



Real-world mobile experience and the role of spectrum

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Open and transparent

Independent

- Editorially independent reports follow a standard cadence
- Reports are never sponsored

Revealing Network Experience

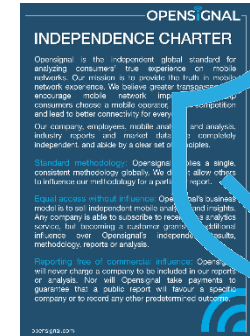
- Experiential metrics measuring typical end to end experience
- Best practice automated tests across broad user base

Scientific Analysis

- Sophisticated, pioneering methodology applied consistently
- Conclusions tested for statistical significance

We are an independent business which transparently publishes the rules that govern our operations

INDEPENDENCE CHARTER



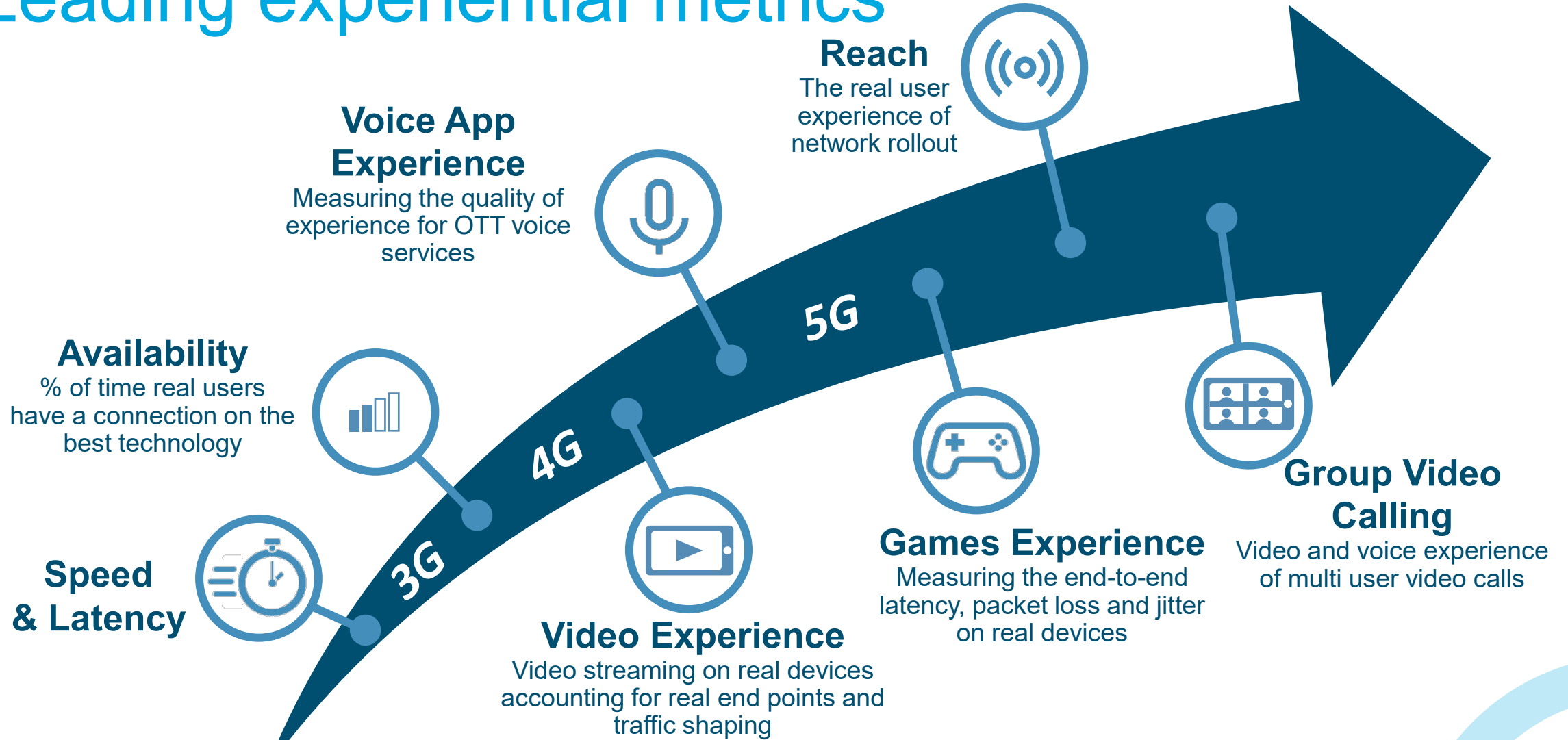
EXPERIENCE CHARTER



ANALYTICS CHARTER



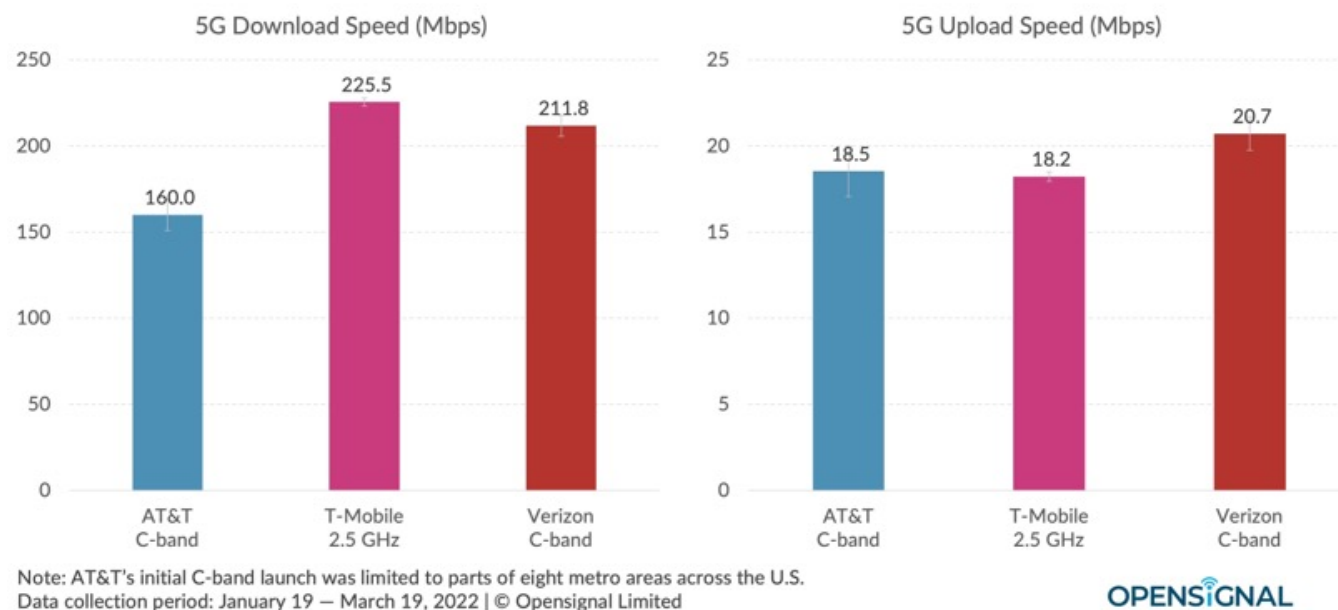
Leading experiential metrics



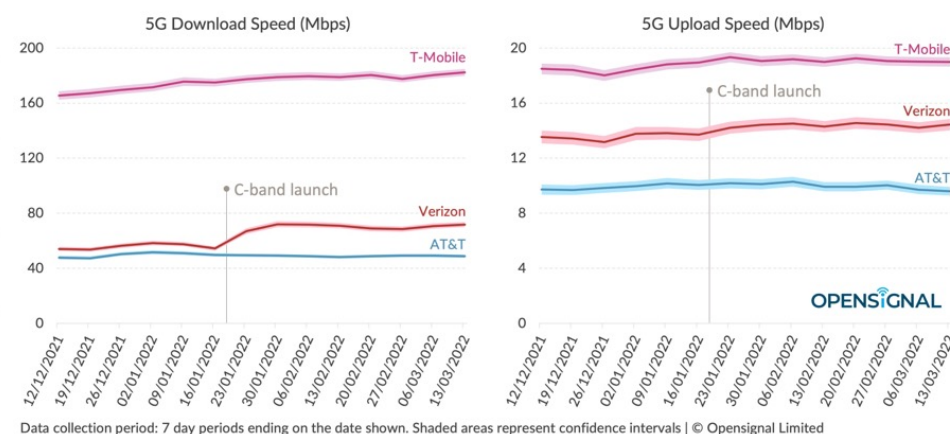
Leading the evolution from network *performance* to network *experience*

