

Visualizing Mobile Network Quality

NCC & Ookla National Coverage Map

ITU-T SG12 Workshop



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- 2 Actionable Visual Insights
- 3 Lessons Learned & Impact

Downdetector

150M+
unique users

25M+
mo. problem reports

25K+
services monitored

60+
countries



SPEEDTEST

600M+
app installs

11M+
daily tests

60B+
tests to date

15K+
global test servers

Billions

of daily crowdsourced network performance samples

Tens of Millions

of data points on NPS, subscriber ratings, and consumer sentiment

Millions

of miles of controlled drive and walk network surveys

Defining the Future of Connectivity

Ookla data is used by governments, regulators, standards bodies, NGOs, academic institutions, trade groups, and analysts to solve the biggest connectivity challenges



Ofcom



GSA



GSMA



The Global Media's Trusted Source

170K+ articles published annually referencing Ookla brands

270B+ unique monthly impressions on publications citing Ookla data

73.2% share of voice for Ookla and Speedtest combined in network intelligence

Global Reach and Impact

90% of the Fortune 500 trust Ekahau networking insights

5K+ Enterprise clients for Ookla in over 120 countries



Growing Strategic Engagements Across Africa



Algeria



Angola



Benin



Botswana



Burkina Faso



Cameroon



Central African Rep.



Cote d'Ivoire



Dem. Rep. of Congo



Djibouti



Egypt



Gabon



Ghana



Guinea



Liberia



Libya



Madagascar



Malawi



Mali



Mauritania



Mauritius



Morocco



Nigeria



Senegal



Sierra Leone



South Africa



Tanzania



Togo



Tunisia



Uganda



Zimbabwe

Project Initiation & Goals

Project Initiation & Goals

The Partnership

A collaborative effort between the Nigeria Communications Commission (NCC) and Ookla.

Transparency

Provide public-facing data on actual network performance and how they compare with operator-reported data.

Consumer Empowerment

Enable citizens to make highly informed choices about their service providers in their specific areas.

Drive Improvement

Identify areas that need investment and incentivize operators to enhance nationwide service quality through competitive visibility.

Data Collection Methodology

ITU-T Framework

Fully compliant with Recommendation E.813 data gathering standards for telecommunication quality.

Crowdsourced Data

Utilizes millions of data points collected daily via the Speedtest application worldwide.

Key Metrics

Focuses heavily on Download Speed (performance) and Signal Strength (coverage).

Multi-Technology

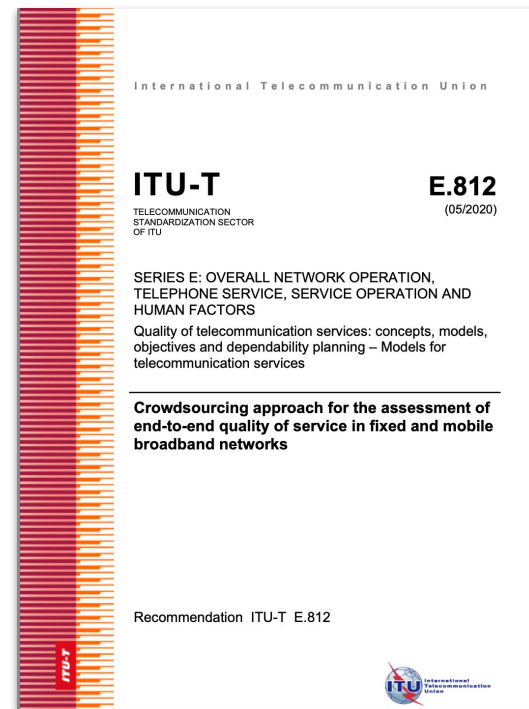
Seamlessly maps coverage across 2G, 3G, 4G, and 5G networks for comprehensive analysis.

Hybrid Approach

Overlays independent crowdsourced data with official MNO reported coverage to provide a validated, objective view of network availability.

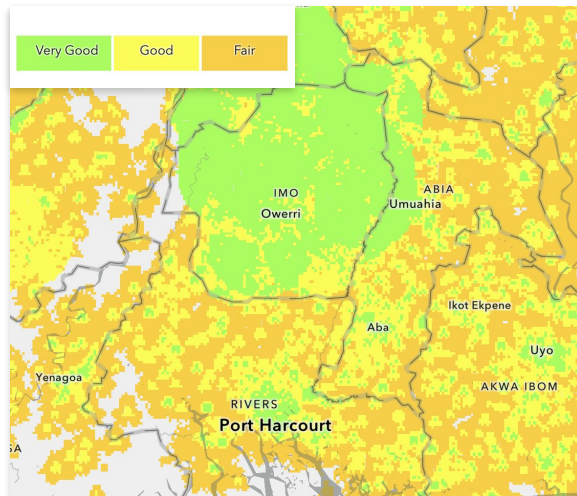
What is crowdsourced network testing?

