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Advanced Technology for Antennas

A high-gain planar slot antenna was developed as an antenna for ground stations, and a reception experiment using the world's first experimental broadcasting satellite "Yuri" launched in 1978 was successfully completed. Furthermore, with the start of satellite (BS) broadcasting in 1989, planar antennas with slots in radial waveguides were developed and put into practical use. In addition, a multi-beam phased array antenna was developed as an antenna for an inter-satellite data relay system that relays data between low and middle orbit satellites and ground stations via geostationary satellites, and In 1989, it was mounted on the test satellite ETS II and was successfully tested. Thus, the advancement of antenna technology in the space communication/broadcasting field was advanced.

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2nd Generation Digital Mobile Communication Systems

In order to increase the capacity and solve problems in terms of services, digital systems have been developed which have higher performance than conventional analog systems by devising a digital system based on the TDMA system and developing technologies such as voice coding algorithms for mobile communications, with a commercial service launched in March 1993. Based on this method, a national standard was formulated for PDC. In addition, to support Internet access via mobile communication networks, a packet communication system based on PDC that exceeds the data transmission speed of conventional circuit switching systems was developed and put into practical use. In addition, various services that take advantage of the characteristics of packet communication have been developed, and in February 1999, the “i-mode” service was launched.

TDMA: Time Division Multiple Access

PDC: Personal Digital Cellular

Personal Handy-phone Systems

The Personal Handy-phone System (PHS) was developed and put into practical use as a personal communication system that uses a home cordless telephone outside. The PHS maximized the use of the ISDN public network to achieve economy, and adopted a microcell structure to achieve high frequency use efficiency, and has been standardized in Japan. PHS was used for cordless telephones for homes and businesses and public mobile communication services, and was introduced overseas due to its technological leadership. Later, PIAFS data communication was introduced and used for Internet access, etc.