

## Product Announcement

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### 4D Technology receives multiple orders for vibration-immune SWIR optical metrology instruments.

**Strengthens commitment to metrology systems for space-based optical communications.**

4D Technology, a wholly owned subsidiary of Onto Innovation Inc., has received multiple orders for optical metrology instruments operating in the short-wavelength infrared (SWIR) band. The orders were received from leading aerospace and defense companies, as well as communications technology leaders around the world. These systems will support the current drive for expansion of optical communications in the 1535-1565nm wavelength band, or “C-band.”

“Free-space laser communications is an exciting market that 4D is proud to support,” said Erik Novak, General Manager of 4D Technology. “We have strengthened our commitment to this application with a full portfolio of dynamic solutions measuring at 1550 nm wavelength and at discrete wavelengths across the C-band. Manufacturers can now use 4D Technology instruments to measure surface quality, transmitted wavefront error, optical component alignments and surface roughness at the functional wavelengths. With vibration immunity, these measurements can be taken, - in challenging environments including into vacuum or cryogenics chambers.”

Free-space laser communications can achieve data transfer rates thousands of times greater than traditional radio frequency (RF) communications, which enables organizations to keep pace with data-heavy applications. Additionally, optical communications offer dramatic cost reductions for terrestrial and space-based communications. They are also far less susceptible to detection, interception, jamming, and frequency interference than RF systems.

The optics required for laser-based data links, however, push the capabilities of today’s manufacturing and measurement techniques. 4D Technology’s SWIR metrology systems provide precise measurements of wavefront error, surface figure, and surface roughness at the critical SWIR wavelengths.

The 4D AccuFiz® and PhaseCam® SWIR interferometers both provide the unique ability to measure wavefront error and shape at the standard 1550 nm wavelength and, with external laser sources, to measure at wavelengths throughout the C-band with the same system. The 4D NanoCam HD optical profiler accurately measures surface roughness which can scatter the beam, leading to signal loss, reduced data transfer rates, and crosstalk.

All three-metrology system are equipped for “dynamic” measurement, which reduces the requirements for vibration isolation and greatly lowers the cost of testing these critical optics.

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4D Technology has been leading the development of metrology for space-based optics since its inception over 20 years ago. The company is uniquely positioned to support the development of optical communications, with capable metrology systems operating at SWIR wavelengths.

In addition to SWIR wavelengths, 4D Technology offers laser interferometers operating throughout the IR wavelength bands, from near-infrared (NIR, 1053-1064nm) through long-wavelength infrared (LWIR, 10.6  $\mu\text{m}$ .)

## [About 4D Technology](#)

4D Technology, a subsidiary of Onto Innovation, is the world-leading provider of dynamic and high precision three-dimensional surface metrology solutions.