5G First Look

A new intelligence service that provides an early look at 5G deployments across the globe, complete with performance benchmark testing.
5G First Look

The promise, potential, and real-world performance

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5G First Look: What it is

The 5G race has officially started, with operators in South Korea and the US scrambling to launch the first publicly available 5G networks. To bring clarity to how 5G networks will perform under real-world conditions, the “5G First Look” intelligence service from IHS Markit offers an early look at 5G deployments across the globe, complete with scientific testing that provides an objective benchmark of each 5G network.

Our testing shows what is currently possible with initial deployments and how closely the reality of 5G matches earlier 5G promises.

5G First Look answers…

Which carrier offers the best network performance for the following metrics
- Overall performance
- Network speed
- Network reliability
- Call
- Data
- Text

What services will be available
Who this report is for

- Wireless carriers
- Network, cloud and CDN companies
- Device manufacturers
- Financial institutions
- Backend providers
- Broadband service providers
- Infrastructure companies
- Semiconductor companies
- Media companies
- Automotive companies
- Industrial suppliers
- Financial institutions
- Automotive companies
- Semiconductor companies
- Infrastructure companies
5G insights from nation to neighborhood

The most complete picture of 5G performance available
What’s covered
State of the 5G mobile networks

Market coverage
• A general overview of 5G
• Why 5G matters to consumers, and carriers’ ability to deliver on expectations
• Use cases and applications for 5G, and whether the networks are ready
• Why all “5G”s are not equal
• Overview of the 5G race between operators and countries
• Anticipated economic impact of 5G
• A first look at what 5G delivers under real-world conditions
• 5G market status, including network rollouts and device availability

Results for each country tested
• Total subscriber base and market share per carrier by country under test
• 5G-specific services offered by each operator in the market
• Equipment provider insights per carrier per country
• Spectrum deployment insights per carrier per country
• Testing stats and facts per country
• Testing results, including call performance, data performance with fastest maximum speeds recorded, 5G reliability insights, and 5G vs. 4G assessments
• Device under test with teardown highlights

Also included
• RootInsights, an online data visualization tool
• Test-level raw and lower-layer detail CSV file
• Video raw detail CSV file (limited markets)
• Teardown access for scout devices
• Quarterly update webinar with analysts
Country-specific 5G testing

Bringing marketplace awareness to consumers and enterprises on what is true 5G and who has the best 5G network
5G First Look rollout

- **5G First Look Wave 1**: 4 countries, May–July
- **5G First Look Wave 2**: 4 countries, August–October

**Countries and Rollout Details**

- **US (July)**: 10 cities, 4 carriers
- **UK (July)**: 3 cities, 4 carriers
- **Switzerland (July)**: 2 cities, 3 carriers
- **Korea (May)**: 1 city, 3 carriers
- **Japan**: 3 carriers, TBD
- **India**: 5 carriers, TBD
- **China**: 3 carriers, TBD
- **Australia**: 3 carriers, TBD
Wave 1: South Korea
Preview results ready

Networks tested
5G, LTE, 4G, 3G, 2G (whatever the device uses while testing)

Operators tested and devices used

<table>
<thead>
<tr>
<th>Operator</th>
<th>Device</th>
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<tbody>
<tr>
<td>KT</td>
<td>Samsung S10 5G</td>
</tr>
<tr>
<td>SK Telecom</td>
<td>Samsung S10 5G</td>
</tr>
<tr>
<td>LG U+</td>
<td>Samsung S10 5G</td>
</tr>
</tbody>
</table>

Testing areas

- Seoul metro and roadways
- Seoul urban metro+, covering:
  - Myeong-dong, Starfield Coex Mall at Samseong Station, Namdaemun Market, Hongdae (Wausan-ro), Dongdaemun, Insa-dong, Itaewon-dong, Nonhyeon-dong, Yeouido-dong, Yongsan Station, Seoul Station, Yeoksam-dong, Gangnam Station
- Seoul to transit station and line
  - Seoul Station to Busan Station via KTX line
- Seoul rural and roadways

Testing activities
Indoor, outdoor, drive
Wave 1: United States
First market results ready July

Networks tested
5G, LTE, 4G, 3G, 2G (whatever the device uses while testing)

Operators tested and devices used

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<tbody>
<tr>
<td>AT&amp;T</td>
<td>Samsung S10 5G</td>
</tr>
<tr>
<td>Sprint</td>
<td>LG V50</td>
</tr>
<tr>
<td>T-Mobile</td>
<td>N/A</td>
</tr>
<tr>
<td>Verizon</td>
<td>Samsung S10 5G</td>
</tr>
</tbody>
</table>

