

Toward the next generation of communications

KDDI is engaged in a broad range of R&D activities with the objective of designing the future of communications. R&D is divided into four major areas: "Multimedia Applications," "Mobile-Wireless," "IP Networking," and "Photonic Networking." Within these areas, R&D efforts are focused on the five technological themes of next-generation IP networks, new-generation mobile communications, ubiquitous broadband, network security, and multimedia seamless applications. R&D programs range from basic research to commercialization of innovative technologies. Two major recent accomplishments involved technologies linking communications with broadcasting and the launch of services based on CDMA2000 1x EV-DO technology in Japan.

Integrated telecommunications-broadcasting technology

Terrestrial digital TV broadcasting commenced in the urbanized regions surrounding Tokyo, Osaka and Nagoya in December 2003. Besides receivers settled in homes, these broadcast services will also become accessible to mobile-phone users from late 2005.

For the past several years KDDI has been researching hybrid technologies for interactive services between broadcast media and telecommunications to enable broadcast content to be delivered to mobile handsets. In May 2004, KDDI successfully developed Japan's first mobile handset capable of receiving terrestrial digital TV broadcasts. Not only can the device receive broadcasts, but it also uses telecom-broadcast convergence technologies to provide valuable new services. For example, users could set the handset to automati-

cally receive and display emergency broadcast warnings on the mobile-phone screen. Using GPS functions, the handset could also be used to find out details about the user's locality in relation to broadcasting programs.

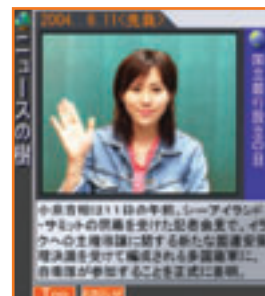
KDDI plans to continue technical testing in fiscal 2004 to develop different types of services and content designed to make the most out of such hybrid broadcast-communication technologies.

CDMA2000 1x EV-DO technology

Commercialization of CDMA2000 1x EV-DO technology and technical support provided by R&D teams at KDDI played a major role in the launch of the au WIN service in Japan in November 2003. Original image compression, processing and editing technologies developed in-house underpin the extremely high quality of the live video and video streaming components of the new service. Technology developed by KDDI also supports a number of new *EZ Channel* services that provide users with rich creative possibilities based on flexible combination of video and graphics elements. Alongside these achievements, KDDI also developed related technologies, including original valuation methods for high-speed data communications characteristics and new inter-network optimization processes between base stations. Together, these enable the realization of high-throughput in the commercial service. Furthermore, KDDI has also developed relay stations (repeaters) that can extend the coverage areas at lower costs than existing conventional base stations to provide services in the new 2GHz high-frequency band. Reducing the cost of constructing and operating a 2GHz wireless network infrastructure promises to make KDDI mobile services even more competitive.



Hybrid mobile-phone handset with broadcast reception capabilities



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EZ Channel service



Antenna installation at repeater station