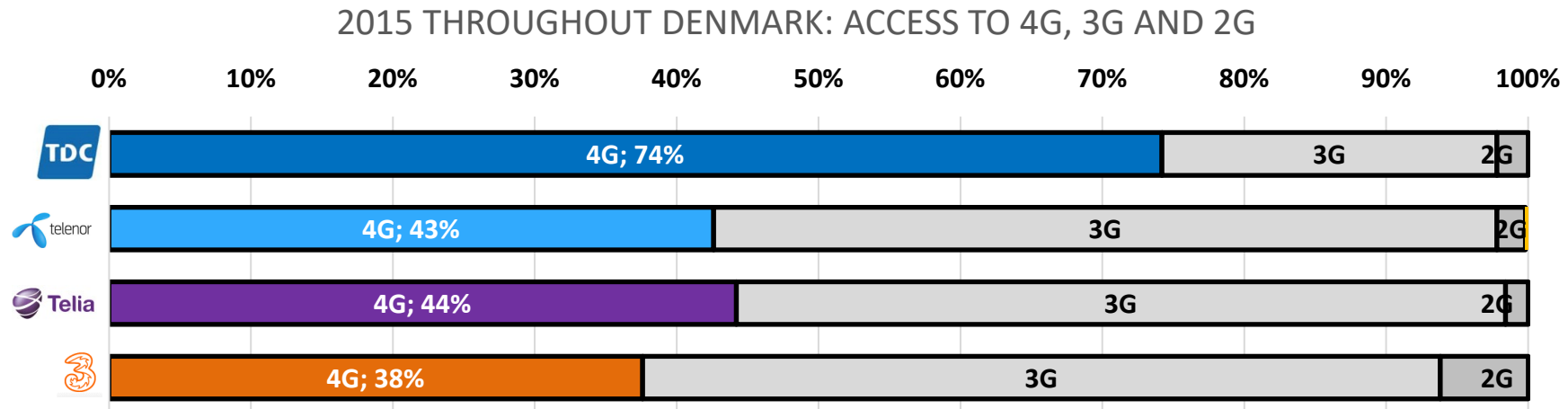
2016 THROUGHOUT DENMARK: ACCESS TO 4G, 3G AND 2G



National result of access to 4G in 2015



Nationally, TDC had significantly better access to 4G than the other network providers.



A van from Danish Technological Institute at one of the randomly selected test locations – here at Aarhus Harbour



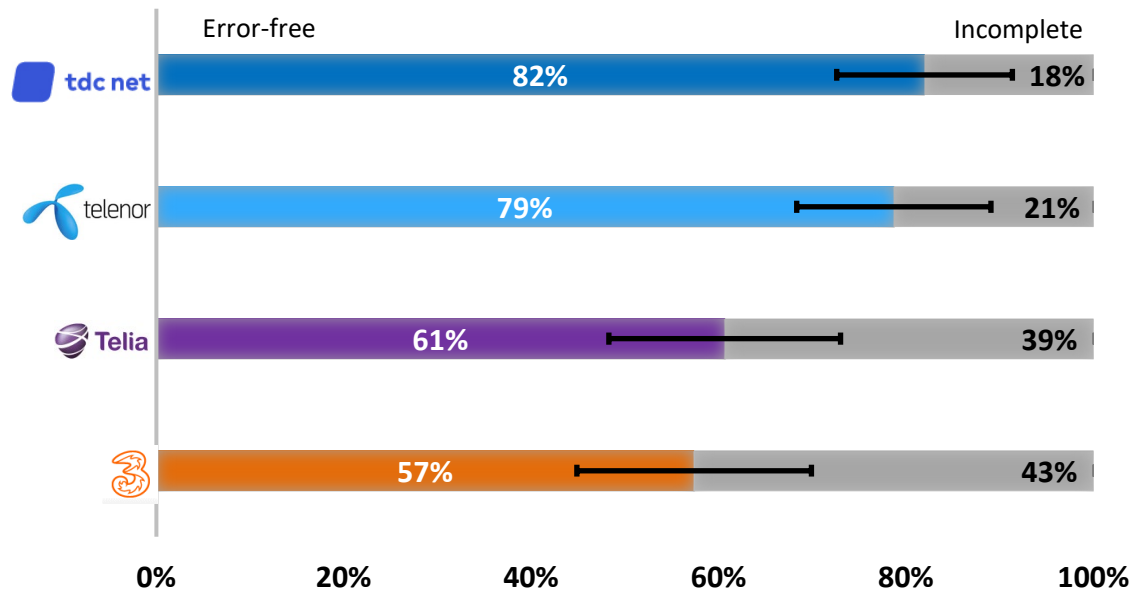
Regional results of mobile network experience in 2021 with a 5G phone



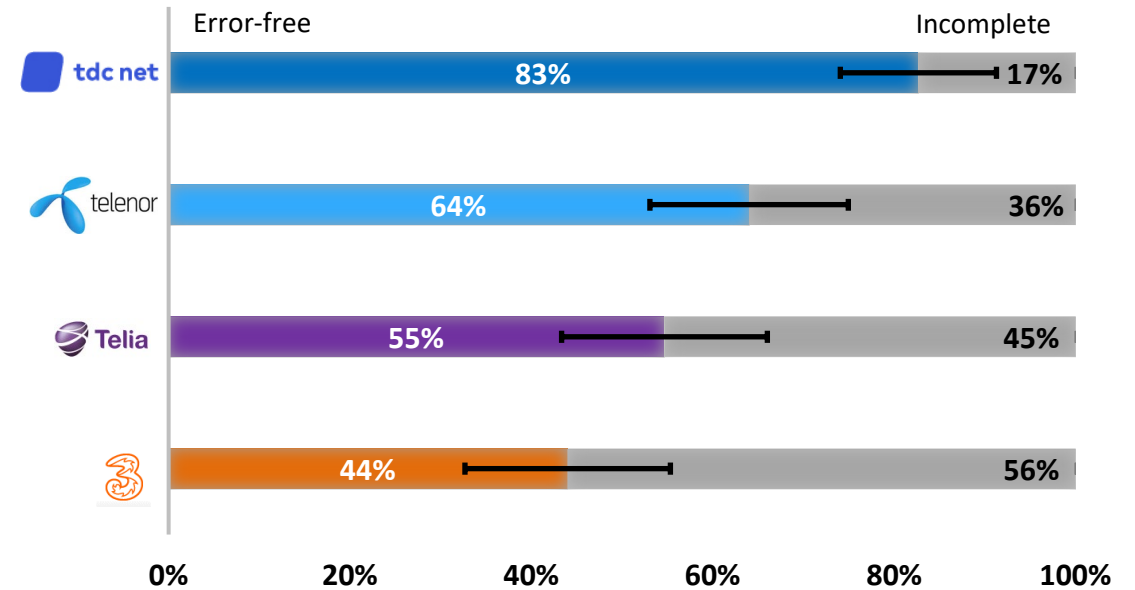
TDC NET has a better mobile network experience* than Telenor, Telia and 3 in the Capital Region of Denmark and in Region Zealand.

Telenor came in second, and Telia came in third.

**CAPITAL REGION OF DENMARK: 5G PHONE
THE GOOD MOBILE NETWORK EXPERIENCE**



**REGION ZEALAND: 5G PHONE
THE GOOD MOBILE NETWORK EXPERIENCE**



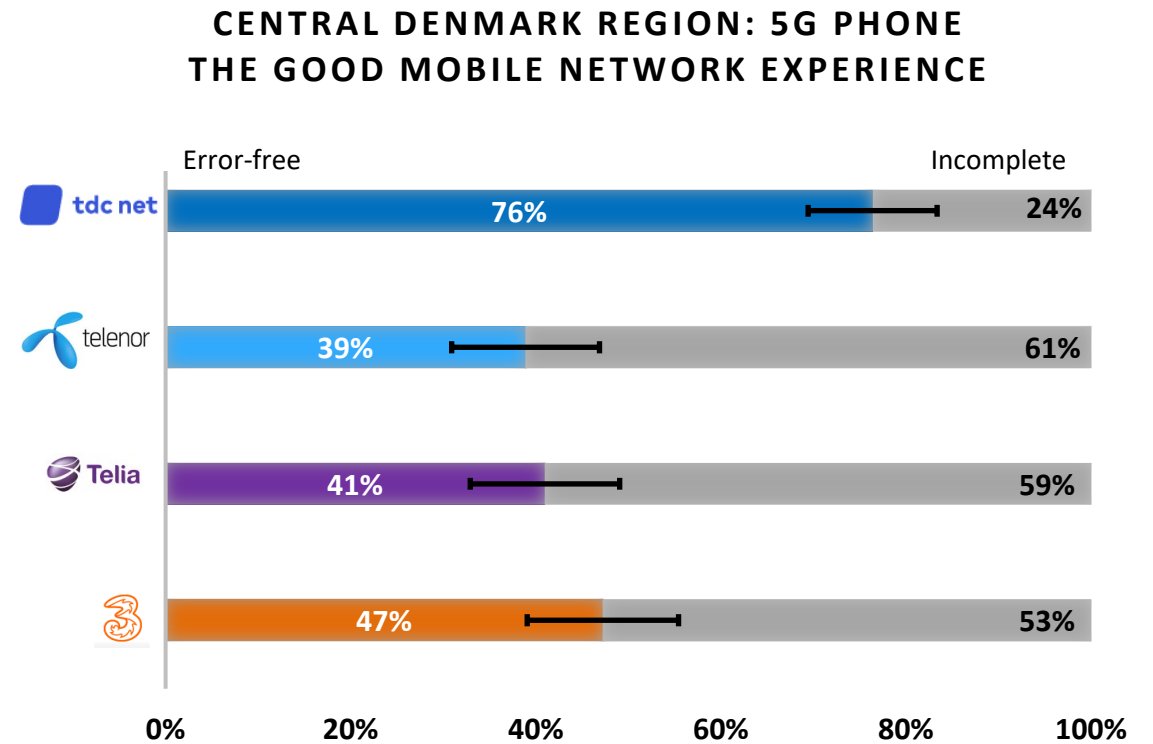
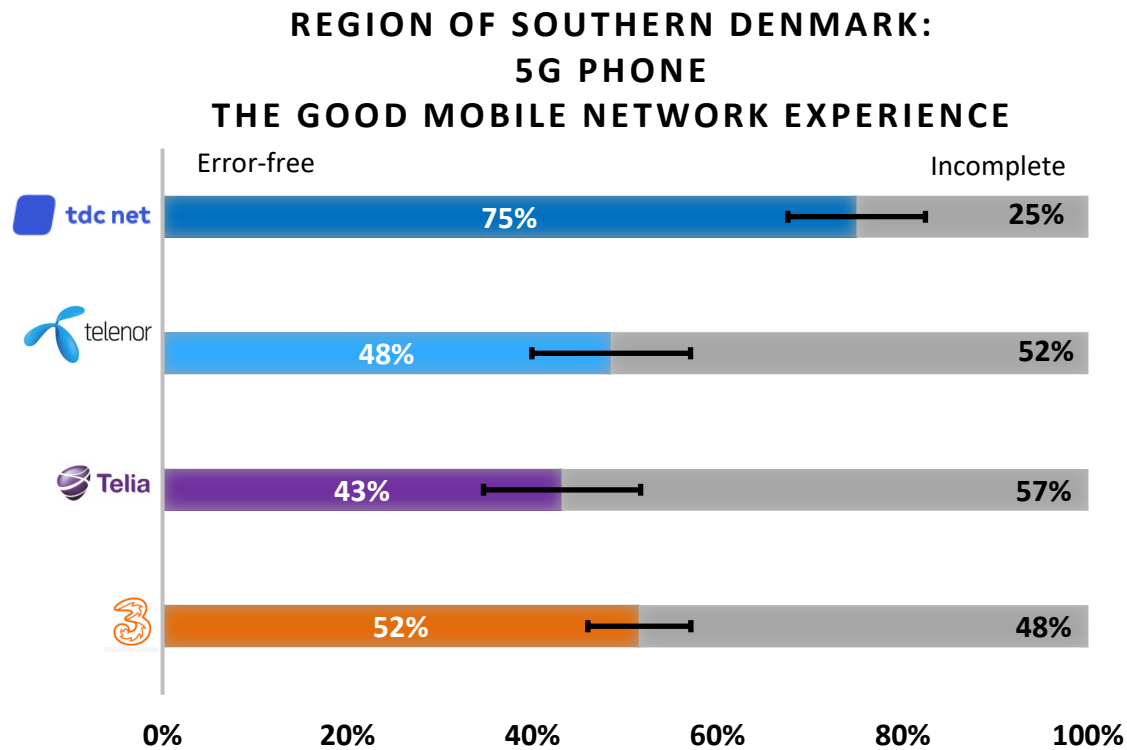
*TDC NET defined a good mobile network experience as: 30 sec. stable mobile telephon conversation - 10 MB download within 8 sec. - 10 MB upload within 15 sec. - 60 sec. YouTube video without buffering waiting time. **Horizontal black lines indicate at 95% statistical confidence interval.**

Regional results of mobile network experience in 2021 with a 5G phone



TDC NET has a better mobile network experience* than Telenor, Telia and 3 in the Region of Southern Denmark and in the Central Denmark Region.

Telenor and Telia come in second.



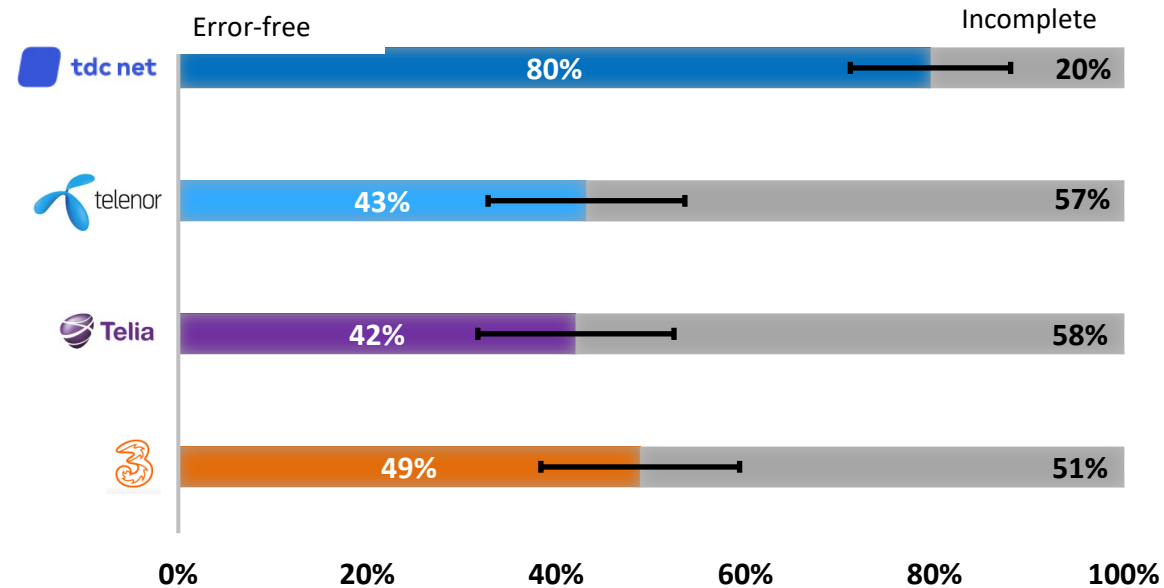
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Regional results of mobile network experience in 2021 with a 5G phone



TDC NET has a better mobile network experience* than Telenor, Telia and 3.
3 comes in second.

THE NORTH JUTLAND REGION: 5G PHONE THE GOOD MOBILE NETWORK EXPERIENCE



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A van from Danish Technological Institute at one of the randomly selected test locations – here at Silvan in Svendborg



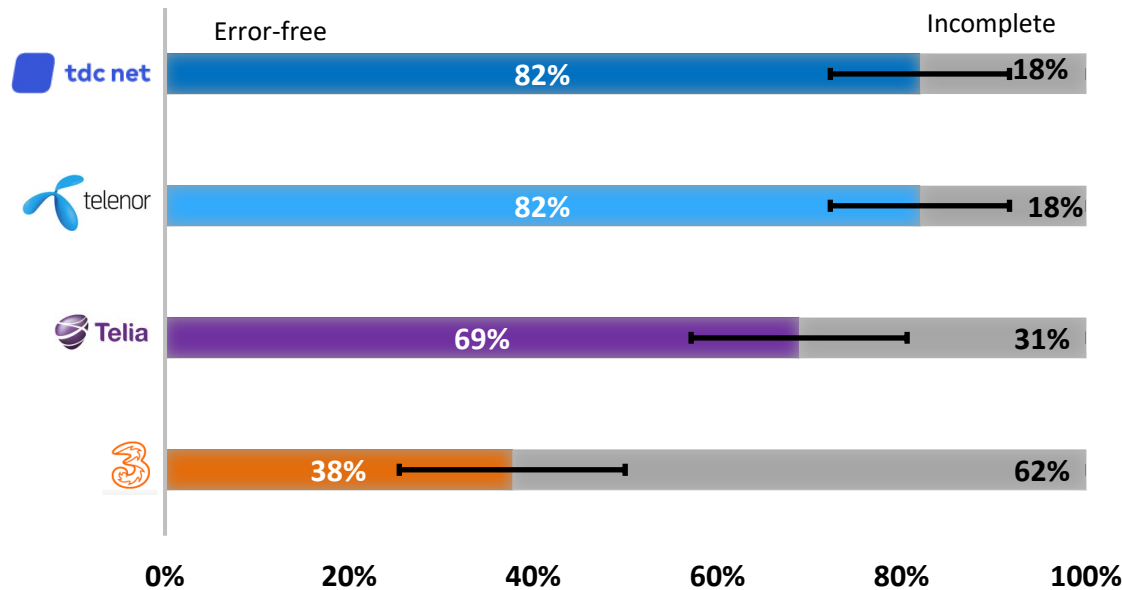
Regional results of mobile network experience in 2021 with a 4G phone



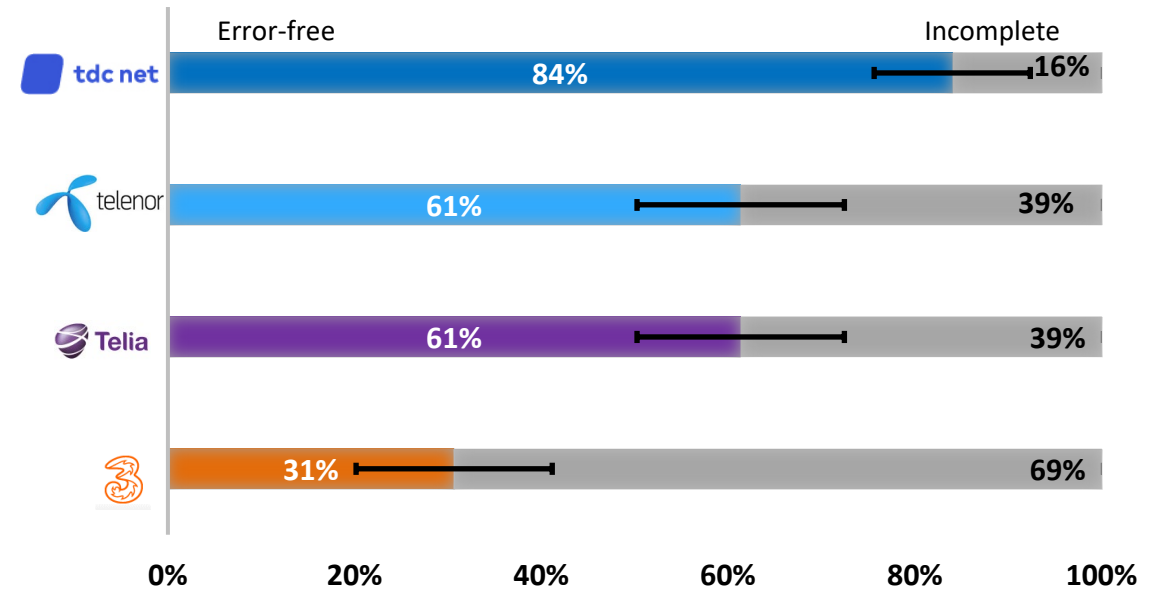
TDC NET and Telenor have a better mobile network experience* than Telia in the Capital Region of Denmark.

