PRODUCT BROCHURE

Keysight 8100 5G Mobile Device Test System

Automated 5G UE Testing for Location, Video, and Voice

KEYSIGHT

Fast, Comprehensive Performance Testing of Mobile Smartphone and IoT Devices for Voice, Data, Video, and Location Technologies with Fully Automated, Customizable Turnkey Solutions For Carrier Acceptance, Standards-Based Testing, and R&D

The Keysight 8100 system offers configurations for 5G positioning performance, voice call and audio performance, and streaming video performance.

These configurations are tailored for the needs of 5G device manufacturers and chipset vendors who are developing devices such as eMBB 5G smartphones, “puck” data modems, fixed-wireless premises equipment, and IoT devices.

The 8100 5G system provides R&D testing capabilities, specialized automated test suites for E911 positioning conformance, and carrier acceptance test suites for voice, video, data, and location services.

Existing Keysight 8100 customers enjoy a seamless upgrade path from their 3G/4G systems into the 5G domain. Keysight’s TestManager and TestDrive automation suites, with their world-renowned ease of use, provide familiar environments for test case development and execution.

5G brings unprecedented challenges to UE testing, as devices are being called upon to deliver new levels of performance in location accuracy, low latency, and high data rates.

New use cases abound, with smartphones now playing a central role as video-consumption devices, and with new verticals using 5G for telemedicine, factory automation, and smart cities.

The Next Gen of Device Test

The 8100 5G Mobile Device Test System combines Keysight’s industry-leading automation and ease of use, 4G LTE, A-GNSS, and indoor location technologies with 5G network emulation to support 5G-NR in non-standalone and standalone configurations.

The system leverages state-of-the-art, software-defined radio technology to evolve as 5G evolves, to serve in mmWave and Sub 6GHz, to realize massive MIMO and beam management scenarios.

Keysight's 8100 5G system supports your needs today and prepares your lab for tomorrow

5G Positioning Performance

5G promises to bring new positioning technologies over and above what GNSS and 4G-LTE can provide. 5G-NR enables increased OTDOA accuracy, and when coupled with beamforming gNodeB antennas and beam-tracking UE designs, 5G provides z-axis position data.

Today's 4G Assisted-GNSS (A-GNSS) devices will also be impacted by 5G radio as they become exposed to interference from new 5G bands. Keysight provides test solutions that help ensure the 4G location performance accuracy of the devices with 5G radio impact, as well as performance of 5G devices with 5G location technologies.

Keysight's 8100 5G system for location testing meets today's needs and provides a seamless path to maintain alignment with upcoming 3GPP extensions for 5G's new location technologies. The system includes state-of-the-art GNSS simulation, as well as Keysight's exclusive indoor location simulator. These components are combined into a system that provides industry-leading automated location performance and conformance testing.

Key Capabilities

End-to-End Location Testing with Industry-Leading 5G/4G And GNSS Simulation

- Supports 5G SA and NSA in both FDD and TDD modes
- Hybrid A-GNSS + OTDOA (observed time difference of arrival) testing with comprehensive performance evaluation
- Next-gen 5G positioning technologies, including NR-ECID, Multi-RTT, DL-AoD, DL-TDOA, and Real-Time Kinematics (RTK) for improved positioning accuracy
- Expanded GNSS simulation and testing: Supports GPS, GLONASS, Galileo, BeiDou, and now includes QZSS and NavIC

Conformance and Carrier Certification

- Type approval and conformance certification:
  - GCF/PTCRB approval for A-GNSS, OTDOA minimum performance, and protocol conformance
  - OMA SUPL protocol conformance
- CTIA v8.0 OTA test support: Pre-integrated with leading anechoic chambers for conducted and over-the-air (OTA) radiated testing
- RedCap CTIA OTA test support for all constellations and bands in specification
- Test plan support for all major US carriers

Advanced Indoor and Record &and Playback Testing

- Indoor location testing using Wi-Fi, barometric pressure, and Bluetooth beacons (roadmap capability)
- GNSS, Wi-Fi, LTE and 5G record & playback for real-world scenario simulation

User-Friendly Experience and Flexible Testing

- Intuitive graphical UI enables simple test execution and results analysis
- Test case configurability enables performance testing beyond 3GPP conformance

5G Voice Call Performance, Audio Performance, and Video Performance

As 5G becomes increasingly widespread over the next few years, today's smartphone use cases will migrate to 5G. Voice call quality and call performance become the new standard, and users will expect ultra-high data performance and long battery life while consuming over-the-top video content in ultra-high-resolution 4K and 8K video.

Key Features

- Evaluate 5G impact on LTE voice calling performance (5G-NSA mode)
- Perceptual voice quality measurement (MOS)
- Perceptual video quality measurement (VMOS) for any over-the-top streaming service, embedded operator services, and video-chat services
- Evaluate mobile device application data performance
- Conducted mode connection to UE
- Available desktop isolation chamber for OTA connection to the UE
- Frequency bands up to 6GHz supported
- Supports devices up to 4 channel M-MIMO