Features, effects and parameters simulated include:

- Platform altitude, attitude and stabilization
- Range and atmospheric attenuation
- Antenna gain, scan rate, beam width, beam pattern and side lobes
- Surface material effects (reflectivity, directivity)
- Atmospheric refraction and earth curvature
- Aspect and masking (terrain, features, targets)
- Feature layover
- Occultation and radar shadowing
- Far shore brightening
- Sea state
- Receiver sensitivity and gain
- Weather, chaff and jamming effects
- Sensitivity Time Control (STC)
- Automatic Gain Control (AGC)
- Noise (receiver, atmospheric, background)
- Transmitter power, frequency band
- Pulse width, PRF, PRI and pulse length effects
- Receiver detection and post detection integration
- Sample and hold
- Log compression
- Scan conversion effects
- Geometric distortion
- Radar resolution and multiple range scales

System Requirements:

- Single or dual CPU workstation running Windows NT/2000, LINUX or IRIX.
- 256 MB RAM
- 9 GB hard disk space
- COTS graphics cards
- C++ compiler

Camber also offers the following **services** and **products**:

- Maintenance Support
- Training
- Custom integrated radar simulation solutions
- Video & Interface boards: ARINC 708, EIA-343/RS-170/NTSC, PPI, Digital-to-Synchro
- Visual & InfraRed database generation

Camber Corporation is an employee owned US corporation headquartered in Huntsville, AL with offices throughout the nation. Camber's products and services include acquisition management, environmental management, engineering support services, information systems management, modeling and simulation, visualization technology, human performance systems, entertainment systems, radar systems, and training systems.

The Sensor Systems Division, located in Dallas, Texas, specializes in the simulation of radar, infrared and electro-optical sensor systems and out-the-window visual systems. Since its inception in 1985, the Sensor Systems Division has delivered over 100 radar and sensor simulation systems to commercial and military customers both domestic and international.

Camber

Sensor Systems Division

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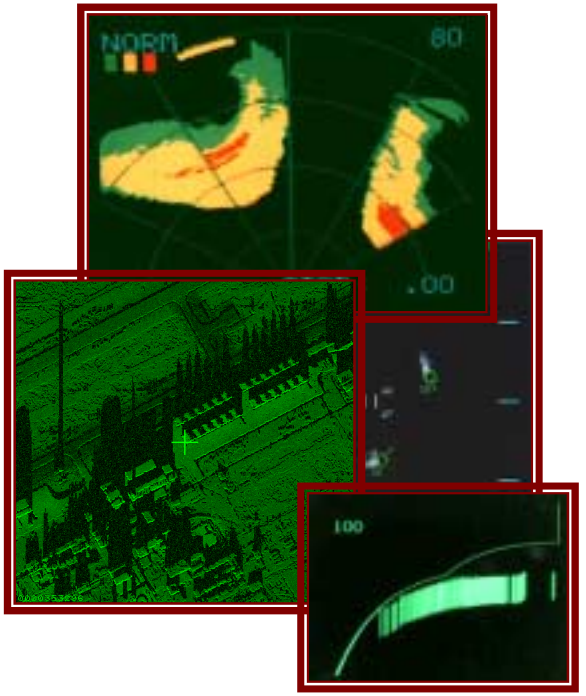
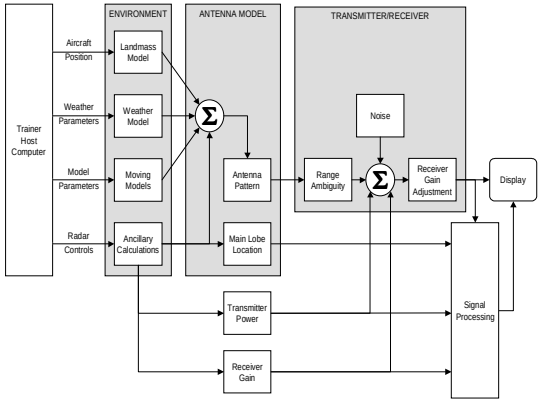
Camber

RADAR TOOLKIT

Commercial Off-The-Shelf Radar Simulation Solutions

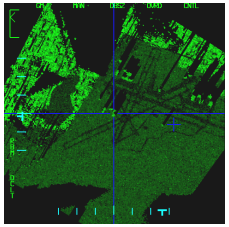


Camber's Radar Toolkit™ (RTK) products provide a Commercial Off-The-Shelf (COTS) solution for radar simulation. Written in C and C++ and running on a variety of COTS computer workstations, the RTK consists of software libraries and APIs for implementing real-time radar simulations using high fidelity mathematical models of radar system components.