- “**Crowdsourced data collection** is a method of obtaining data or information by soliciting contributions from **a large number of people**, often via the internet. It is categorized into **active** and **passive** measurements.”
- “**Active data collection** methods create artificial traffic with the intention to assess end-to-end QoS parameters... Active tests may be specifically designed to saturate the network, and therefore produce a more accurate measure representing the peak end-to-end performance at the point of test.”w
- “**Passive data collection** passive data collection produces measurements representing the end-to-end performance experienced by users under actual users' usage at that point in time... they act more as an observer of radio parameters, the end-user's transferred data, and collect information regarding the actual traffic.”
- “In cases where the end-user is required to deliberately start data collection, the tests are classified as **end-user initiated**. On the other hand, if data collection occurs programmatically by pre-established start rules, it is classified as **automated**”



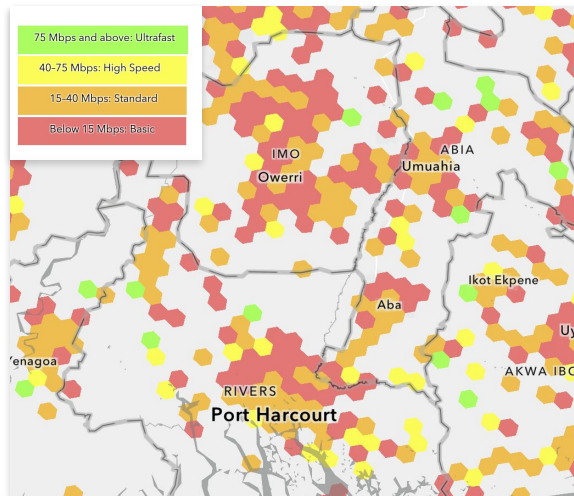
Actionable Visual Insights

Access Multiple Datasets to Evaluate Mobile Networks



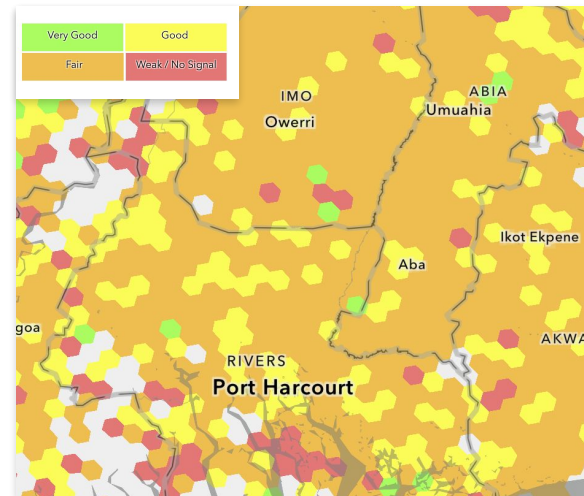
Reported Coverage

View the coverage level for an area as reported by the mobile network operator.



Speedtest Performance

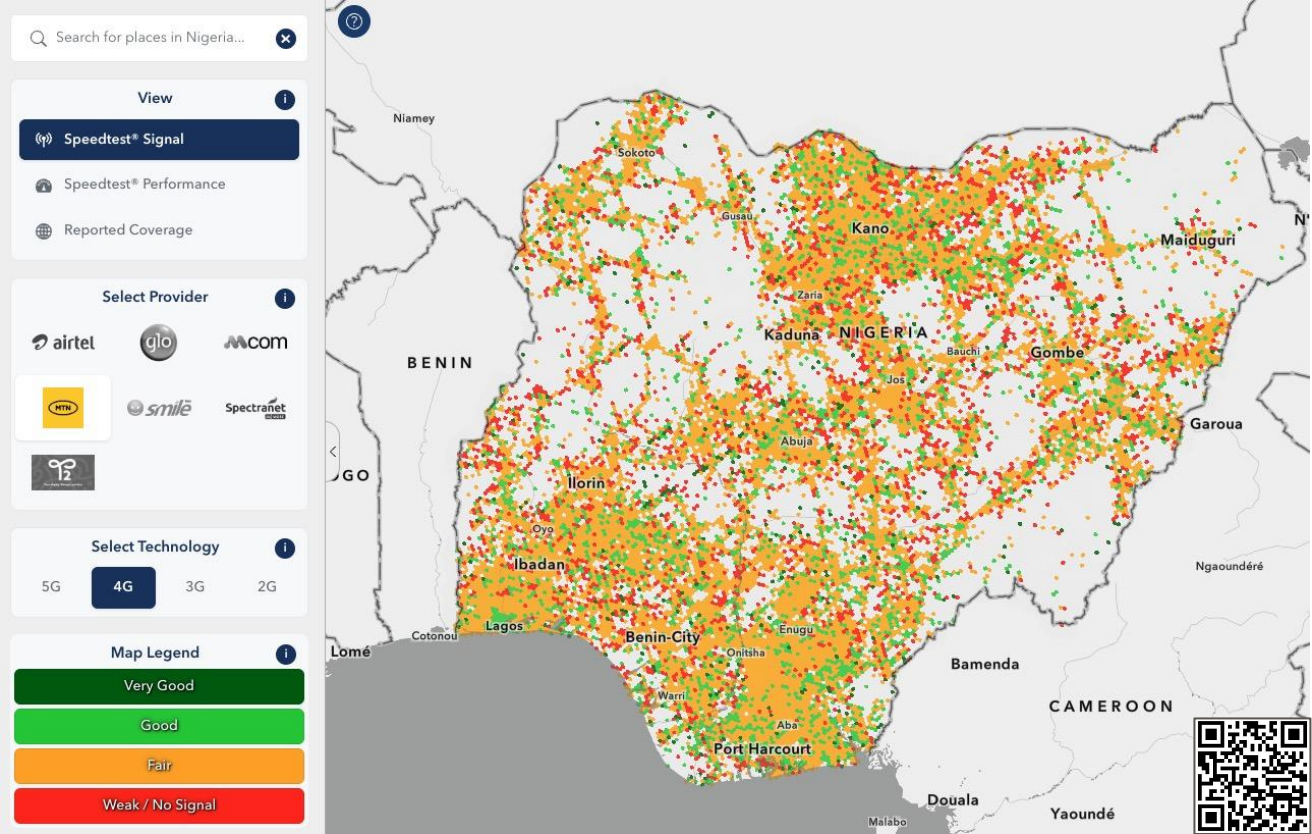
View real-world Download Speeds based on millions of daily consumer-initiated tests taken with Speedtest



