

Simulator for Tactical Data Link System with Anti-Jamming Capability

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Abstract—In this paper, we design a simulator using Matlab/Simulink for the jamming performance analysis of a tactical data link (TDL) system, called Link-16. Using the implemented simulator, we analyze the BER performance of Link-16 over tone, partial-band, and pulse jamming and evaluate its anti-jamming capability. In simulation, the main channel parameters including the jamming bandwidth, maximum Doppler frequency, and k factor of Rician fading are defined. In this paper, especially, we first propose a modified TDL system with the cognitive anti-jamming capability that senses the jamming signal and opportunistically avoids the jamming spectrum. Using the designed simulator, we verify that the proposed TDL system with cognitive anti-jamming capability improves bit-error-rate (BER) performance compared to existing TDL system over partial-band jamming

Keyword— Tactical Data Link, Link-16, CCSK, MSK, Jamming, Partial-Band Jamming, Cognitive Anti-Jamming.



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