TDC NET has a better mobile network experience* than Telenor and Telia in Region Zealand.

**CAPITAL REGION OF DENMARK: 4G PHONE
THE GOOD MOBILE NETWORK EXPERIENCE**



**REGION ZEALAND: 4G PHONE
THE GOOD MOBILE NETWORK EXPERIENCE**



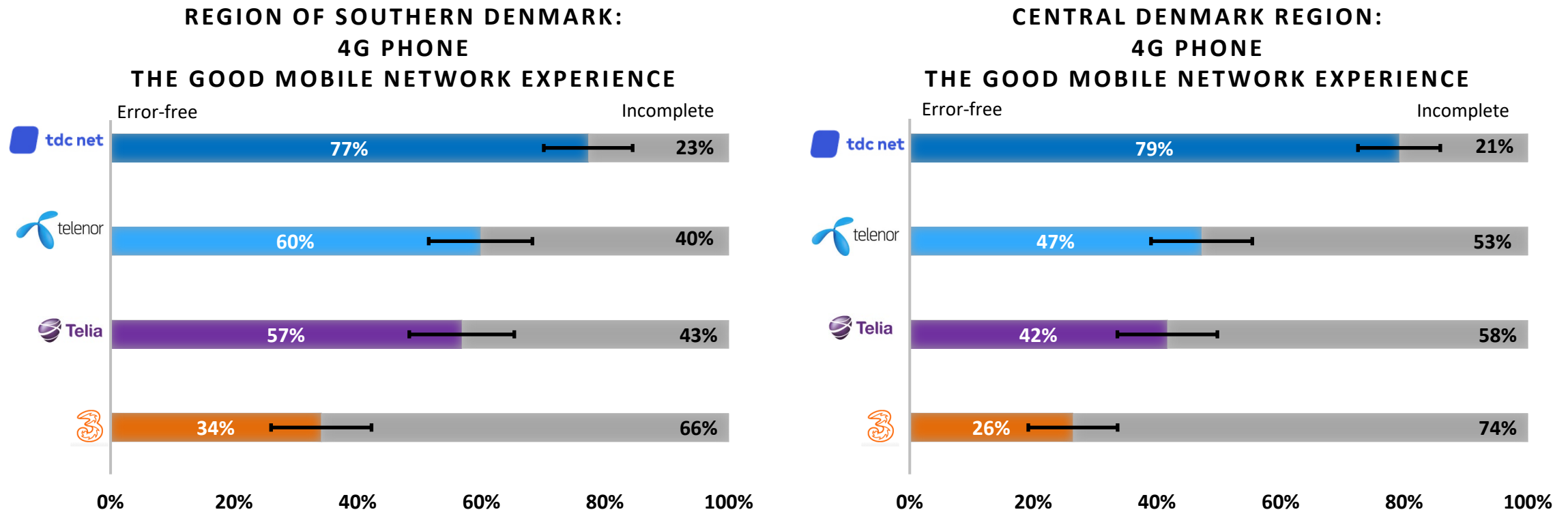
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Regional results of mobile network experience in 2021 with a 4G phone



TDC NET has a better mobile network experience* than Telenor, Telia and 3.

Telenor and Telia come in second and 3 comes in third in the Region of Southern Denmark and the Central Denmark Region.

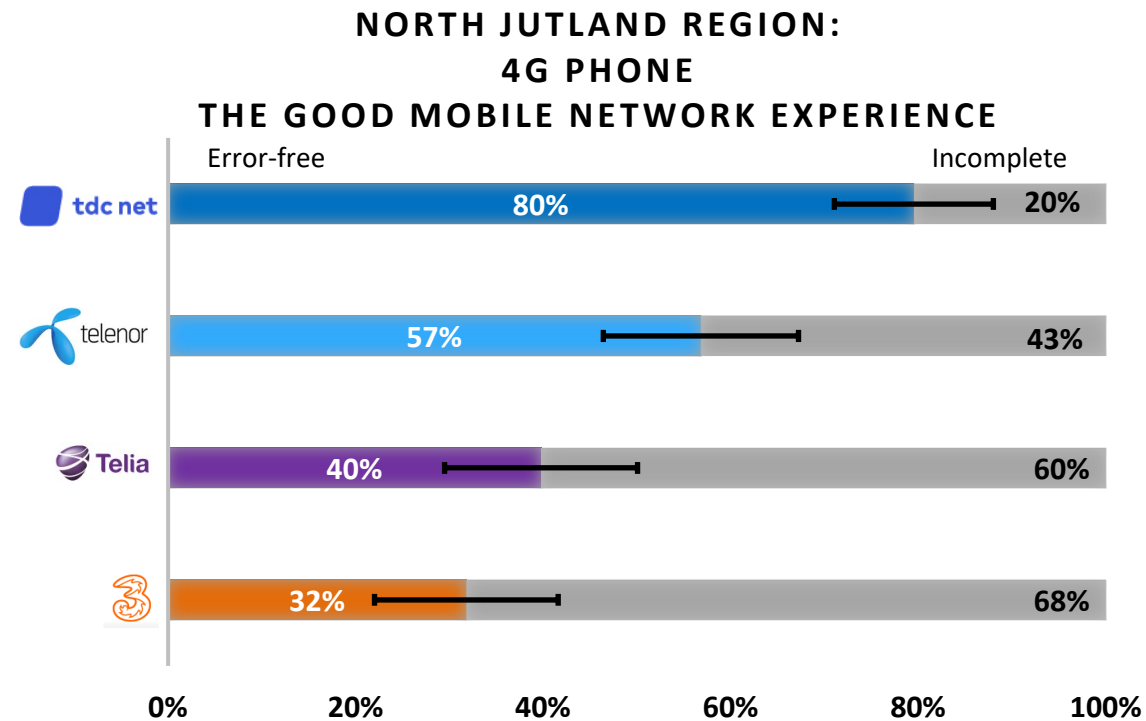


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Regional results of mobile network experience in 2021 with a 4G phone



TDC NET has a better mobile network experience* than Telenor, Telia and 3.
Telenor comes in second, and Telia comes in third in the North Jutland Region.



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A van from Danish Technological Institute at one of the randomly selected test locations – here at Vildbjerg near Herning



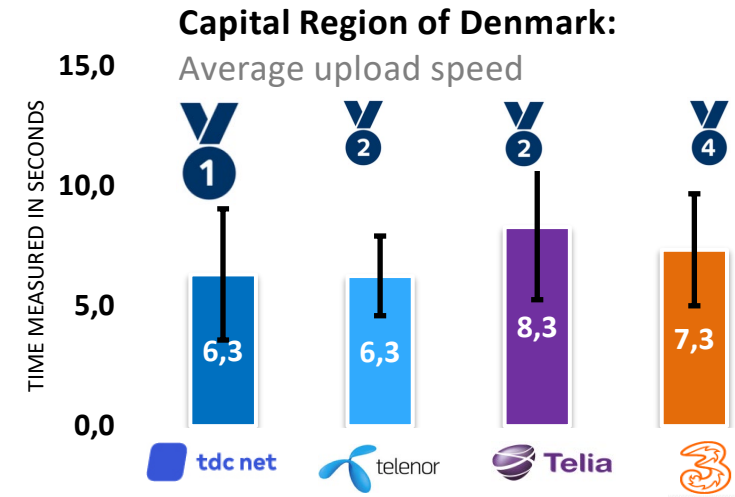
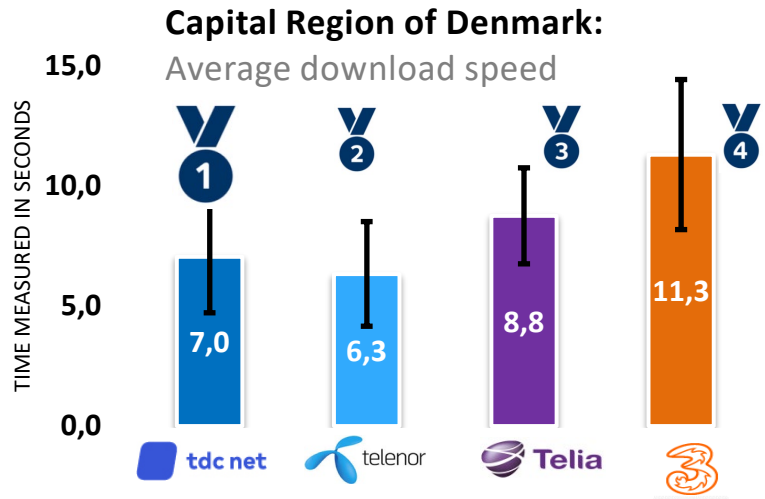
DANISH
TECHNOLOGICAL
INSTITUTE



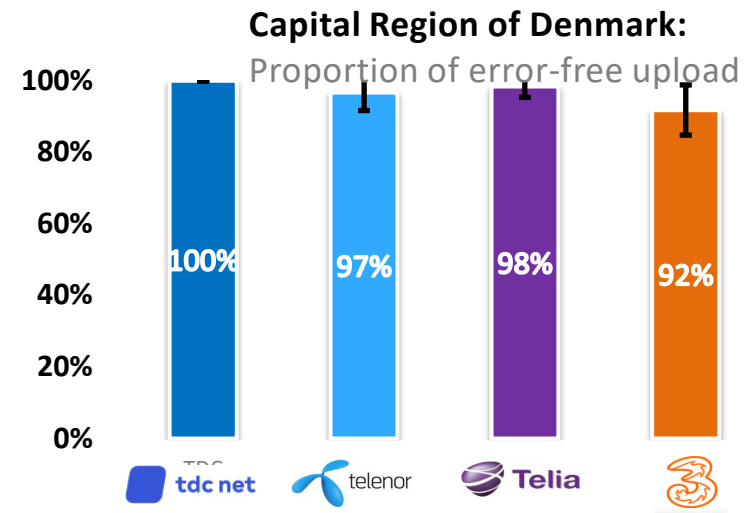
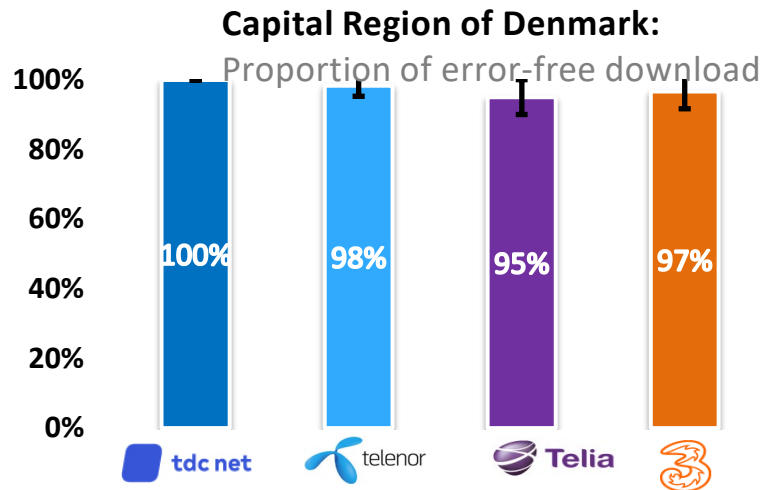
Regional results of download and upload speeds in 2021 with a 5G phone



TDC NET has the best download and upload speeds in the Capital Region of Denmark.



Medals for total assessment of average speed and error-free application

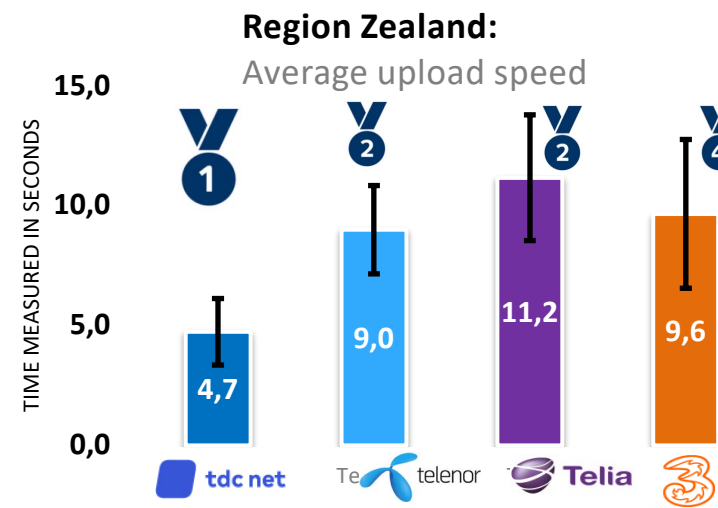
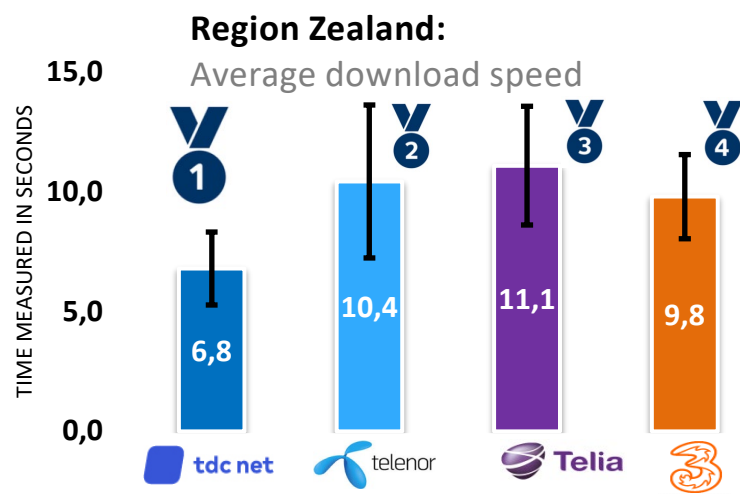


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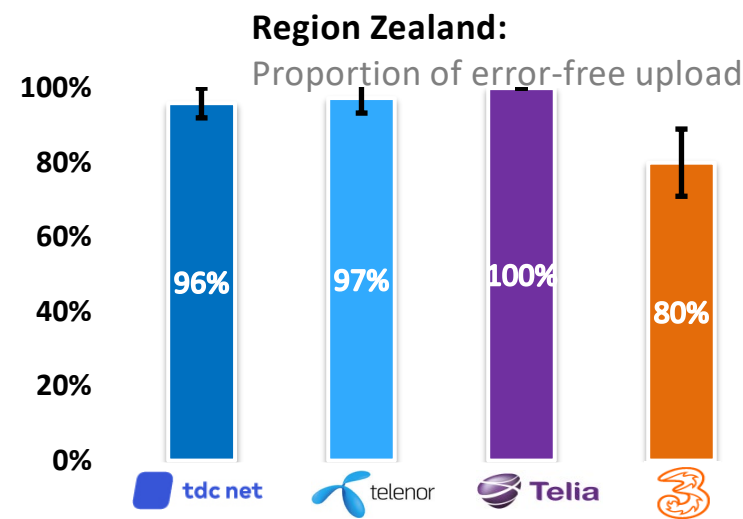
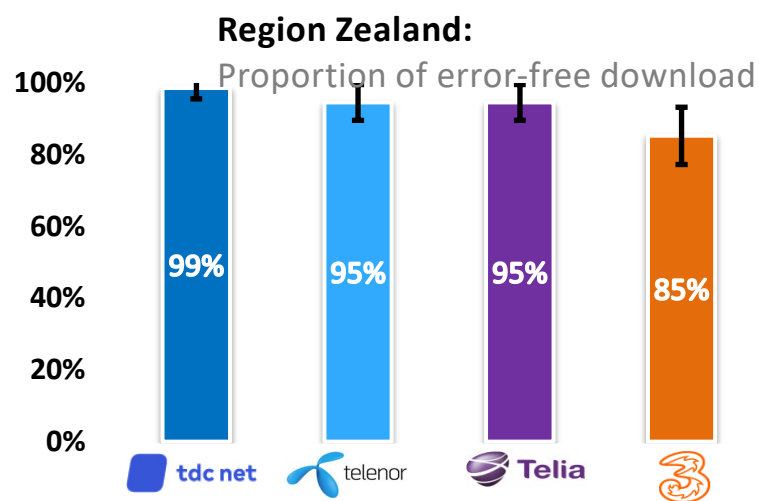
Regional results of download and upload speeds in 2021 with a 5G phone



TDC NET has significantly faster download and upload speeds in Region Zealand and more error-free download speeds.



Medals for total assessment of average speed and error-free application

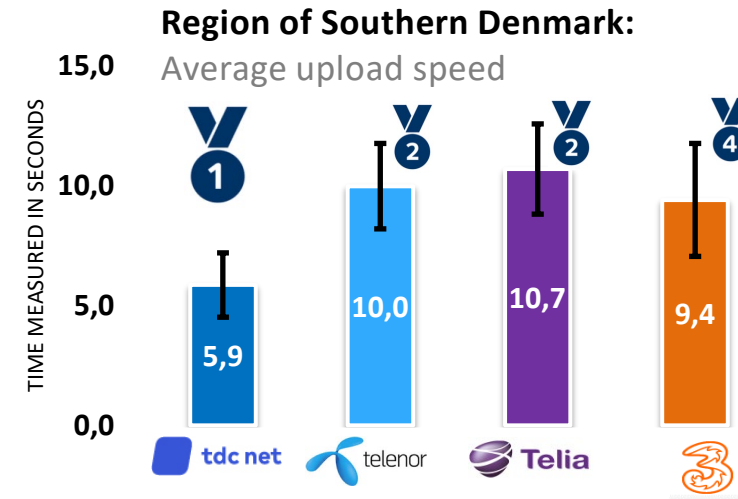
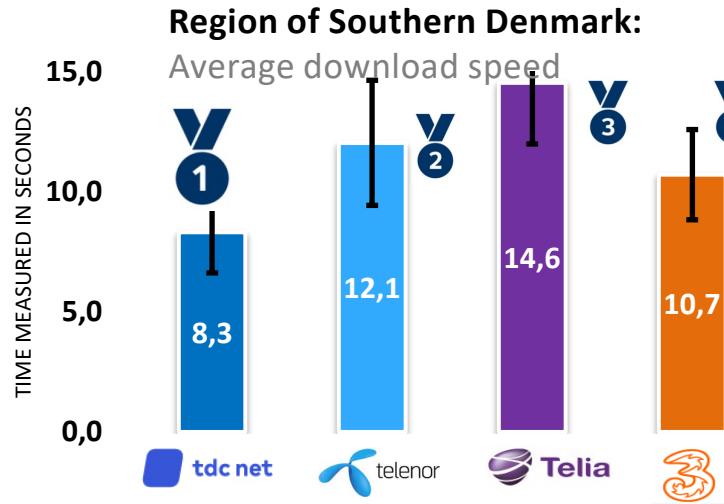


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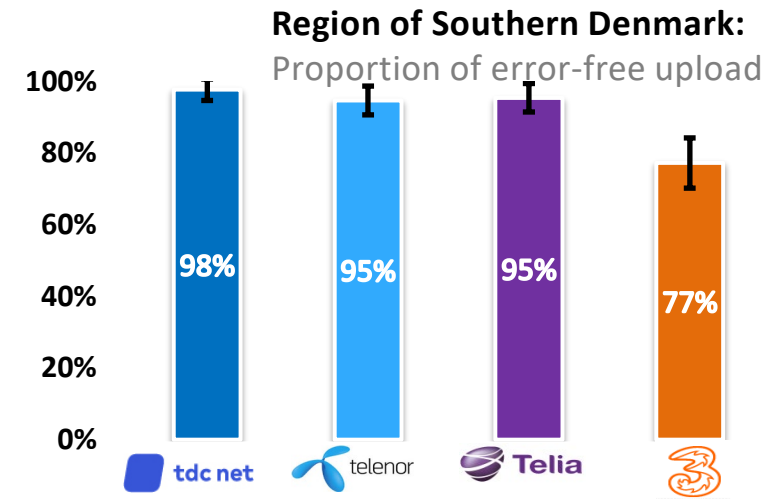
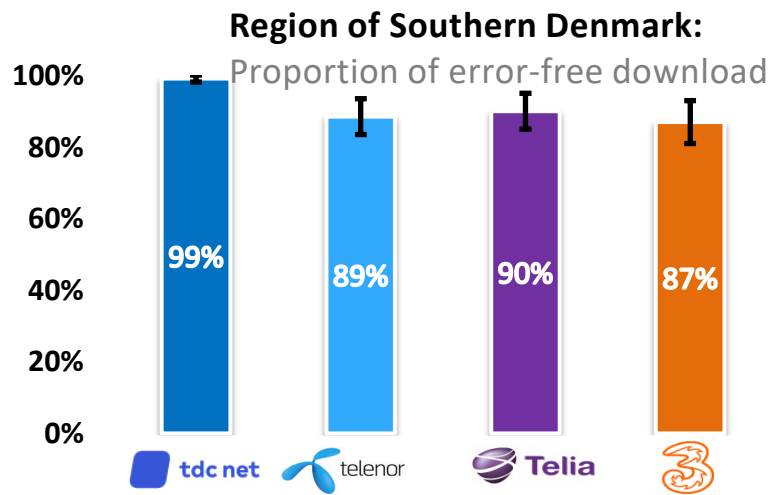
Regional results of download and upload speeds in 2021 with a 5G phone



TDC NET has faster and more error-free* download and upload speeds than Telenor, Telia and 3 in the Region of Southern Denmark.



