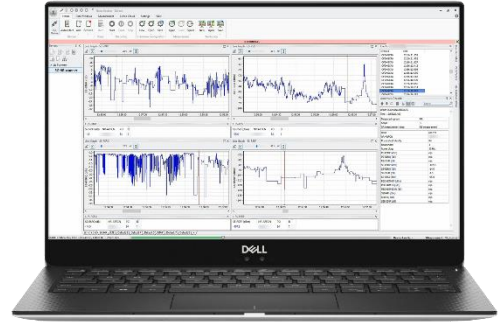# Nemo Outdoor

Powerful Drive Test Tool for Measuring and Monitoring Wireless Networks

Nemo Outdoor from Keysight Technologies, Inc. has an established position both as a pioneer and leader in drive test measurement solutions. Nemo Outdoor offers a broad range of testing options, the widest range of 5G NR KPIs on the market, and support for all the newest technologies including 5G NR (SA and NSA), 5G NR carrier aggregation, 5G mmWave/sub-6 carrier aggregation, NB-IoT, LTE-M, LTE-A up to 8CC carrier aggregation, VoNR, VoLTE/ViLTE, VoWiFi/ViWiFi, 4x4 MIMO, and eMBMS testing.

Features

- Quality-of-experience (QoE) metrics for the services and applications your customers are actually using.
- Automated measurements with extensive scripts and large-scale measurement lists enable you to focus on the actual task at hand during drive testing.
- User-defined parameters from signaling messages can be searched and displayed in info view and graph side panel during measurement and playback.
- Versatile benchmarking capabilities, including Nemo Network Benchmarking Solution (NBM) and Nemo Backpack Pro.

5G features

- Supports Qualcomm (X35 RedCap, X50, X55, X60, X65, X70, X75), Samsung Exynos (5100, 5123, 5123A, 5123B, 5133, 5153, 5300), HiSilicon Balong 5000, and MediaTek (M60 RedCap, M70, M80) modem-based devices devices, and 3rd party scanning receivers.
- Supports 5G NR standalone (SA) and non-standalone (NSA) mode testing.
- Supports 5G NR carrier aggregation testing.
- Supports 5G NR NSA/SA forcing.
- Supports 5G NR channel/PCI forcing.
- Collects 5G NR beam specific KPIs.
- Supports massive MIMO (mMIMO) drive tests and field measurements.
- Supports Dynamic Spectrum Sharing (DSS) measurements.

KEYSIGHT
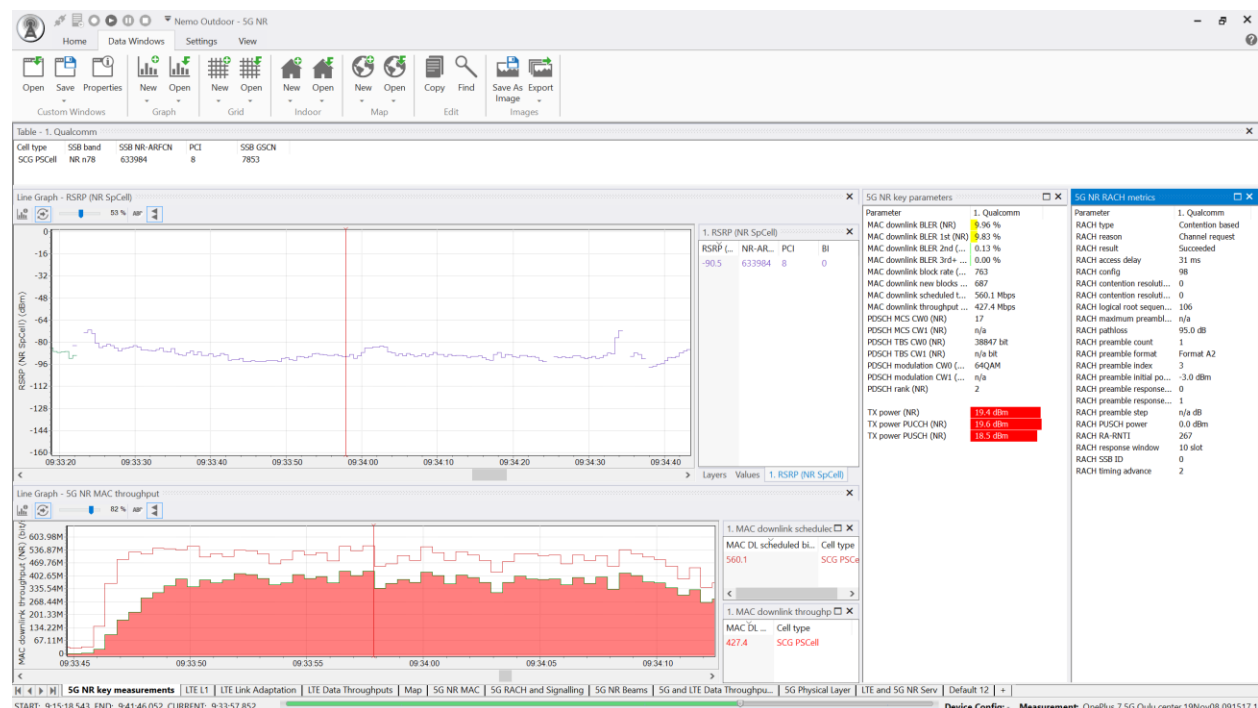
Reduce the Time-to-Market of Your New Services