First real-world analysis of C-band 5G experience

Analyzing mid-band 5G speeds in the US



5G Download Speed on Verizon improved after its C-band launch

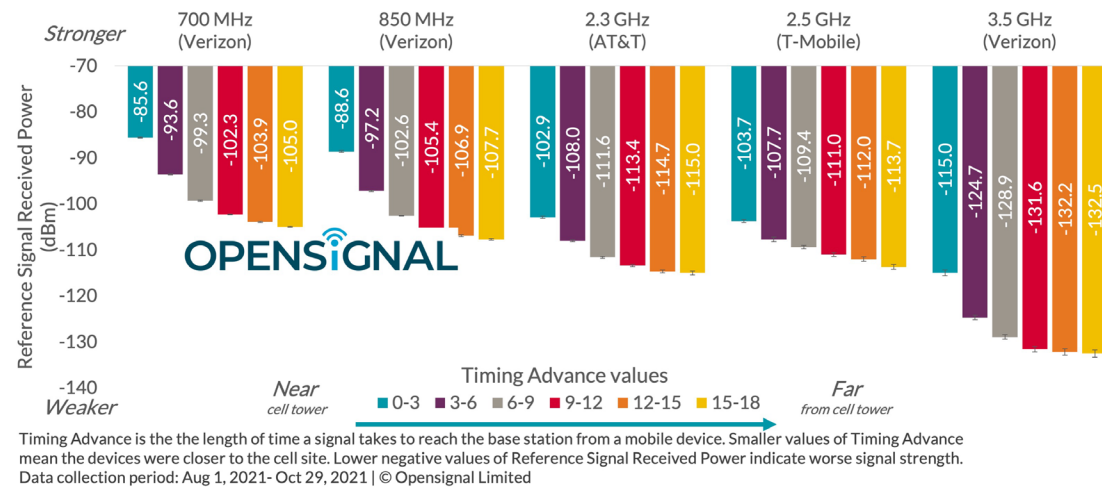


Source: Quantifying the impact of C-band on 5G mobile experience in the US

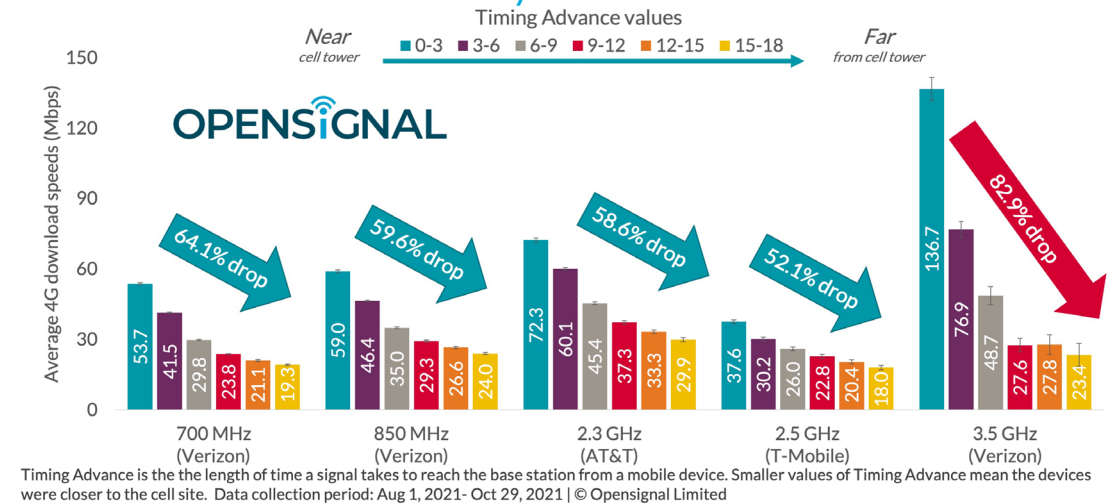
<https://www.opensignal.com/2022/03/29/quantifying-the-impact-of-c-band-on-5g-mobile-experience-in-the-us>

