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FUTURE OF SIGNAL INTELLIGENCE: QUANTUM COMMUNICATION VIA SATELLITE

Abstract

The signal intelligence (SIGINT) collection methods have improvised with the advancement of information technology. And quantum communication via satellite is going to be a primary medium in the coming decade, for acquiring intelligence information. China is the first country to achieve success in deploying quantum communication network via satellite. While Singapore, India, and Japan are also some of the countries that are planning to use quantum communication networks for their respective defense forces. In the 21st century, data is the primary tool to manipulate various military and intelligence operations; and quantum communication holds power to provide sophisticated end-to-end encryption for the intelligence community. Currently, the data transmission via terrestrial networks can easily be cracked down by the hackers and any other third-party members. But elements like quantum key distribution (QKD) make the data transmission networks unbreachable.

This paper outlines the current and future developments of quantum communication via satellite and its essential role in SIGINT collection method. It will also provide a regional analysis of various countries trying to develop and deploy quantum communication networks. Also considering the European investments in cyber risk management, this paper will provide a brief overview of the North Atlantic Treaty Organization (NATO) and its increasing demand for satellite communication services for land operations.