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## 6 Concluding Remarks

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The Communications Research Laboratory has continued to play an active role in the development of Japan's Engineering Test Satellite series, and has contributed to the establishment of a number of future satellite technologies. The Engineering Test Satellite VIII (ETV-VIII), scheduled for launch in FY 2004, will be used to conduct mobile multimedia communications experiments utilizing the potential of satellite communications. Moreover, basic experiments to establish satellite positioning technologies will be performed using an onboard atomic clock.

The ETS-VIII is a large satellite to fulfill the requirements governing direct-link mobile communications between the satellite and portable hand-held terminals. Each of the two deployable antennas (one for transmission and the other for reception) measures nearly 19 m by 17 m, comparable in size to antennas installed in ground-based base stations. Weighing approximately 3 tons in total in the initial stages of geostationary orbit, the ETS-VIII will be one of the largest geostationary satellites in space.

These technologies are expected to facilitate mobile communications by reducing the load in ground-based communication networks, and will significantly advance progress toward the ubiquitous communication era. Moreover, the verified space technologies using the ETS-VIII will form the foundation for the establishment of an ultra-high-speed Internet-based communications satellite (the

Wideband InterNetworking engineering test and Demonstration Satellite, or WINDS) and a quasi-zenithal satellite. The ETS-VIII experiments will thus be a cornerstone to the development of the advanced satellite technologies.

This special issue presents an overall picture of the satellite system, the ground-based systems, and the plans for experiments using these systems with the assistance of various organizations and university researchers. This is the first complete collection of descriptions and reports relating to the ETS-VIII. I hope that this issue will find an appreciative audience not only among the participants in the basic and applied experiments using the ETS-VIII but also among all others interested in this project.

The ETS-VIII has now entered its final stages of development, thanks to the efforts of numerous researchers and technological experts affiliated with a range of organizations: the Ministry of Public Management, Home Affairs, Posts and Telecommunications; the ASC (Advanced Space Communications Research Laboratory: terminated research duties in Feb. 2001); the CRL (Communications Research Laboratory); NTT (Nippon Telegraph and Telephone Corporation); JAXA (Japan Aerospace Exploration Agency); and a number of associated universities. I would like to take this opportunity to extend our thanks to all participants and to ask for their continued cooperation in the future, so that we may yield significant achievements.



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