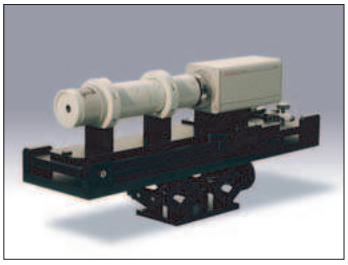
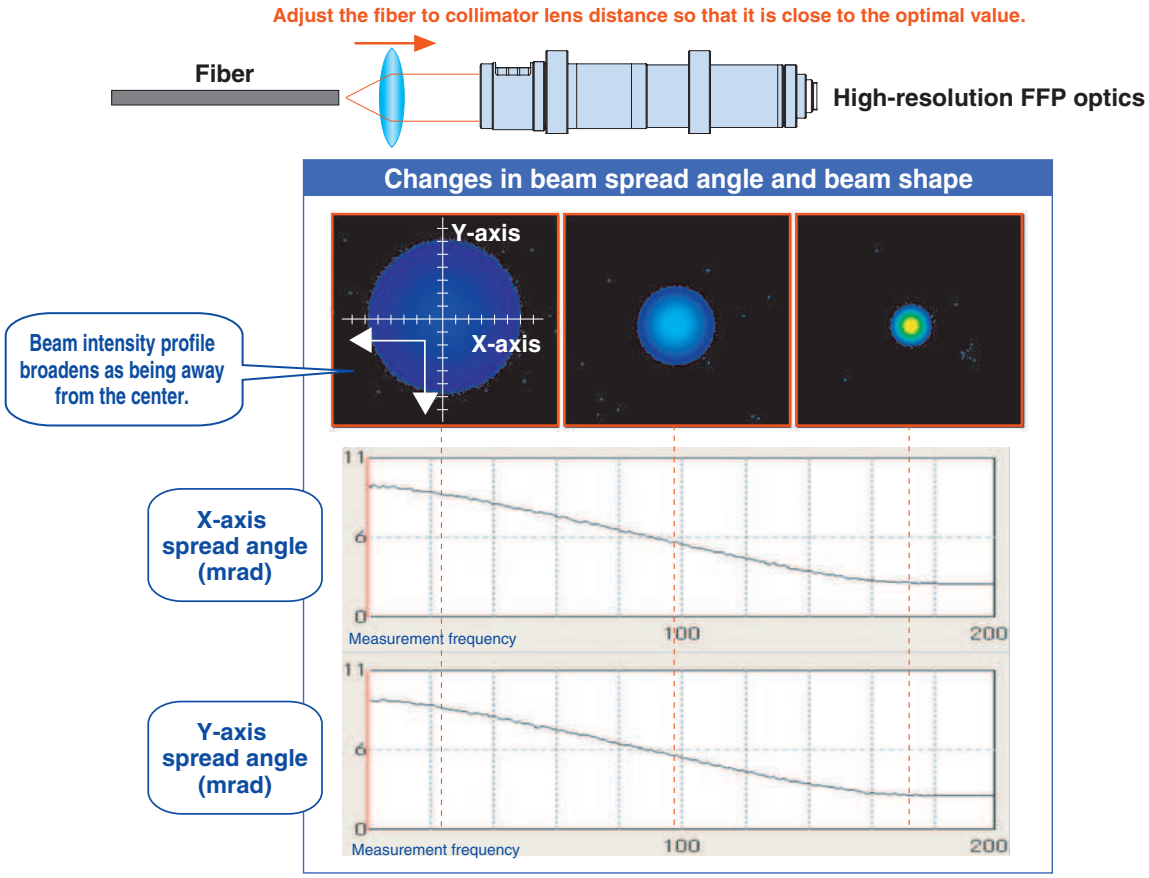
Fiber collimator evaluation system

Evaluates fiber collimator modules for optical communications.



Fiber collimators are a basic module used in optical communications. A fiber collimator is a module integrating a fiber and lens, and has a function to emit beams with a specified working distance or parallel beams. The fiber collimator evaluation system uses the LEPAS-12 for real-time two-dimensional observation of the beam spread angle of light emitted from a fiber collimator through a high-resolution FFP optics. This allows finding the beam parallelism of a fiber collimator in a short period of time.

