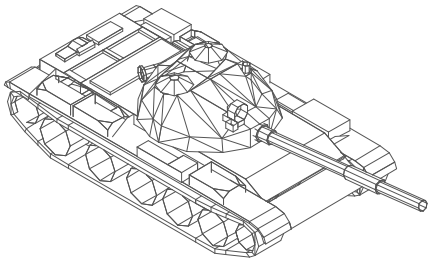
Technology Service Corporation

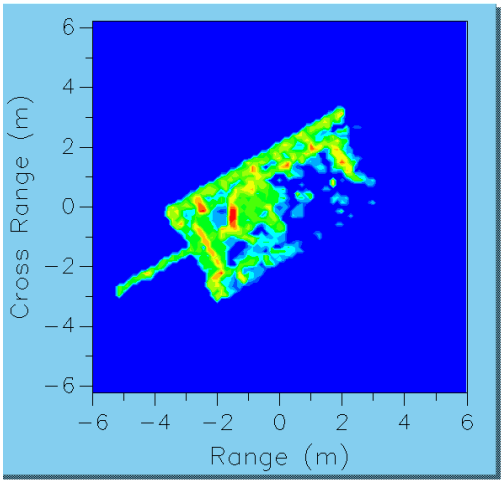
Radar Imagery Generator Simulation (RIG)

Technology Service Corporation (TSC) has developed a software product that calculates the radar scattering from complex targets, and simulates the imagery resulting from a high resolution SAR or Inverse SAR radar system. RIG is available both with a user-friendly, menu-driven Windows interface, and as an application programming interface (API) toolkit for integration into your application. RIG offers fast execution times while maintaining high fidelity physics models.



PRODUCT DESCRIPTION

RIG evaluates faceted 3D CAD models of complex targets such as ships, aircraft, and tanks. RIG determines the total RCS, the high range resolution profile of the RCS, or the full SAR range-Doppler resolution image. For a ship target on a rolling sea, RIG simulates motion and generates the resulting ISAR image sequence. Sea clutter with forward-, back-scatter and multipath is included. Loop over scenario time, aspect angles, frequency, and polarization. The complex RCS profiles can be displayed for quick-look analysis, and are stored in files for subsequent analysis. Routines are provided to export to Matlab.



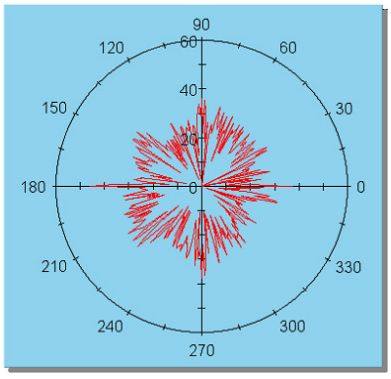
The user may specify rotation parameters for parts of the target model, such as the gun turret atop a tank, or a radar antenna on a ship, and RIG will generate the proper Doppler spread resulting from these rotating features. For each target facet, the user may specify the material composition of each layer, or its electric permittivity (ε) and magnetic permeability (μ). The scattering model physics includes physical and geometric optics, multipath, separable HH, HV, VH, and VV polarizations, and self-shadowing.

WHY HIGH FIDELITY RADAR SCATTERING SIMULATION?

Some customers have run RIG unattended for months, generating a library of high resolution target chips viewed at fine steps of azimuth and elevation angles. Activating RIG's fluctuation capability allows chips to be assembled into scenes containing identical target types but with individual variations. The shadow mask output can be used to generate more realistic terrain clutter. RIG is valuable in RCS signature reduction studies, to evaluate actual radar imagery, and to investigate imagery effects in radar parameter trade studies.

WHY TSC?

TSC was founded in 1966 by radar scattering pioneer Peter Swerling, and since then has developed extensive experience in SAR radar design, analysis, and simulation. RIG has been exported to customers in Canada, Japan, and Singapore. We can customize the GUI or API version of RIG to fit your specific needs and applications.



CONTACT INFORMATION

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