GLADIATOR FORENSICS
THE NEXT GENERATION IN WIRELESS FORENSICS

GAR 23.2 Specification

Features

- Fully autonomous collection
- Comprehensive navigation process
- Data display
- OSS-ESPA integration
- Additional analysis functions
- Multi-operator and multi-technology border detection

Fully autonomous collection

- **Discovery process**: on startup, the GAR unit runs a discovery process to identify all broadcasted channels and operators in the location. This means that it is not dependent on external data, which might be outdated or unavailable.
- **Continuous Discovery**: allows you to set the GAR unit to continue to detect new channels and technologies and add them to the list of elements to be scanned during the collection drive.
- **Rapid start time**: allows you to start data collection in a new location within 5 minutes of powering up.
- **GAR software interface**: allows you to configure the unit and change the default settings.
- **Operator identification**: the GAR unit identifies operators using layer 3 collected messages.
- **Layer 3 decoding**: the GAR unit decodes Control Channel Messages for all technologies, which is critical for CDR and cell tower correlation.
- **RF spectrum scan**: enabled by default for all frequency bands during a drive test.
- **Inbuilt hardware fault monitoring**: identifies and notifies you of any hardware inconsistency during data collection, which prevents the collection of invalid data.
- **External batteries**: allows you to run indoor data collection for at least 4 hours. The batteries are also used as a UPS (Uninterruptible Power Supply) for in vehicle data collection
- **Automatic segmentation of collected data**: done automatically to prevent data loss.

Multi-operator and multi-technology border detection

- Operates over County, State, and International borders
- Supports the detection and collection of multiple technologies in the same frequency
- Supports the detection and collection of multiple operators in the same frequency and technology

Comprehensive navigation process

- **Internal GPS**: supports collecting cellular coverage data outdoors and allows you to use Google, Bing, or Open layers maps.
- **Indoor navigation**: supports collecting cellular coverage data indoors and allows you to use an indoor background map layer.
- **Displays drive routes in the Map**:
  - Current file drive route
  - Today's drive route
  - Campaign drive route: all drive routes collated since the beginning of the campaign

Data display

- **Web interface**: allows you to configure and display collected data.
- **Tabular and graphical interface**: displays all collected data for all operators and technologies.
- **Surveilled element selection**: allows you to select a WiFi or cellular network element to surveil.
- You can monitor its signal strength using the **Graph** screen, and monitor its coverage area using the **Map** screen.
- **Map layers**: allows you to display case data from OSS-ESPA.

OSS-ESPA integration

- **Fully automated integration**: with the One System Solution Enterprise Sensor Processing and Analytics (OSS-ESPA) application.
- **Automatic upload**: all cellular coverage data collected during the collection is uploaded in real time.
- **Automatic download**: the GAR unit downloads OSS-ESPA case data while collecting cellular coverage data, which allows you to display case target locations and cell towers in the **Map** screen.
- **Remote control**: allows you to configure the GAR unit and monitor the data collection in real time from a different location.

  This allows you to manage more than one GAR unit from a single user interface.
- **Quality control**: OSS-ESPA provides a level of quality control of all collected data.

Additional analysis

- **Stolen devices identification**: when performing a WiFi scan, the GAR unit checks scanned WiFi devices against a database of stolen devices and identifies them by MAC address.
- **Base Station Location**: allows you to estimate the location of a base station without cell tower data.
- **Most Common Least Attractive (MCLA) analysis**: gives an overview of cell coverage in the area and the best configuration option for a new COW (Cell Over Wheel).

Specifications

Bands

- **Software Defined Radio (SDR) technology**: you can configure the GAR unit to scan any technology for a band defined by an appropriate authority, such as ETSI or 3GPP.
- **Frequency range**: 350 MHz - 6 GHz, and 17 GHz to 53 GHz

Bands supported by the GAR unit:

- **NR - 3GPP TS 38.101-1**
  - 3GPP Portal Specification #: 38.101-1: https://portal.3gpp.org/desktopmodules/Specifications/SpecificationDetails.aspx?specificationId=3283
  - Wikipedia 5G NR Frequency Bands: https://en.wikipedia.org/wiki/5G_NR_frequency_bands
- **LTE and NbIoT – 3GPP TS 36.101**
  - 3GPP Portal Specification #: 36.101: https://portal.3gpp.org/desktopmodules/Specifications/SpecificationDetails.aspx?specificationId=2411
  - Wikipedia LTE Frequency Bands: https://en.wikipedia.org/wiki/LTE_frequency_bands
- **UMTS - 3GPP TS 25.101 and 25.102**
  - 3GPP Portal Specification #: 25.101: https://portal.3gpp.org/desktopmodules/Specifications/SpecificationDetails.aspx?specificationId=1151
  - 3GPP Portal Specification #: 25.102: https://portal.3gpp.org/desktopmodules/Specifications/SpecificationDetails.aspx?specificationId=1152
  - Wikipedia UMTS Frequency Bands: https://en.wikipedia.org/wiki/UMTS_frequency_bands
- **CDMA/EvDO - 3GPP2 C.S0057-E**
  - 3GPP2 Portal specification C.S0057-E https://www.3gpp2.org/Public_html/Specs/C.S0057-F_v1.0_Republication_20150915.pdf
  - Wikipedia CDMA Frequency Bands: https://en.wikipedia.org/wiki/CDMA_frequency_bands
- **GSM - 3GPP TS 45.005**
  - 3GPP Portal Specification #: 45.005: https://portal.3gpp.org/desktopmodules/Specifications/SpecificationDetails.aspx?specificationId=2709
  - Wikipedia GSM Frequency Bands: https://en.wikipedia.org/wiki/GSM_frequency_bands
- **WiFi**
  - IEEE Explore 802.11 Standard: https://ieeexplore.ieee.org/document/9363693
  - Wikipedia List of WLAN Channels: https://en.wikipedia.org/wiki/List_of_WLAN_channels

Protocols

- GSM
- WCDMA
- CDMA/CDMA2000®
- 1xEV-DO (Rel. 0/Rev. A/Rev. B)
- LTE-FDD
- LTE-TDD
- WiFi (802.11 A/B/G/N/AC)
- NR
- NB-IoT

Interfaces

- **Mini HDMI port (Type C)**: for video display.
- **USB ports**: allow you to connect additional devices for local control.
- **RF Input**: SMA - 50Ω.
- **Internal GPS**: SMB - 50Ω.
- **Network connections**: WiFi, Ethernet

Technical data

In this data the GAR unit includes the GPS/RF/WIFI cables and antennas, and two scanners. Each scanner weighs 0.5 kg (17.63 lbs).

GAR unit with suitcase dimensions:

Measurement	Metric	Imperial
Height	54.5 cm	21.45 "
Length	24.5 cm	9.64 "
Width	34.5 cm	13.58 "
Weight	19.36 kg	42.7 lbs

GAR unit without suitcase dimensions:

Measurement	Metric	Imperial
Height	18.5 cm	7.28 "
Length	27 cm	10.62 "
Width	42 cm	16.53 "
Weight	14.37 kg	31.7 lbs

GAR unit environmental specifications:

Environmental factor	GAR specifications
Operating temperature	+5°C to +40°C (+41°F to +104°F)
Permissible	0°C to +45°C (+32°F to +113°F)
temperature	
Storage temperature	-20°C to +50°C (-4°F to +122°F)
Damp heat	+40°C (+104°F), 95% relative humidity, cyclic In line with EN60068-2-30

The GAR unit has the following power specifications:

- Input voltage range: 10 to 18V DC (-0%/+10%)
- Nominal input current: maximum 8A at 10V
- Typical battery life when conducting 32 tasks: 4 hours

The GAR unit is powered by one of the following methods:

- Cigarette lighter power cable
- GAR unit batteries

  You can recharge batteries using the wall unit.

  1 battery takes 4 hours to fully charge.

GAR unit batteries are hot swappable, so you can swap a depleted battery with a fully charged replacement without switching off the unit.

Available accessories

- Battery pack
- Battery charging station
- Power adapter and cable
- Radio frequency antenna
- GPS antenna
- Indoor WiFi antennas (optional)
- Outdoor magnetic WiFi antennas (optional)

Contact information

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