Shared license spectrum analysis on CBRS

The 4G signal strength on the CBRS band deteriorates for mobile devices located further away from base stations in city areas



4G download speeds with the CBRS band support dramatically decline when users are far away from base stations

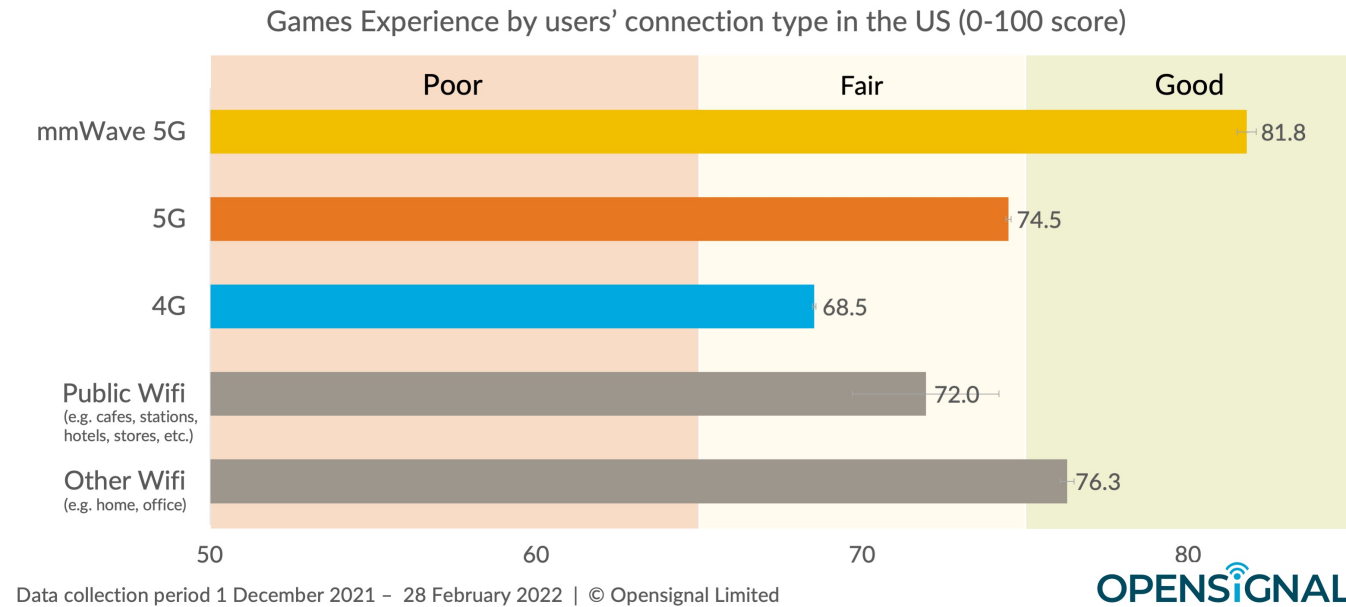


Source: CBRS usage highlights the strengths and weaknesses of C-band spectrum in the US

<https://www.opensignal.com/2021/12/07/cbrs-usage-highlights-the-strengths-and-weaknesses-of-c-band-spectrum-in-the-us>

