

Radome Performance Optimisation

ACCURATE SIMULATION FOR MISSION-READY RADOME DESIGNS THAT PROTECT AND ENHANCE RF SYSTEM PERFORMANCE

Modern defence platforms depend on radomes that protect critical sensors without compromising performance.

TICRA's simulation software enables engineers to assess and optimise radome designs — from material properties to complex multilayer structures — ensuring mission-ready RF systems across air, land, and sea.

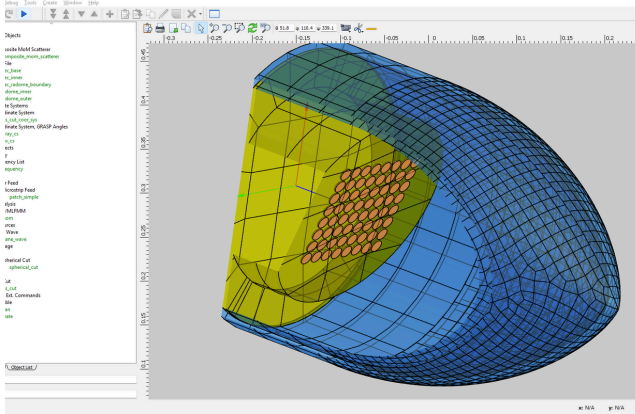
$$T_{1mn}(k_x, k_y, z) = \frac{e^{ik_z z}}{k_z} \frac{(-i)^{n+1}}{\sqrt{\eta} \sqrt{n(n+1)}} Y_n^m(\alpha, \beta)$$



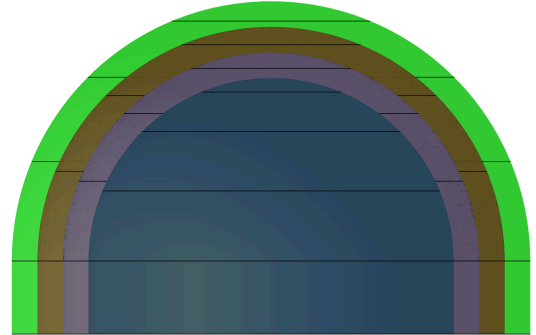
TICRA for defence

From complex designs to battlefield dominance

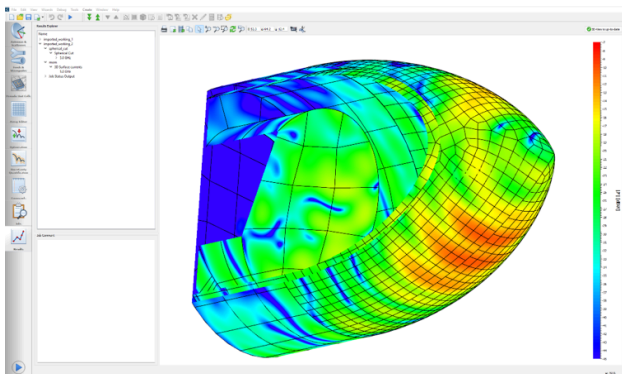
ADVANCED ELECTROMAGNETIC SIMULATION FOR ACCURATE AND EFFICIENT RADOME INTEGRATION.



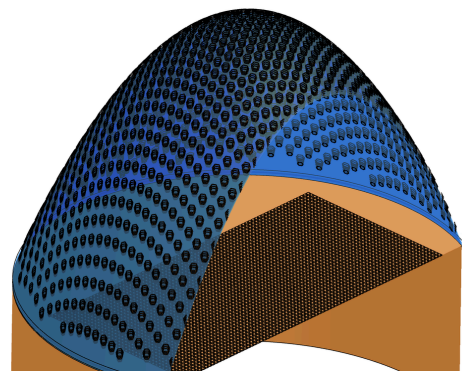
Analyse beam distortion from a phased array through a single- or multilayer radome, and optimise material parameters



Evaluate multilayer radome designs for optimal RF transparency



Simulate full radome effects on antenna performance, including the platform on which it is mounted



Analyse and optimise one or more FSS layers embedded in dielectric media

Operational advantages

- Predict real-world antenna performance with radome effects included
- Minimise beam distortion and gain loss through early design validation
- Evaluate structural and material trade-offs for mission-critical scenarios
- Support multi-band, multi-sensor configurations on diverse platforms

Key Radome simulation capabilities

- Full-wave and hybrid solvers for multilayer, frequency-selective, and dielectric radomes
- Simulation of radome-induced beam distortion, depointing, and pattern degradation
- Embedded element pattern extraction for precise in-situ performance predictions
- Co-optimisation of antennas with radome and frequency-selective surfaces (FSS)

Our software

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

Discover how TICRA's defence-focused simulation can improve your next programme - www.ticra.com/defence