

SPACE COMMUNICATIONS AND NAVIGATION SYMPOSIUM (B2)
Mobile Satellite Communications and Navigation Technology (3)

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R&D STATUS OF SATELLITE/TERRESTRIAL INTEGRATED MOBILE COMMUNICATION
SYSTEM.

Abstract

To achieve a secured and safe society, the securing communication method at the emergency disaster is desired. In the background of this social tendency, the research and development of the mobile satellite communication system for the satellite terrestrial common terminal is begun. This system is called STICS (Satellite/Terrestrial Integrated mobile Communication System). The main feature of this system is as follows;

1. The dual communication function that can be connected with both the terrestrial system and the satellite system is composed by using the common terminal with handheld shape.
2. Effective use of the frequency is attempted by commonly use of existing satellite system communication system with the terrestrial system.
3. The communication infrastructure can be secured by using a satellite system even when the ground system infrastructure is intercepted due to the disaster.
4. To achieve such function, we are considering a satellite with 30m class LDR(Large Deployable Reflector) and 100 beams around Japan.

During RD, at first we have to estimate capacity of this system by making interference evaluation simulator between terrestrial and satellite system. And system capacity becomes 90 million by assuming 7colors of frequency allocation with 23 beams in Japanese Main Island and 1Interference power from terrestrial cellar phone is assumed IMT-2000 which has TPC (Transmission Power Control), so we measured actual transmission power of urban area, and average power becomes less than -5 dBm. Also, RD for the satellite is also proceeding such as a amplifier without saturation, antenna element with diplexer, beam forming network such as DBF. In this system two-hop system is considered by using service link and feeder link. To save feeder link bandwidth, we will mount channelizer in the feeder link. These element components are now made for trial purposes.