

SATELLITE SYSTEMS OF DATA TRANSMISSION

THE SINGLE SATELLITE SYSTEM OF DATA TRANSMISSION OF UKRAINE: PLANS AND IMPLEMENTATION

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The paper considers main features of the Single Satellite System of Data Transmission (with the “Ukrkosmos” state enterprise as operator) to be created by National Space Agency of Ukraine in conformity with the National Space Program.

The development and introduction of the Single Satellite System of Data Transmission (SSSDT) in Ukraine opens the possibility for implementation of the single state policy in the sphere of satellite technologies. In accordance with the Resolution of Cabinet of Ministers of Ukraine [1] and Decree of President of Ukraine [2], creation of SSSDT will be the task of the National Space Agency of Ukraine (NSAU). The “Ukrkosmos” state enterprise is designated as operator of the future system. The work aimed at setting up SSSDT is done in conformity with the National Space Program of Ukraine.

SSSDT is designed for: providing resources of satellite and ground-based systems of data transmission to executive agencies and organizations whose activity is related to the national security, and to commercial users; providing access to the Internet international network; distribution of TV and radio broadcasting programs including those for broadcasting to foreign countries; delivery of the satellite radio navigation data.

SSSDT includes: the earth basic network of data transmission with the switching of packets (BNSP); satellite decentralized network (SDN); satellite centralized network (SCN); network providing access to Internet (IAN); satellite distributive data exchange network (SDDEN); and the satellite radio navigation support network (SRNSN). The first four networks comprise the hybrid network of the SSSDT data transmission (HDTN) consisting of satellite and ground subnetworks operating together i.e. not isolated from one another.

One of the major features of SSSDT is the use of HDTN making it possible to neutralize, to a large extent, the disadvantages inherent in satellite and ground data transmission networks, and to enhance the system reliability as a whole with minimum cost of the transmission line leasing. HDTN will be set up in two stages. The first stage (1998–2001) provides the development of the NSAU departmental telecommunication network connecting the enterprises and centers of the space industry in the cities of Yevpatoriya, Chernihov, Dnepropetrovsk, Odessa, Kiev, and others.

The NSAU telecommunication network performs the tasks of data transmission from the ground-based complex for space vehicle control, delivery of information concerning the Earth remote sounding from the reception centers to the users, providing services related to data transmission, telephone, and facsimile communication to space industry enterprises, and those concerned with access to Internet.

The second stage (2002–2007) involves further development of SSSDT, particularly, based on new systems of satellite communication such as Astrolink, Teledesic, Sky Bridge, Selestri, etc. The prospects are in favor of rapidly growing market of data transmission services in many countries including Ukraine. While in 1999 data transmission services compared to the whole radio communication services accounted for 20% throughout the world and 1% in Ukraine, in 2001, 2005, and

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