Speedtest Signal

View real-world signal data based on billions of daily signal scans from Speedtest

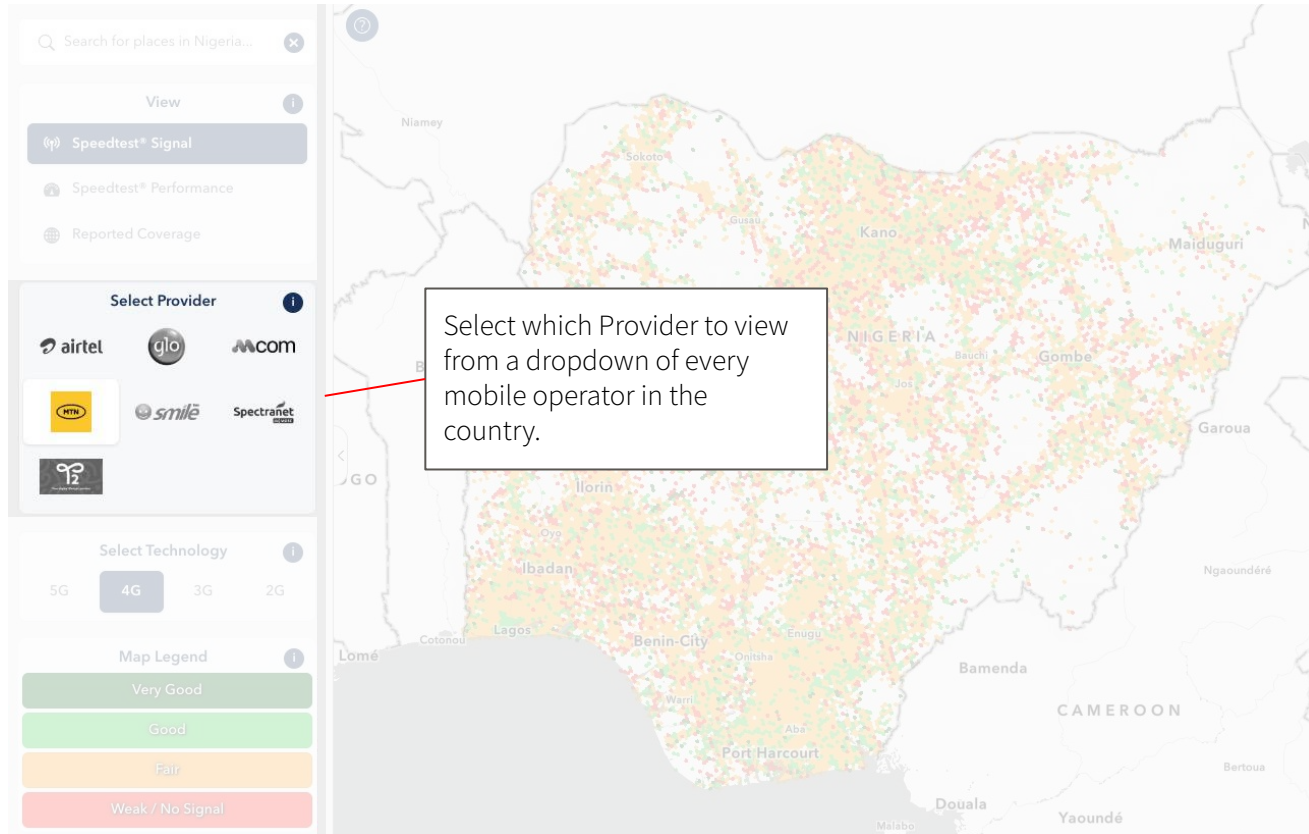
NCC Public Map – Overview



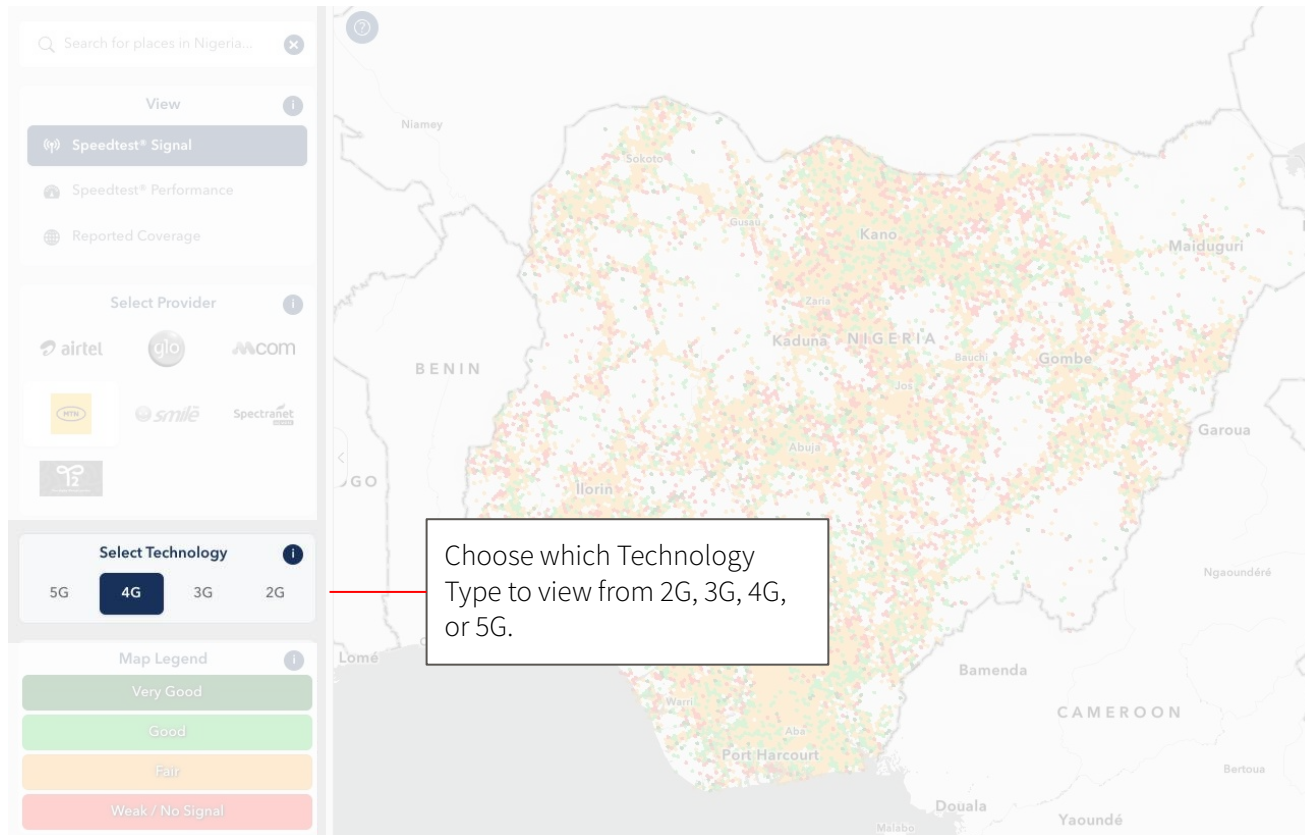
NCC Public Map – Data View Selection

The screenshot displays the NCC Public Map interface. On the left, a sidebar contains several filter sections: a search bar for places in Nigeria, a 'View' section with three options (Speedtest® Signal, Speedtest® Performance, and Reported Coverage), a 'Select Provider' section with logos for airtel, glo, mcom, MTN, smile, and Spectranet, a 'Select Technology' section with buttons for 5G, 4G, 3G, and 2G, and a 'Map Legend' section with four color-coded categories: Very Good (dark green), Good (light green), Fair (orange), and Weak / No Signal (red). The main map area shows a map of Nigeria with a dense overlay of small colored dots representing signal data. A red line points from the 'View' section to a text box that reads: 'View Reported Coverage, Speedtest Performance data, or Speedtest Signal data'. The map also shows neighboring countries (Benin, Cameroon) and various Nigerian cities (Kano, Maiduguri, Kaduna, Bauchi, Gombe, Garoua, Ilorin, Abuja, Lagos, Benin-City, Enugu, Port Harcourt, Douala, Yaoundé).

