

# TeraNIM - Aero

Terahertz NDT for **Low-Density Materials**



## Why Terahertz for Dielectric Material Inspection



To identify internal discontinuities



Material density variation



Debonding & bond anomalies



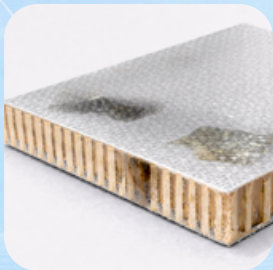
Thickness variation & structural uniformity

## Applications

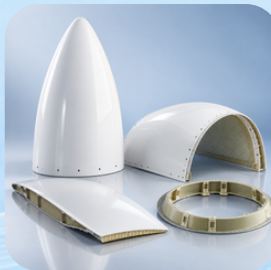
For Aerospace Composites Quality Control



Ceramics



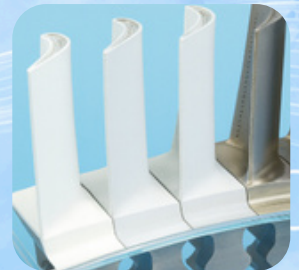
Honeycomb



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

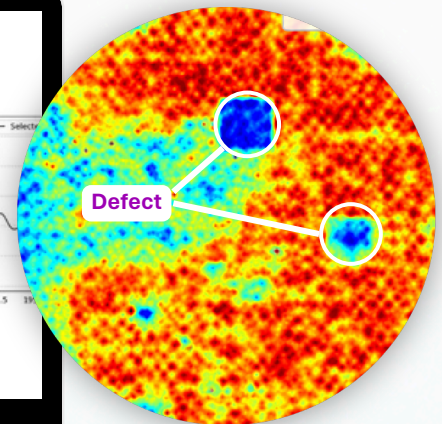
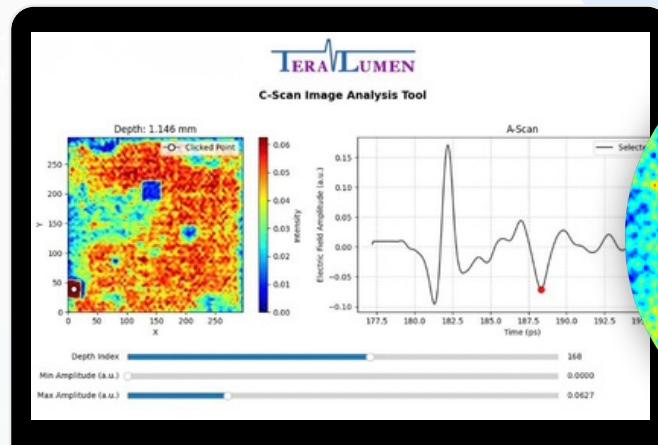
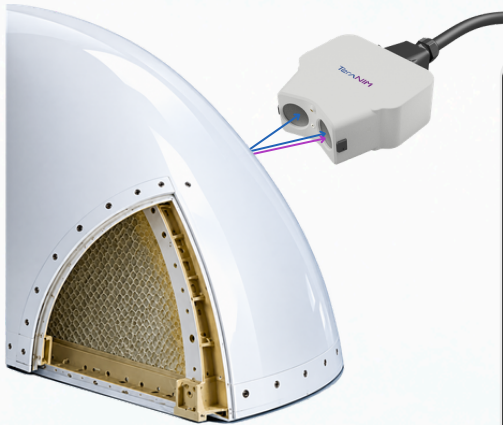
Single-sided, non-contact THz inspection at predefined locations.

## 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                 | <ul style="list-style-type: none"> <li>Multi-layer coating thickness</li> <li>Coating uniformity</li> <li>Density variation</li> </ul>                                                              |
| Flaw Detection (Imaging) | <ul style="list-style-type: none"> <li>Surface defect detection</li> <li>Honeycomb bond inspection</li> <li>Composite adhesive bond inspection</li> <li>Changes in dielectric properties</li> </ul> |
| Low-Density Materials    | <p>Cork, Silica, Rubber, Inhibition, Aramid, Fiber Reinforced Plastic (FRP), and Siloxane-based materials</p> <p><b>Note: All dielectric materials are feasible for inspection.</b></p>             |

### THz Measurement Compatibility

|                     |                                                 |
|---------------------|-------------------------------------------------|
| Spectral Range      | 0.1–4 THz                                       |
| Thickness Range     | 20 $\mu\text{m}$ –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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