

AiDi Develops World's First Sub-10GHz Resolution Miniature Spectrometer

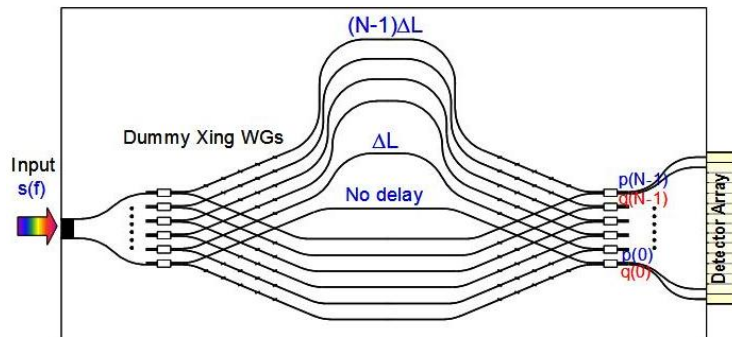


Fig. 1. Schematic configuration of FISH. Size in 1.5x1.0 inch²

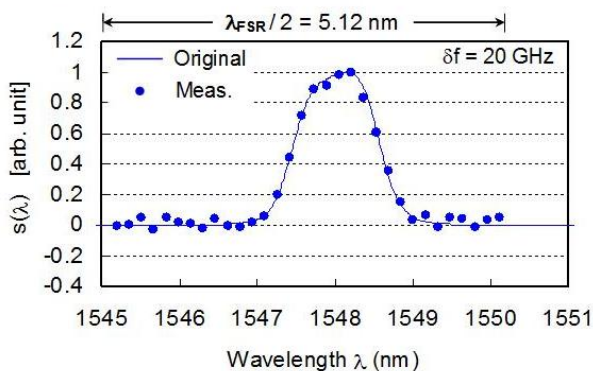


Fig. 2. Signal spectrum measured by FISH with 20GHz resolution.

Tsukuba, Japan, March 25, 2010 – AiDi Corporation has developed a Fourier-Transform, Integrated-Optic Spatial Heterodyne (FISH) spectrometer with an ability to correct interferometer defects (fabrication errors) using electrical data post-processing. With its patent-pending technology, AiDi has reached the highest level of resolution at sub-10GHz.

The FISH spectrometer utilizes an interferometric Fourier transform technique called Spatial Heterodyne Spectroscopy (SHS) to measure high resolution optical spectra with high optical throughput. AiDi has developed a proprietary optical waveguide SHS method employing an interleaved Mach-Zehnder Interferometer (MZI) array that enables a highly compact FISH (Fig. 1).

The practical importance of the AiDi Fourier-transform spectrometer is the ability to correct for interferometer defects (fabrication errors) in an electrical data processing stage. The FISH method can then achieve sub-10GHz resolution, which is almost impossible with several centimeter-size bulk-optic spectrometers. Fig. 2 shows original and measured signal spectra of a FISH device with 20GHz resolution.

The spectral range of the FISH device can be made arbitrarily narrow or wide depending on the application. For visible color measurement, it can be designed to cover a 340 ~ 780 nm spectral region with 5nm resolution.

For near-infrared applications such as water vapor characterization, the FISH device can measure absorption spectra with 0.05nm (~10 GHz) resolution in the 1365 nm region. Water vapor is the most important greenhouse gas, contributing more than 80% to the total greenhouse effect. Water vapor not only plays a central role in weather and climate phenomena but in atmospheric chemical processes as well. It is very crucial to determine the details of the

various processes that move air across the tropical tropopause into the stratosphere and the relative importance of these processes in determining stratospheric humidity.

“We are pleased to announce the successful launch of our world’s first miniature spectrometer with sub-10GHz resolution,” says Kenzo Ishida, President and CEO of AiDi Corporation. “We are planning to develop this technology for both environmental and biotechnology applications, especially the study of global warming and early diagnosis of different types of diseases.”

AiDi will be presenting this compact size high-resolution spectrometer at the 15th European Conference on Integrated Optics (ECIO) in Cambridge, England on April 7-9, 2010.

About AiDi Corporation

AiDi Corporation is a global company that offers innovative, high-value, optical communication products and services for PON, metro, and access markets. AiDi leads the way to expanding optical network markets and deployments through improved network efficiency and economics. AiDi has exceptional technical leadership in the industry, providing customers with advanced networking options at a lower total cost of ownership. Optical components from AiDi are remarkably well-suited for harsh environments, as well as highly populated urban centers. All AiDi products are carefully engineered and manufactured to exceed industry standards, resulting in a higher standard for durability and a longer lifetime in the field. The company is privately held, founded by industry pioneers with several U.S. and International Patents Pending. AiDi headquarters is in Japan, with independent operating subsidiaries in China and the United States. All Rights Reserved.

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