A global view of 5G throughput

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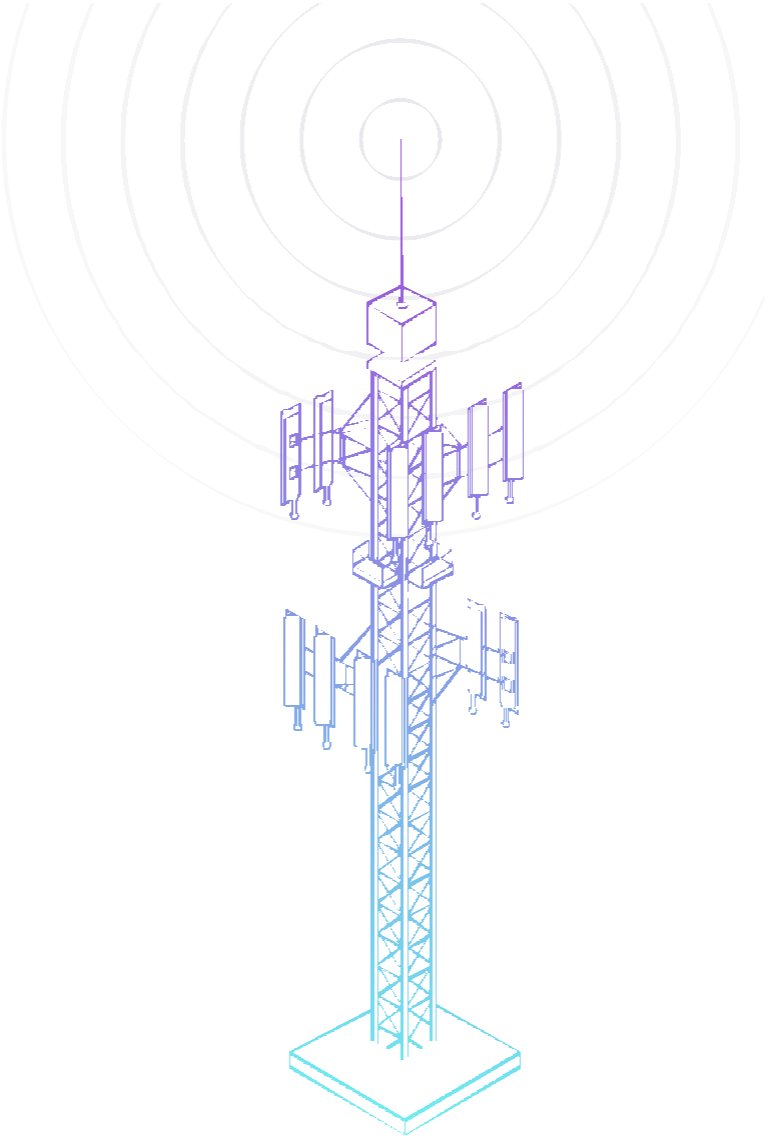


From the ITU webinar series:
5G in action — How does it perform in the wild?

September 3, 2020

Throughput in the world of 5G

Speedtest® is uniquely capable of measuring the full throughput capability of a 5G connection.

Speedtest uses a client and server testing engine that dynamically scales the number of connections to the server in order to saturate and accurately measure client-side connections up to 10 Gbps.

+12,000,000
TESTS DAILY

+300,000,000
COVERAGE SCANS DAILY

12,000+
SERVERS GLOBALLY
IN OVER 190 COUNTRIES

100%
OF THE WORLD'S COUNTRIES
REPRESENTED IN OOKLA DATA

+30,000,000,000
TESTS TO DATE

Preparing for 5G

Consumer Side

- Distributed Server Network
- Multi Server Test Capability
- App Upgrades
- Multi Threading
- Device Readiness

Enterprise Products

- New KPIs
- New Tools

Determine a connection's inbound bandwidth by testing how quickly it can download data

Determine a connection's outbound bandwidth by testing how quickly it can upload data