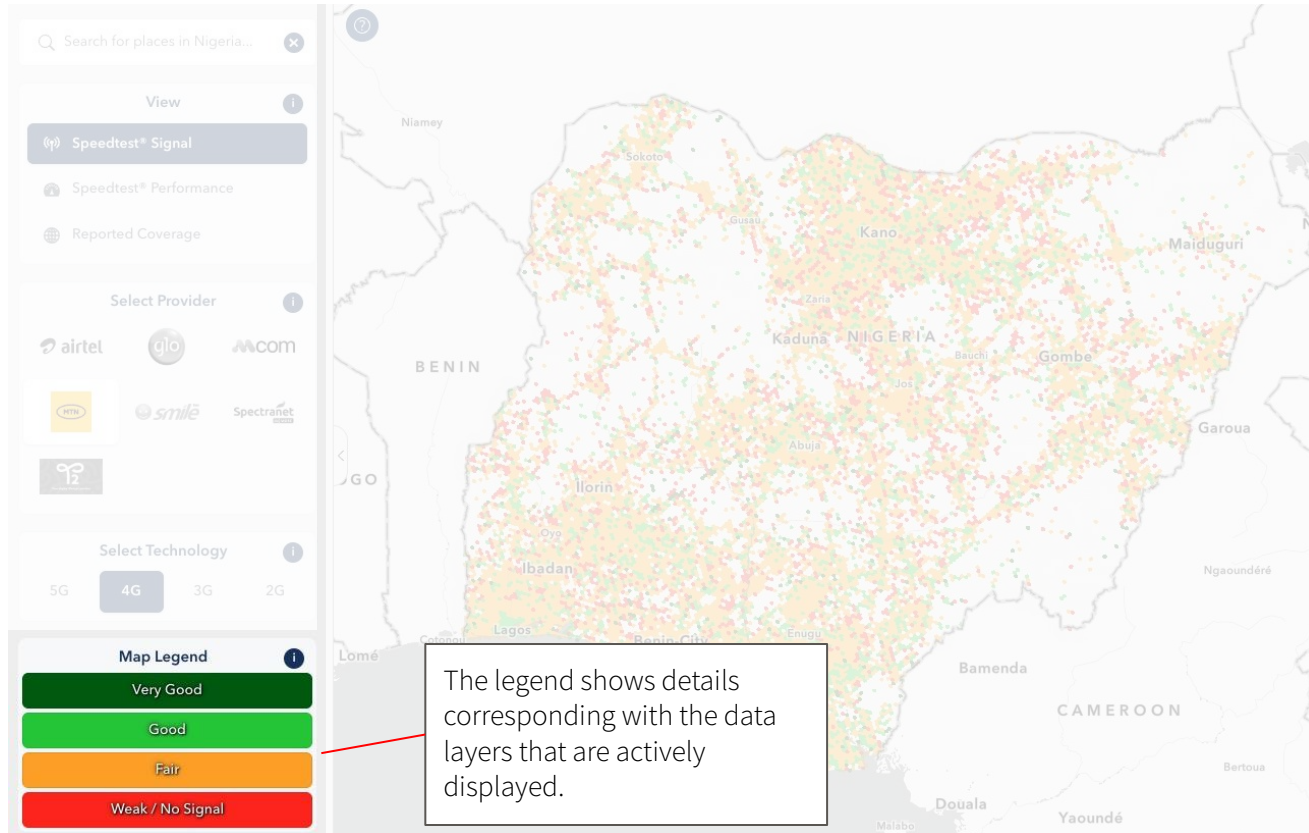
NCC Public Map – Provider Selection



NCC Public Map – Technology Selection



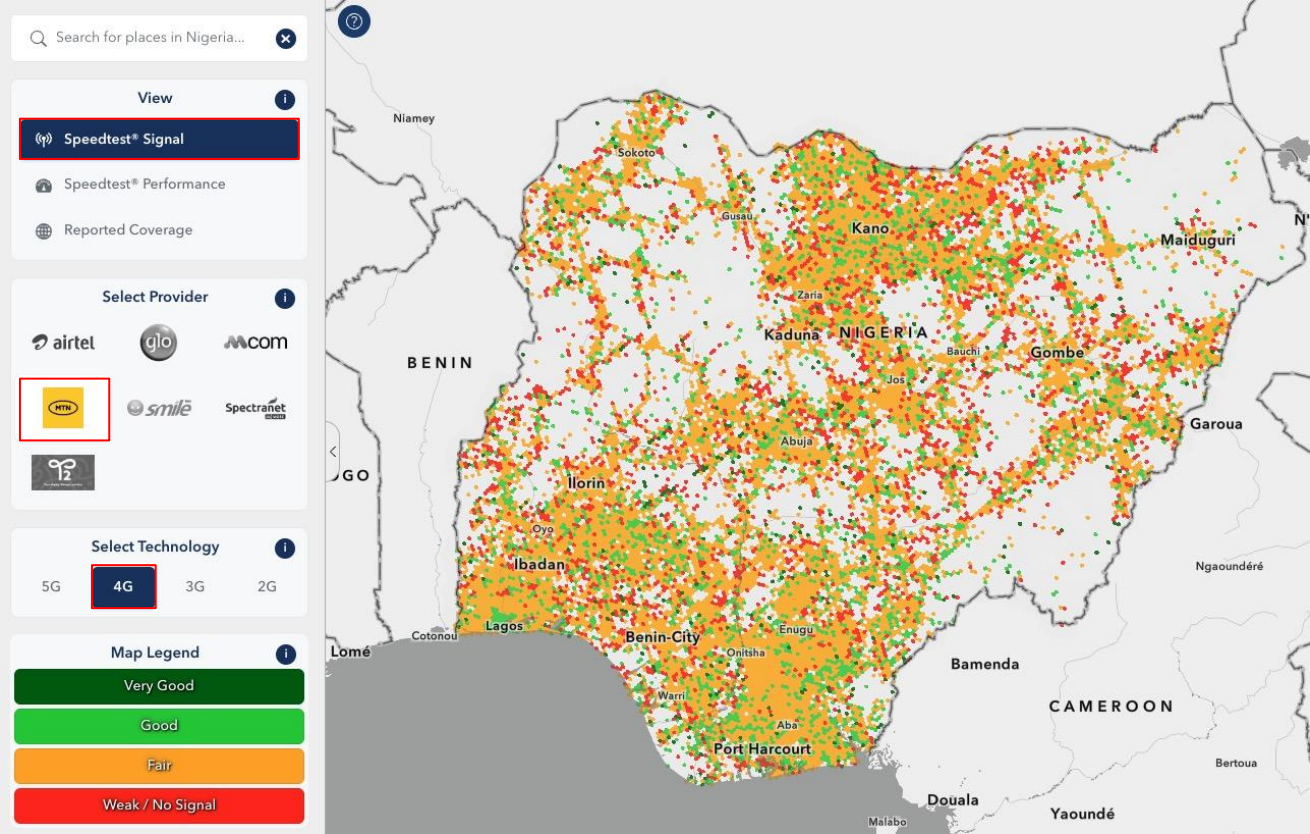
NCC Public Map – User-Friendly Performance Tiers