Medals for total assessment of average speed and error-free application

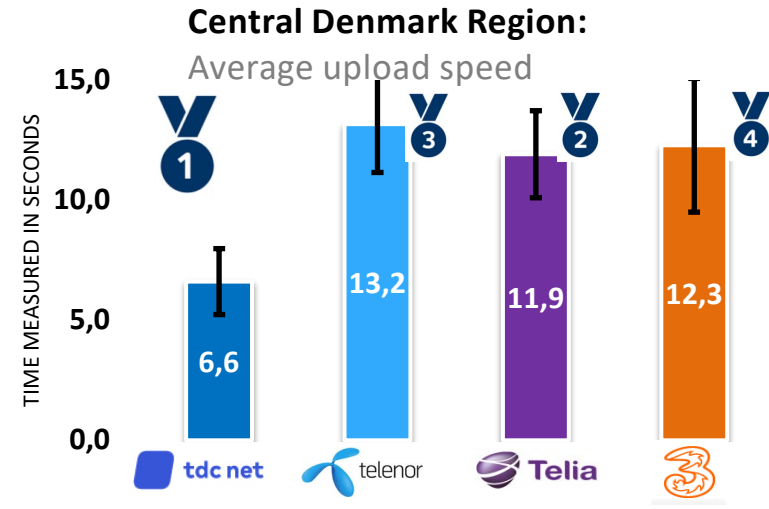
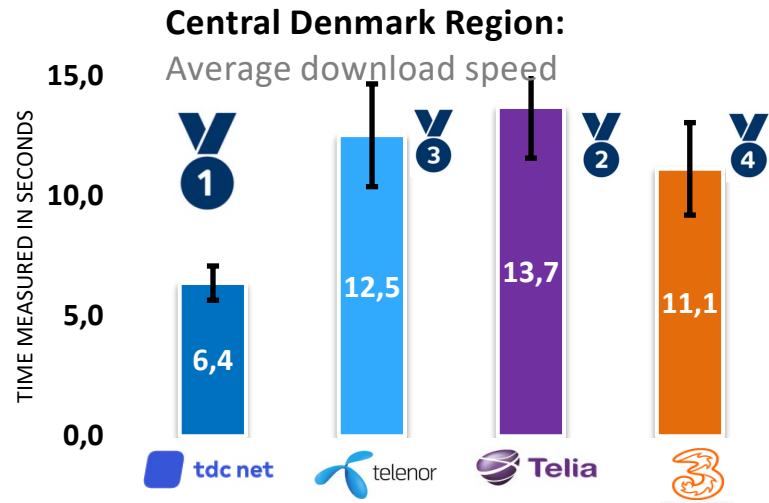


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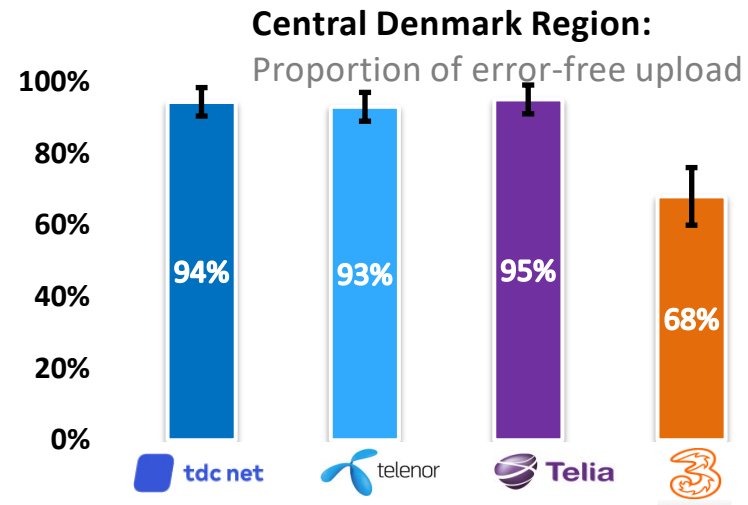
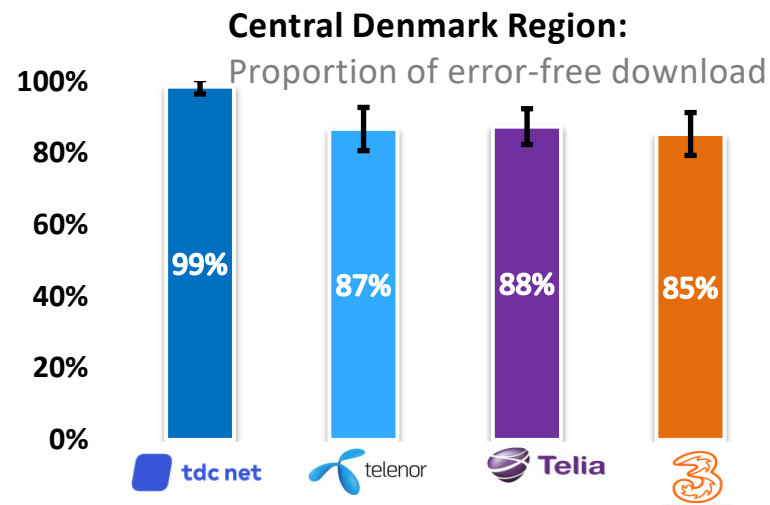
Regional results of download and upload speeds in 2021 with a 5G phone



TDC NET has significantly faster and more error-free* download and upload speeds than Telenor, Telia and 3 in the Central Denmark Region.



Medals for total assessment of average speed and error-free application

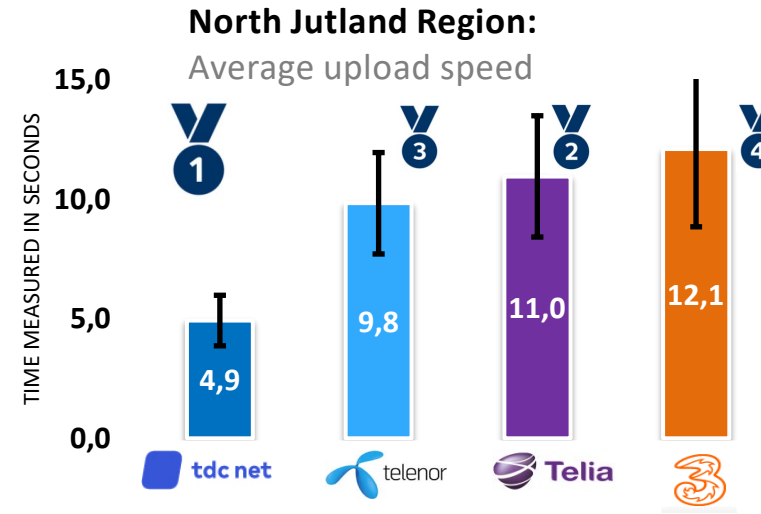
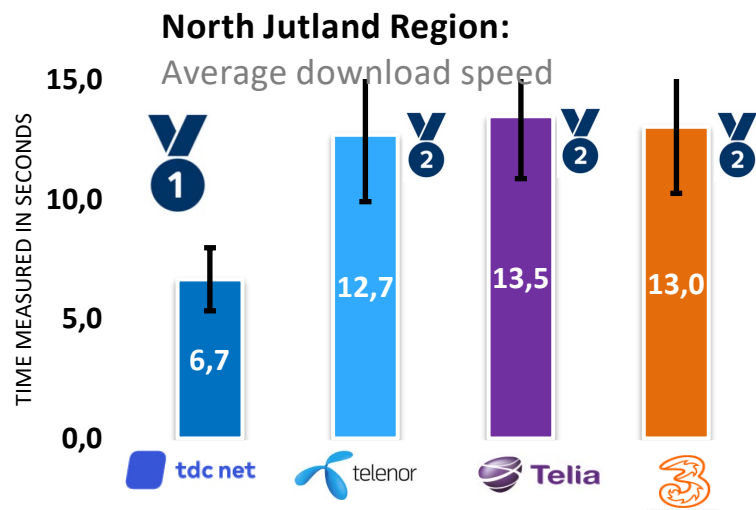


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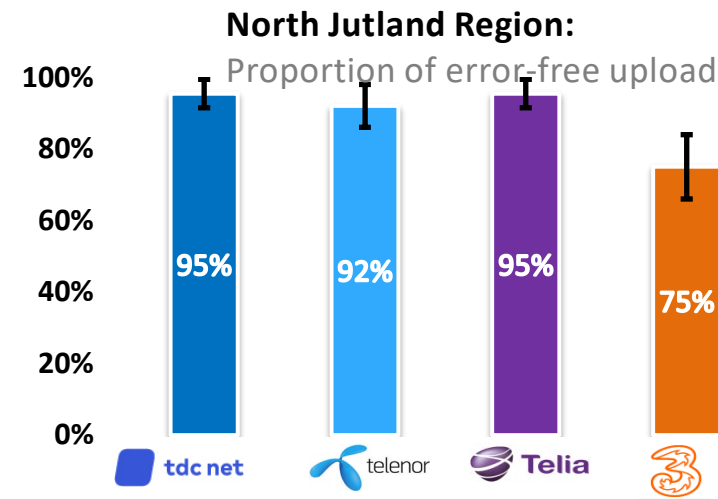
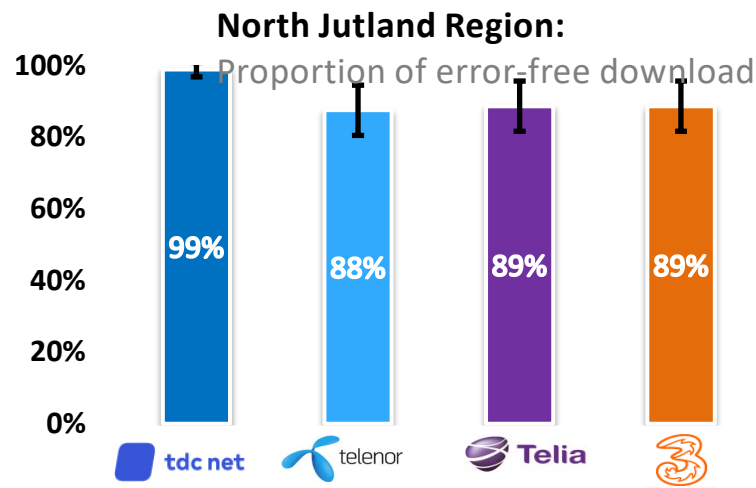
Regional results of download and upload speeds in 2021 with a 5G phone



TDC NET has significantly faster and more error-free* download and upload speeds than Telenor, Telia and 3 in the North Jutland Region.



Medals for total assessment of average speed and error-free application



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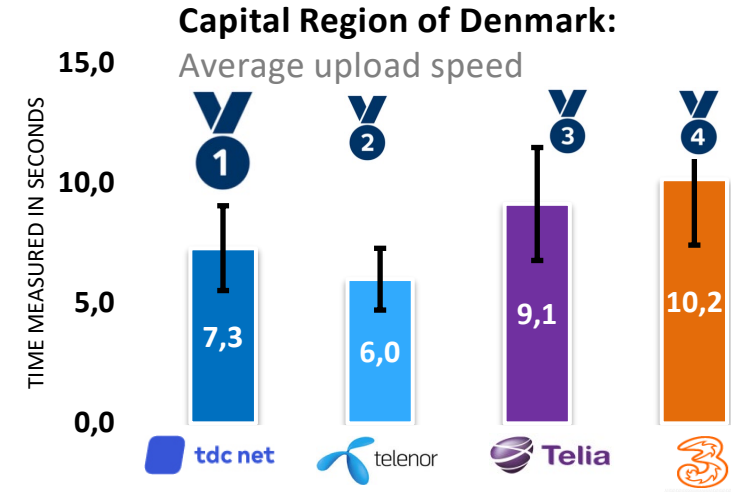
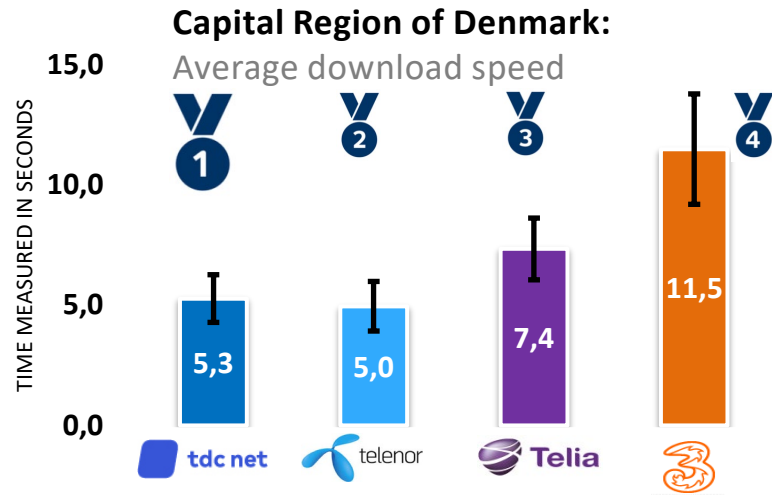


A van from Danish Technological Institute at one of the randomly selected test locations – here on Ærø near Søbygaard

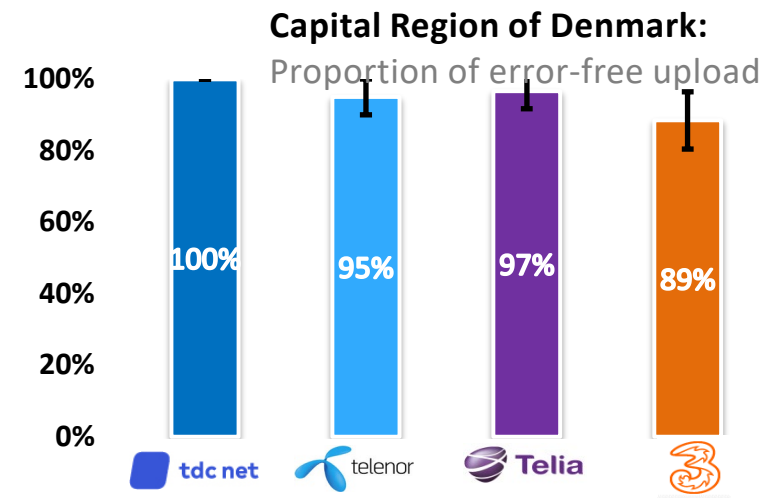
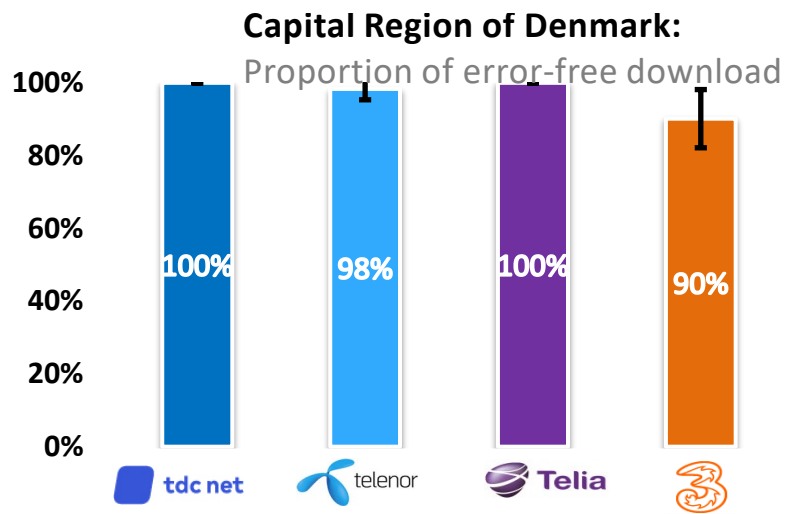
Regional results of download and upload speeds in 2021 with a 4G phone



TDC NET has the best download and upload speeds in the Capital Region of Denmark.



Medals for total assessment of average speed and error-free application

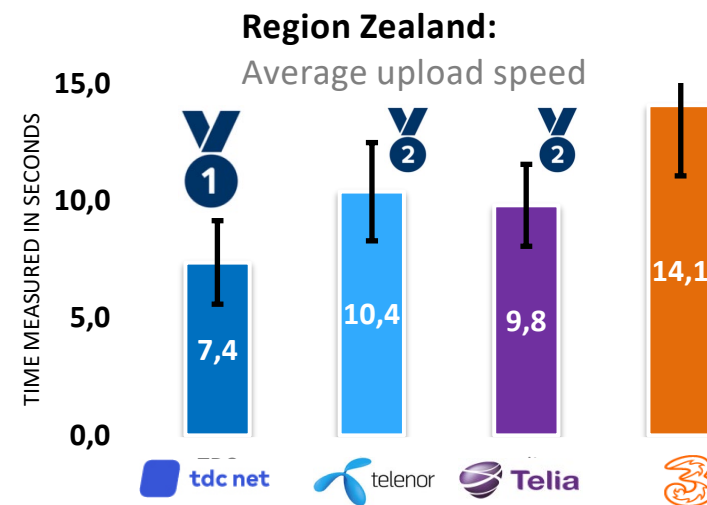
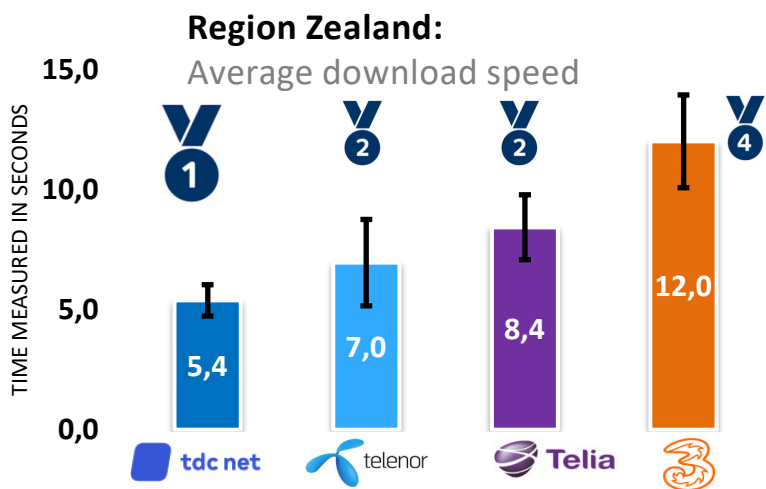


*TDC NET defined a good mobile network experience as: 30 sec. stable mobile telefon conversation - 10 MB download within 8 sec. - 10 MB upload within 15 sec. - 60 sec. YouTube video without buffering waiting time. Vertical black lines indicate at 95% statistical confidence interval.

