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Third Generation Digital Mobile Communications (IMT2000 : International Mobile Telecommunication 2000)

This is a third-generation mobile communication system that was developed with the aim of up to 2Mbps in order to enable high-quality voice communication and high-speed, large-capacity data communication with the second-generation mobile communication system by applying CDMA technology to the wireless system, and this has been standardized as a universal specification. Wireless systems include the W-CDMA system and the cdma2000 system. This service was launched in Japan in May 2001, ahead of the rest of the world. Because of a common global specification, mobile terminals used in Japan can be used (roamed) in overseas operator areas that use the same method.

W-CDMA: Wideband Code Division Multiple Access

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Fourth Generation Digital Mobile Communications (LTE : Long Term Evolution)

This is a 100Mbps class broadband mobile communication system that uses OFDMA technology for the downlink and SC-FDMA technology for the uplink, and also uses MIMO technology to further increase the speed of the third generation mobile communication system, and with LTE II Advanced technology, higher speed and higher capacity have been promoted. With LTE, the network architecture that is optimal for IP packet transmission is adopted, and for voice calls, VoLTE technology is used to transmit and receive voice data over QoS-controlled packet communications, with higher quality voice communication services being provided. LTE services were launched in Japan in December 2010. In addition, there is a system of FDD-LTE/TD-LTE, depending on how the uplink/ downlink wireless channels are used.

OFDMA: Orthogonal Frequency Division Multiple Access

SC-FDMA: Single Carrier, Frequency Division Multiple Access

Microwave Wireless Relay Systems

The 256QAM wireless relay system, which doubles both the transmission capacity and the frequency utilization efficiency compared to the conventional 64QAM system and achieves a high frequency utilization efficiency of 10 bits/s/Hz, has been developed and put into practical use, and introduced nationwide. The multi-level modulation technology, various fading compensation technologies and interference compensation technologies developed for realizing this system are revolutionary technologies that constitute the basic technologies of wireless communication, and these have contributed to the effective use of radio resources, a property of humankind.

QAM: Quadrature Amplitude Modulation