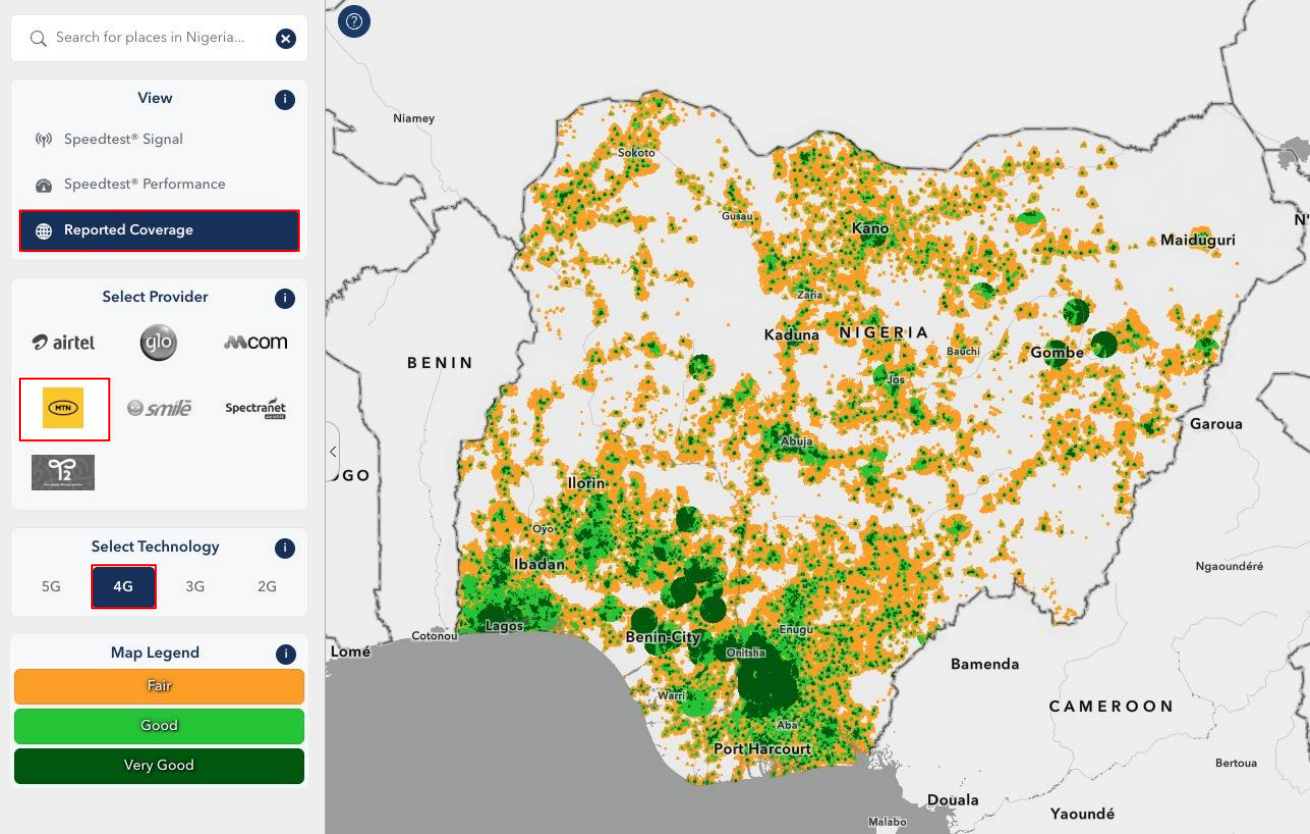
NCC Public Map – Location Search Box

The image shows a screenshot of the NCC Public Map interface. On the left side, there is a sidebar with several sections: a search box at the top, a 'View' section with options for 'Speedtest* Signal', 'Speedtest* Performance', and 'Reported Coverage', a 'Select Provider' section with logos for airtel, glo, mcom, MTN, smile, and Spectranet, a 'Select Technology' section with buttons for 5G, 4G (selected), 3G, and 2G, and a 'Map Legend' section with four color-coded categories: Very Good (dark green), Good (light green), Fair (orange), and Weak / No Signal (red). The main area is a map of Nigeria, densely populated with small colored dots representing signal coverage data. Major cities and states are labeled on the map, including Kano, Maiduguri, Kaduna, Zaria, Bauchi, Gombe, Jos, Abuja, Garoua, Ilorin, Oyo, Ibadan, Lagos, Benin-City, Onitsha, Enugu, Warri, Port Harcourt, Abu, Bamenda, Douala, Yaoundé, Malabo, and Bertoua. Neighboring countries like BENIN, CAMEROON, and NIGERIA are also labeled. A red box highlights the search box at the top left, which contains the text 'Search for places in Nigeria...'. A callout box with a red arrow points to this search box, containing the text: 'A location search box that can be used to pinpoint and jump to locations'.