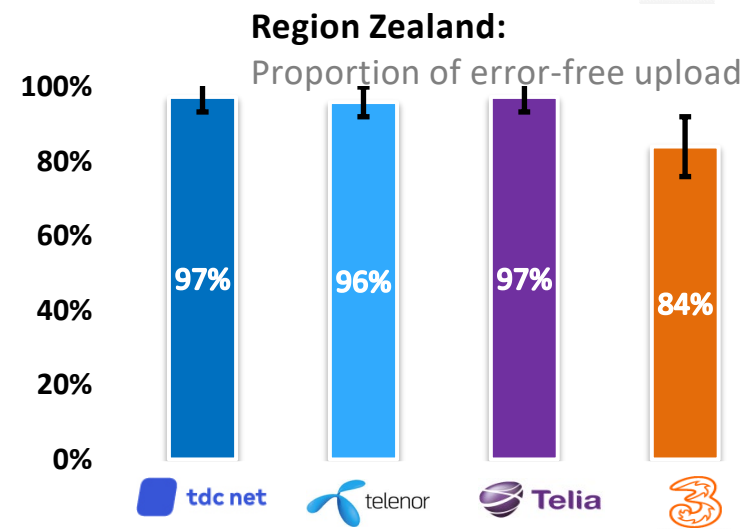
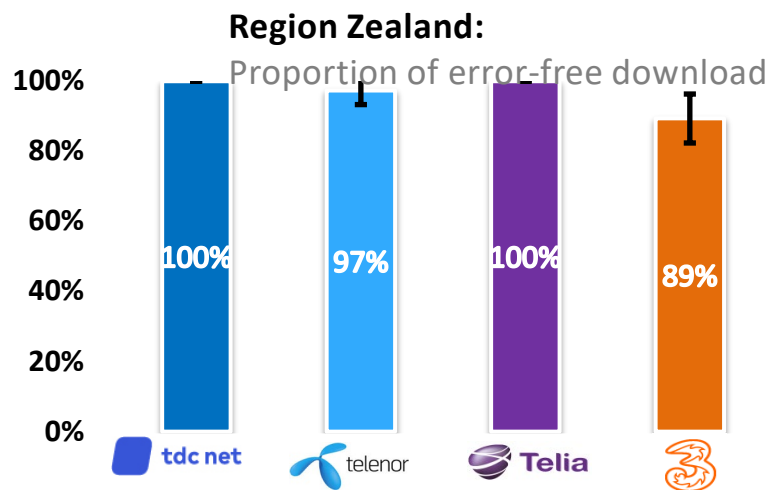
Regional results of download and upload speeds 2021 with a 4G phone



TDC NET has faster and more error-free download and upload speeds in Region Zealand. Telenor and Telia come in second.



Medals for total assessment of average speed and error-free application

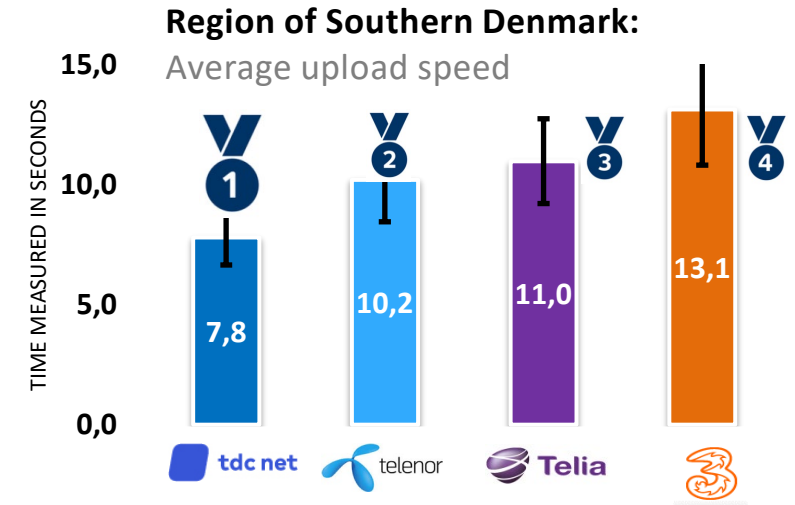
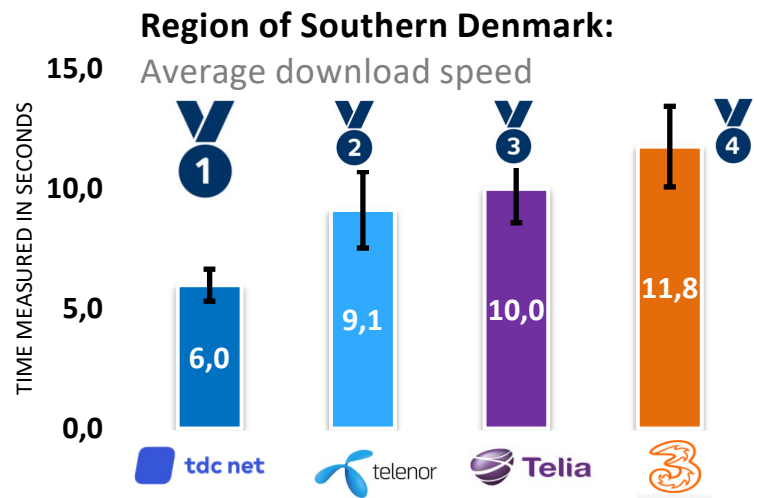


*TDC NET defined a good mobile network experience as: 30 sec. stable mobile telefon conversation - 10 MB download within 8 sec. - 10 MB upload within 15 sec. - 60 sec. YouTube video without buffering waiting time. Vertical black lines indicate at 95% statistical confidence interval.

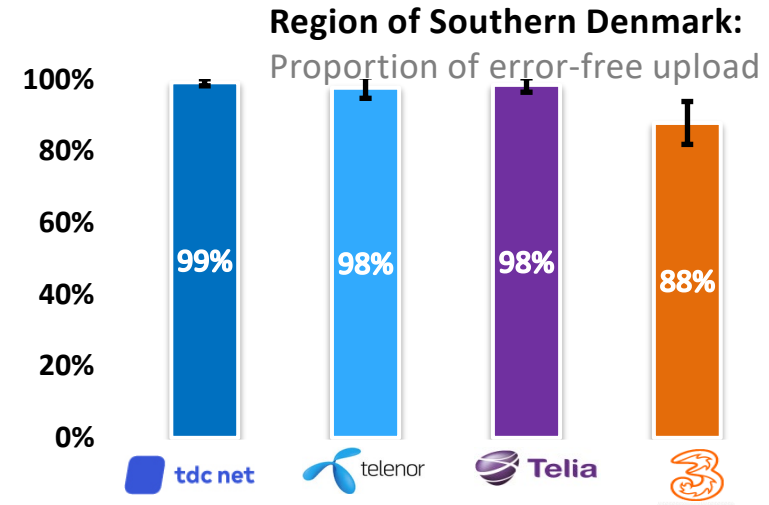
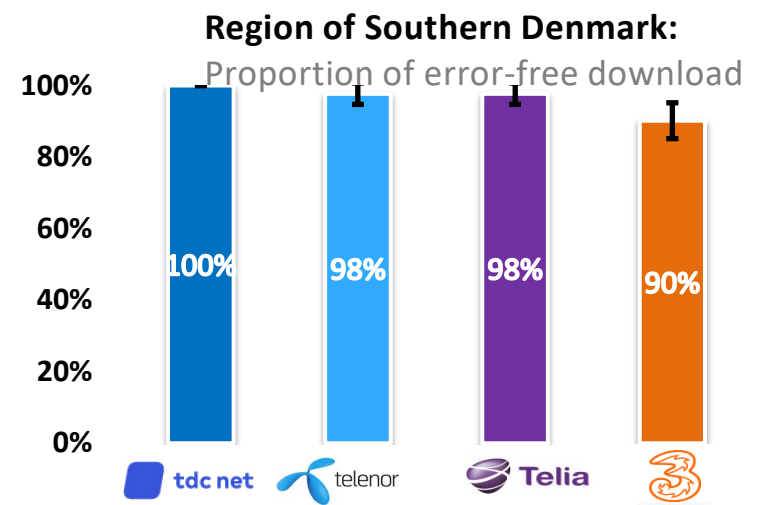
Regional results of download and upload speeds in 2021 with a 4G phone



TDC NET has faster and more error-free* download and upload speeds than Telenor, Telia and 3 in the Region of Southern Denmark. Telenor comes in second, and Telia comes in third.



Medals for total assessment of average speed and error-free application

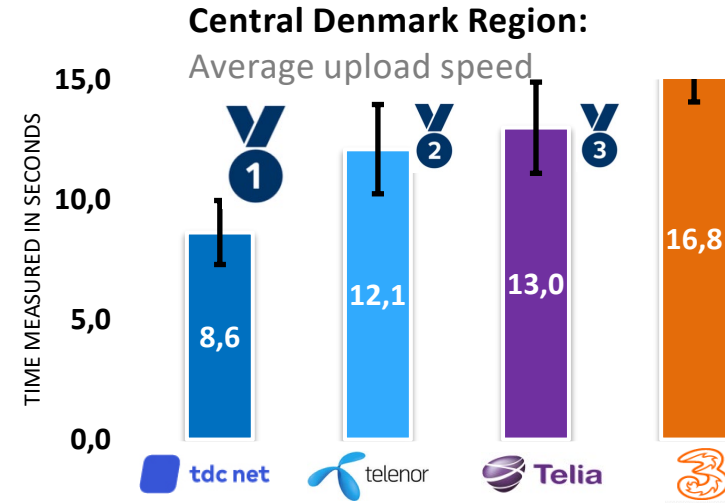
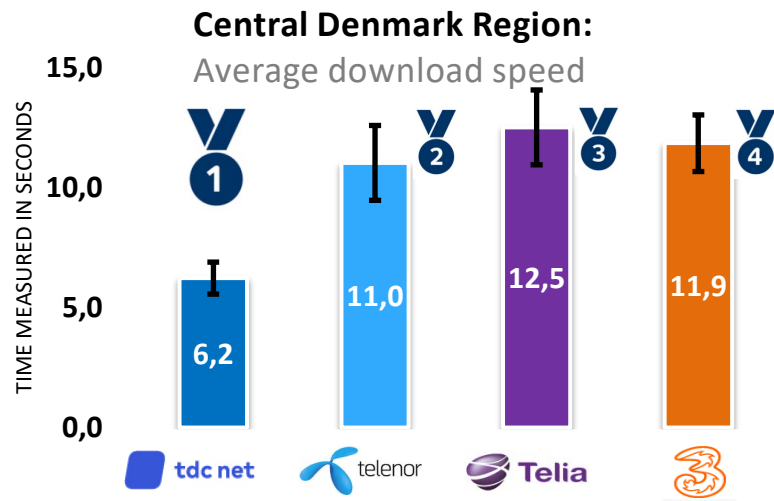


*TDC NET defined a good mobile network experience as: 30 sec. stable mobile telephone conversation - 10 MB download within 8 sec. - 10 MB upload within 15 sec. - 60 sec. YouTube video without buffering waiting time. **Vertical black lines indicate at 95% statistical confidence interval.**

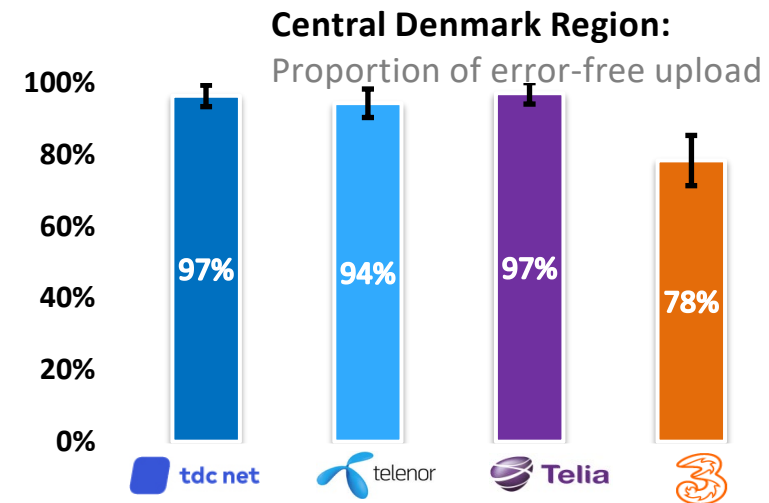
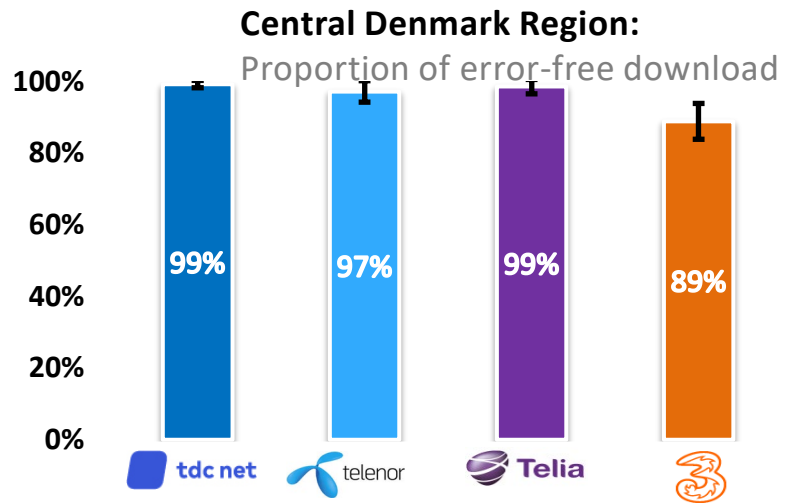
Regional results of download and upload speeds in 2021 with a 4G phone



TDC NET has significantly faster and more error-free* download and upload speeds than Telenor, Telia and 3 in the Central Denmark Region. Telenor comes in second.



Medals for total assessment of average speed and error-free application

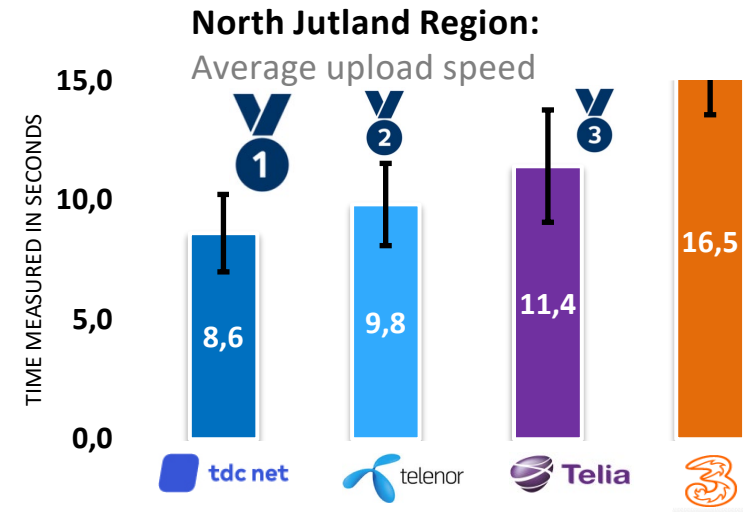
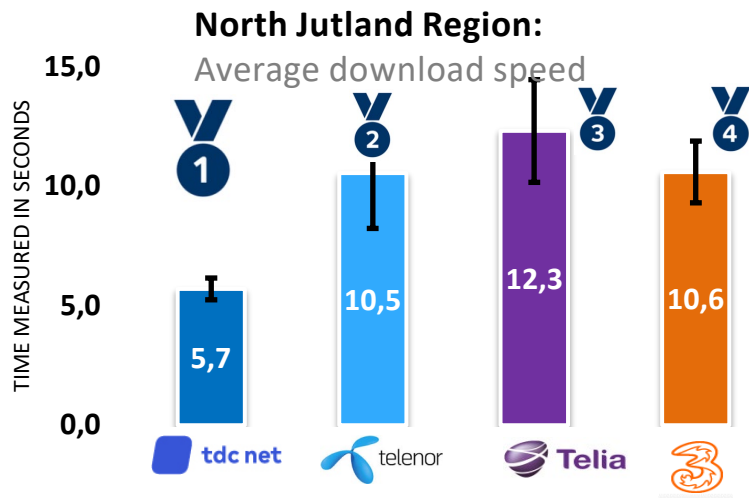


*TDC NET defined a good mobile network experience as: 30 sec. stable mobile telefon conversation - 10 MB download within 8 sec. - 10 MB upload within 15 sec. - 60 sec. YouTube video without buffering waiting time. **Vertical black lines indicate at 95% statistical confidence interval.**

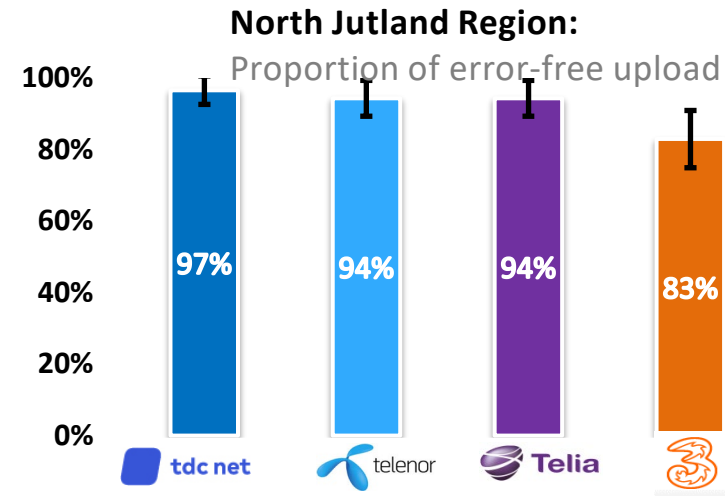
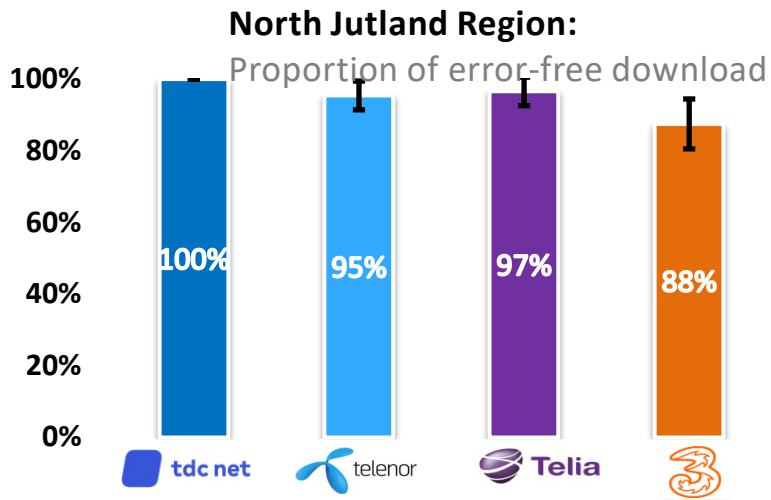
Regional results of download and upload speeds in 2021 with a 4G phone



TDC NET has faster and more error-free* download speeds than Telenor, Telia and 3 in the North Jutland Region. Telenor comes in second.