Understand your connection quality by testing latency down to the millisecond

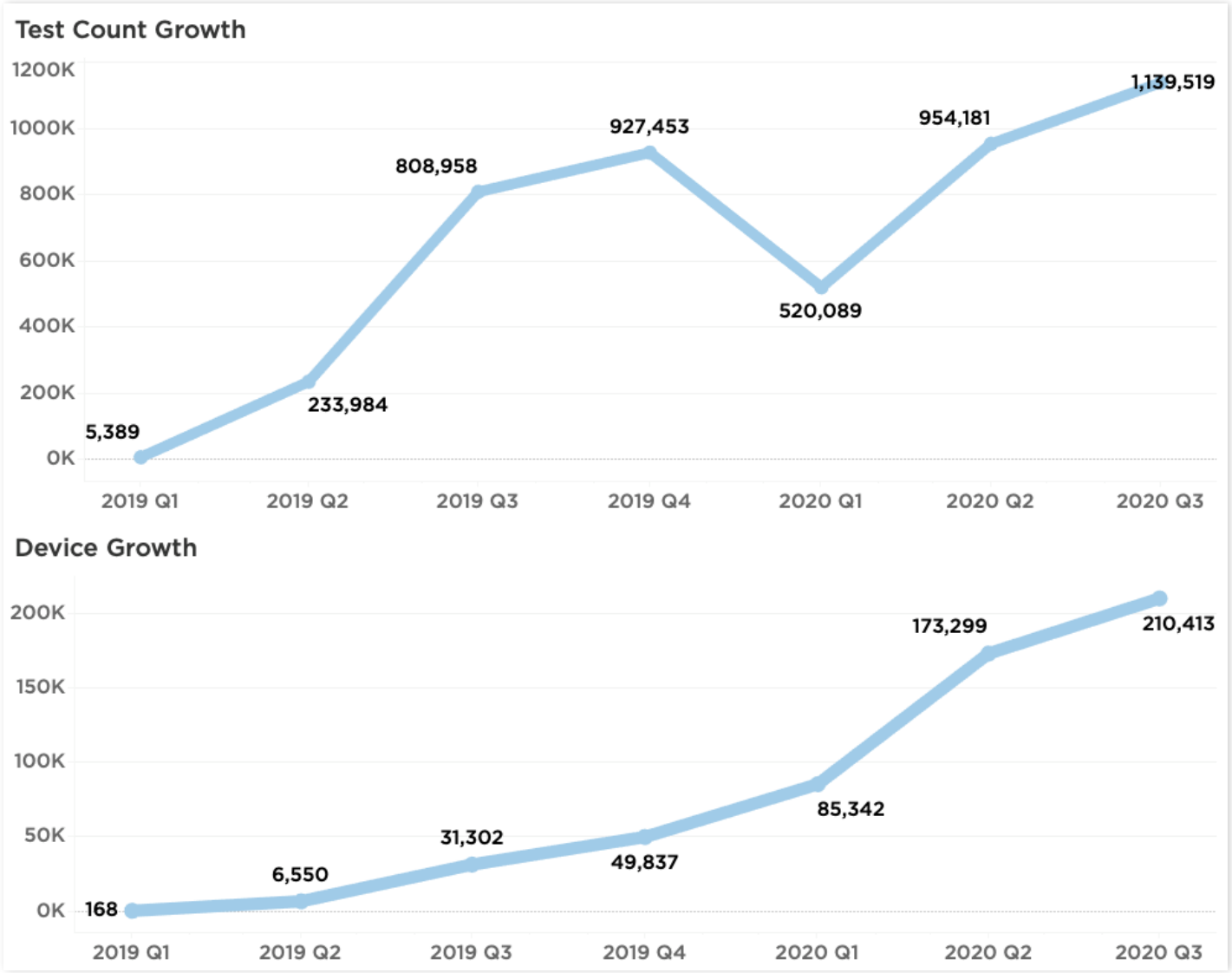
Diagnose network jitter by testing how your ping times are fluctuating

