HERRICK TECH LABS

BUCKSHOT Geo-Location System

Model: HTL-1016-0001 G2

Herrick Tech Labs **BUCKSHOT** system provides an affordable, lightweight single unit geo-location solution. Developed to support diverse mission scenarios, BUCKSHOT is reconfigurable in theatre via selectable power-up software loads.

BUCKSHOT'S proven performance on both air and ground platforms demonstrate the versatility of the underlying Direction Finding (DF) and geo-location techniques. The system's ease of use make it well suited for low-profile missions where installation and SWAP constraints are crucial.

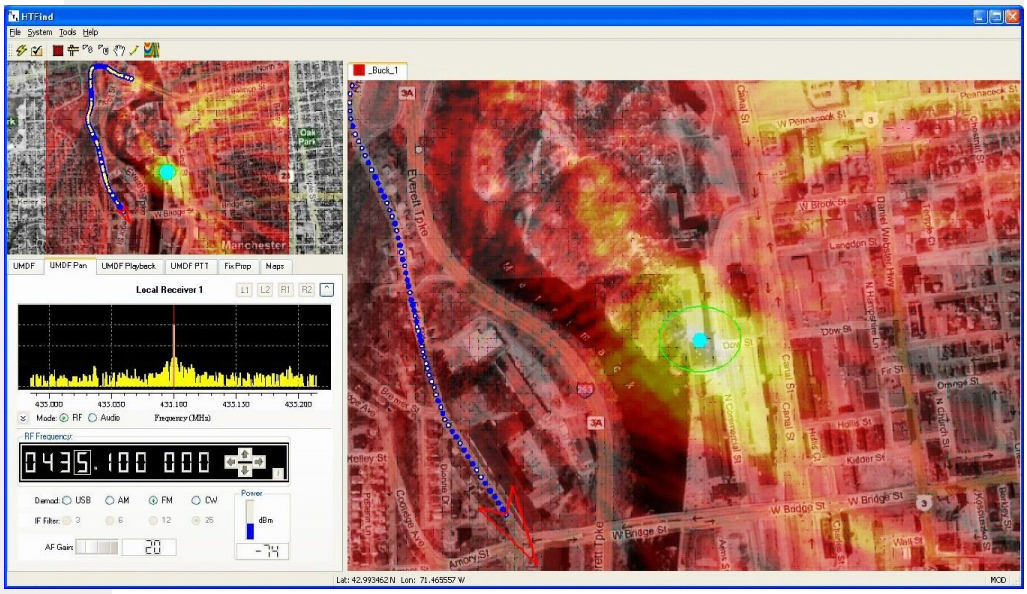
Even more accurate geo-locations in high multipath environments are achievable via Doppler techniques which can be used when two BUCKSHOTS are operated cooperatively via a datalink or post processing.

With a 60 MHz instantaneous bandwidth, **BUCKSHOT** can operate anywhere within the 20 to 3000 MHz band.

The **BUCKSHOT** system includes a low visible signature antenna array (8 elements), but can be configured to support the use of other antenna arrays by connecting them to its internal DF switch or use existing control lines to connect to an external switch. System software supports DF calibration of nonstandard arrays.

HT-Find© GUI

- Supports Windows and Linux
- Map Database Interface
- Intensity Overlays
- MySQL Database Interface
- Mission Playback
- Receiver Control



The **BUCKSHOT'S** HTLook / HTFind© GUIs provides the operator with an intuitive interface for monitoring and geo-locating signals-of-interest. The operator also has the flexibility of selecting a DF techniques, the one that best fits the operational scenario.

Built-In Rubidium and GPS enables BUCKSHOT to make the precise FDOA measurements.

BUCKSHOT Technical Specifications

The BUCKSHOT system was designed to support diverse mission scenarios. Techniques utilize both amplitude and phase measurements as well as HTL proprietary direct arrival detection algorithms. Geolocation modes are available for the following configurations: airborne, single vehicle mobile, dual vehicle mobile, single vehicle mobile plus one fixed site. The following describes the configurations that are available or under development and soon to be released.

BUCK FIX: In this configuration the system performs tasked DF on a single platform, either airborne or ground vehicle. The system works with our quick install window mount antenna array. It can accommodate 4-8 antennas, utilizes GPS and, for the airborne scenario, true heading from the onboard NAV system.

AMP FIX: This configuration allows a **BUCKSHOT** in a single vehicle to locate the target using amplitude only. Though less accurate than the other methods, installation is simpler requiring only one antenna, for example a roof mounted whip.

DOPPLER FIX: This configuration is used with two ground vehicles, with at least one moving, or one ground vehicle moving and a fixed site. Data is simultaneously collected from both **BUCKSHOT** units and is passed over a real time data link or post collection using a USB memory stick. This is our most accurate geolocation mode and excels in high multipath situations.

HYBRID FIX: This configuration uses all available fixes and computes displays the solutions on the map using intensity overlays.

RR FIX: Also a tasked DF system hooked up to conventional DF Array or the Zodiac DF Antenna, RR is designed to measure up to 32 targets with independently taskable bandwidths and channelization, operating within a single 60 MHz band. Note that all data collected will be stored in a MySQL database and can be queried by other systems / operators in accordance with our interface specification.

MEGA FIX: Simultaneously geo-locating up to 1024 signals, with a selectable channel bandwidth of 25 or 200 kHz , within a 60 MHz band. Note that all data collected will be stored in a MySQL database and can be queried by other systems / operators in accordance with our interface specification.

Receiver Specifications

- *Number of Channels*: **2**
- *Frequency Range:* **20 MHz to 3 GHz**
- *Instantaneous Bandwidth:* **60 MHz**
- *Spur-Free Dynamic Range*: **65 dBm**
- *Noise Figure:* ***12 dB, Max***
- *Third-Order Intercept:* ***-5 dBm, Typical***
- *Frequency Stability*: **Rubidium**
- *Preselector Filters*: **7 Bands plus Bypass**

Physical Parameters

- *Size* (In*):* (l) **12.0** (*w*) **16.0** (*h*) **6.5**
- *Weight*: **26 lbs.**
- *Finish*: **Matte Black, Non-Reflective**
- *Operating Temperature*: **0° to 50° C**
- *Storage Temperature*: **-10° to 60° C**
- *Altitude*: **12,000 Ft**
- *Power*: **12 - 28 VDC 4 AMPs @ 28VDC**
- *Delivered Accessories*:
  Laptop, Antenna, Shipping Case
- *Optional Accessories*:
  Zodiac DF Array
  ARINC 429 Navigation Interface
  Platform Specific Cables
  DC-DC Converter for Laptop

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Improvements are always happening - Above specifications are subject to change without notice.

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