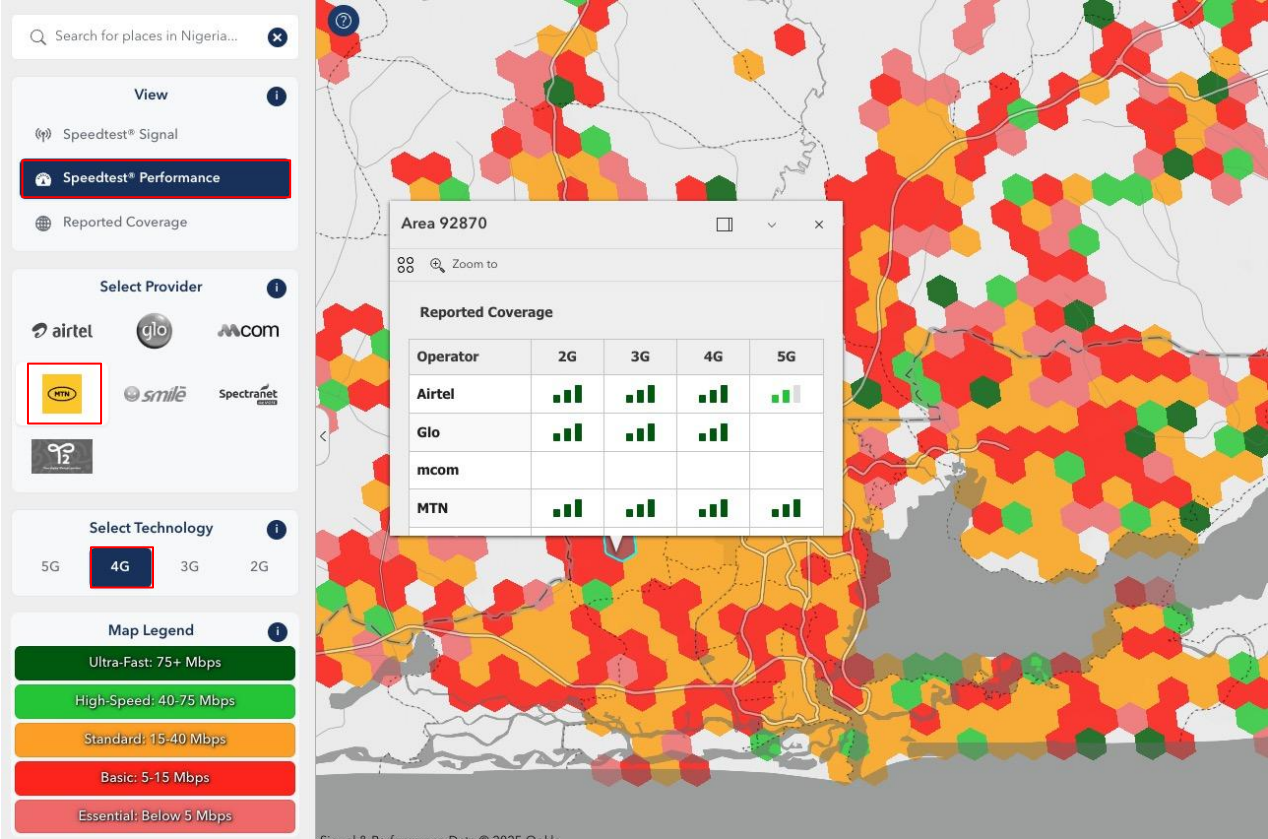
NCC Public Map – Crowdsourced-based Network Coverage



NCC Public Map – Operator-reported Network Coverage



NCC Public Map - Activity-Based Visualization



Lessons Learned & Impact

Lessons Learned & Impact



Essential Hybrid Models

Merging crowdsourced reality with operator baseline data yields the highest accuracy for diverse geographies.



Translation Drives Adoption

Technical data (Mbps) must be translated into consumer-friendly, activity-based formats to be truly useful.



Continuous Data Ingestion

Network landscapes change rapidly; continuous updates are required to maintain public trust.



Regulator-Led Innovation

A central authority championing transparency creates a market dynamic that incentivizes organic quality improvements.

Public Industry Performance Reports

<https://ncc.gov.ng/market-data-reports/industry-performance-reports>



NCC

NOTE: From 1st October 2025, T2 performance reflects a national roaming arrangement with MTN.

4th Quarter 2025:

- ▶ Consumer Insights & Industry Trends
- ▶ Connectivity on the Move: Major Roads Network
- ▶ Network Performance & 5G Reality
- ▶ Connected but Underserved: The Signal Quality Gap
- ▶ Network Impact on Battery Life & Device Temperature in Nigeria
- ▶ Urban vs Rural Network Performance
- ▶ The 5G Reality Check: Closing the Gap between Coverage and Usage



NCC
NIGERIAN
COMMUNICATIONS
COMMISSION

Consumer Insights & Industry Trends

Connecting Nigeria: National Mobile Network Performance Report | Advanced Analytics Services | December 2025



Connected but Underserved: The Signal Quality Gap



Connectivity on the Move: Major Roads Network Report

Roads Coverage & Signal Quality Trends | Advanced Analytics Services | December 2025



Network Performance & 5G Reality Report

National Coverage Gaps & Infrastructure Trends | Advanced Analytics Services | December 2025

Press Coverage

NCC, Ookla launch coverage map, link poor network to urban congestion

By Udemé Bassey - October 20, 2025

40 0



NCC, Ookla launch coverage map, link poor network to urban congestion

By Udemé Bassey - October 20, 2025

155 0



NCC, Ookla launch national coverage map to boost transparency, data-driven telecom regulation

Folake Balogun - October 20, 2025



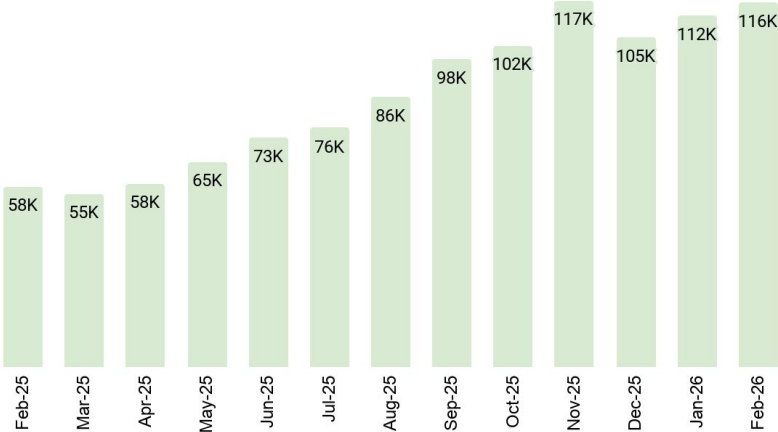
Nigerian Communications Commission (NCC)