5G real numbers

One-day data snapshot for
September 1, 2020

52,751 tests
146 networks
15,566 devices

Maximum speeds:
download: 3,623 Mbps
upload: 280 Mbps
latency: 3 ms



5G throughput in the wild

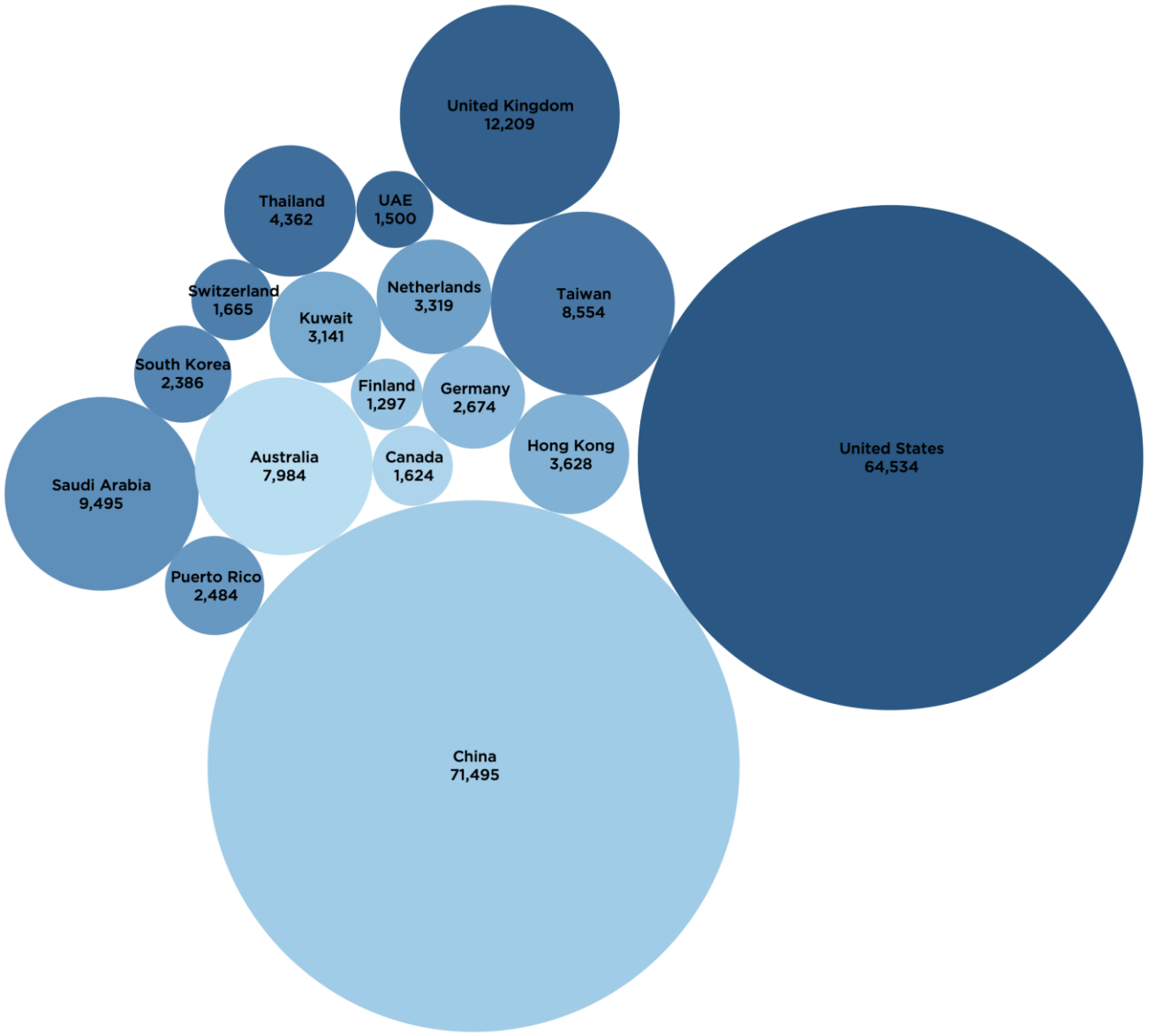
Countries where more than 100 5G tests have been carried out in Q3 to date

United Arab Emirates	5G	564,954
	LTE	96,307
Norway	5G	547,488
	LTE	63,537
Macau	5G	516,231
	LTE	41,763
Saudi Arabia	5G	493,810
	LTE	64,954
South Africa	5G	468,663
	LTE	36,485
Spain	5G	427,024
	LTE	31,024
South Korea	5G	416,590
	LTE	63,446
France	5G	402,638
	LTE	48,223
Kuwait	5G	398,985
	LTE	40,323
Qatar	5G	387,220
	LTE	76,231
China	5G	359,566
	LTE	35,242
Thailand	5G	356,927
	LTE	31,912
Japan	5G	339,823
	LTE	34,598
Finland	5G	328,810
	LTE	46,325

