group 2000

Lima®

ARCHITECTS
IN SAFETY AND
INTELLIGENCE

We reveal accurate cell coverage

LIMA CELL MONITOR

Multi-Operator and Multi-Network. Support in one device.

Actual Cell Coverages. Measured coverage vs theoretical models.

User-Friendly GUI. Real time updated coverage information.

INTRODUCTION

Information on actual cell coverage in mobile networks is very valuable. It provides authorities with more precise information on the whereabouts of the cell phone. Typically such information is provided by the mobile operators using information from their Radio Planning System. However, this is often a theoretical model rather than the actual coverage. Actual field measurements provide a more accurate and complete source of information. Such measurements can be done through so-called drive tests that cover various areas or they can be focused on a specific area using a static device. The Group 2000 LIMA Cell Monitor is a low-cost, yet rich-featured device for carrying out such measurements.

LIMA Cell Monitor

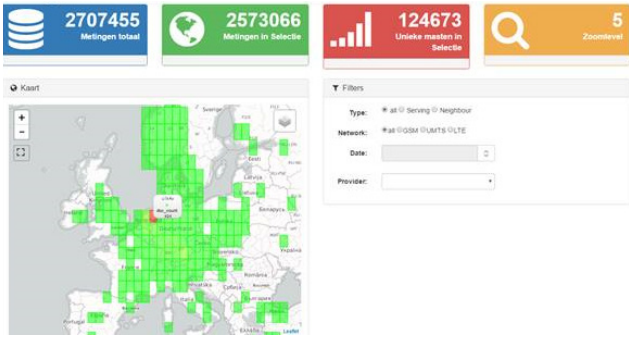
The LIMA Cell Monitor is a purpose-built device with a small form factor that collects information on cells in mobile networks. Its ability to host up to 12 modems allows measurements to take place in parallel. This device simultaneously collects measurements on cells of different operators and technologies (2G, 3G, 4G and 5G) while mounted on a vehicle for drive testing or installed at a fixed location. The device can carry out continuous measurements and bind those to a specific location through the built-in GPS receiver. The measured information is uploaded to a central server via a mobile data connection on a dedicated modem. The Cell Monitor also houses two Wi-Fi adapters to allow scanning for 2.4GHz and 5GHz Wi-Fi networks in parallel. To prevent easy detection, passive mode is supported by the Wi-Fi adapters.

Cell coverage information

With the collected information, accurate coverage maps for 2G, 3G, 4G and 5G networks can be created for all available operators. Besides coverage maps for mobile networks, also coverage maps for Wi-Fi access points can be created. In case operator-provided coverage information is available, the measurements can be used to improve the existing coverage maps by overlaying these with the measurements of the LIMA Cell Monitor. This functionality is supported through a separate available backend application that can process the information from multiple devices.

LIMA Cell Monitor backend application

A backend application for the LIMA Cell Monitor is available for query and analyzing purposes of 2G/3G/4G/5G cells and Wi-Fi networks.



LIMA Cell Monitor Operation & Management

Autonomous operation

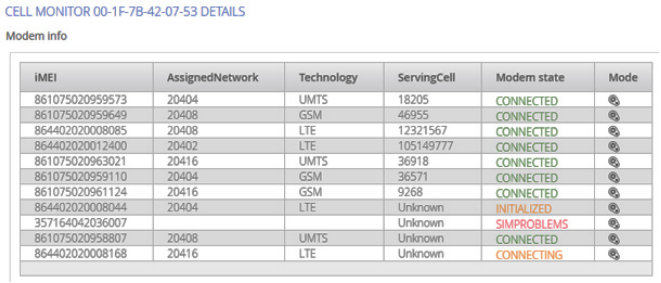
The LIMA Cell Monitor works completely autonomously without the need for any manual interaction. As such the LIMA Cell Monitor is ideally suited to be fit to vehicles like police cars, taxi's, etc, in order to continuously collect coverage information over time of mobile and Wi-Fi networks.