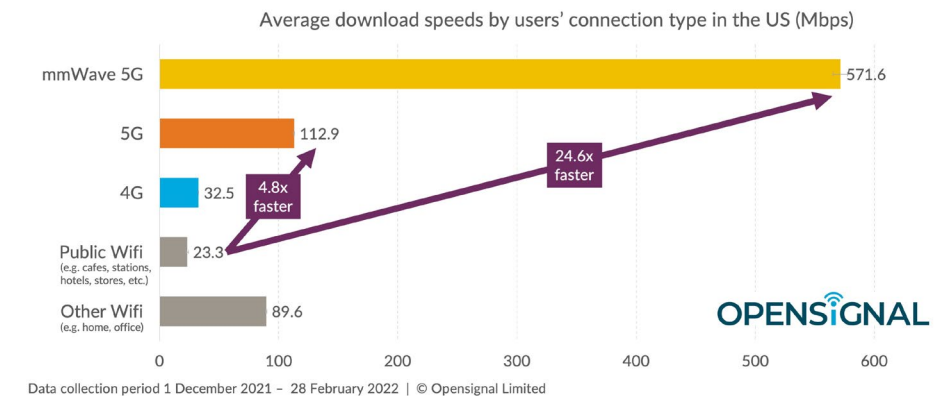
5G comparison with WiFi, using unlicensed spectrum

For real-time multiplayer gaming using smartphones,
5G is a better experience than public Wifi



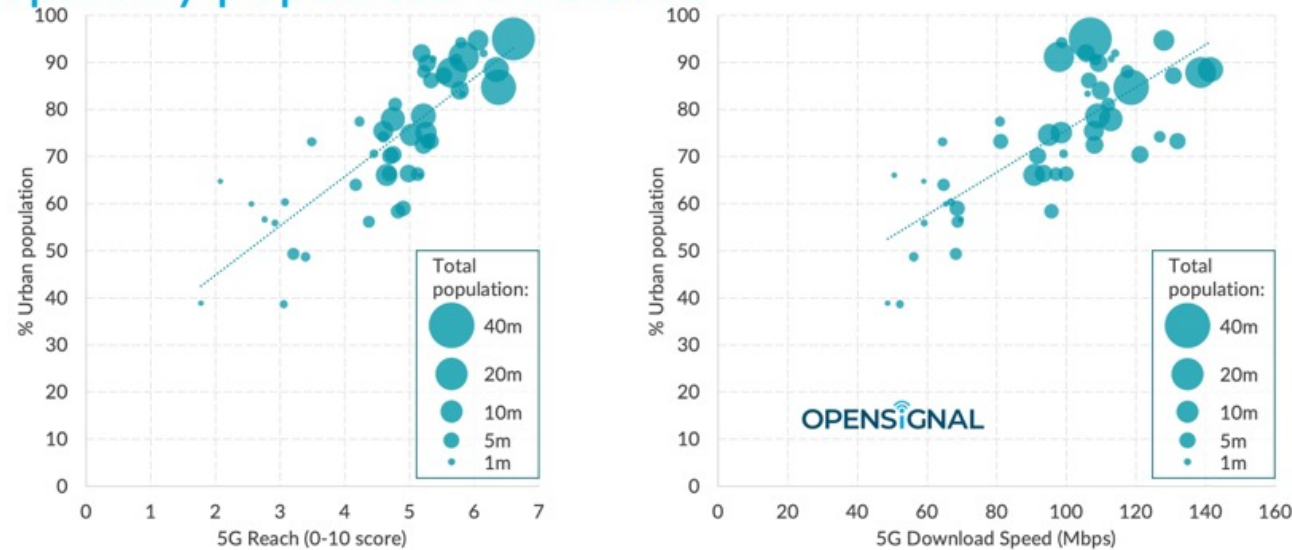
Source: 5G beats Public Wifi for gaming as well as speed
<https://www.opensignal.com/2022/05/11/5g-beats-public-wifi-for-gaming-as-well-as-speed>