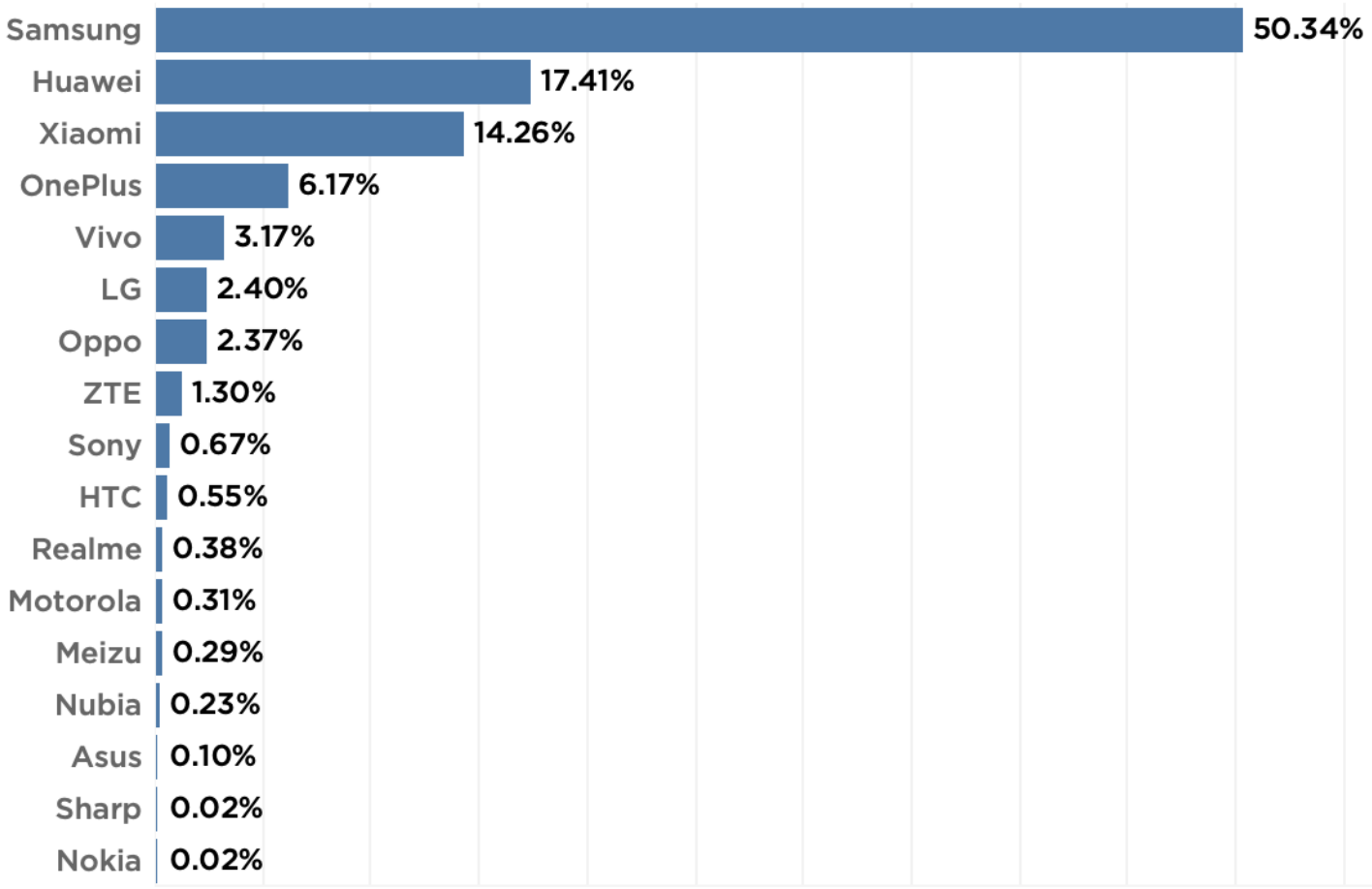
Top Countries filtered with more than 1000 5G tests in Q3 to date

