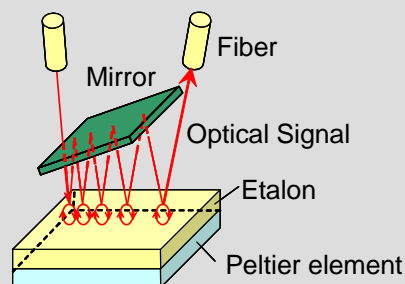


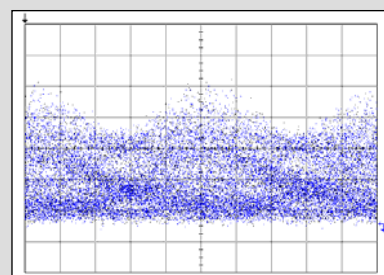
2005/10/19 Release

Enhancing transmission distance in 40Gbit/s optical communication systems for long-haul and metropolitan networks

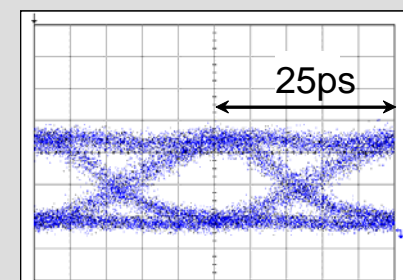
- Compensation of signal distortion in optical fibers using low cost optical equipment -



Configuration of a tunable dispersion compensator
using a mirror and etalon



Without compensator



With compensator

Comparison of optical waveform after
15km at 40Gbit/s transmission

The Central Research Laboratory of Hitachi, Ltd. and the Advanced Electronics Research Laboratory of Hitachi Metals, Ltd., have co-developed a low-cost tunable dispersion compensator for next-generation long-haul and metropolitan area networks, to compensate for optical signal distortion occurring in 40 Gbit/s transmission. The tunable dispersion compensator developed comprises of etalon, a type of optical resonator and a common component in optical transmission, and mirrors, in a simple configuration. A single dispersion compensator is able to compensate distortion in the different wavelengths which are transmitted in wavelength-division multiplexing for large capacity transmission. As it is able to inexpensively compensate for distortion in 40Gbit/s transmission, an issue in high-speed optical transmission, this technology is expected to contribute to increasing optical transmission distance in the future.