

Best use of the RT-600-L airborne RDF by public safety and other government agencies involved in stolen property recovery and SAR missions, exploiting its multi-band multi-mission capabilities to track LoJack™, ETS™, COSPAS-SARSAT™ and other V/UHF AM/FM/PM/CW transmitters.

Public safety aviation units require ever more sophisticated tools to engage stolen property recovery and rescue missions.

RT-600-L

Helping Airborne Public Safety Find Its Targets



DF AU • DO160 • 4.4lbs • 7.3x6.2x6.2in

RHOTHETA offers a small form factor, DO160, 4.4lbs, self-contained DF sensor, consisting of an antenna unit (AU) with built in DF switching, wideband V/UHF receiver and CPU electronics.

Designed to perform tasks specific to the needs of US law enforcement, its small size and low power consumption make it perfect for aircraft big and small, fixed or rotary winged, as well as drones. Covering from 118MHz to 470MHz, it detects and tracks AM, FM, PM and CW transmissions. The RT-600-L is operated from a 3.3in display-control unit (DCU) or from the HMI of a digital mapping system.



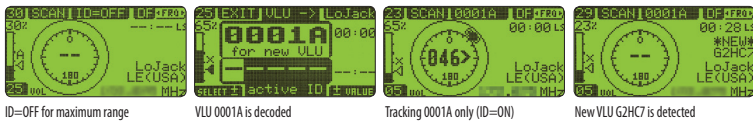
DF AU • Self-Contained • Small Form Factor



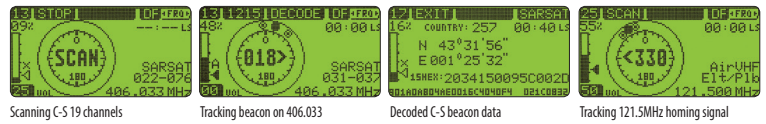
DF DCU • 3.3in • RS232 • NVG



DF DCU • Little (or Zero) Panel Space



ID=OFF for maximum range VLU 0001A is decoded Tracking 0001A only (ID=ON) New VLU G2HC7 is detected



Scanning C-S 19 channels Tracking beacon on 406.033 Decoded C-S beacon data Tracking 121.5MHz homing signal

Tracking LoJack in Long- and short-range conditions

For long-range tracking of weak LoJack signals the RT-600-L is operated in ID=OFF (or VLU=OFF) mode, which allows maximum DF detection sensitivity and range. In this mode an averaging algorithm allows bearing calculation of low level signals - near the noise floor - maximizing the DF range. While in ID=OFF the DF receives and displays any signal present and not just the target transmitter.

With strong enough receive signals, switching to ID=ON allows tracking a particular VLU. In this mode the validation of each decoded VLU requires a certain signal-to-noise ratio, limiting the DF range accordingly. The DF always alerts the operator when other VLUs are detected.

Average DF range recorded:*

- @1000ft AGL, ID=ON: 6 to 10 NM
- @1000ft AGL, ID=OFF: 16 to 20NM
- @3000ft AGL: 40 NM (ID=ON), 80 NM (ID=OFF)

*Results vary with transmitter antenna and location.

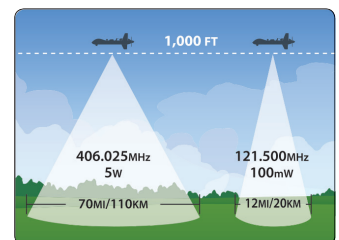
Tracking emergency beacons: ELT/PLB/EPIRB

Tracking an emergency beacon may start with scanning all 19 COSPAS-SARSAT channels. With a typical 5W RF output, C-S 406MHz emissions can be detected from dozens and up to 200 miles depending on flight altitude. While tracking the beacon, switching to Decode mode captures the beacon C-S data, such as Hex ID, lat long, etc. Lat long coordinates point to the beacon's geographical location - specially when displayed on a digital mapping system - but target drifting makes DF-ing necessary until the search is successfully completed. As the target gets closer switching to 121.5MHz provides a continuous homing signal which is preferred for DF-ing the target in the last few miles.

