

SPACE COMMUNICATIONS AND NAVIGATION SYMPOSIUM (B2)
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SPECIFIC EMITTER VERIFICATION BASED SECURE SPACE VEHICLE COMMUNICATION

Abstract

With the development of software defined radio(SDR) technology and the cost reduction of RF hardware,various malicious attacks could be taken to jam the space vehicle communication. Unfortunately,most space communication links are vulnerable to malicious intrusion,especially to spoofing attacks.The consequences of a spacecraft under control of a terrorist or hacker could be devastating.Therefore,reliable and secure communications to and between spacecraft are important for most space missions. Specific emitter verification(SEV),a very useful technology in signal intelligence,can verify radio emitter of interest using only external signal feature measurements,and detect the clones of original RF signal. It makes security against wireless spoofing attacks possible.Hence,a reliable communication framework integrated SEV for space vehicles is proposed.Finally,the verification strategy and experiment result is discussed.