Medals for total assessment of average speed and error-free application



*TDC NET defined a good mobile network experience as: 30 sec. stable mobile telefon conversation - 10 MB download within 8 sec. - 10 MB upload within 15 sec. - 60 sec. YouTube video without buffering waiting time. **Vertical black lines indicate at 95% statistical confidence interval.**

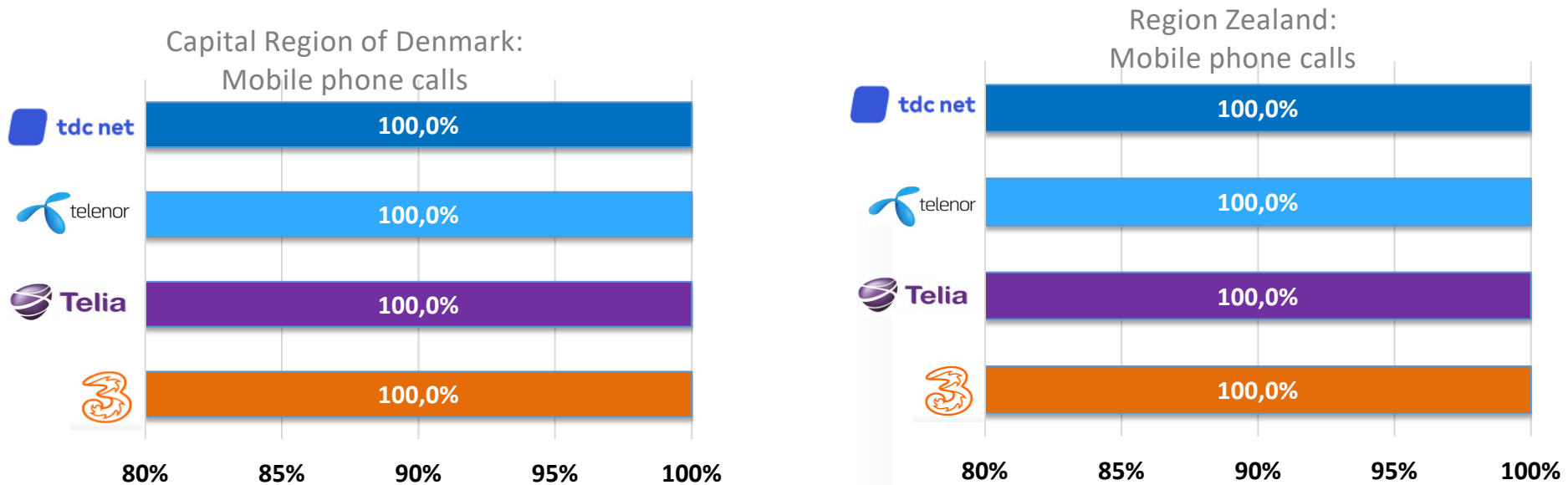
A van from Danish Technological Institute at one of the randomly selected test locations – here at Råbjerg Mile near Skagen



Regional results of ordinary mobile phone conversations in 2021 with a 5G phone



Ordinary mobile phone conversations* show no significant differences between TDC NET, Telenor, Telia and 3.

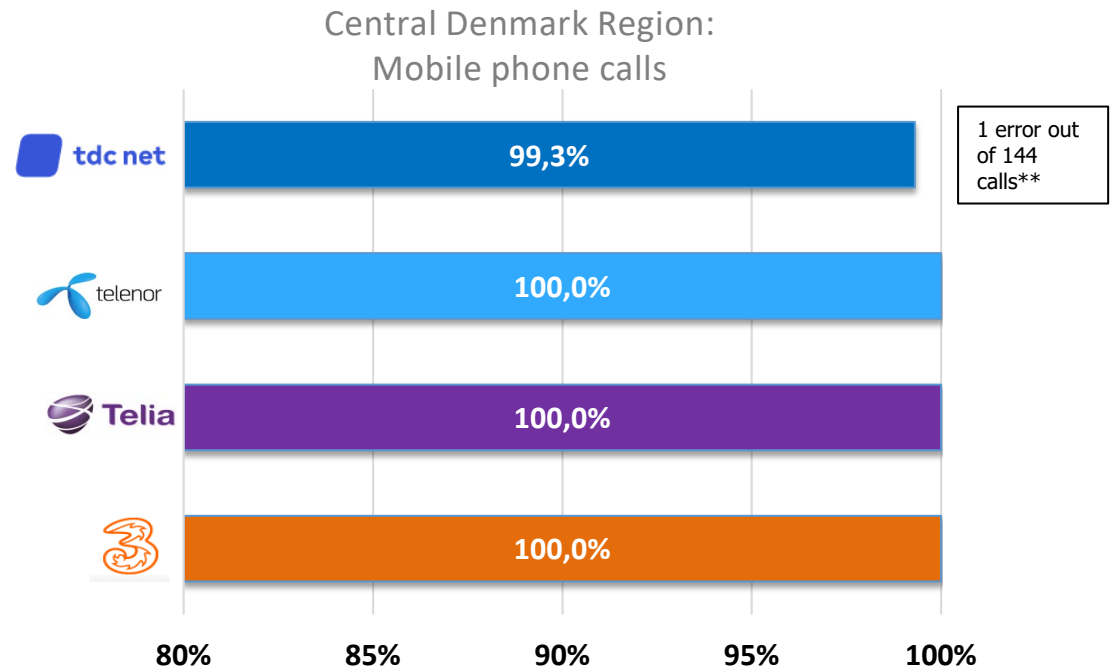
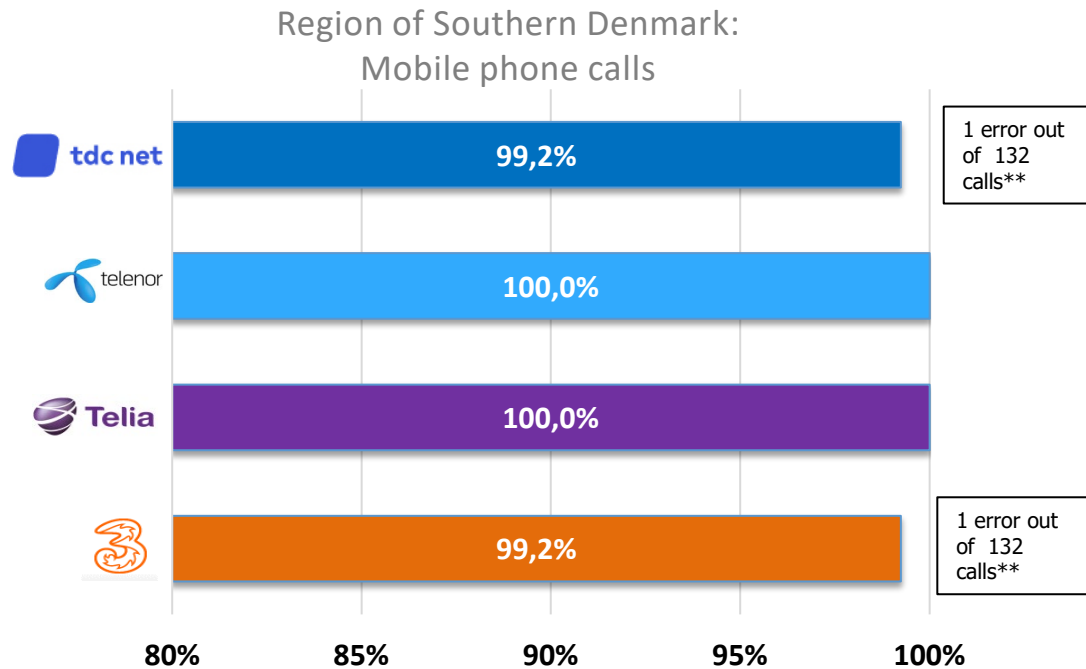


*TDC NET defined a good mobile network experience as: 30 sec. stable mobile telefon conversation - 10 MB download within 8 sec. - 10 MB upload within 15 sec. - 60 sec. YouTube video without buffering waiting time.

Regional results of ordinary mobile phone conversations in 2021 with a 5G phone



Ordinary mobile phone conversations* show no significant differences between TDC NET, Telenor, Telia and 3.



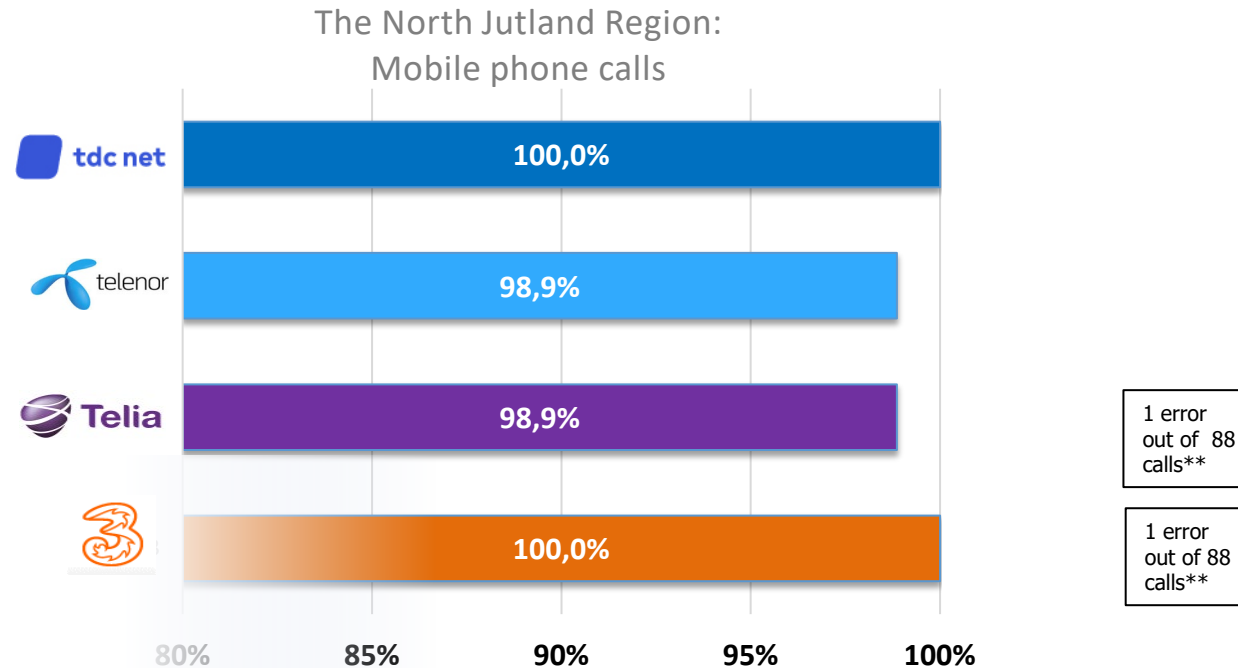
*TDC NET defined a good mobile network experience as: 30 sec. stable mobile telephon conversation - 10 MB download within 8 sec. - 10 MB upload within 15 sec. - 60 sec. YouTube video without buffering waiting time.

**In case of failure, one redial is made. If redial is successful, then the phone call is approved.

Regional results of ordinary mobile phone conversations in 2021 with a 5G phone



Ordinary mobile phone conversations* show no significant differences between TDC NET, Telenor, Telia and 3.



*TDC NET defined a good mobile network experience as: 30 sec. stable mobile telefon conversation – 10 MB download within 8 sec. - 10 MB upload within 15 sec. - 60 sec. YouTube video without buffering waiting time.

**In case of failure, one redial is made. If redial is successful, then the phone call is approved.

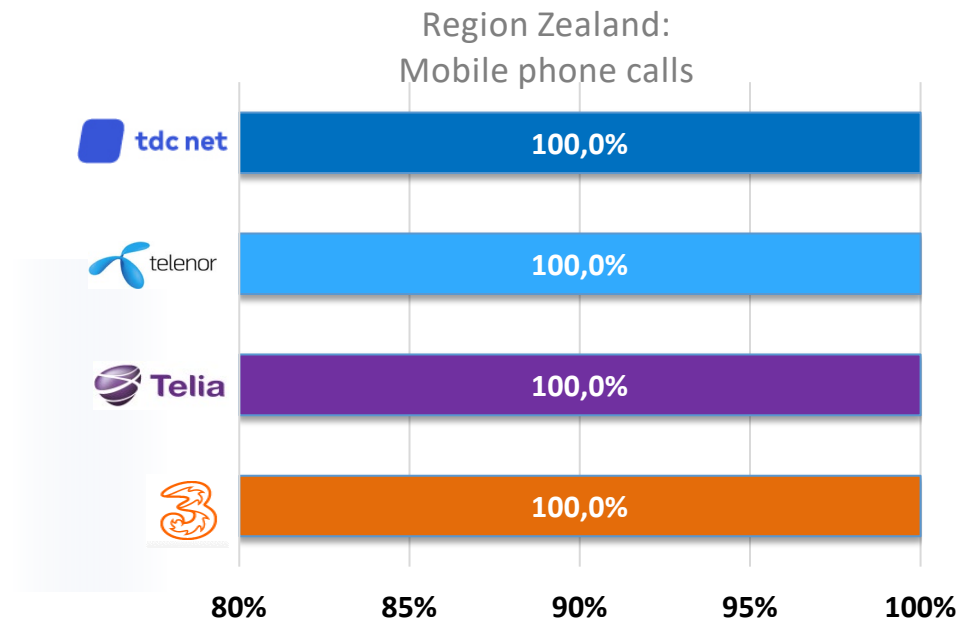
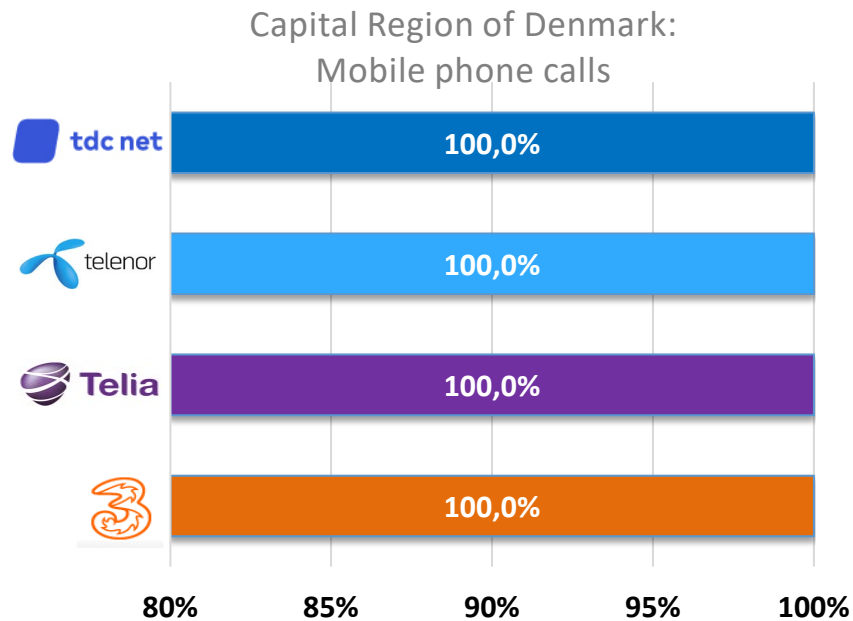


A van from Danish Technological Institute at one of the randomly selected test locations – here at Bamsebo Camping east of Bjerringbro

Regional results of ordinary mobile phone conversations in 2021 with a 4G phone



Ordinary mobile phone conversations* show no significant differences between TDC NET, Telenor, Telia and 3.

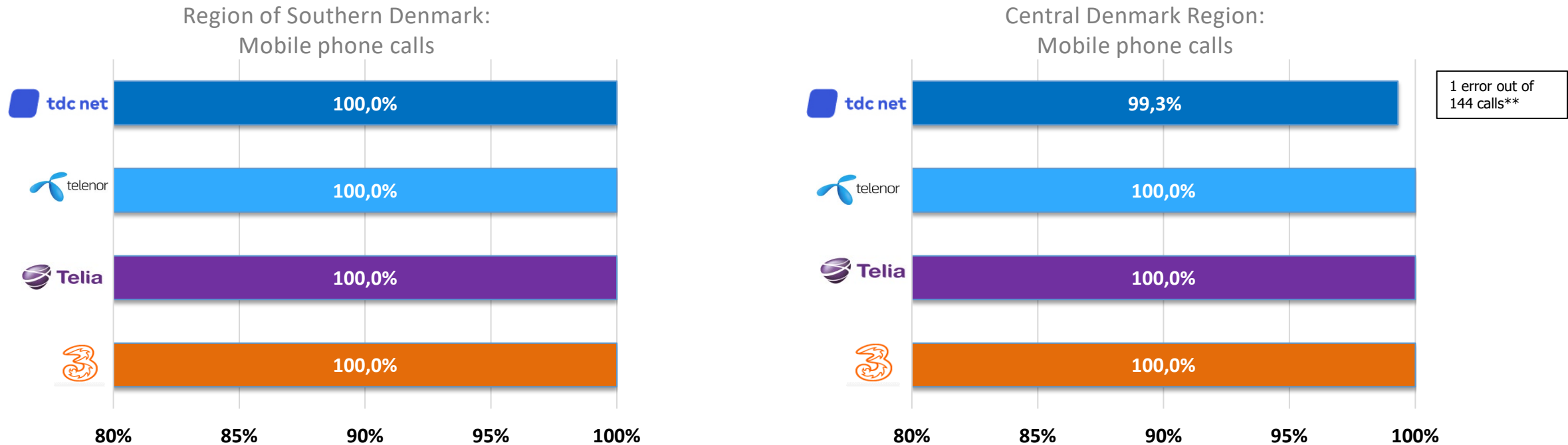


*TDC NET defined a good mobile network experience as: 30 sec. stable mobile telefon conversation - 10 MB download within 8 sec. - 10 MB upload within 15 sec. - 60 sec. YouTube video without buffering waiting time.

Regional results of ordinary mobile phone conversations in 2021 with a 4G phone



Ordinary mobile phone conversations* show no significant differences between TDC NET, Telenor, Telia and 3.



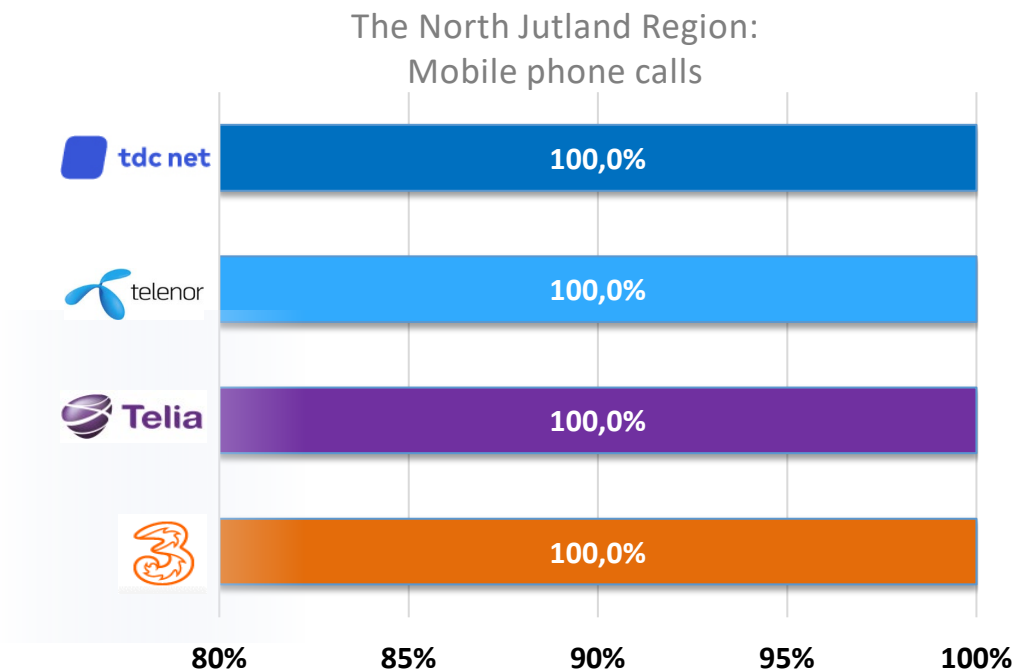
*TDC NET defined a good mobile network experience as: 30 sec. stable mobile telephon conversation - 10 MB download within 8 sec. - 10 MB upload within 15 sec. - 60 sec. YouTube video without buffering waiting time.

