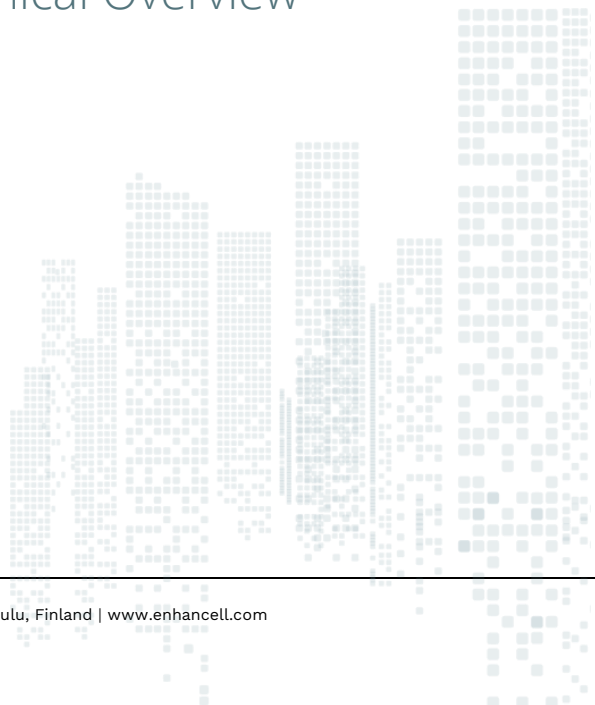# Echo Studio – Technical Overview

Advanced mobile network measurement solution

Enhancell Echo mobile network measuring tools run directly on your PC and handsets.

With Echo you do not need custom test devices and firmware. This means that you can be assured to see the network exactly as your customers see it.

Having Echo run on commercial PCs and phones not only saves you from spending on expensive custom hardware but also allows you to easily transfer licenses from one device to another.
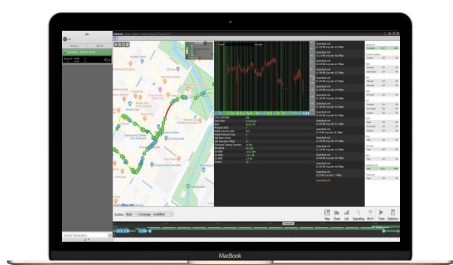
Automatic software updates guarantee that you are always running the latest software.

Echo Studio

Echo Studio is a measurement and analyzing tool which offers quick and easy way to produce reports and visualizations of the measurement test results. Synchronization to Cloud enables instantaneous report production of measurements performed remotely with other Echo devices. Echo devices can also be remotely controlled with Studio.

Echo Studio is a software-only product, and its licensing is delivered via the cloud service. This cloud-based solution is completely independent of physical production chains. Thus, the deliveries and manufacturing capabilities are stable, swift, and flexible.
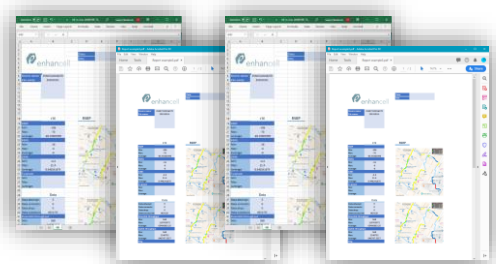
Full 5G support

Echo Studio 3.0 and newer supports measurement for a wide range of 5G parameters ensuring the full advantages of 5G measurement for the users. 4G licenses are upgradeable to 5G making it convenient and cost-effective for existing customers.

Technologies

Echo Studio runs on Windows, Linux and macOs.

Echo Studio supports measurement and analysis for technologies including GSM, CDMA, EVDO, WCDMA, HSDPA, HSUPA, HSPA+, LTE/LTE-A, 5G, Wi-Fi and Bluetooth.

Key benefits

Unparalleled flexibility on license

Echo offers unparalleled flexibility and cost-effectiveness with licenses: all technology functions are included by default and the license transfer is standard from desktop device to another.

Echo's cloud-based licensing guarantees the user full control over license transfers, and a real-time view of license usage. To add to the flexibility, both perpetual and rental licenses are available.
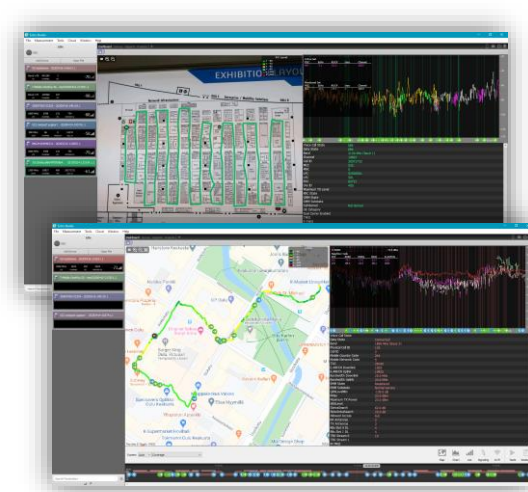
Indoor and outdoor maps

Echo Studio includes support for indoor and outdoor mapping and an offline mode map data caching for outdoor maps.

Echo Studio supports digital images and photos of the floor plan taken with the device as indoor maps. Indoor floor plans include markers and geodetic coordinates (support e.g. for iBwave format). This enables geocoding indoor floor plans on top of Google Maps.

Echo Studio supports Google Maps, OpenStreetMap and ÖPNVKarte as outdoor maps. The positioning of a measurement is based on the connected Echo device's GPS location. The drive route can be visualized on a map as color-coded parameter values in real-time.