5G device locations

China	71,495
United States	64,534
United Kingdom	12,209
Saudi Arabia	9,495
Taiwan	8,554
Australia	7,984
Thailand	4,362
Hong Kong	3,628
Netherlands	3,319
Kuwait	3,141
Germany	2,674
Puerto Rico	2,484
South Korea	2,386
Switzerland	1,665
Canada	1,624
UAE	1,500
Finland	1,297



5G device breakdown

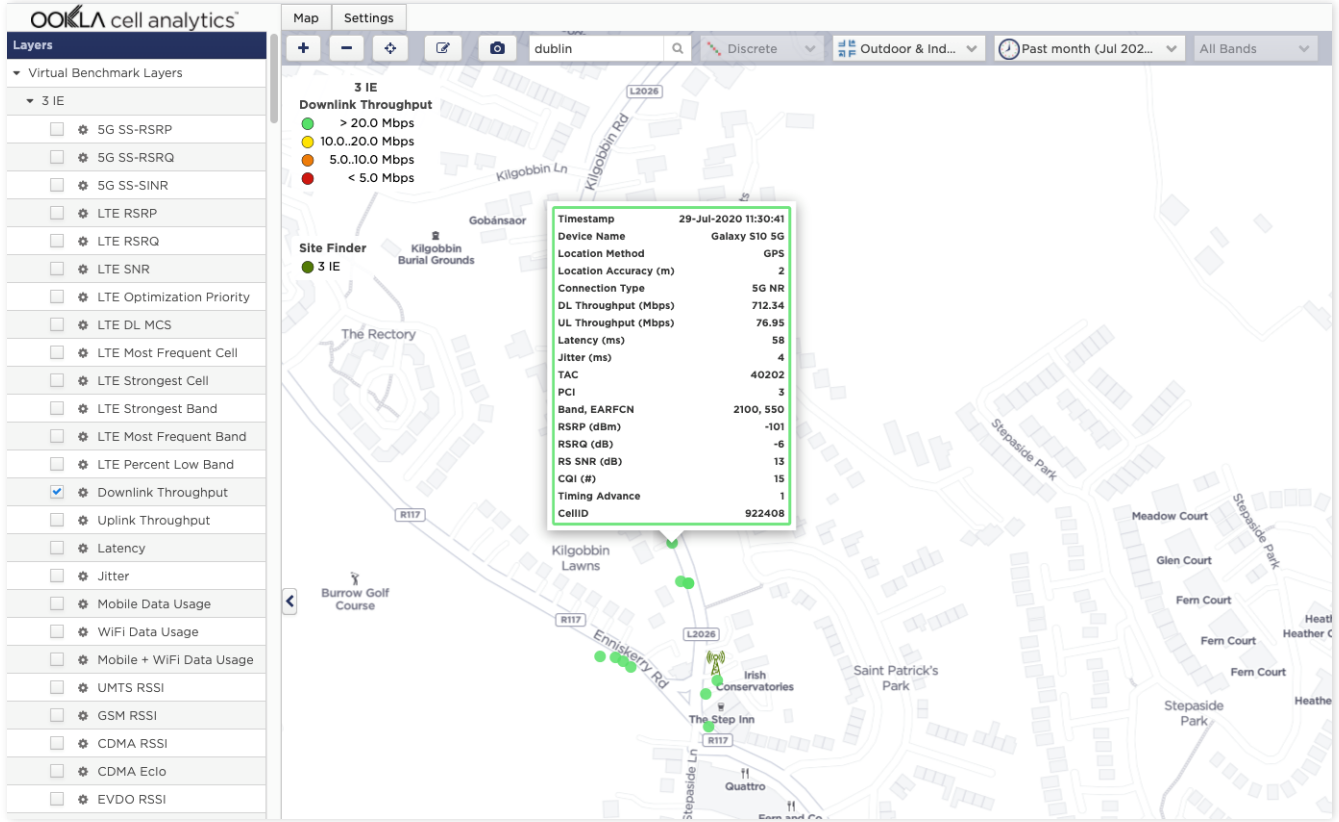


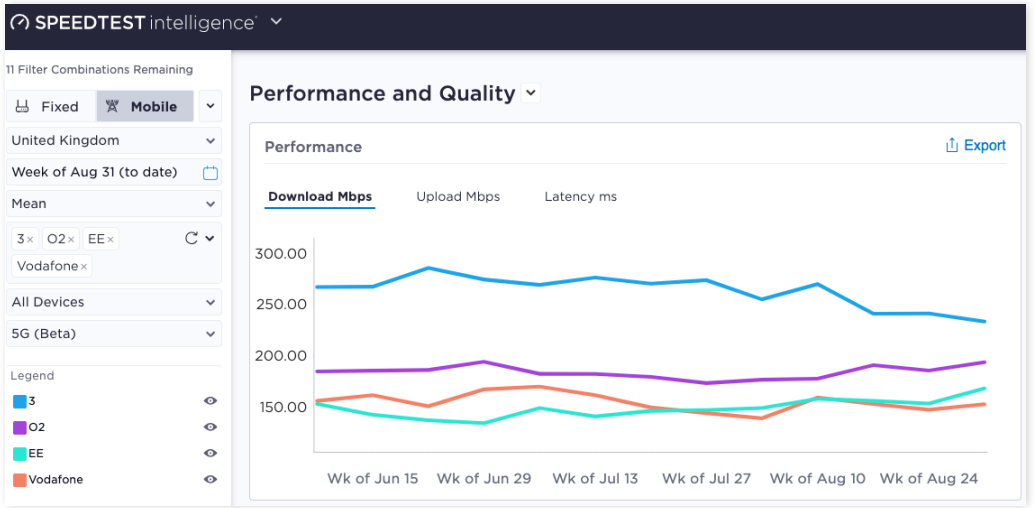
Samsung - Galaxy S20 Ultra 5G	52,991
Samsung - Galaxy Note10+ 5G	50,591
Samsung - Galaxy S20+ 5G	41,591
Samsung - Galaxy S20 5G	25,360
Samsung - Galaxy S10 5G	24,596
Huawei - Mate 20 X 5G	22,548
Samsung - Galaxy Note 20 Ultra 5G	19,766
Xiaomi - Mi 10 Pro 5G	19,613
Xiaomi - Mi 10 5G	19,027
Huawei - Mate 30 Pro 5G	13,787
Huawei - P40 Pro 5G	10,650
Huawei - Mate 30 5G	10,183
OnePlus - OnePlus 8 5G	9,663
OnePlus - OnePlus 7T Pro 5G McLaren	9,573
Xiaomi - Redmi K30 5G	8,106
Xiaomi - Redmi K30 Pro 5G	7,847
OnePlus - OnePlus 8 Pro 5G	7,068
LG - V60 ThinQ 5G	6,044
Samsung - Galaxy A71 5G	5,482
LG - V50 ThinQ 5G	4,444

