## **Next Generation Networks (NGN)**

This is an optical/IP network with the high quality, security, and reliability of a conventional telephone network, and NTT developed and commercialized this technology, and started providing commercial services in March 2008. On this NGN, it is possible to provide a wide range of high-bandwidth, high-quality services, including telephone, video distribution, and Internet connection.

NGN: Next Generation Network

B-14

## Multiple Telegraph Systems by Polyphase Displacement Method

In the carrier telegraph system, amplitude modulation (ASK) was used because the telegraph signal had a DC component. On the other hand, in order to increase the transmission capacity of cables, the current multi-level PSK modulation scheme, named phase discriminated carrier multiple telegraph and polyphase displacement method, was proposed, and a vector combining method on the sending side and a reference carrier recovery method using a frequency multiplier (multiplier) and a frequency divider on the receiving side, were proposed, and a transceiver was developed. In addition, telegraph transmission experiments using duplex communication (QPSK) and laboratory experiments with 16-phase quadruple telegraph (16PSK) were successfully performed between Tokyo and Kure, showing its feasibility.

B-15

## **Coaxial FDM Transmission Systems**

With the introduction of the first domestic transmission technology system that uses domestically used parts, new circuit components were applied through the development of repeater circuit design technology with a feedback amount of 20 dB or more and high-frequency transistors, and dramatically large capacity and long distances have been realized, along with television multiplex transmission. In addition, a wideband submarine coaxial system was put into practical use, and for the first time in the world, the simultaneous transmission of television signals and telephone signals has been realized using a submarine cable system.

FDM: Frequency Division Multiplexing