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Regional results of ordinary mobile phone conversations in 2021 with a 4G phone

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**In case of failure, one redial is made. If redial is successful, then the phone call is approved.

A van from Danish Technological Institute at one of the randomly selected test locations – here at Tårs in North Jutland

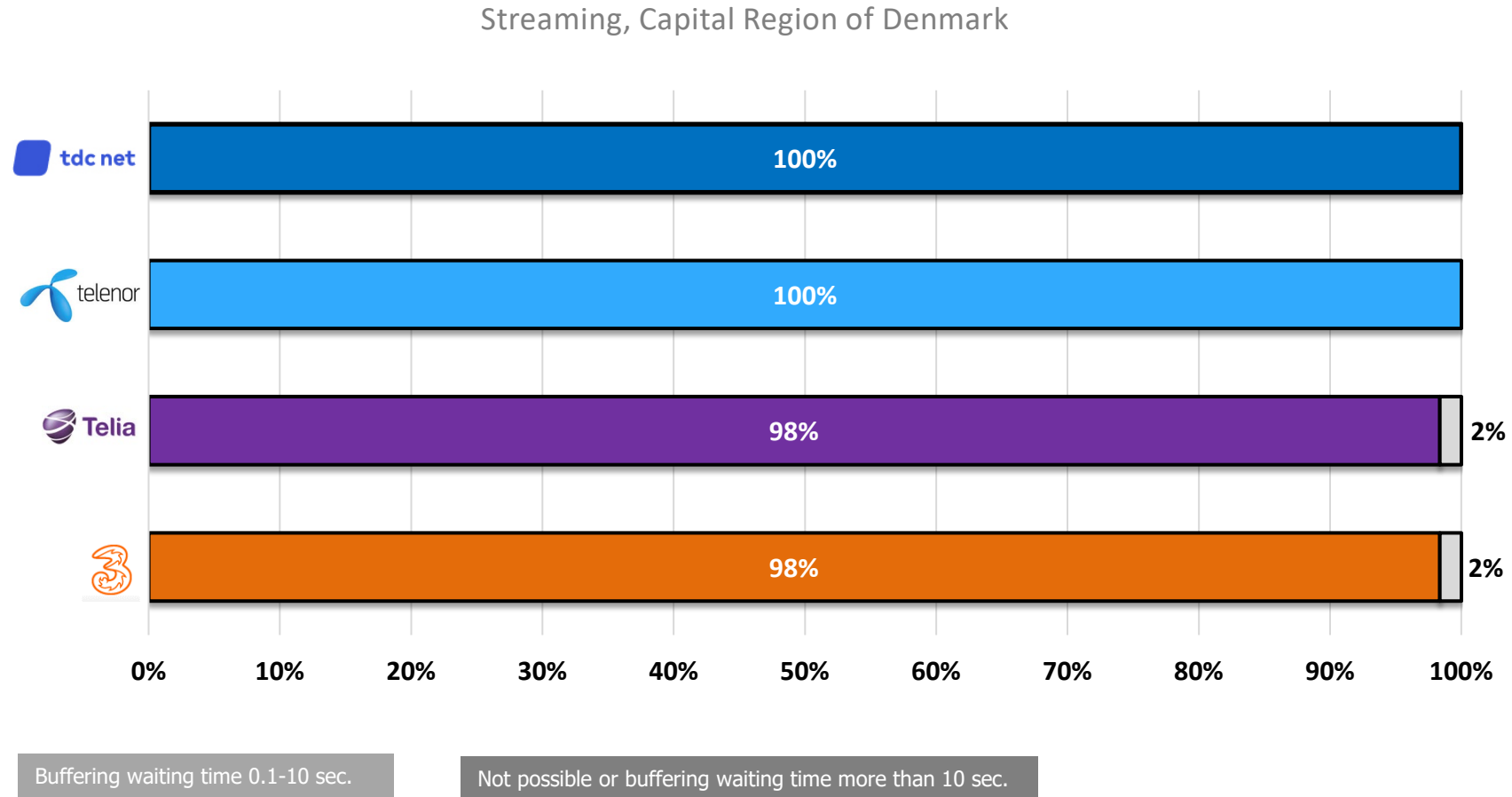


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Regional results of video streaming in 2021 with a 5G phone

No significant difference in video streaming in the Capital Region of Denmark.

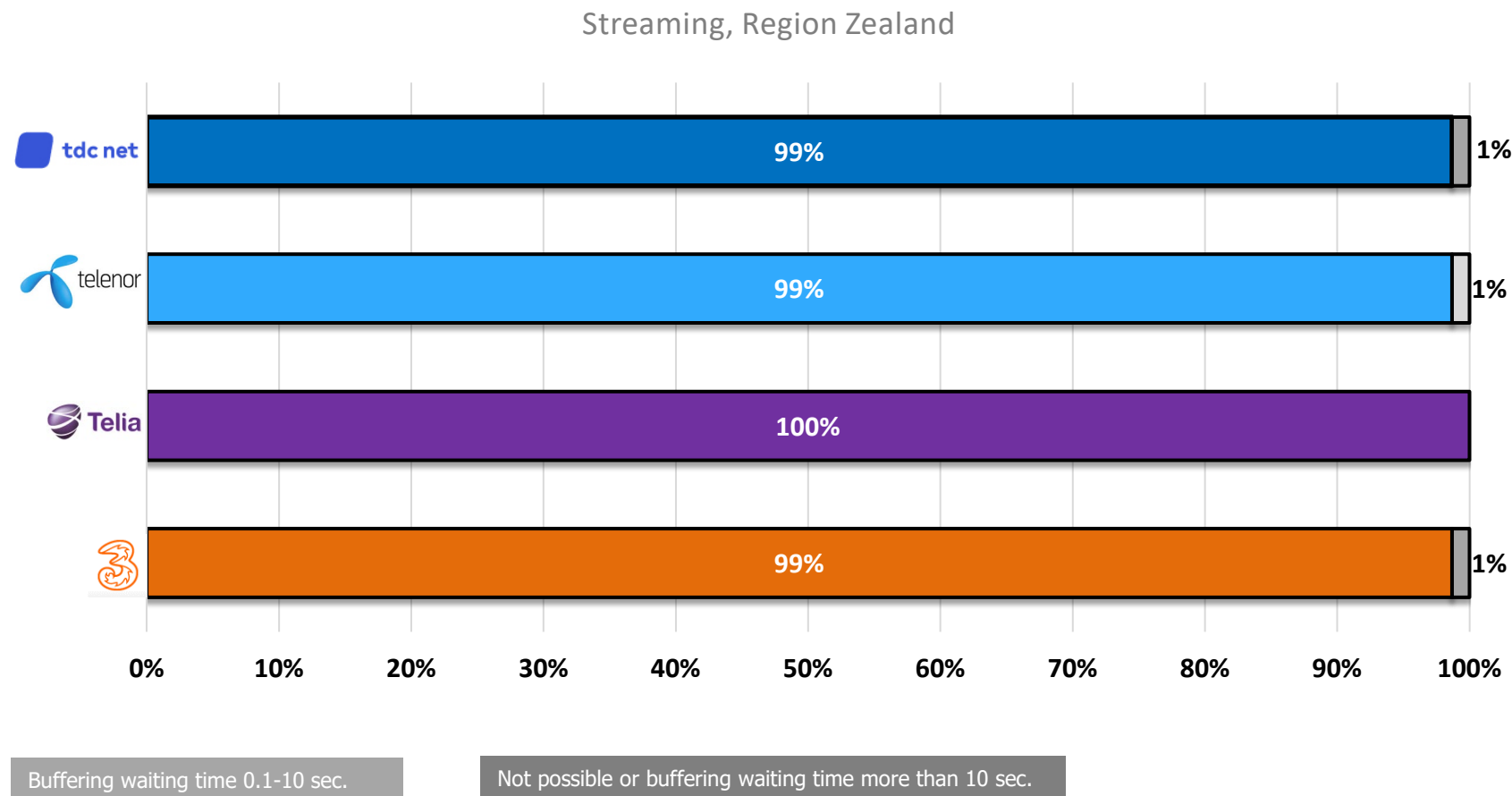


*TDC NET defined a good mobile network experience as: 30 sec. stable mobile telefon conversation - 10 MB download within 8 sec. - 10 MB upload within 15 sec. - 60 sec. YouTube video without buffering waiting time.



Regional results of video streaming in 2021 with a 5G phone

No significant difference in video streaming in Region Zealand.

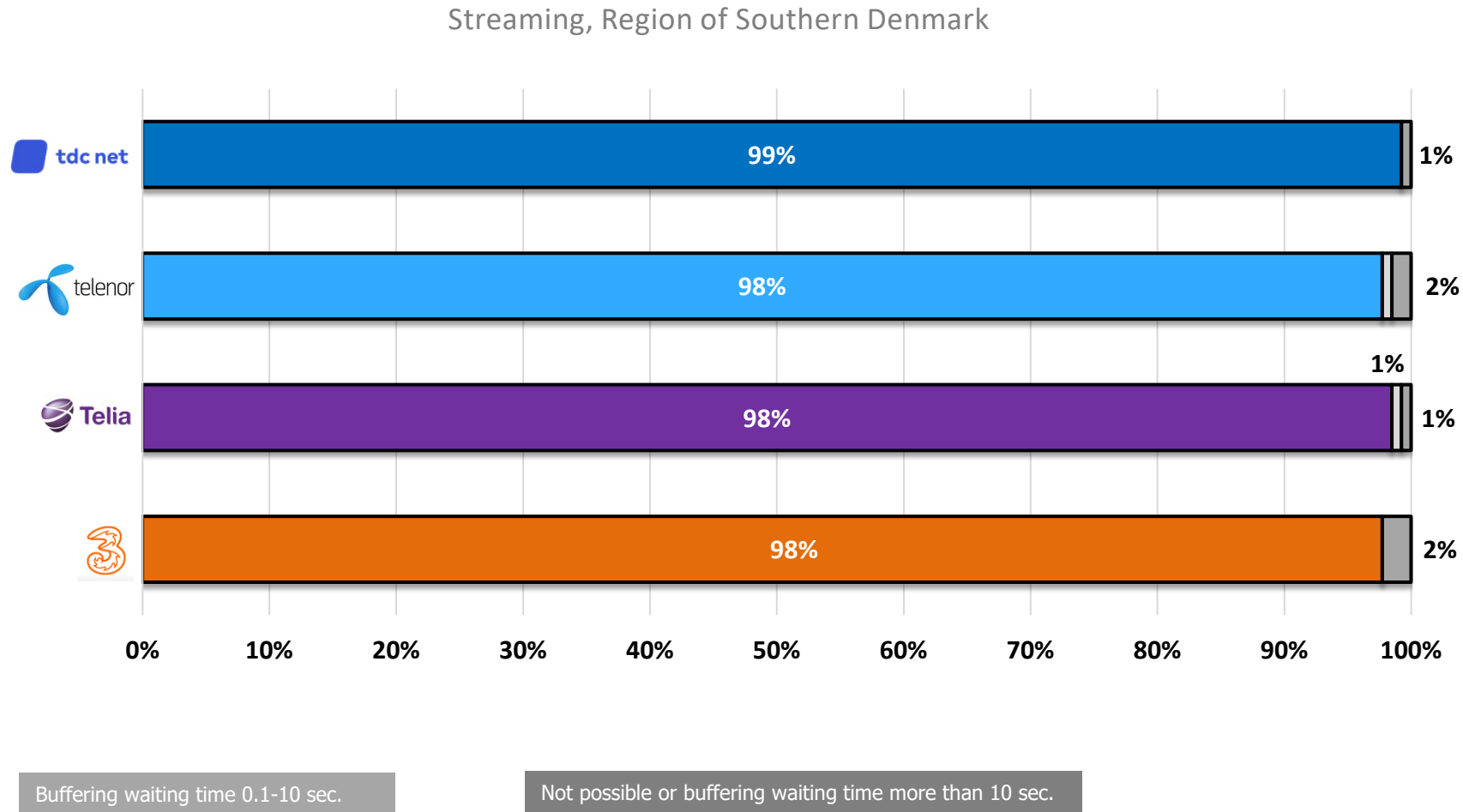


*TDC NET defined a good mobile network experience as: 30 sec. stable mobile telephon conversation - 10 MB download within 8 sec. - 10 MB upload within 15 sec. - 60 sec. YouTube video without buffering waiting time.

Regional results of video streaming in 2021 with a 5G phone



No significant difference in video streaming in the Region of Southern Denmark.

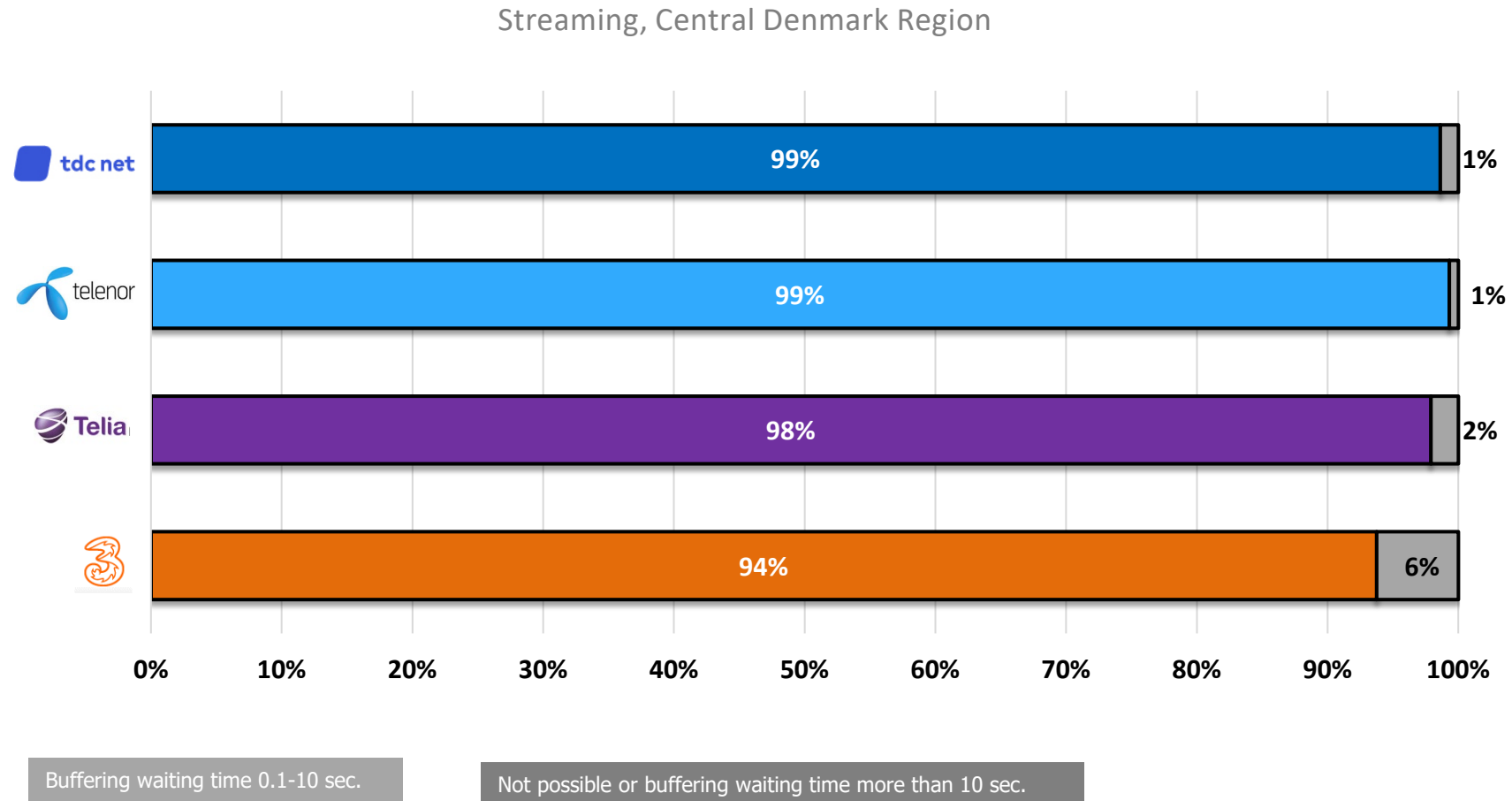


*TDC NET defined a good mobile network experience as: 30 sec. stable mobile telefon conversation - 10 MB download within 8 sec. - 10 MB upload within 15 sec. - 60 sec. YouTube video without buffering waiting time.

Regional results of video streaming in 2021 with a 5G phone



No significant difference between TDC NET, Telenor and Telia in video streaming in Central Denmark Region. 3 is a bit lower.

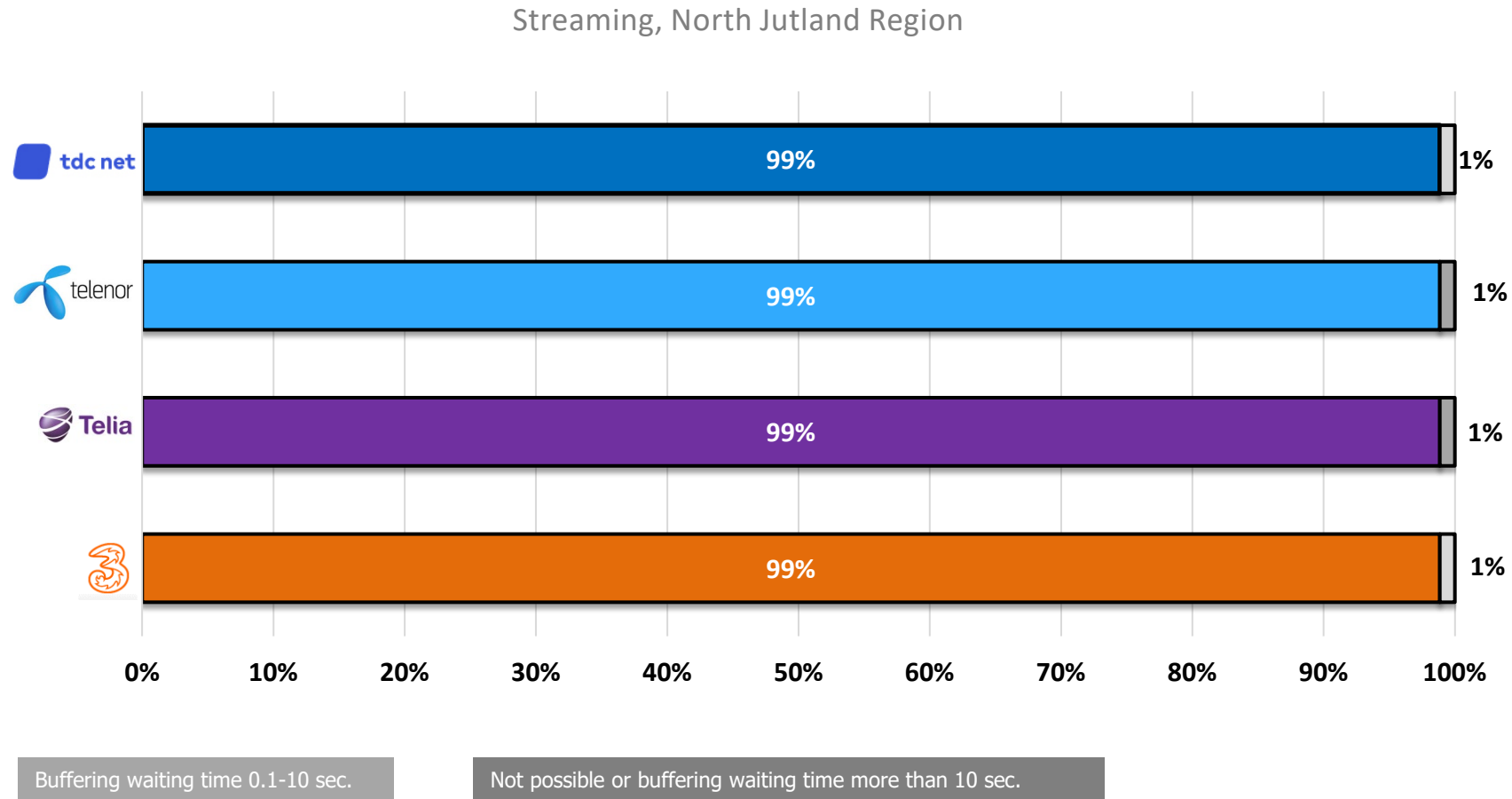


*TDC NET defined a good mobile network experience as: 30 sec. stable mobile telephon conversation - 10 MB download within 8 sec. - 10 MB upload within 15 sec. - 60 sec. YouTube video without buffering waiting time.