OTT application testing

Echo Studio supports several built-in application testing options. Echo enables the user to test a wide range of applications individually and with scripts.

Multi-phone benchmarking

Echo Studio provides unparalleled control with the ability to perform multi-phone benchmarking. Echo Studio can support up to 20 devices simultaneously.
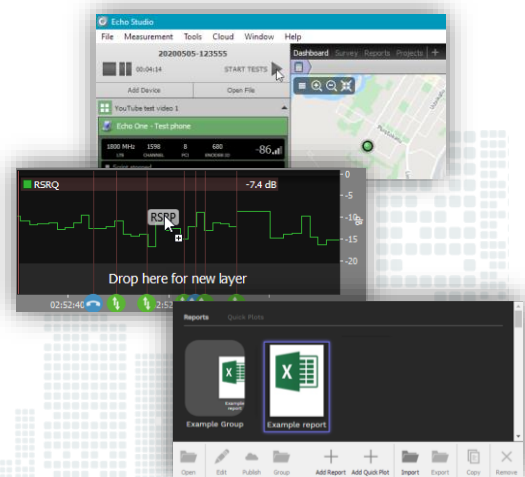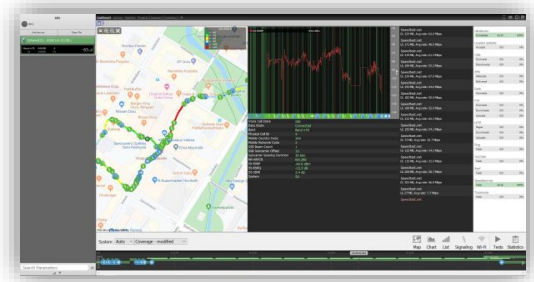
Support for scanners

Echo Studio supports PCTel IBflex®, PCTel HBflex® and DRT 4311B scanners, as well as RF Explorer. Scanners can be connected via Bluetooth and RF Explorer via USB OTG cable.

Key Features

– Supports Windows, Mac, and Linux operating systems
– Advanced playback and troubleshooting capabilities
– Capability to control simultaneously several Echo devices and a scanner.
– Supports GSM, CDMA, EVDO, WCDMA, HSDPA, HSUPA, HSPA+, LTE/LTE-A, 5G, Wi-Fi and Bluetooth measurement
– Transferrable license allows you to move your software from one laptop to another with ease
– Instant Report after data collection allowing easy sharing of report in PDF format
– Support for Echo Cloud
  - Settings configuration from Cloud
  - License management
  - Automatic log file transfer to Cloud
  - Test and Script synchronization with Cloud
  - Indoor map synchronization with Cloud
  - Customized view sharing via Cloud
– Idle and Active testing using manual or scripted mode for voice call, voice quality, FTP and HTTP data transfers, iPerf, HTML browsing, YouTube video streaming testing, SMS testing, and ping testing
– Manual and Scripted tests can be created and modified with built-in script editor in Echo or in Cloud. When tests are edited in Cloud, they are automatically synchronized to devices
– Support for POLQA voice quality testing real-time MOS calculation (optional)
– System lock, band lock, LTE cell lock, and carrier lock (UMTS) for controlled devices
– Phone locking controlled from Studio
– Remote control via Cloud for automated/remote test execution
– Scripts can be created and modified with built-in script editor
– Real-time statistics view for monitoring test progress
– Signaling decoder for L3 and RCC signaling messages. Allowing signaling decode in real-time. Supports the following view types: line, bar, gauge graphs, and text views
– Layer3: updated RCC decoder for the release 15 with full support for 5G signaling decoding
– User-defined views allowing parameter display in the following view types: line, bar, and text views
– Timeline to replay and pause measurement displays while making measurements and to view test progress in relation to time
– Support for indoor and outdoor mapping. Including offline mode map data caching for outdoor maps
– Indoor floor plans with markers and geodetic coordinates (support e.g. for iBwave format). Enables geocoding indoor floor plans on top of Google Maps
– Support for both internal GPS and external GPS via Bluetooth
– Support for PCTel IBflex®, PCTel HBflex®, DRT 4311B and EPIQ scanners, and RF Explorer. Scanners can be connected via Bluetooth and RF Explorer via USB OTG cable
– Full support for 5G scanner measurements using PCTel scanners.

Echo Cloud

Echo Studio includes the Cloud feature which gives you unparalleled control of your Echo devices from a remote location. Cloud enables:

- Store your log files automatically after recording
- Access measurements easily
- Download your measurements in a multitude of formats
- Configure Echo devices remotely
- Manage users and licenses
- Two-factor authentication for extra security
- Option to have dedicated private Cloud server in customer's desired geolocation*

Create and tweak your tests in Cloud. You can access them whenever you want – you can even send test configurations directly to your Echo handheld device.

* For more details on the private Cloud server pricing, please contact Enhancell sales.

Studio and other Post-processing Tools

Echo Advantages

- Fully automated update via Cloud ensures that your software is always up to date
- Unique subscription-based pricing allows you to only pay for the licenses you need when you need them.
- Remote configuration via Cloud allows easy control of your Echo fleet
- Log file storage and export in Cloud allows you to make the most out of your data

Data post-processing

Measurement data can be exported directly from Echo devices to Cloud when they are connected. The data can be exported further from Cloud to Echo Studio or any other compliant 3rd party data post-processing software.

enhancell

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