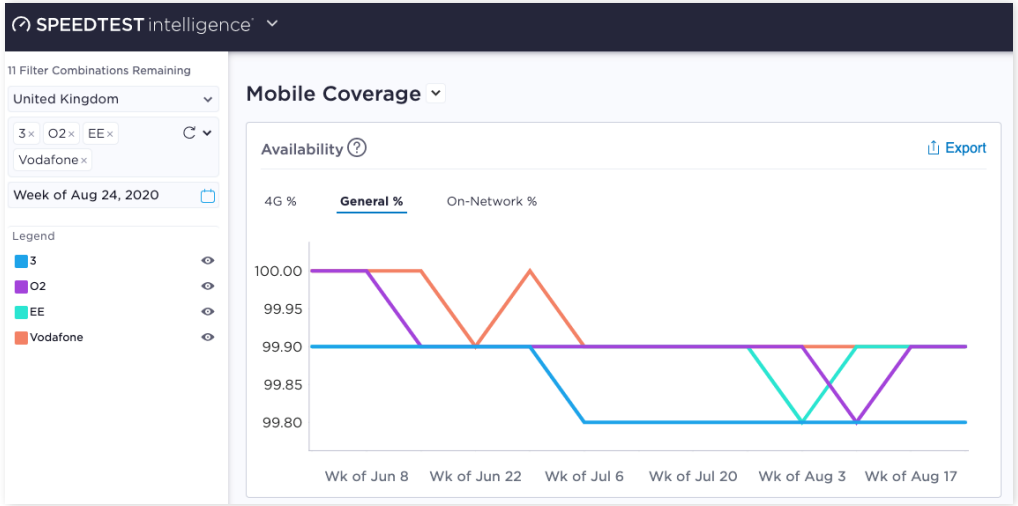
5G throughput and beyond

Operator	Radio Signal	Connection	Radio Access Network	Device Information
Information about the subscriber network and the network to which the device is connected	Information about signal strength and quality (e.g., RSRP, RSRQ, RSSI), frequency band (EARFCN, UARFCN, ARFCN) and other properties of the cellular connection	Data connection type and cellular connection type	Tracking area (LAC/TAC), base station ID, cell ID, physical cell ID	Latitude, longitude, altitude, accuracy and age of location