Regional results of video streaming in 2021 with a 5G phone



No significant difference in video streaming in the North Jutland Region.



*TDC NET defined a good mobile network experience as: 30 sec. stable mobile telefon conversation - 10 MB download within 8 sec. - 10 MB upload within 15 sec. - 60 sec. YouTube video without buffering waiting time.

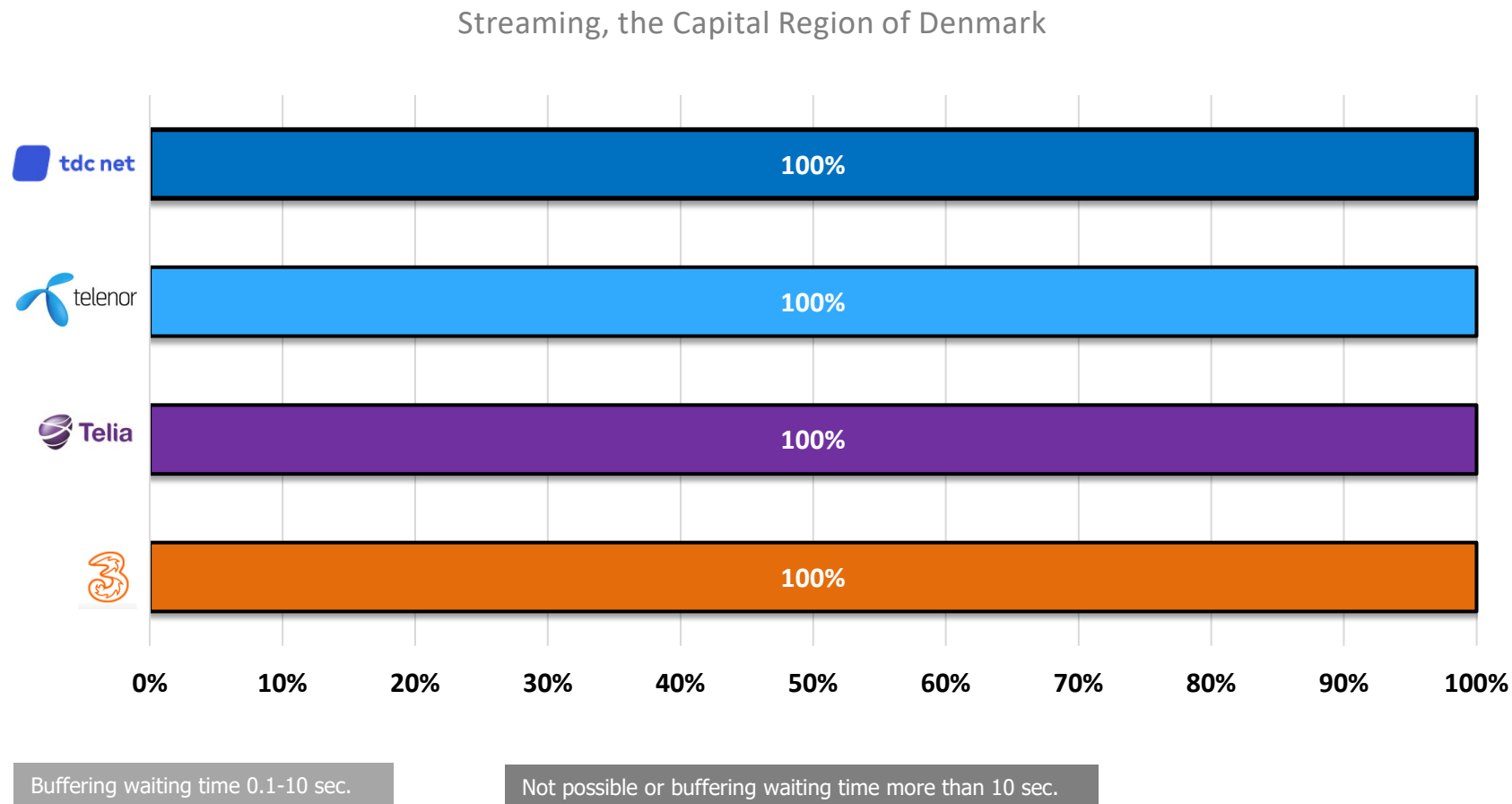
A van from Danish Technological Institute at one of the randomly selected test locations – here at Aggersund and Løgstør



Regional results of video streaming in 2021 with a 4G phone



No difference in video streaming in the Capital Region of Denmark.

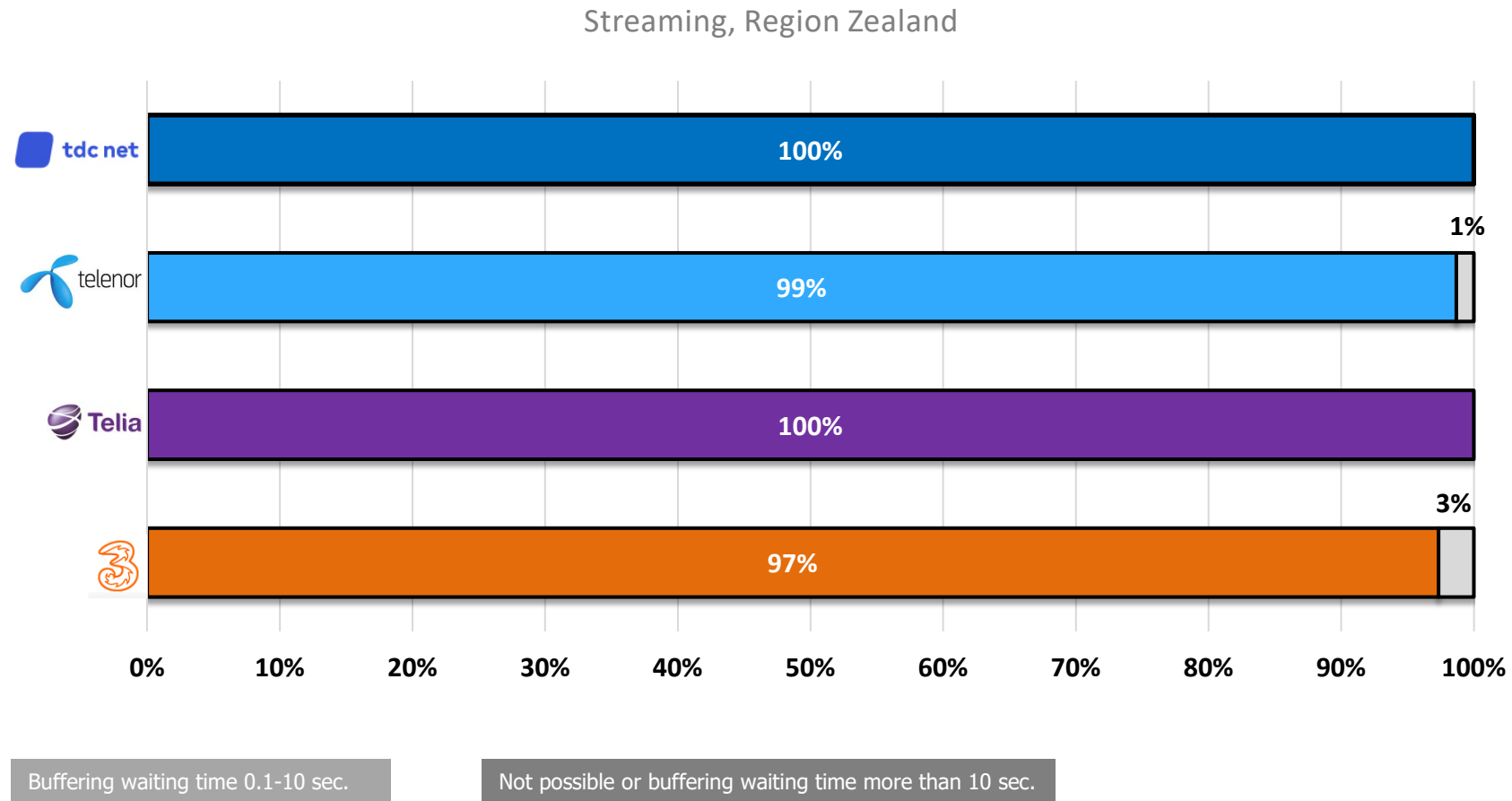


*TDC NET defined a good mobile network experience as: 30 sec. stable mobile telefon conversation - 10 MB download within 8 sec. - 10 MB upload within 15 sec. - 60 sec. YouTube video without buffering waiting time.

Regional results of video streaming in 2021 with a 4G phone



No significant difference in video streaming between TDC NET, Telenor and Telia in Region Zealand. 3 is a bit lower.

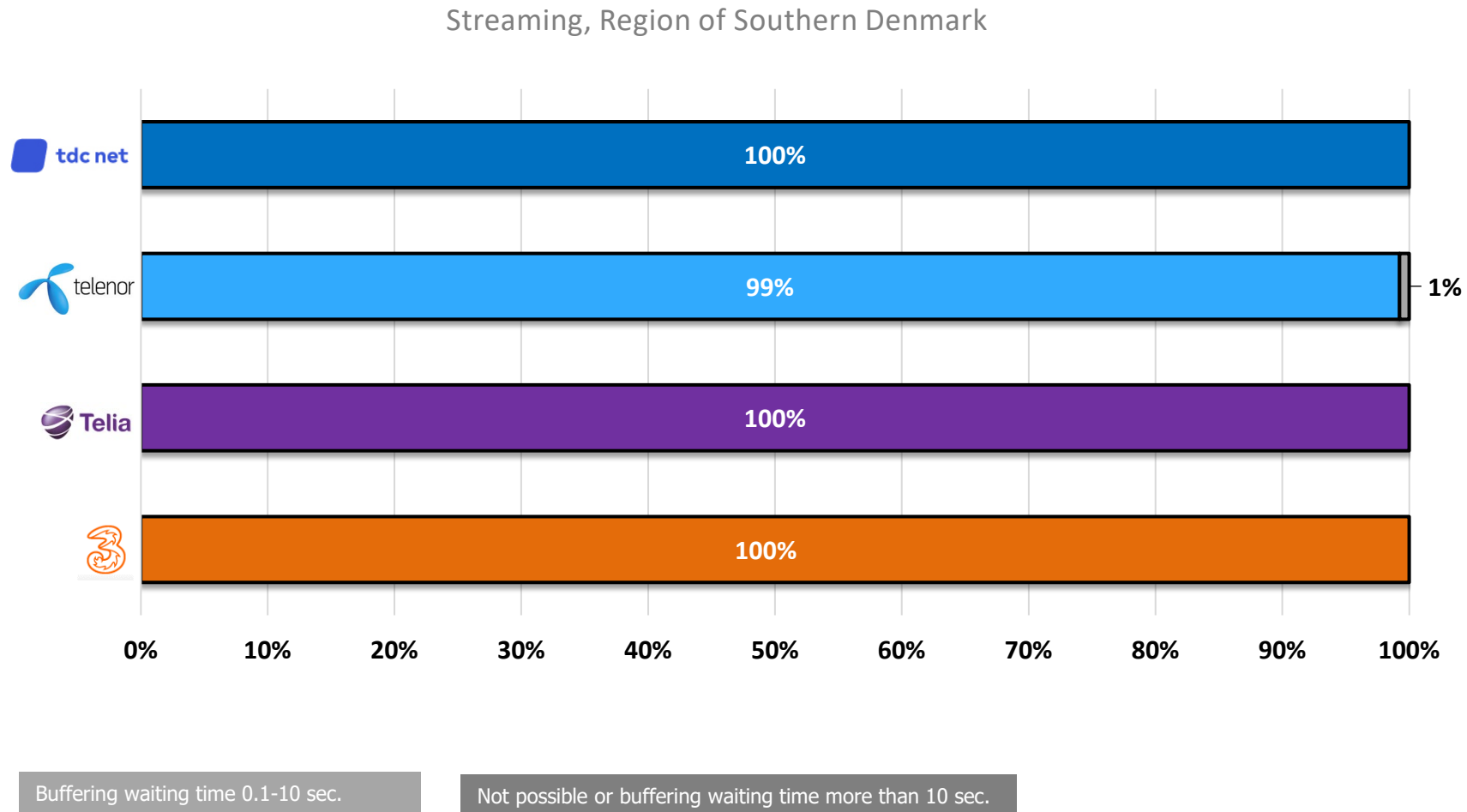


*TDC NET defined a good mobile network experience as: 30 sec. stable mobile telephon conversation - 10 MB download within 8 sec. - 10 MB upload within 15 sec. - 60 sec. YouTube video without buffering waiting time.

Regional results of video streaming in 2021 with a 4G phone



No significant difference in video streaming in the Region of Southern Denmark.

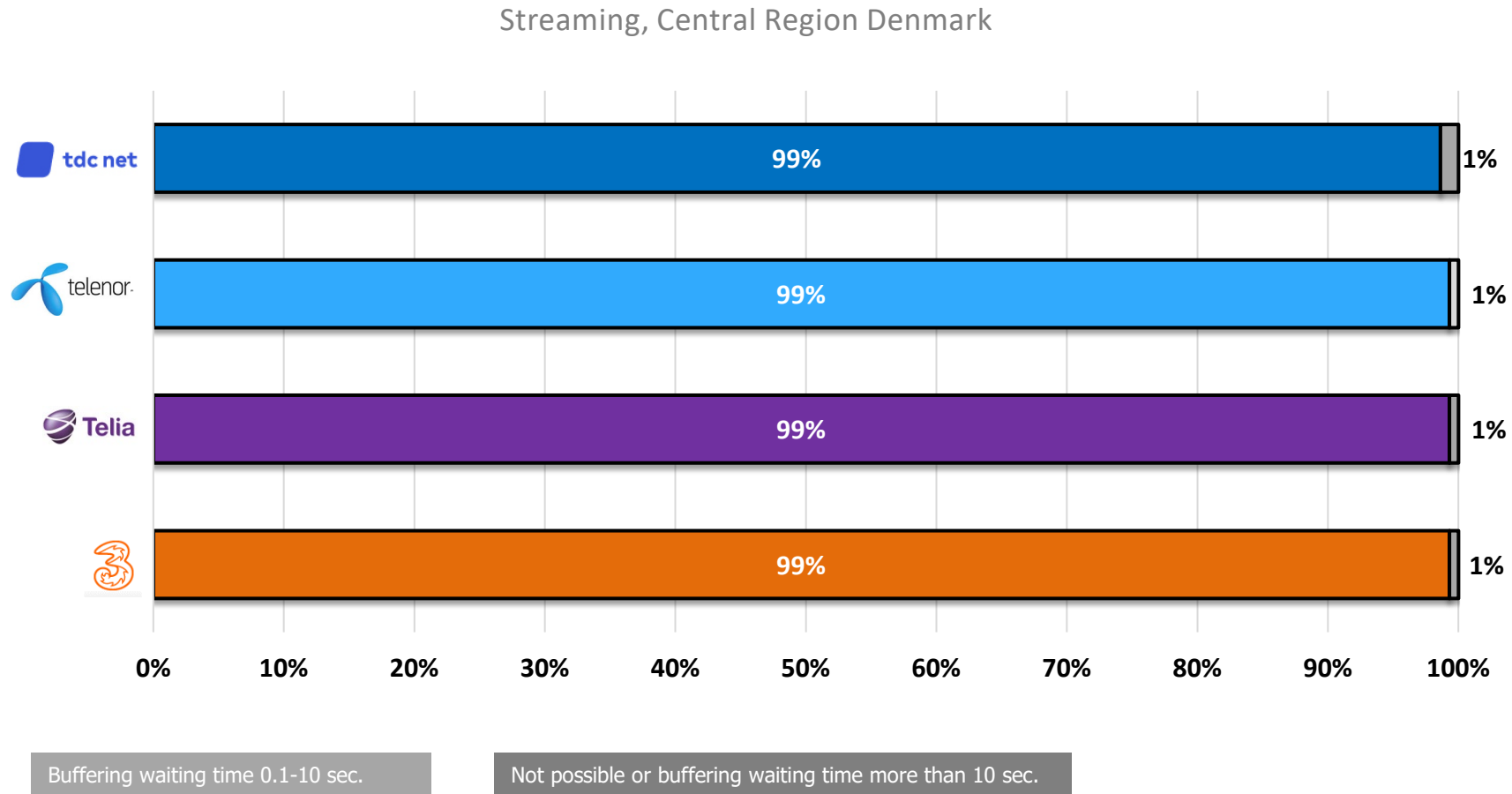


*TDC NET defined a good mobile network experience as: 30 sec. stable mobile telephon conversation - 10 MB download within 8 sec. - 10 MB upload within 15 sec. - 60 sec. YouTube video without buffering waiting time.

Regional results of video streaming in 2021 with a 4G phone



No difference in video streaming in Central Region Denmark.

