

High-Quality Communication Service for the Population Via Satellite

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Annotation: Extensive research and practical work on methods for solving the problems of electromagnetic compatibility have yielded results, as a result of which a number of regulatory documents in the field of electromagnetic conditions have created a communication base in the International Organization of Power Supply. Research is currently underway. This article will talk about it.

Keywords: satellite, high-speed internet, uninterrupted communication, data transfer, modern communication.

Introduction

As everyone knows, the vast majority of the territory of the Republic of Uzbekistan is desert, mountains, hills and plains. According to the latest statistics, today 51% of the population of our Republic lives in cities and 49% in villages.

The Decree of the President of the Republic of Uzbekistan Shavkat Mirziyoyev “On approval of the “Digital Uzbekistan – 2030” strategy and measures for its effective implementation” means a lot to us. It is impossible to develop a digital economy without providing the population with high-quality communication and high-speed Internet. This requires us to think differently and introduce new technologies to improve the quality of communication.

This article focuses on the VSAT (Very Small Aperture Terminal) technology used in satellite communication systems, which is not yet very popular in Uzbekistan and is rarely used in production.

The article will provide general information about satellite communication systems, their operating principles, VSAT technology, its devices, and the development of satellite communication systems in Uzbekistan.

The main part.

Significant development prospects, clear advantages over other telephony, reliability and guaranteed uninterrupted communication - all this is attributed to satellite phones. Satellite communication is today the only economical solution for providing communication services to subscribers in densely populated areas, which is confirmed by a number of economic studies. Satellite communication has the most

important advantages necessary for the construction of large-scale telecommunication networks. Firstly, with its help, it is possible to quickly form a network infrastructure covering a large territory, regardless of the presence or condition of underground communication channels. Secondly, the use of modern technologies for accessing the resources of satellite repeaters and at the same time providing information to an almost unlimited number of consumers significantly reduces the cost of operating the network. Such advantages of satellite communication make it very attractive and highly efficient even in regions with well-developed terrestrial telecommunications. Preliminary forecasts for the development of personal satellite communication systems indicate that at the beginning of the 21st century the number of their subscribers will be about 1 million, and over the next decade - 3 million.

Currently, the number of users of the Inmarsat satellite system is 40 thousand people. In recent years, modern types and means of communication have been increasingly introduced in Uzbekistan. However, while mobile radiotelephones have long been familiar, personal satellite communication devices (satellite terminals) are still rare. An analysis of the development of such means of communication shows that in the near future we will witness the daily use of personal satellite communication systems. The time is approaching for the integration of terrestrial and satellite systems into a global communication system. Personal communication can be carried out on a global scale, that is, regardless of where the subscriber is in the world, his connection will be provided by calling his phone number. But before this can happen, satellite communication systems must successfully pass tests and prove their economic and technical viability.

VSAT networks have allowed users to install compact satellite communication earth stations near offices, thereby solving the "last mile" problem for a large number of corporate users, creating conditions for convenient and efficient data exchange, and reducing the cost of public underground networks.

VSAT systems (Very Small Aperture Terminal - a terminal with a very small transmission channel) provide satellite communication services to customers (usually small organizations) who do not require high bandwidth. The data transfer rate for a VSAT terminal usually does not exceed 2048 kbit/s. The words "very small channel" mean the dimensions of the terminal antennas compared to the dimensions of the old antennas of backbone communication systems. VSAT terminals operating in the C-band usually use antennas with a diameter of 1.8-2.4 (3.4-5.25 GHz), in the Ku-band - with a diameter of 0.75-1.8 (10.7-14.8 GHz). VSAT systems use channel separation technology on demand.

Areas of use of satellite communication systems: navigation, ministries and departments, management bodies of state structures and institutions, the Ministry of Emergency Situations and rescue units.

Inmarsat, the world's first mobile satellite communication system, offers a full range of modern services to users around the world: at sea, on land and in the air.

