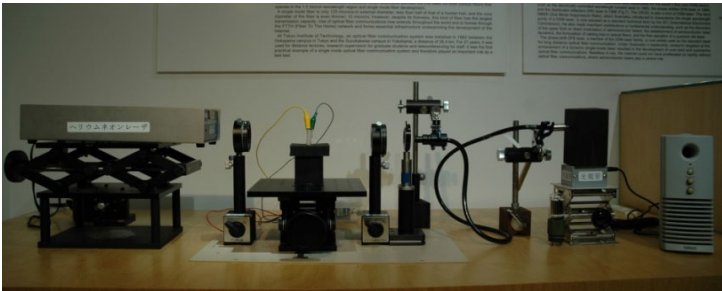


The dawn of optical fiber communication

Registration No.	Number 00272		
Registration Date	September 10, 2019	Registration Category	Category 2

Name (Model, etc.)	The Modulation Element Used For the World's First Optical Fiber Communication Experiment (ADP Crystal)
Location	Meguro-ku, Tokyo Science Tokyo Museum and Archives
Owner (Custodian)	Science Tokyo Museum and Archives
Manufacturer (Company)	Tokyo Institute of Technology (Current : Science Tokyo) , Suematsu Yasuharu laboratory
Year Manufactured	1963
Year first appeared	
Reason For Selection	The first optical fiber communication experiment in the world was undertaken, and this is the modulation element that was used. Under Yasuharu Suematsu, an experiment was made public by the students at a Tokyo Institute of Technology festival in May 1963. Preserved are the ammonium dihydrogen phosphate (ADP) crystal used in the optical modulator of the experiment apparatus and the apparatus recreated in July 2008. In the experiment, an optical modulator using the ADP crystal was used to place a voice signal from a microphone onto a He-Ne laser, which was then sent through optical fibers. The receiver used the photodetector of a photomultiplier tube to return it to an electric signal (demodulate) and amplified the voice signal with an amplifier to reproduce the sound through a speaker. A bundle of optical fibers was used to transmit the laser. The basic theory of this experiment is equivalent to the optical fiber communication technology supporting the modern-day Internet, and is valuable as an early demonstration of the potential for optical communication to support the communication infrastructure.
Registration Standard	1-A (Show an important aspect or stage of the development of science and technology.)

Open/Closed to Public	Open to Public
Photo	 
	ADP crystal Reproduced experiment apparatus
Other useful information	