The RTK is a basic radar simulation that can run stand-alone or be integrated into a simulation system. The RTK is configurable via menu controls and configuration files.

The **Basic Radar Toolkit™** implements a simple ground mapping Digital Radar Land Mass Simulation (DRLMS) modeling terrain and feature elevation, feature type and surface materials. Modes simulated include:



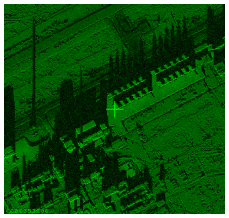
- Ground Map (GM) & Real Beam GM (RBGM)
- Doppler Beam Sharpening (DBS), shown above
- Air-To-Ground Ranging (AGR)
- Sea Surface Search (SEA)
- Beacon Mode (BCN)

The Basic RTK also performs computations for:

- Collision Detection (CD)
- Line Of Sight (LOS)
- Height Above Terrain (HAT)

The standard RTK is configured to support 250 moving models and it is easily expanded.

The **Hi-Resolution Mapping** option improves the basic RTK ground mapping by providing user-definable resolution from one to over five hundred feet. The images generated can be provided in either constant angular resolution, such as patch PPI or DBS Expand, or in constant cross-range resolution, such as B-scan or Synthetic Aperture Radar (SAR), shown above. User controls for patch size, angular displacement and notch size are provided.

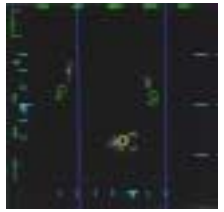


The **Hi-Fidelity Weather** option improves weather simulation with storm cells having multiple contours of different rainfall intensities and multiple cloud layers to model complex, three-dimensional weather patterns. Hi-fidelity weather dynamically models growth, decay and wind drift of storm cells. The Camber Weather Editor (shown above) provides the capability to combine storm cells into weather fronts. This is the ideal option for simulating commercial weather avoidance radars such as the WXR-700, Primus, TWR-850 or RDR-4B.

The **Ground Proximity** option provides support for low altitude flight and simulation of ground proximity warning systems. The display model can be configured to provide a PPI terrain avoidance (TA) display or an E^2 terrain following (TF) display (shown) and to generate climb/dive commands for coupling with an autopilot simulation.

The **Sea Search With ISAR Display** option provides display of sea borne objects in Inverse Synthetic Aperture Radar (ISAR) mode. Uses target pitch and roll motion coupled with sea state and atmospheric conditions.

The **Airborne Targets** option simulates low, medium and high Pulse Repetition Frequency (PRF) modes used to detect and track aircraft for tactical air-to-air radars, ground and air based air defense or air traffic control (ATC) radars.

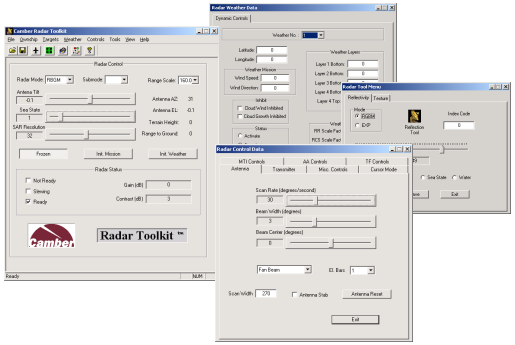


Camber offers a variety of **Database Development Tools** for the RTK that can generate gridded or polygonal databases from numerous database formats such as:

- National Imagery & Mapping Agency (NIMA)
- OpenFlight
- Terrex TerraVista
- Aechelon
- Centric Designer Workbench

Feature Identification Codes (FIC) and Surface Material Codes (SMC) are used to index radar reflectivity tables to maximize correlation. Supports geospecific or geotypical *texture* patterns. An on-line Reflectivity Editor is provided.

Menu controls.



COTS Radar Packages. Camber also provides COTS radar simulation packages for the following:

- APG-66/68
- LANTIRN
- WXRS (TWR-850,WXR-700,PRIMUS, etc.)
- Surface Search Radar for marine applications