The Inmarsat satellite communication system has a number of advantages:

- a) coverage area - the entire globe, except for the polar regions;
- b) quality of services provided;
- c) confidentiality;
- d) additional equipment (car kits, faxes, etc.);
- e) free incoming calls;
- f) availability in the program;

Online account status checking system (billing), a high level of trust among users who have stood the test of time (more than 25 years of service and 210 thousand users worldwide). The main services of the Inmarsat satellite communication system: Provision of a telephone number, Fax, E-mail, Data transfer (high speed).

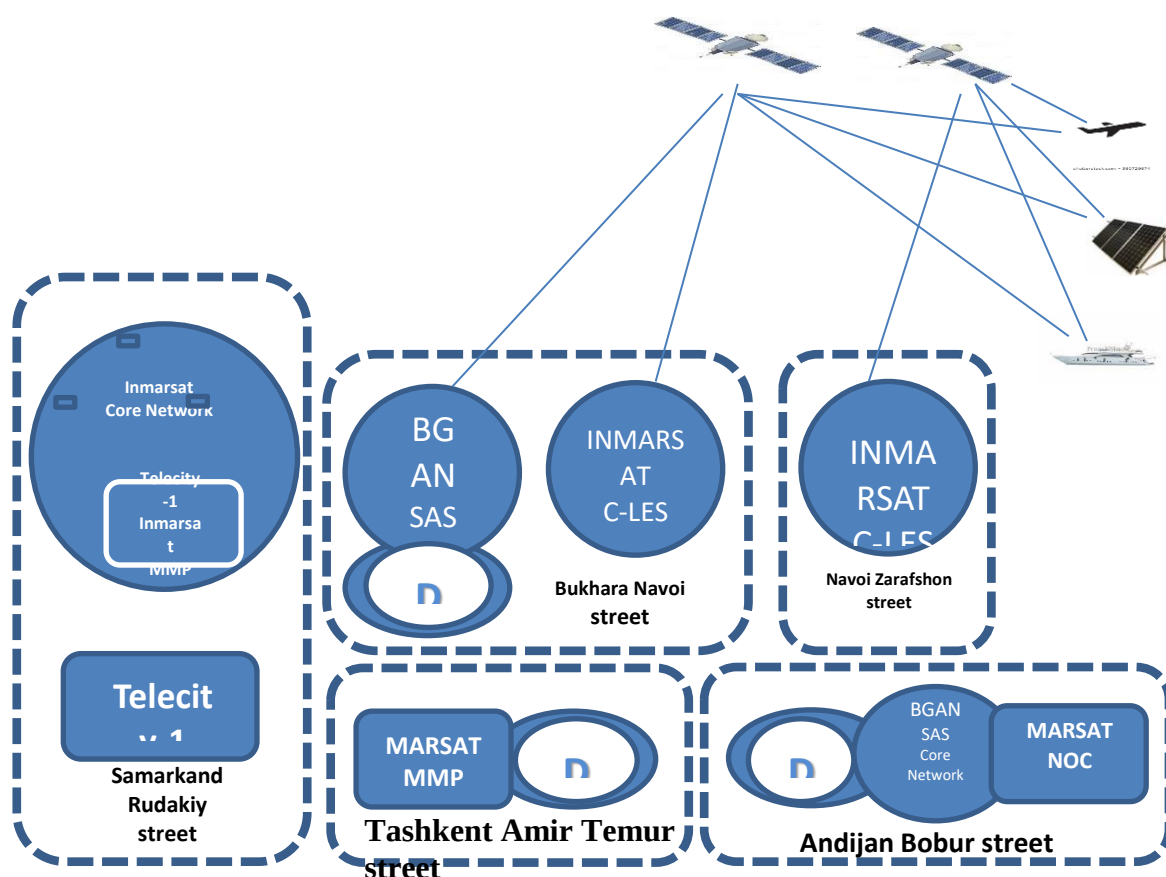


Figure 1. Uzbekistan segment of the Inmarsat satellite communications system.

Conclusion

In conclusion, it is worth noting that on the basis of VSAT equipment it is possible to build multi-network networks that provide almost all modern communication services: Internet access; telephone communication; Local Area Network Association (construction of VPN networks); transmission of audio and video data; occupation of existing communication channels; data collection, monitoring and remote control of industrial facilities, etc.

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