Users' average 5G download speeds are 4.8 times faster than Public Wifi, and mmWave is over 24 times faster



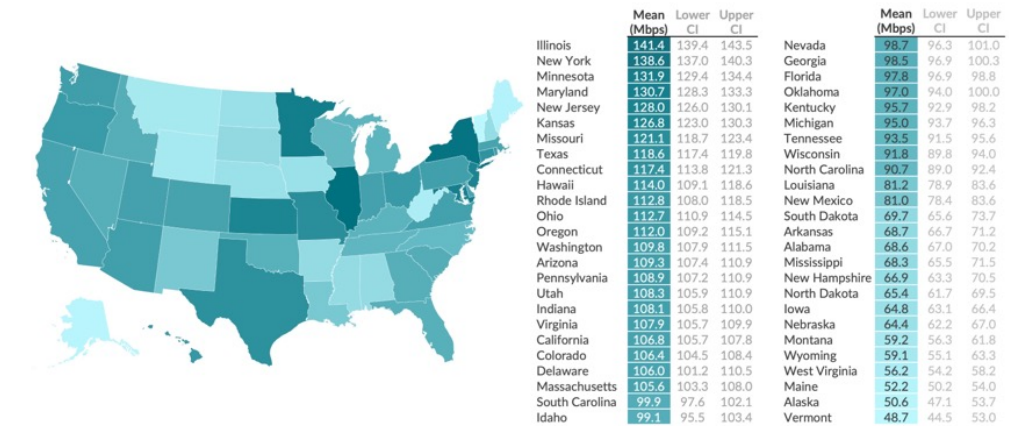
Tackling the US digital divide

Smartphone users have a reduced 5G experience in sparsely populated US states



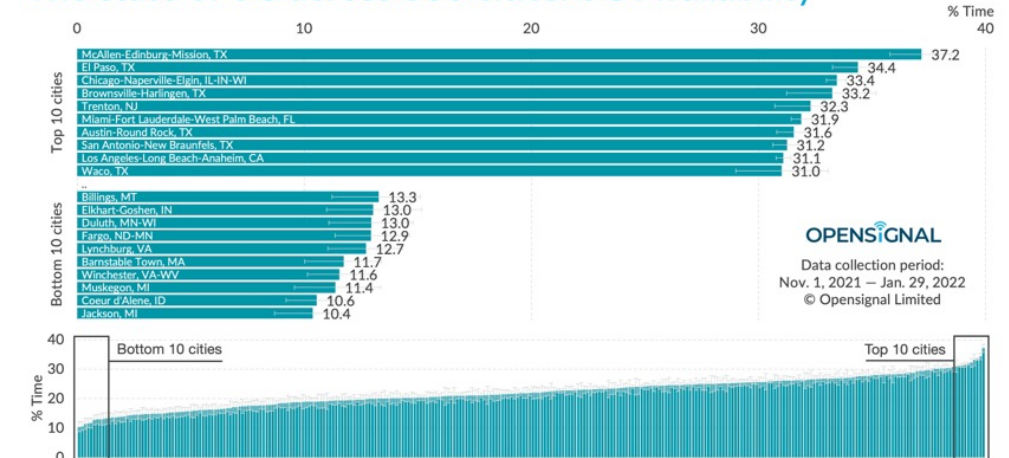
Data collection periods: Nov. 1, 2021 – Jan. 29, 2022. Population data from U.S. Census Bureau. | © Opensignal Limited

The state of 5G in the US: 5G Download Speed



Data collection periods: Nov. 1, 2021 – Jan. 29, 2022 | © Opensignal Limited

The state of 5G across 300 cities: 5G Availability



OPENSIGNAL
Data collection period:
Nov. 1, 2021 – Jan. 29, 2022
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Source: How the 5G experience has improved across 50 US states and 300 cities

<https://www.opensignal.com/2022/03/10/how-the-5g-experience-has-improved-across-50-us-states-and-300-cities>