

The age of optic fiber arrives

Registration No.	Number 00309		
Registration Date	September 14, 2021	Registration Category	Category 1

Name (Model, etc.)	100km VAD Single-Mode Optical Fiber
Location	Musashino-shi, Tokyo
	NTT History Center of Technologies
Owner (Custodian)	NTT Information Network Laboratory Group
Manufacturer (Company)	Nippon Telegraph and Telephone Public Corporation
Year Manufactured	1980
Year first appeared	1980
Reason For Selection	This optic fiber represents the first successful industrial production run of VAD single-mode optical fiber, which boasts low loss rates over long distances. The 100-km sample was exhibited in November 1980 to commemorate the 20th anniversary of the Ibaraki Electrical Communication Laboratory, part of Nippon Telegraph and Telephone Public Corporation (now NTT), and is held together with production machinery and a large quantity of base material (reproduction) equivalent to 2,000 km in length. The Vapor-phase Axial Deposition (VAD) manufacturing process developed in Japan begins by feeding the glass raw material gas into an oxyhydrogen burner where flame hydrolysis produces minute particles of molten silica (soot). The soot is deposited while being pulled up by the tip of a rotating rod. The aggregated soot (porous preform) is then extended in the axial direction, and finally heated in the upper electric oven to produce a transparent glass, which constitutes the optical fiber base material. This optic fiber laid the groundwork for subsequent technical developments such as total synthesis single mode optical fiber. The VAD process itself was widely adopted in industry and paved the way for the modern era of optical communication.
Registration Standard	1-A (Show an important aspect or stage of the development of science and technology.) 2-A (Played a notable role in improving people's way of life and creating new ways of living.)

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