

Amches Wireless Survey Solution



Amches, in partnership with a commercial wireless survey company, provides a flexible wireless survey tool system that surveys and scans cell, Wi-Fi and Bluetooth data. The tool, named Echo, is a software only solution that runs on commercial Android mobile devices and operates interactively to produce a more complete survey than traditional passive tools. Echo provides more capabilities than the competition at less than half the cost.

Main System Components

- 1 Android device (smartphone, tablet or laptop)
- 2 Echo survey application downloaded from Google Play Store
- 3 Cloud or private server that communicates with the Android device.
- 4 Analytic and visualization software depicting the resultant survey data

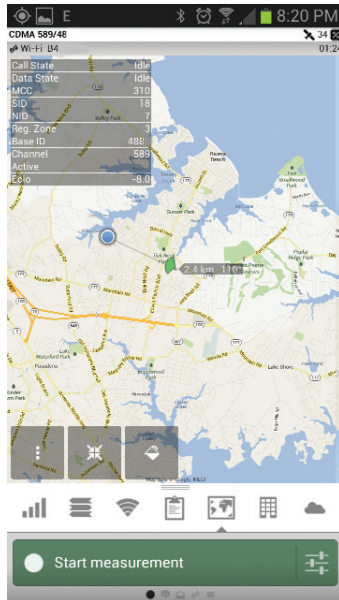
Key Features

- ✓ A software only solution that runs on latest commercial Android devices
- ✓ Ideal for walk testing so all locations are accessible to achieve more detailed results
- ✓ Supports CDMA, EVDO, GSM, UMTS, and LTE all in one tool
- ✓ Supports Wi-Fi and Bluetooth measurements
- ✓ Transferrable license allows moving software from one device to another
- ✓ Real-time visualization of the measurement data
- ✓ Integration to cloud for easy management and file transfers
- ✓ Fully automated updates via cloud ensures that your software is up to date
- ✓ Capable of remote configuration via the cloud



Survey Operation

- Surveys cellular network interactions of the device with the associated base station in near real-time.
- Surveys LTE, CDMA, GSM, UMTS as well as scanning Wi-Fi APs and Bluetooth networks
- Does not require cooperation from the base station.
- Survey information includes coverage area, network management configurations and all parameters within the handset itself. Handset can have passcode lock on application; auto start of survey; automatic transfer of data via cellular or Wi-Fi networks.
- Handset can use channel hash algorithm to identify the channel that a specific ESN is using if the ESN is known. CDMA traffic can be analyzed to determine subscribers active within an area
- Map feature on handset depicts path of handset, current location
 - Map uses Google or Mapnik maps.
 - Allows user to geo-tag features of interest (e.g. cell towers)
 - The map can display colorized paths based on parameters selected (e.g. changing the color based on CID or signal strength)



Cloud puts you in Control

- The cloud is hosted on a virtual server. Government customers may purchase a privately hosted server.
- Cloud features allow “push” and “pull” of all available survey data (the push can include custom scripts (e.g. telling a phone to call a particular number or transmit traffic statistics).
- Proprietary or standard messaging formats can be used to push/pull data and messages. All survey information can be deleted automatically after transfer.

Wi-Fi and Bluetooth Operations

- Can log Wi-Fi devices or discover Bluetooth devices within handset range
- Provides for active and passive counter-intelligence opportunities for increased operational awareness
- Handset can be Bluetooth connected to a PC for more capabilities

Analytic and Visualization

- Real-time visualization of the measurement data
- Amches provides custom analytic and visualization services to increase survey data value

Key Parameters

- ✓ Detailed serving system information including System, Band, MNC, MCC and CID
- ✓ Complete signal strength measurements for serving and neighbor channels
- ✓ Detailed uplink power control parameters
- ✓ Comprehensive set of RACH parameters such as TX Max, RX Min, TX Pwr and Preambles
- ✓ Detailed packet scheduling information (TBF state, TS allocation, CQI and BLER %)
- ✓ Data throughput measurements
- ✓ Full Layer 3 and RRC signaling
- ✓ Network parameter tools are available to convert MEID to ESN formats
- ✓ Provides automatic Most Common Least Attractive (MCLA) and Kc/TMSI roll time/event analysis

Amches is the exclusive U.S. government market distributor for Echo.

