

## **Specifications for Terahertz Non-Destructive Evaluation System**

| <b>SL No.</b> | <b>Specifications</b>   | <b>Value</b>   |
|---------------|---|--|
| <b>1.</b>     | <b>Specifications for THz Non-Destructive Evaluation System</b> |  |
| 1.1.          | System application  | Non-Destructive Testing (NDT) in-depth inspection  |
| 1.2.          | Type of the scanner   | Sub- THz Frequency Modulated Continuous Wave (FMCW) transceiver  |
| 1.3.          | Type of materials that can be inspected                         | 1) Thermal protection system tiles (Silica Ceramic)<br>2) Metallic Surfaces<br>3) Polymer Composites<br>4) Wooden materials<br>5) Glass Fiber Reinforced Polymer (GFRP) composites                                   |
| 1.4.          | Types of detectable defects                                     | 1) Density variation<br>2) Surface quality of metals with coatings<br>3) Inhomogeneity/Inclusion in composites and polymers<br>4) Internal water content<br>5) Impact marks in metals<br>6) Blow holes / Air pockets |
| 1.5.          | Center Frequency  | 240 GHz (typical)  |
| 1.6.          | Bandwidth   | 37 GHz (typical)   |
| 1.7.          | Dynamic range   | > 50 dB (typical)  |
| 1.8.          | Lateral resolution  | 3 mm (or better)   |
| 1.9.          | Data acquisition rate   | 12 Pixels/s (or more)  |
| 1.10.         | Working Distance  | 150 mm (or more)   |
| 1.11.         | Imaging area  | 300 mm x 300 mm (or more)  |
| 1.12.         | Type of the frame   | 3 axis scanning frame with integrated controller   |
| 1.13.         | Footprint   | 650 mm x 650 mm x 650 mm (or less)   |
| <b>2.</b>     | <b>Specifications for spare THz transceiver head</b>            |  |
| 2.1.          | Center Frequency  | 120 GHz (typical)  |
| 2.2.          | Bandwidth   | 20 GHz (typical)   |
| 2.3.          | Lateral resolution  | 1 mm (with 50 mm focal length)   |
| 2.4.          | Data acquisition rate   | 40 Pixels/s (or more)  |
| 2.5.          | Dynamic range   | > 50 dB (typical)  |

### **3. Specifications for spare THz focusing lens**

- 3.1. Working Distance 50 mm
- 3.2. Diameter 50 mm (typical)
- 3.3. Lens mount Easily replaceable magnetically held helicoidal mount

### **4. General specifications**

- 4.1. Software Necessary data acquisition and image processing software (with required drivers compatible with Windows 10 and 11) to be provided
- 4.2. Documents Detailed technical specifications including product brochure shall be provided along with the technical bid
- 4.3. Warranty The item should be warranted for a minimum period of 1 year from the date of receipt and acceptance of material. Warranty certificate should accompany the supply
- 4.4. Technical Compliance The offer should be accompanied by the detailed technical compliance sheet that address each and every point of the LEOS specifications in comparison with the offered specifications.
- 4.5. Delivery Schedule Within 14 to 16 weeks ARO