

## **THEORETICAL AND PRACTICAL APPROACHES TO COMBAT ACTIVE ELECTROMAGNETIC INTERFERENCE**

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Ensuring reliable transmission, reception, and processing of signals under active jamming conditions is one of the key challenges in modern applied information theory. This paper is devoted to the theoretical and practical aspects of enhancing the jamming resistance of radio-technical systems (RTS) used in military applications. A concise overview of methods, perspectives, and results related to the suppression of active electromagnetic and noise jamming is presented. The study analyzes the structure and vulnerabilities of modern multifunctional RTS against electronic warfare (EW) technologies and proposes several improvement strategies. Particular emphasis is placed on increasing the structural stealth of wideband probing signals through combined phase-coding and pseudo-random discrete frequency modulation techniques. The paper highlights the necessity of technical and organizational measures to ensure both jamming resistance and emission concealment, especially in combat operations where passive modes are limited. In light of the increasing use of microelectronic-based devices and growing electromagnetic density in the environment, the study emphasizes the urgency of addressing deliberate active jamming threats. Proposed countermeasures include classical anti-jamming methods, improved operator training, adaptive coding techniques, phase-modulated wideband signals, and automated jamming suppression software systems. The findings underline that overcoming active jamming threats is vital for the operational integrity and survivability of all signal-emitting and receiving military platforms.

### **References**

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