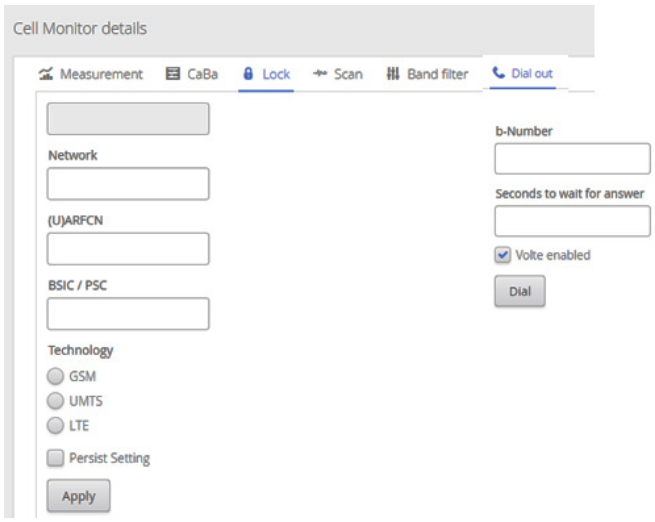
Mobile App

To support the user of the LIMA Cell Monitor in monitoring and configuring the device, the LIMA Cell Monitor comes with a companion app for Android devices. This LIMA Cell Monitor companion app provides the user with an overview of the Cell Monitor status, its modems, GPS, connected networks, Wi-Fi, storage, and transmission devices. In addition, it also provides Location and Coverage tracking functionality and file management capabilities.

Central management

The LIMA Cell Monitor devices are designed to start measurements immediately after power-on without any required handling. For certain investigative purposes however, users may want to set specific measurement parameters to obtain the required data. A central management application is available for these situations, where the user can remotely (centrally) manage and operate Cell Monitor devices from his or her own workstation, reducing the need for specialized personnel in the field.
The central management application provides an expert mode, offering enhanced features to the user.
In expert mode, the user has the ability to manually configure a specific network band per modem for dedicated measurements.





This configuration can be made persistent and is supported for both UMTS and LTE networks.

Crime Scene Investigation

The LIMA Cell Monitor provides the capability to initiate a dial-out session on a specific band or cell to identify whether a cell hand-over could take place due to a dial-out action. The cell to which the hand-over took place could be important for crime scene investigations.

CAPABILITIES

- Output Cell information (serving cells, neighbor cells), Wi-Fi information, GPS location - CSV formatted
- Dedicated 1 modem per operator and technology. Non-dedicated modem switches between networks
- Automatic network detection and selection based on inserted SIM cards
- Configurable interval from minutes to 1 second in dedicated mode
- Remote management for configuration and upgrade of firmware LIMA Cell Monitor
- Companion App for Android devices
- Passive Wi-Fi for scanning of 2.4 and 5.0Ghz networks
- Supports GPS and GLONASS
- Dedicated modem for transmitting measurement data
- Allows scanning of multiple operators and technologies in parallel

TECHNICAL SPECIFICATIONS

- Measurement modems up to 12 modems
- 1 Transmit modem
- Micro SIMs
- Supported technologies GSM, GPRS, EGDE, UMTS, HSPA+/WCDMA, LTE, 5G, 802.11a/b/g/n/ac
- Operating voltage range 8-36V DC
- Protection class IP64
- Dimensions 254mm x 180 mm x 83 mm
- External memory SD card - up to 32GB

OUR COMPLIANCE SOLUTIONS

LIMA COMPLIANCE PORTFOLIO

Comprehensive solutions for service providers, enterprises, law enforcement, and intelligence agencies.

- LIMA Lawful Intercept
  - Warrant Management
  - Provisioning and Mediation
  - Location enrichment
  - Passive and active IP interception
  - E-mail monitors
  - VoIP monitors
  - Mobile data monitors
  - Workflow support

- LIMA Data Retention
  - LIMA Disclosure Management
  - LIMA Data Retention store
  - Workflow support

- LIMA Élite
  - Lawful Interception End 2 End validation
  - Test LEMF functionality

LIMA NETWORK MANAGEMENT AND SENSING PORTFOLIO

For more information about Group 2000's Network Management and Sensing solutions, please visit www.group2000.com.

ARCHITECTS IN SAFETY AND INTELLIGENCE

WHY GROUP 2000?

- Group 2000 is an independent global solutions provider of interception and intelligence solutions
- Group 2000 delivers and preserves essential and reliable interception knowledge
- Group 2000 has global experience in the public and telecommunication domain
- Group 2000 minimizes complexity, delivering end to end solutions
- Group 2000 has technology partnerships with leading suppliers
- Group 2000 is an active member of ETSI
- Group 2000 LIMA solutions are modular and scalable to support the largest networks

- Group 2000 Nederland B.V.
- Van der Hoopweg 1
  P.O. Box 333
  7600 AH Almelo
  The Netherlands
- Tel: +31 (0)546 482 400
  info@group2000.com
  www.group2000.com
- Group 2000 also has affiliate offices in Norway, Switzerland, and the USA.

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