TECHNOLOGY

High Resolution Optical Fiber Diagnostic Device

OVERVIEW

Background:

Fiber optics are the backbone of communication systems ranging from controls in new airplane designs and avionics of the latest military jets to transmitting data over the backbone of the internet. Monitoring these systems for breaks, signal attenuation, and other faults that lead to lost data and slower bandwidth is of vital importance especially in avionics applications. Optical Time Domain Reflectometry (OTDR) is one of the primary methods used to test and monitor the health of fiber optic systems. However, time of flight considerations in OTDR effectively lower the SNR and decrease the resolution of the measurements.

Researchers at the University of Maryland Department of Electrical and Computer Engineering have created a new technique for evaluating the health of an optical fiber that solves the problems inherent in OTDR. This new technique, based on Incoherent Optical Frequency Domain Reflectometry (IOFDR), has a higher resolution and dynamic range than OTDR and can be easily placed into existing fiber optics systems.

Applications:
• Online diagnostics for fiber optics
• System diagnostics for optical fiber cuts/cracks, connector faults, and other physical damage

Advantages:
• Accurate to 2 mm in locating reflections which translates to lower maintenance and repair costs
• Requires minimal modification to existing fiber optics system which means lower implementation costs
• High dynamic range (70db optical, 140db electrical) means greater sensitivity and more accurate device

For additional information, please contact the Office of Technology Commercialization, University of Maryland College Park, via e-mail at otc@umd.edu or phone at 301-405-3947.

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Additional Information

INSTITUTION

University of Maryland, College Park

PATENT STATUS

Patent(s) pending

LICENSE STATUS

Contact OTC for licensing information

CATEGORIES

- Sensors/Monitors

EXTERNAL RESOURCES

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