The figure below shows the results obtained by measuring changes in the beam spread angle in real-time while varying the fiber to collimator lens distance. It can be seen that the spread angle becomes small as the fiber to collimator lens distance approaches the optimal value.

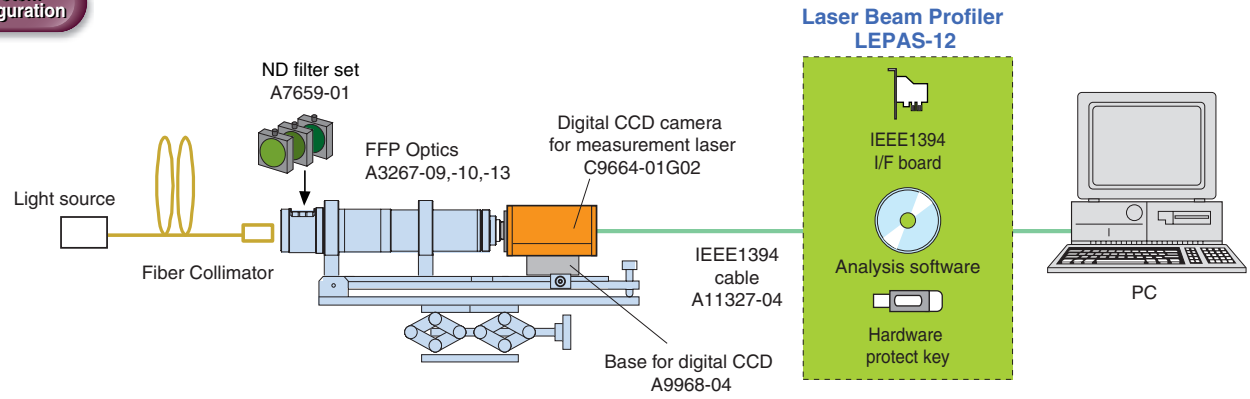


■ Specification

Optics type	A3267-09	A3267-10	A3267-13
Application	Collimator for optical pickups	Collimator for communication modules	High-precision laser pointers
Wavelength range	400 nm to 800 nm	780 nm to 1100 nm	780 nm to 1100 nm

Fiber collimator evaluation system

System configuration



Specifications

■ Optics specifications

Optics type	A3267-09	A3267-10	A3267-13
Measurement angle range	±15 mrad		±2.42 mrad
Angular resolution	0.09 mrad		0.01 mrad
Wavelength range	400 nm to 800 nm	780 nm to 1100 nm(2)	780 nm to 1100 nm
Working distance	2.8 mm		
N.A.	ϕ1.5 mm		
Lens mount	C mount		
Optics axis hight	80 mm ±2 mm		
Mass	11.4 kg		14.9 kg

● Reducing filter set

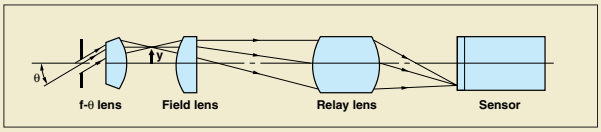
Optics type	A7659-01	A7659-03
Wavelength	600 nm to 1100 nm	400 nm to 650 nm
Transmittance (1)	1/10, 1/25, 1/50, 1/100, 1/250, 1/500, 1/1000, 1/2500, 1/5000 1/10 000, 1/25 000, 1/50 000, 1/100 000	

(1) In terms of transmittance, the A7659-01 shows an approximate value in the wavelength range from 650 nm to 850 nm, and the A7659-03 an approximate value from 460 nm to 650 nm.

● Operating principle of the FFP optics

The FFP optics is configured of three types of lenses: an f-θ lens, a field lens, and a relay lens. The f-θ lens forms the nucleus of the FFP optics and serves to convert the angle q of the incident beam to positional information y (= f-θ). Consequently, the illumination distribution on the focal surface of the f-θ lens (the camera imaging surface) serves as the angle distribution of the light source, and the FFP itself of the light source is formed of the focal surface. Images formed with FFP optics have a radiative angle distribution similar to that of an image projected on a semi-spherical screen with a light-emitting point at its center and are equivalent to the two-dimensional form of conventional mechanical scanning using a photodiode.

Patent: No. 1639209 Light Source Two-Dimensional Light Distribution Measurement Device



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