To gain competitive advantage in today's market, monitoring and improving customer experience is crucial. The information provided by Nemo Outdoor assists in the verification and troubleshooting of new services reducing the time-to-market.

Nemo Outdoor's diversity is only matched by its flexible user interface and ease of use. Owing to its single platform, all essential functionalities can be found in one location. Through the fully customizable user interface, the user is able to tailor Nemo Outdoor to their particular use.

5G Ready

Nemo Outdoor supports real 5G NR field measurements, both standalone (SA) and non-standalone (NSA) modes, and 5G NR forcing features, and offers the widest range of 5G NR KPIs on the market. The solution combines Nemo Outdoor with Qualcomm (X35 RedCap, X50, X55, X60, X65, X70, X75), Samsung Exynos (5100, 5123, 5123A, 5123B, 5133, 5153, 5300), HiSilicon Balong 5000, and MediaTek (M60 RedCap, M70, M80) modem-based devices devices and 3rd party scanning receivers. The collected metrics include RACH information, TX power, rank (MIMO mode), modulation, MAC throughput and BLER, signal strength, and quality metrics of the SSB beams. In addition, we collect QoS measurements including throughputs from different layers and latency.

The 5G NR test system can be used to perform real 5G NR measurements with demodulation of the 5G NR reference signals and it enables simultaneous 2G, 3G, 4G, and 5G NR spectrum scan and frequency scan (CW) measurements. When paired with Nemo Network Benchmarking Solution (NBM), Nemo Outdoor offers a revolutionary 5G benchmarking solution.

Comprehensive Solution Based on a Single Laptop

Nemo Outdoor allows operators to test and verify the capacity of wireless networks and it comes with an incomparable support for over 300 test terminals and scanning receivers.

Nemo Outdoor is highly suitable for targeted network problems in all the established and emerging phases of the network life cycle. It can be expanded to cover extensive and powerful measurements from drive testing to benchmarking (indoors and outdoors) and QoS measurements. All this on a single laptop-based software platform.

Nemo Outdoor enables the measuring of quality-of-experience (QoE) metrics for the services and applications your customers are actually using. With the automated AI-driven Application Testing Automation method, mobile operators can reliably and rapidly optimize 5G network performance and deliver greater quality of experience (QoE) for smartphone users accessing world's most widely used over-the-top (OTT) services and social media applications.

In addition to drive test and benchmarking measurements, the Nemo Outdoor platform is expandable to support voice (POLQA/POLQA3 and ViSQOL) and video quality (PEVQ-S) measurements, including streaming video analysis with the PEVQ-S algorithm and Keysight's Streaming Experience Quality Inspector, an algorithm for measuring real consumer QoE for YouTube streaming. Nemo Outdoor also offers tools for various troubleshooting and verification tasks, such as DAS anomaly analysis, real-time RF ingress and missing neighbor detection, pilot pollution analysis, GSM interference analysis, and Qualcomm and Samsung diagnostic data logging. In addition, with the advanced mobile band scan feature, Nemo Outdoor continuously scans for pilot channels from specified bands and automatically adds them for pilot scanning.

The optional Nemo Active Test Application (NATA), Keysight's proprietary communications interface and application, enables simple and productive deployment of smartphones in data benchmarking and voice quality measurements by utilizing the smartphones' independent capacity more effectively. With NATA, Nemo Outdoor can be used to perform testing with non-rooted devices as well.

KEYSIGHT