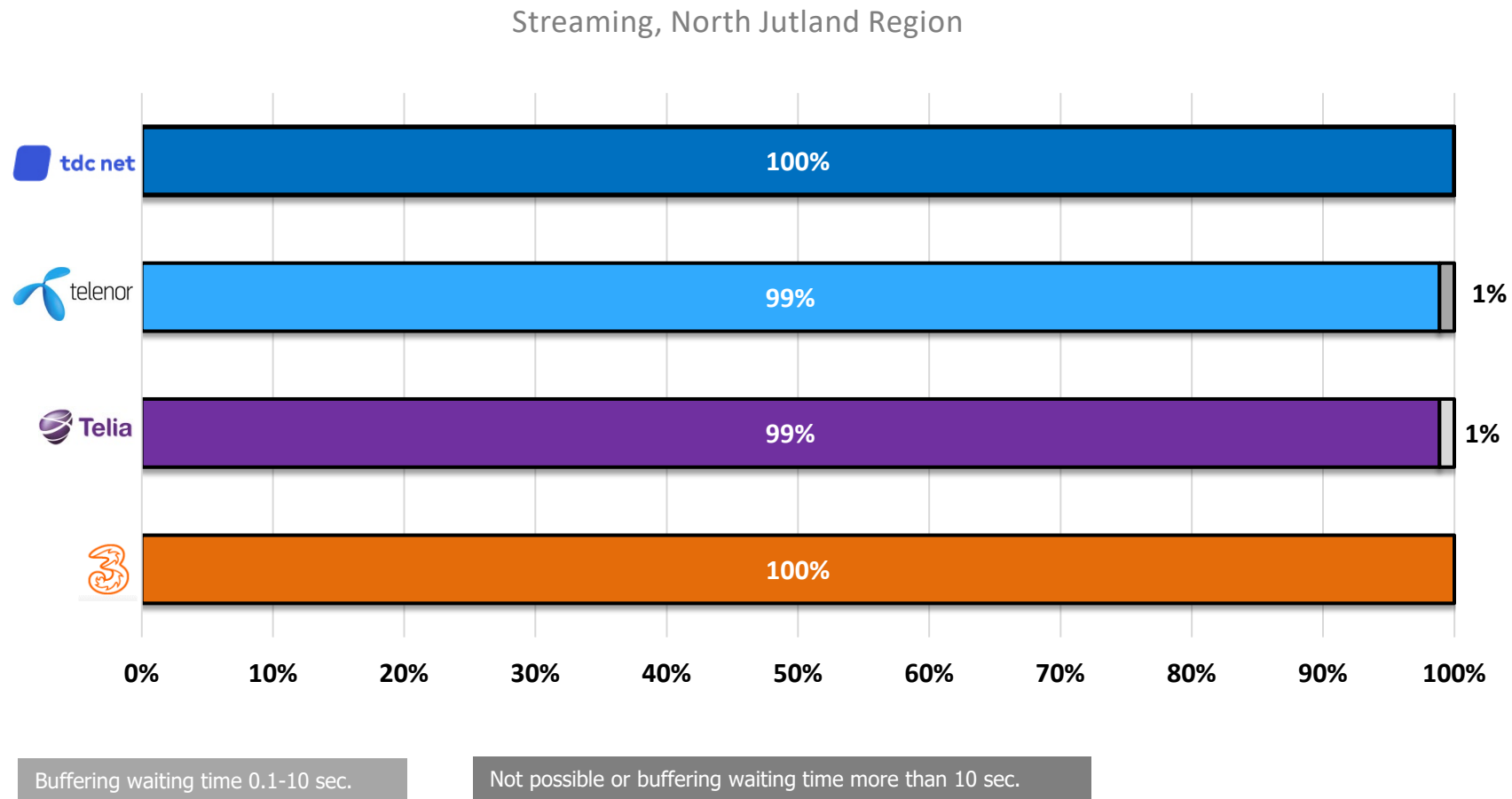


*TDC NET defined a good mobile network experience as: 30 sec. stable mobile telephon conversation - 10 MB download within 8 sec. - 10 MB upload within 15 sec. - 60 sec. YouTube video without buffering waiting time.

Regional results of video streaming in 2021 with a 4G phone



No significant difference in videostreaming in the North Jutland Region.



*TDC NET defined a good mobile network experience as: 30 sec. stable mobile telephon conversation - 10 MB download within 8 sec. - 10 MB upload within 15 sec. - 60 sec. YouTube video without buffering waiting time.

A van from Danish Technological Institute at one of the randomly selected locations – here at Copenhill, Amager



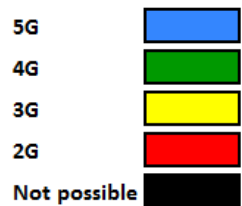
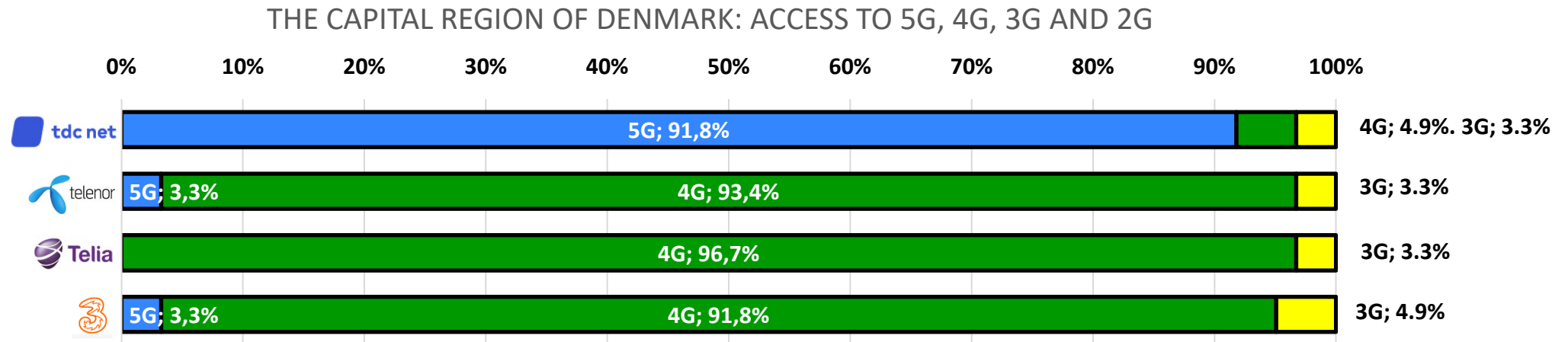
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Regional results of access to 5G with a 5G phone in 2021



In the Capital Region of Denmark, TDC has 92% access to 5G whereas Telenor and 3 only have 3% access to 5G.

The 5G phone has poorer access to 4G than the 4G phone.

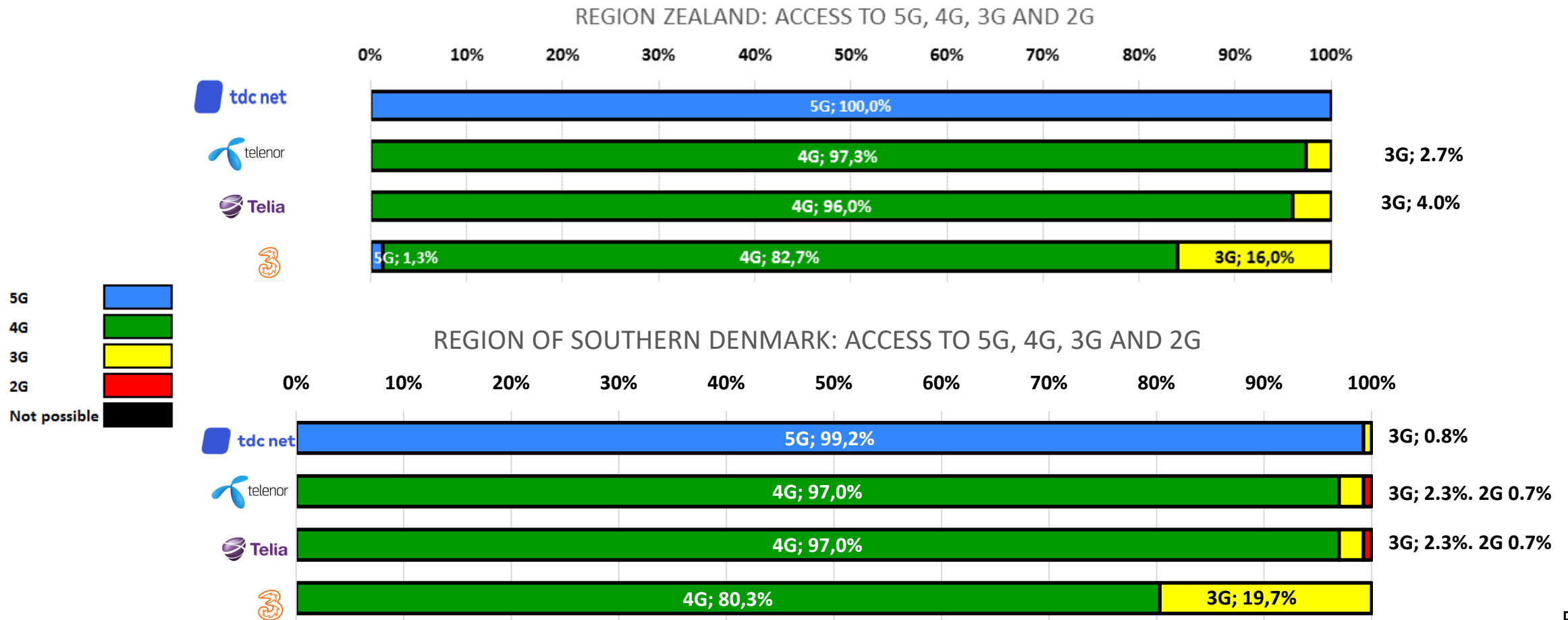


Regional results of access to 5G with a 5G phone in 2021



In Region Zealand, TDC NET has 100% access to 5G whereas the nearest competitor 3 has 1.3% access.

In the Region of Southern Denmark, TDC NET has 99.2% access to 5G whereas no competitor has access. The 5G phone has poorer access to 4G than the 4G phone.



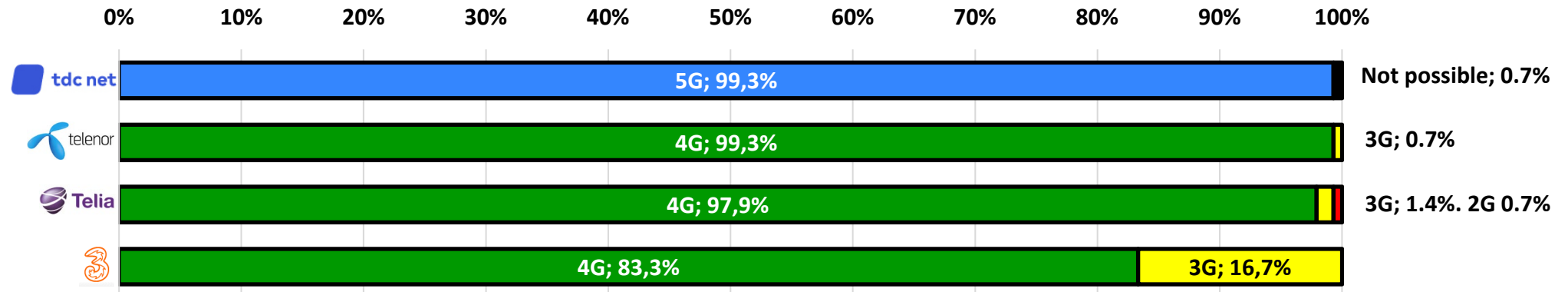
Regional results of access to 5G with a 5G phone in 2021



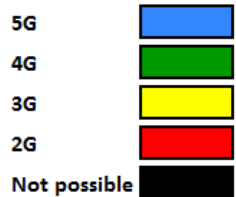
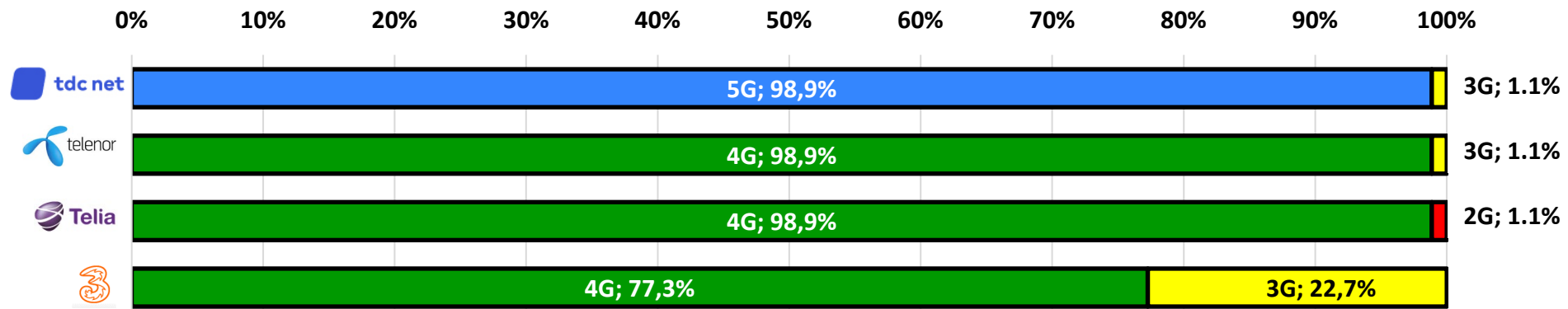
In the Central Denmark Region and in the North Jutland Region, TDC NET has 99.3 and 98.9% access to 5G whereas no competitor has access.

The 5G phone has poorer access to 4G than the 4G phone.

CENTRAL DENMARK REGION: ACCESS TO 5G, 4G, 3G AND 2G



NORTH JUTLAND REGION: ACCESS TO 5G, 4G, 3G AND 2G



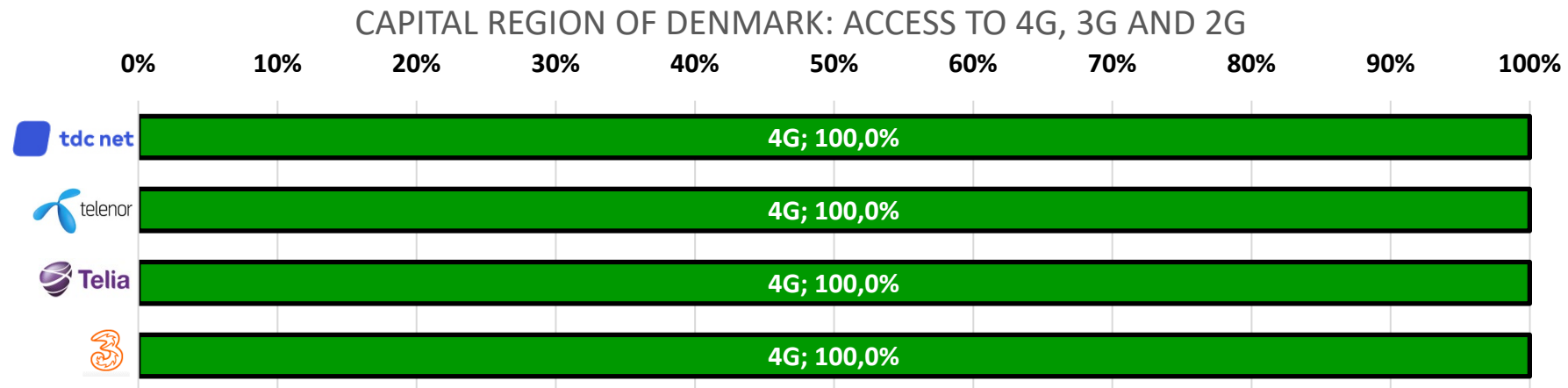
A van from Danish Technological Institute at one of the randomly selected test locations – here near Rold forest with Støvring on the horizon



Regional results of access to 4G with a 4G phone in 2021



In the Capital Region of Denmark, the 4 network providers have the same access to 4G.

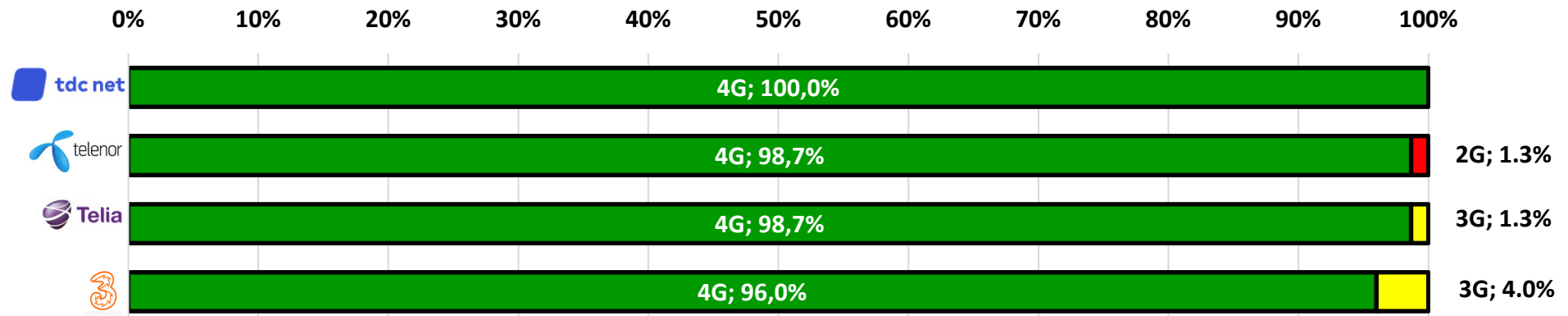


Regional results of access to 4G with a 4G phone in 2021

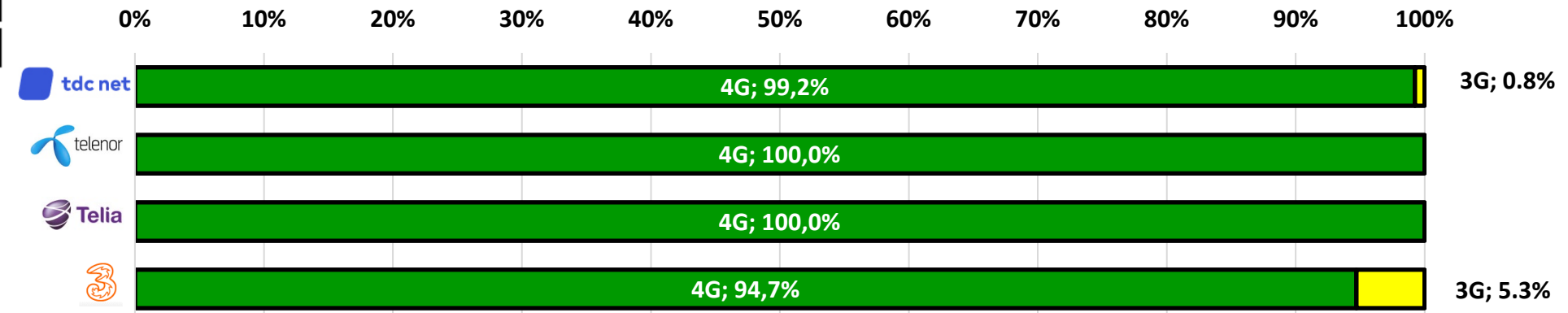


In Region Zealand and the Region of Southern Denmark, TDC NET, Telenor and Telia by and large have the same access to 4G.

REGION ZEALAND: ACCESS TO 4G, 3G AND 2G



REGION OF SOUTHERN DENMARK: ACCESS TO 4G, 3G AND 2G



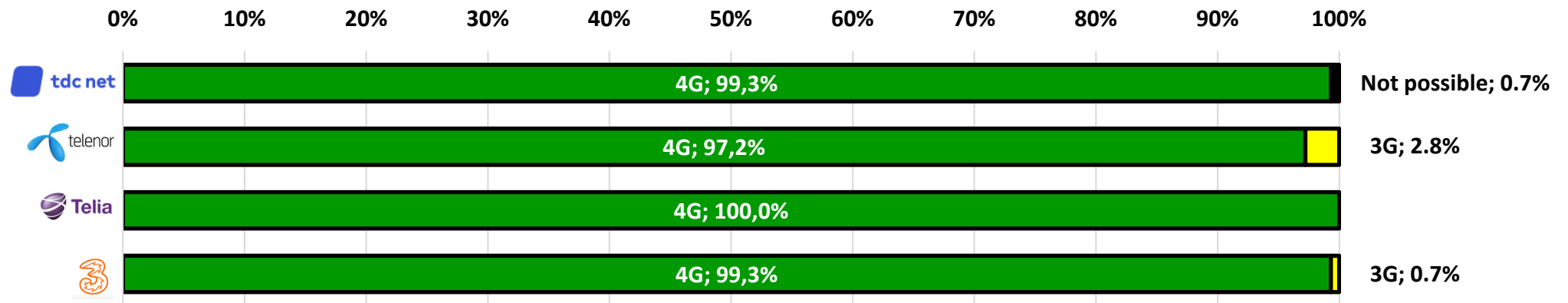
Regional results of access to 4G with a 4G phone in 2021



In the Central Denmark Region, TDC NET, Telia and 3 by and large have the same access to 4G.

In the North Jutland Region, TDC NET, Telenor and Telia by and large have the same access to 4G.

CENTRAL DENMARK REGION: ACCESS TO 4G, 3G AND 2G



THE NORTH JUTLAND REGION: ACCESS TO 4G, 3G AND 2G

