

TeraNIM - Aero

Terahertz NDT for **Low-Density Materials**



Why Terahertz for Dielectric Material Inspection



To identify internal discontinuities



Material density variation



Debonding & bond anomalies



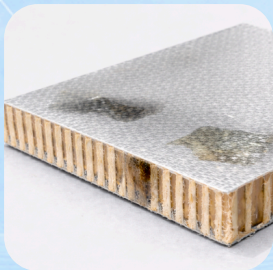
Thickness variation & structural uniformity

Applications

For Aerospace Composites Quality Control



Ceramics



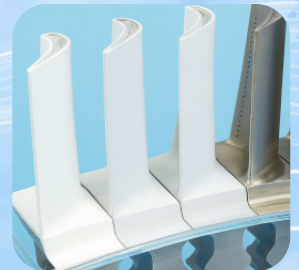
Honeycomb



Radome Structures



Insulation Materials



TBC Structures



Non-Contact



Fully Automated



High Precision



Real-time Results



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How Terahertz Technology Works

THz pulses reflect from internal interfaces inside low-density aerospace structures. Time separation and amplitude changes reveal structural integrity, interface condition, and hidden discontinuities.

1 SCAN

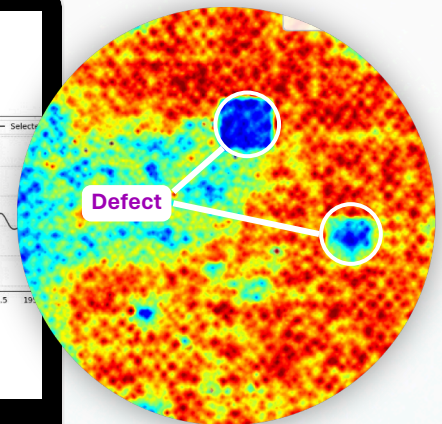
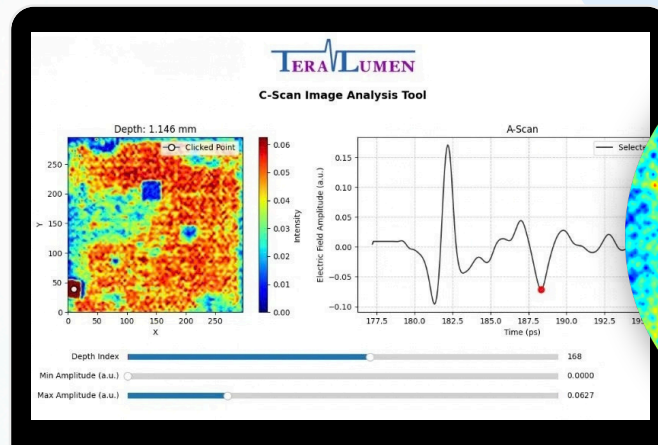
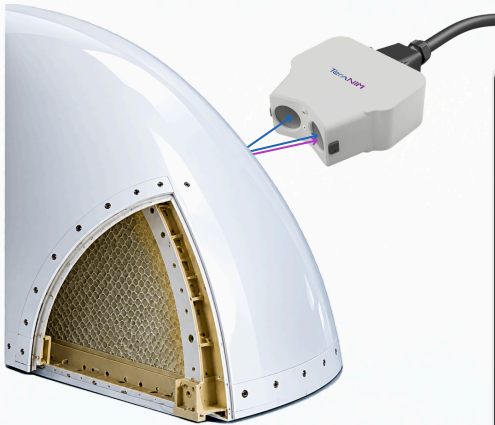
Single-sided, non-contact THz inspection at predefined locations.

2 DETECT

Identify reflections from the outer surface, bond line, core, and inner structure. Detect debonding, cracks, and thickness variation.

3 ANALYSE & REPORT

Generate inspection results for defect localization, structural non-uniformity review, and report. Provide digital inspection outputs and clear reporting.



Key features

THz Inspection Capabilities

Coatings	- Multi-layer coating thickness - Coating uniformity - Density variation
Flaw Detection (Imaging)	- Surface defect detection - Honeycomb bond inspection - Composite adhesive bond inspection - Changes in dielectric properties
Low-Density Materials	Cork, Silica, Rubber, Inhibition, Aramid, Fiber Reinforced Plastic (FRP), and Siloxane-based materials Note: All dielectric materials are feasible for inspection.

THz Measurement Compatibility

Spectral Range	0.1–4 THz
Thickness Range	20 μm –40 mm (RI=1.5)
Measurement Spot	~ 2 mm
Data	A, B, C Scan and FFT
Working Distance	25–100 mm
Probe Configuration	Handheld, Scanner-Mountable, Cobot-Integratable
Thickness Accuracy	$\pm 1 \mu\text{m}$
Power	110/240 VAC / Optional Battery
Operating Temp	15–40°C
Reports	PDF and Excel Formats

**Inspect Deeper.
Measure Smarter.**



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