AESA Radar Excellence

FAST, HIGH-FIDELITY SIMULATIONS FOR PRECISION RADAR DESIGN AND DEPLOYMENT

Active Electronically Scanned Array (AESA) radar systems demand precision beamforming, wideband operation, and resilience in dynamic environments.

TICRA's simulation software combines full-wave accuracy with rapid computation, enabling engineers to explore, optimise, and validate large, complex arrays earlier and with greater confidence — reducing development cycles and de-risking performance in the field.
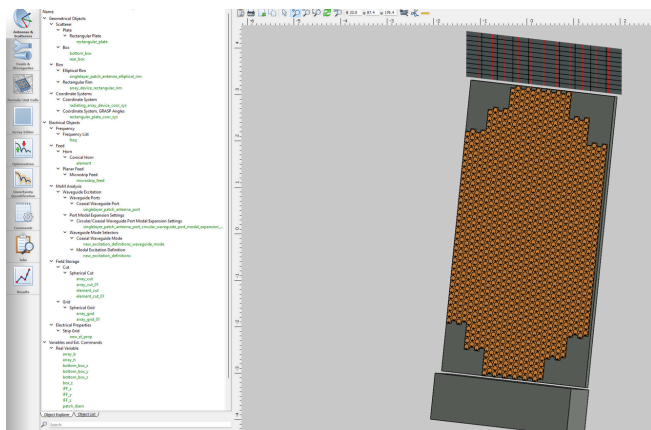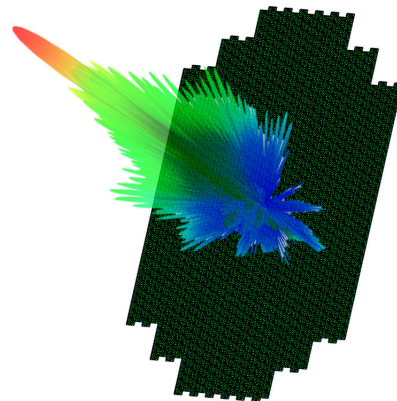
TICRA

TICRA for defence
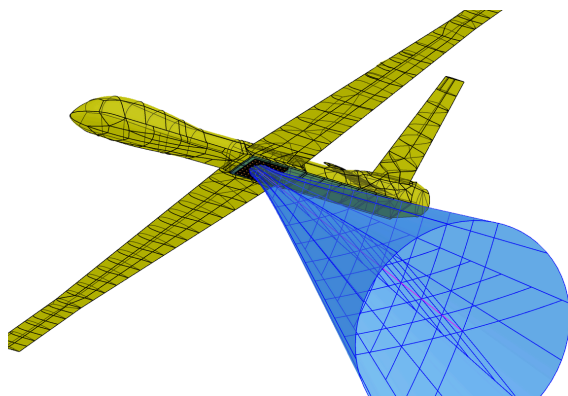
From design concept to radar advantage

**ACCURATE, ACCELERATED AESA RADAR SIMULATIONS FOR MISSION-CRITICAL APPLICATIONS.**

Planar/conformal array layout with tile and element definition, and compute embedded element patterns for beamforming accuracy.

Beam steering and scan performance optimized across aspect angles and frequency bands.

Simulating advanced phased arrays, including accurate assessment of the installed performance.
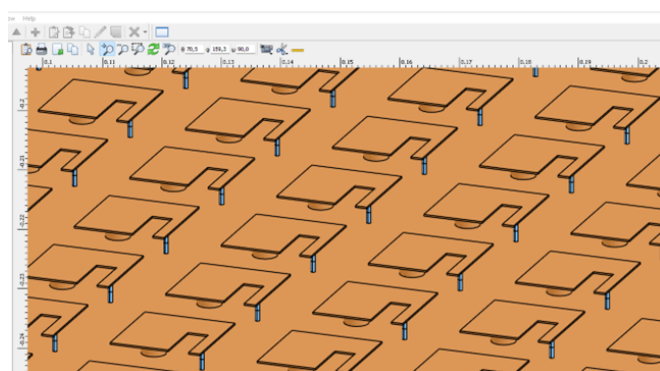
Optimise array elements to minimise coupling or scan loss, and analyse single- and multilayer dielectric designs.

Operational advantages

- Optimise beam steering and scanning for wide coverage
- No assumptions of periodicity or infinite identical elements
- Shorten design cycles with rapid turnaround
- Predict real-world behaviour under platform integration effects
- Validated simulation algorithms you can trust

Key AESA simulation capabilities

- Fast analysis using tailored methods, including MLFMM and TICRA's Fast Direct Solver
- Full-wave and spectral solvers for planar and conformal arrays
- Embedded element patterns for accurate scan performance, including full mutual coupling
- Accurate computation of the entire S-matrix
- Multi-band analysis for modern radar requirements
- CAD import and smart meshing for complex geometries

Our software

TICRA's simulation platforms bring together industry-leading solvers and workflows for AESA radar analysis. Built on decades of electromagnetic expertise, they are used by defence contractors and agencies worldwide to meet demanding stealth requirements.

Create better AESA radars faster - www.ticra.com/defence