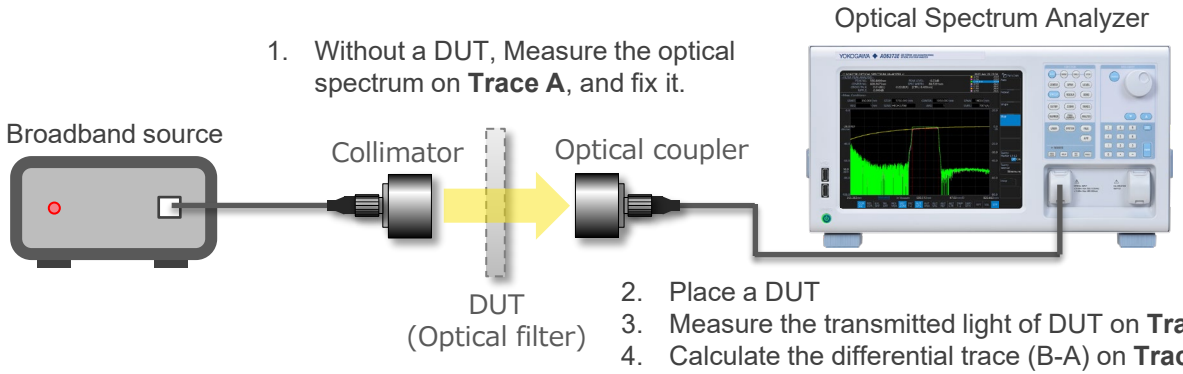
OSA: Measurement of Transmission Characteristics of Optical Filters

Applicable model*: AQ6370 series/AQ6360

Characterization of optical filters can be done using an optical spectrum analyzer (OSA) and a broadband light source. The transmission characteristic of the optical filter is obtained as the difference between the spectrum of the broadband light source measured without the DUT (optical filter) and the transmitted light spectrum of the optical filter in case of LOG scale.

The measurement light source is selected from wide band light sources such as LED, halogen lamp, ASE, SLD, SC, etc. according to the required optical power and wavelength range.

The applicable models have a free space structure inside the optical input port, and can use large-diameter optical fibers with a core diameter of up to 800 µm. The large fiber delivers more light to the OSA, helping to reduce noise on the measurement waveform and reduce measurement time. However, since the actual minimum wavelength resolution gets lower, it is effective for measurements where the optical power is low and high resolution is not required.



The smaller the numerical aperture (NA) of the optical fiber and the shorter the optical path length from the collimator to the optical coupler, the smaller the loss, which is advantageous for measurement, but high precision adjustment of angle and optical axis is required. Especially the adjustment of the optical coupler side becomes difficult. Therefore, when the optical power is high, it is easier to adjust it by receiving light directly with the ferrule of the optical fiber.

Measurement of transmission characteristics

Trace A: Reference light

Trace B: Measuring light

Trace C: Transmission characteristic
Trace B-A (Log)
If the vertical axis on the right is set to % (percentage), it can show a transmittance.