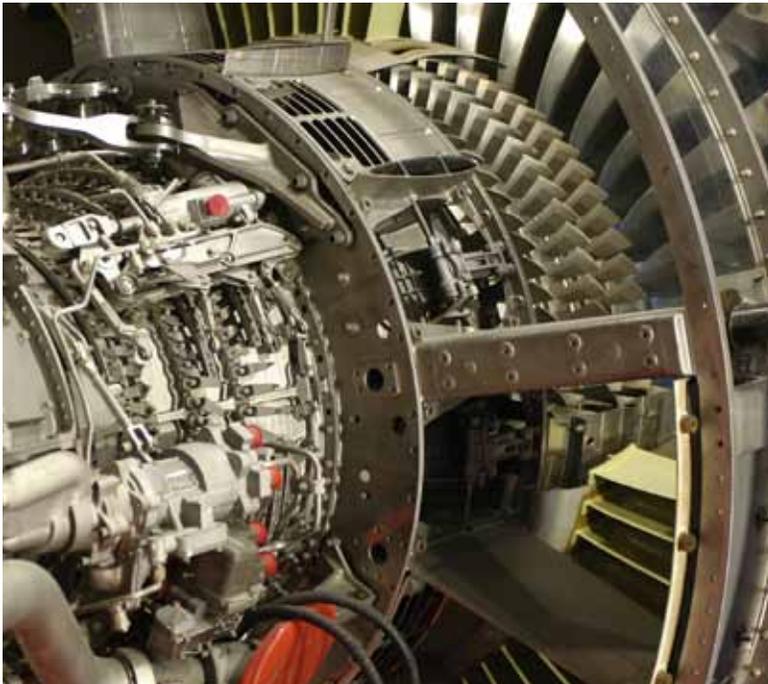




technology opportunity

High-Temperature RF/MF Probe Allows Testing Up To 540°C

Providing quality control for high-temperature electronic devices



Emerging markets for high-temperature electronics have created a need to test electronic devices at high temperatures. Innovators at NASA's Glenn Research Center have developed a radio frequency/microwave frequency (RF/MF) probe station that allows measurements at temperatures up to 540°C. This is important because the properties of RF/MF devices often change drastically with temperature. Commercially available probes currently have an upper temperature boundary of about 300°C. This technology permits testing, verification, and quality control for a wide variety of high-temperature electronic components and devices.

Benefits

- **Fast:** Enables quick, low-cost testing of RF/MF devices at their operating temperatures
- **Reliable:** Reduces the time and effort required to characterize devices and circuits at elevated temperatures
- **Durable:** Operates at temperatures up to 540°C and extends probe lifetime by reducing degradation
- **Flexible:** Allows non-destructive testing of devices and circuits

Applications

- High-temperature electronic devices
- Testing laboratories
- Semiconductor fabricators
- Internal components of automotive engines
- Aerospace engines
- Deep-hole wells

Technology Details

How It Works

The technology uses off-the-shelf wafer probes that can operate at temperatures up to 300°C. Glenn developed an insulation system for the probe body based on space shuttle heat shield tile and metallic sheeting. The NASA-developed enhancements selectively insulate the probe, cables, and microscope that make up the probe station.

Why It Is Better

Glenn's high-temperature RF/MF probe station has been specifically modified for high-temperature use and allows devices to be measured quickly and flexibly, without the use of wirebonds and test fixtures. Without this technology, the only way to test devices at high temperatures is to dice the wafer, mount the die onto a fixture, and then wirebond each electrical connection—a costly and time-consuming process. Using this probe allows a die to be tested on the wafer, so defective dies can be disregarded without investing in dicing and other processing. This NASA technology extends the operating range of commercially available probes and reduces probe degradation, extending probe shelf life.

Licensing and Partnering Opportunities

Glenn's Technology Transfer and Partnership office seeks to transfer technology into and out of NASA to benefit the space program and U.S. industry. NASA invites companies to discuss partnership opportunities involving this high-temperature RF/MF probe technology (LEW-17499-1) for commercial applications.

For More Information

For more information about this and other technology licensing opportunities, please visit:

Technology Transfer and Partnership Office
NASA's Glenn Research Center
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Phone: 216-433-3484
<http://technology.grc.nasa.gov>