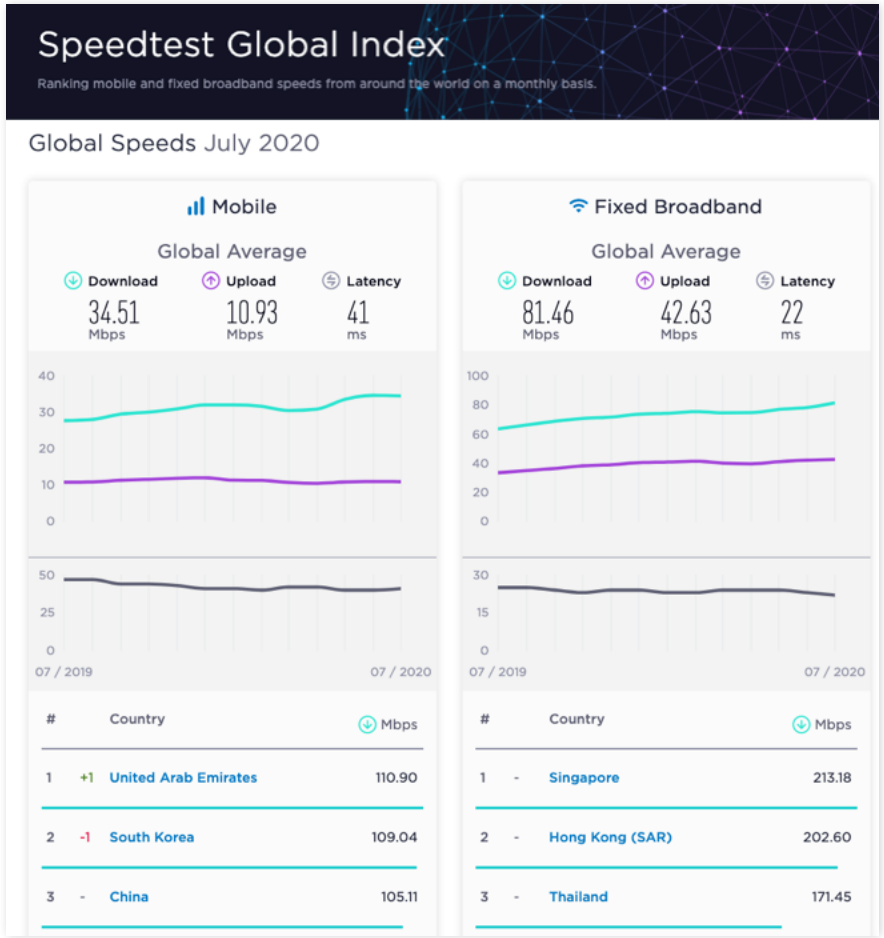
Ookla enterprise solutions

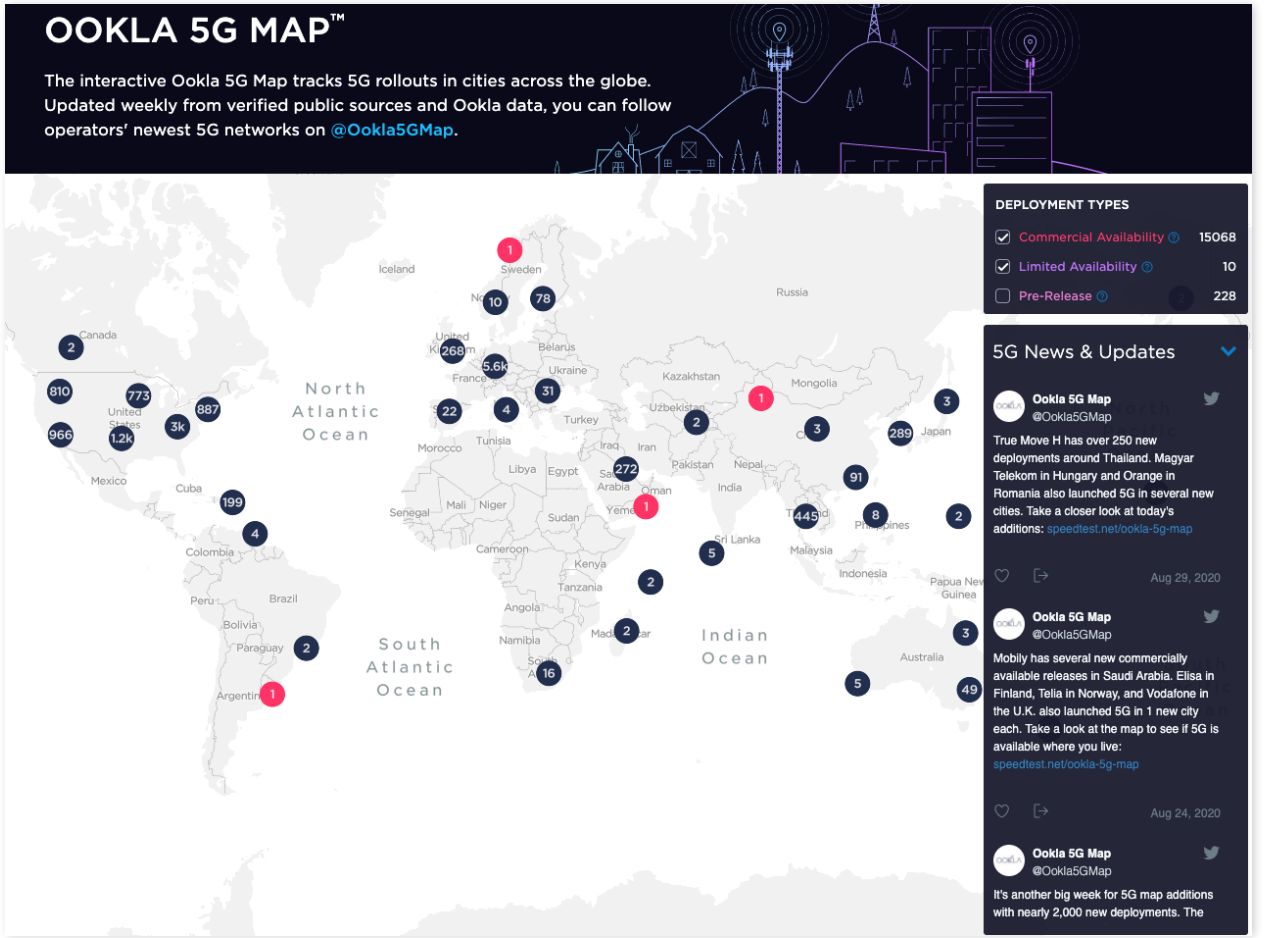






Public Ookla resources





Ookla®

The global leader in mobile and broadband network intelligence, testing applications and technology. With over 12 million consumer-initiated tests taken daily on the company's flagship platform, Speedtest, Ookla provides invaluable insight into the performance, quality and accessibility of networks worldwide. Operators, businesses and government agencies alike rely on Ookla for unparalleled and immediate information on the state of networks and online services.

Ookla's family of companies includes:

Mosaik™ — data visualization and analytics for mobile coverage

Downdetector™ — real-time analysis of status and outages for services

SpatialBuzz™ — real-time customer feedback combined with device radio measurements to help operators find, prioritise, and fix problems