Average DF range recorded:*

- @1000ft AGL, 121.5MHz: 7 NM
- @5000ft AGL, 121.5MHz: 15 NM
- @5000ft AGL, 406.025MHz: 67 NM

*Results vary with beacon location and antenna orientation.



AeroComputers, Churchill Navigation, LoJack™, ETS™ and COSPAS-SARSAT™ are all registered trademarks.

In the hands of well-trained operators, a digital mapping system like the AeroComputers

UC-6000/UltiChart or the Churchill Navigation Augmented Reality System makes the time in the air more productive and mission-focused.

The RT-600-L integrates with these mapping systems supporting capabilities such as:

- Dynamic target (beacon, transmitter) information is overlaid on map
- Each LOB (line-of-bearing) is labeled with VLU or beacon ID
- Triangulation of two or more LOBs
- Depiction of target position
- DF info can be displayed on map mode or augmented reality video mode
- Route guidance to target position
- RT-600-L sensor status and data



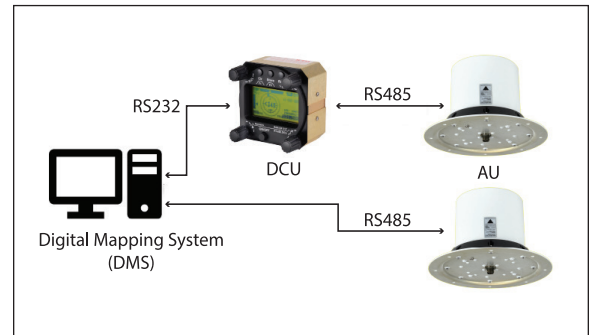
AeroComputers™ UC-6000



Churchill Navigation™ ARS

Here is how a TFO explained operating the RT-600-L from the digital mapping system:

“Our typical track will be directly off the nose and as we get passage, I’ll touch the screen to mark the spot on the screen. We’ll remember which way we got passage (left or right side of the aircraft) and then next fly it at 90 degrees and mark the screen when we get passage. Again remembering which side, we get passage and then focus on that quadrant. Usually if we’re at 2500’ or so we’ll be at 90 percent signal or better if the vehicle is out in the open. If we get 90-70 percent bouncing, then the vehicle is in a garage, under a car port or up against a building giving a reflection. Using this method, we can normally find a vehicle within 5-10 minutes.”

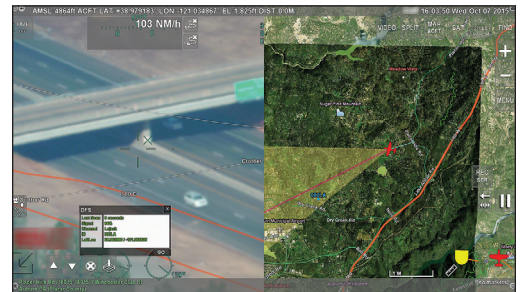


DMS and RT-600-L, with and without DCU

Why use the RT-600-L?



Digital mapping systems conveniently display DF information such as lines of bearing (LOB) labeled with transmitter ID, frequency, signal and squelch levels, estimated target location based on multiple LOBs, bearing cone indicating noise and reflections effects, lat long coordinates, etc. More DF control functionality will be increasingly added to the HMI of mission systems.



Because it is an affordable multi-band multi-mission system capable of enhancing air units recovery and rescue missions, while saving critical panel and antenna space. Single-mission DFs force agencies to install multiple systems. Another advantage is its low price-performance ratio, and low overall installation, training and maintenance costs, proven over time by the hundreds of units in operation with Civil Air Patrol, Texas Department of Public Safety, California Highway Patrol and San Bernardino Sheriff Office, just to name a few agencies that are pleased with the RT-600.

As Public Safety agencies continue to target digitalization, it should be noted that the RT-600-L can be installed with or without the RHOTHETA DCU, ultimately relying on the DF monitoring and control functionality implemented in the mapping system. Constant (or continuous) development of digital mission systems will increasingly allow the removal of sensor-specific controllers from the instrument panel, saving space and optimizing sensor operation. RHOTHETA is committed to support developers in achieving these goals.



SUMMARY

The RT-600-L offers airborne public safety and other government agencies effective multi-band, multi-mission functionality that significantly increases the productivity of recovery and rescue missions. This system can be used in aircraft and drones.