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Yokogawa Meters & Instruments Releases AQ6374 Optical Spectrum Analyzer

–The only instrument able to evaluate both visible and optical communications wavelengths–

Yokogawa Meters & Instruments Corporation announces that it has developed the AQ6374 optical spectrum analyzer and will release it on January 11. The AQ6374 features a wide dynamic range and high wavelength resolution and is capable of precisely measuring the optical spectrum of laser light in the 350 to 1750 nm wavelength range.

Optical spectrum analyzers are used to resolve the wavelength components of optical devices such as semiconductor lasers and fiber lasers in order to assess their characteristics. The AQ6374 will be the only optical spectrum analyzer on offer in the market today^{*1} that is capable of covering both the visible light wavelengths and the wavelengths used in optical communications.

Development Background

In recent years, optical technology has entered wide use in applications as varied as communications, medical care, home appliances, and material processing. The expansion of these markets has stimulated the research and development of products that use optical technology, and so there is a growing need for high-performance optical spectrum analyzers that can evaluate and analyze the characteristics of laser light.

Conventional optical spectrum analyzers can measure a limited range of optical wavelengths. Commercially-available analyzers are divided into two types: those that can measure the wavelengths used for optical communications (1260 to 1675 nm^{*2}), and those that can measure the visible light wavelengths (380 to 780 nm^{*3}) used in medical care, home appliance, material processing, and other applications. Consequently, institutes that conduct basic optical technology research, manufacturers of broadband light sources, and manufacturers of optical devices used in a variety of fields have had to use more than one optical spectrum analyzer or construct their own measurement system from a spectroscope and other components.

To satisfy such needs, Yokogawa has developed the AQ6374.

Product Features

1. Wide wavelength range (350 to 1750 nm)

The AQ6374 will be the only analyzer on the market that is capable of evaluating and analyzing both the visible light wavelengths and the wavelengths used in optical communications. With a maximum resolution of 2 pm and the ability to sample power levels at up to 100,000 wavelength points, the AQ6374 can precisely evaluate and analyze a wide range of wavelengths with a single scan. The AQ6374 also features a wide close-in dynamic range of 60 dB, which is sufficient for measuring the side mode characteristics of a semiconductor laser^{*4}. This instrument can thus be used to develop distributed semiconductor devices such as feedback laser diodes (DFB-LD) that emit only one wavelength as well as optical fibers that necessitate measurements over a wide range of wavelengths.

2. Accurate measurement of the optical spectrum of light

The AQ6374 comes with two additional enhancements. The first is a function that purges the water vapor trapped in its monochromator that can suppress the absorption of light at certain wavelengths. The second is a function that reduces the effect of high-order diffracted light whose wavelengths are 2–3 times that of incident light, a characteristic that all monochromators have due to their design principle.

Main Target Users

Universities and institutes that conduct optical research, and manufacturers of active and passive optical devices

Main Applications

- Emission spectrum measurement for semiconductor and fiber lasers
- Measurement of wavelength transmission characteristics for optical fiber and optical filters

Through its U.S. subsidiary, Yokogawa will exhibit the AQ6374 at Photonics West, a major optical technology trade fair. Photonics West 2017 will be held at the Moscone Center in San Francisco, California, from January 31 to February 2.

*¹ Based on a January 2017 Yokogawa market survey

*² As defined by the International Telecommunication Union Telecommunications Standardization Sector (ITU-T)

*³ As defined by the International Organization for Standardization (ISO) in ISO 20473:2007

*⁴ Side mode is the spectrum adjacent to the peak of the light being measured; wide close-in dynamic range is the ability to resolve and measure this.

Yokogawa's commitment to the optical measurement field

Yokogawa entered the optical measuring instrument market in the 1980s and since then has developed this business by focusing on visible-range light sources and optical power meters. In April 2004, Yokogawa acquired Ando Electric, one of the world's top optical communications measuring instrument manufacturers, and since then has developed products based on this company's technologies as well as its own.

Yokogawa's AQ6315, which was available until 2006, was well received as an optical spectrum analyzer that could measure a wide range of wavelengths, from visible light to the wavelengths used for communications. The AQ6374 greatly improves upon the basic performance of this popular model.

In addition to optical spectrum analyzers, Yokogawa offers a wide range of products that meet the needs of its customers. These include our market-leading optical time domain reflectometers (OTDR), optical power meters, and laser light sources.

About Yokogawa

Yokogawa's global network of 92 companies spans 59 countries. Founded in 1915, the US\$3.7 billion company engages in cutting-edge research and innovation. Yokogawa is active in the industrial automation and control (IA), test and measurement, and aviation and other businesses segments. The IA segment plays a vital role in a wide range of industries including oil, chemicals, natural gas, power, iron and steel, pulp and paper, pharmaceuticals, and food. For more information about Yokogawa, please visit <http://www.yokogawa.com>