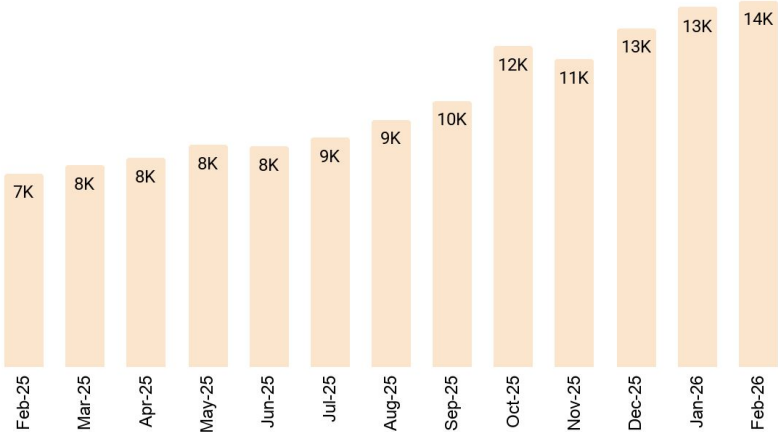
Growing Number of Speedtest Users in Nigeria

Since September 2025, the number of monthly tests increased by **17%** and the number of samples by **40%**

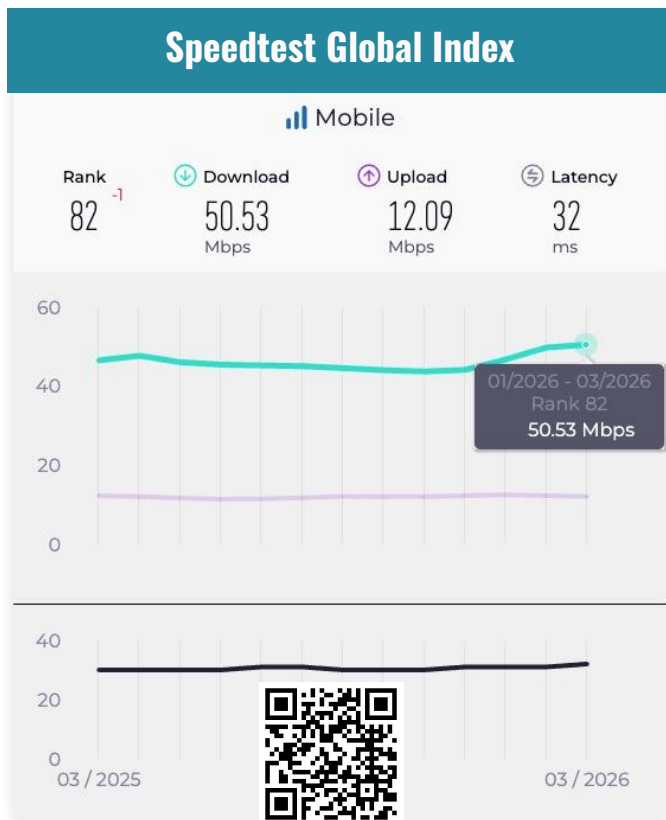
Test count (thousands)



Sample count (thousands)



Improvement in Speedtest Global Index Ranking...

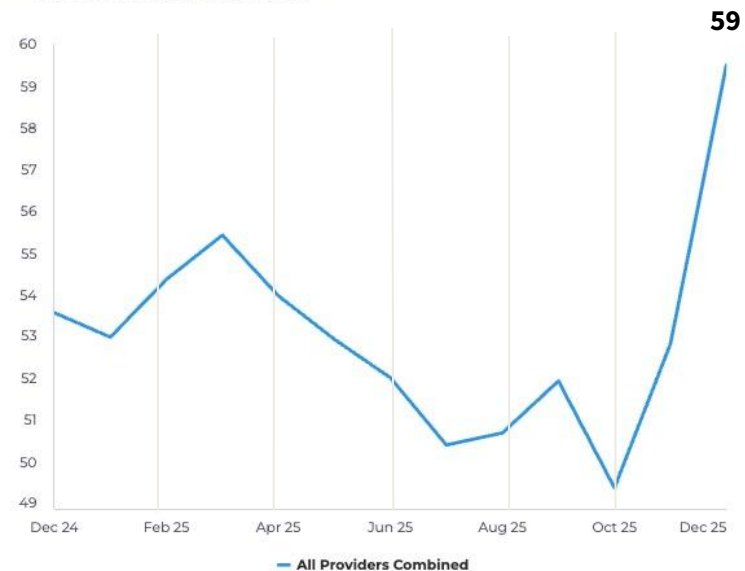


- Industry standard by global regulatory bodies with **15,000+ test servers**
- Ranks **180+ countries** based on mobile and fixed performance
- Indicator of **national technological advancement** and economic competitiveness
- **Measure RoI** on a macro-level
- Strengthen **preparedness for future demand**

... and also Positive Quality of Experience Trends

Speedtest Connectivity Score

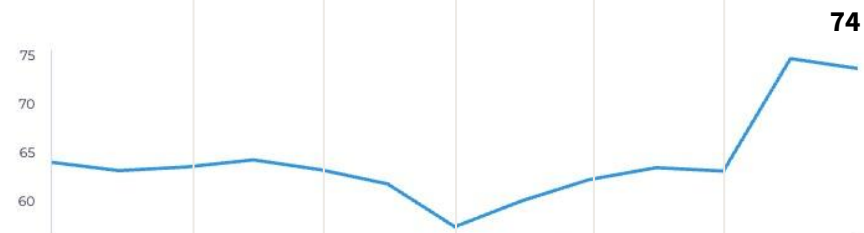
Speedtest Connectivity Score ②



Speed Score



Video Streaming Score



Web Browsing Score



Thank You

Do you have any questions?

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