Testing areas
Metro, metro+, rural, and roadways; top 10 cities with 5G, including:
- Chicago (Sprint, Verizon): The Loop, Magnificent Mile, The Gold Coast, River North, and Old Town
- Charlotte (AT&T, Verizon)
- Dallas (AT&T, Sprint, Verizon)
- Atlanta (AT&T, Sprint, Verizon)
- Kansas City (Sprint, Verizon)
- Houston (AT&T, Sprint, Verizon)
- Indianapolis (AT&T, Verizon)
- San Diego (AT&T, Verizon)
- Phoenix (Sprint, Verizon)
- Washington DC (Sprint, Verizon)

Testing activities
Indoor, outdoor, drive
Wave 1: Switzerland
Results ready July

Networks tested
5G, LTE, 4G, 3G, 2G (whatever the device uses while testing)

Operators tested and devices used

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<tr>
<td>Salt</td>
<td>Xiaomi Mi Mix 3 5G</td>
</tr>
<tr>
<td>Sunrise</td>
<td>Xiaomi Mi Mix 3 5G</td>
</tr>
<tr>
<td>Swisscom</td>
<td>Xiaomi Mi Mix 3 5G</td>
</tr>
</tbody>
</table>

Testing areas

- Metro lite, including -- but not limited to -- Zurich and Geneva
- Rural
- Transit
- Roadways across Switzerland

Testing activities
Indoor, outdoor, drive
Wave 1: United Kingdom
Results ready end of July

Networks tested
5G, LTE, 4G, 3G, 2G (whatever the device uses while testing)

Operators tested and devices used

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<thead>
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<th>Operator</th>
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</thead>
<tbody>
<tr>
<td>EE</td>
<td>OnePlus 7 5G</td>
</tr>
<tr>
<td>O2</td>
<td>Samsung S10 5G</td>
</tr>
<tr>
<td>Three</td>
<td>Huawei Mate X</td>
</tr>
<tr>
<td>Vodafone</td>
<td>Samsung S10 5G</td>
</tr>
</tbody>
</table>

Testing areas
- Metro and metro+, including -- but not limited to -- London, Cardiff, and Manchester
- Rural
- Transit
- Roadways

Testing activities
Indoor, outdoor, drive
Other syndicated 5G solutions

**Digital Orbit**
Tracks the development, impact, and disruption caused by transformative technologies across key industries

**Mobile Infrastructure Intelligence Service**
Offers insight on 5G network infrastructure, standards developments, and carrier deployment strategies

**Operator Multi-play Intelligence Service**
Provides country-level 5G subscriber forecasts and operator strategies for 5G

**Smartphone Intelligence Service - Premium**
Offers coverage of 5G smartphone shipments and capabilities

**Wireless Semiconductor Competitive Intelligence Service**
Tracks 5G chipsets, RF front end, and pricing trends

**Cellular IoT Intelligence Service**
Provides analysis of new IoT market opportunities for 5G

**Industrial Communications Intelligence Service**
Examines 5G used for industrial application deployments

**Broadband Infrastructure Intelligence Service**
Examines 5G used for fixed wireless access deployments

Additional 5G resources

**Webcast**
*The 5G ecosystem – one network, many challenges* (May 29)

**Complimentary whitepaper**
*The promise and potential of 5G: Evolution or revolution?*

**Our methodology**
*The RootMetrics approach: Scientific, unbiased network performance testing*

**Video**
Understand 5G’s potential to meet numerous needs within one network
Appendix
IHS Markit tests all aspects of connected life to show a real-world picture of what’s working, where improvements can be made, and where growth opportunities exist.

How is 5G improving these experiences?

RootMetrics by IHS Markit data is the standard for performance measurement. We deliver scientific testing of how consumers and enterprises experience technology under real-world conditions.
IHS Markit covers the broadest 5G technology experiences

More locations
Nationwide, including indoor and outdoor testing

Hyper-local areas
Dense urban walking, in-home testing, and vertical indoor testing

Consumer-based testing
Upload/download throughput, mobile-to-mobile calling, light data, and protocol testing

Consumer survey and sentiment analysis
Direct feedback from consumers through survey and social sentiment analysis on what they expect from 5G

Comprehensive analytics and insights
Performance, speed, reliability, coverage, spectrum deployment, spectral efficiency, band utilization, carrier aggregation analysis, timing advance, and site density

Lower-layer data collection
Mobile measurements, lower-layer data, and scanner (coming soon)

5G benchmark use cases
Cellular, converged networks, broadband, Internet of Things (IoT) including mMTC, edge, consumer devices, multi-cloud networks, gaming, AR/VR, and crowd

Market intelligence research on 5G
The most comprehensive market intelligence on 5G deployments worldwide

Marketing and PR
Leverage the IHS Markit brand to help marketplace positioning

Superiority claims and awards
Improvement, leadership, reliability, connectivity, and speed