

عنوان مقاله:

A Novel Detection Method in FH-SS-LPI Wireless Systems

محل انتشار:

شانزدهمین کنفرانس مهندسی برق ایران (سال: 1387)

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خلاصه مقاله:

In detecting frequency-hopping spread-spectrum (FH-SS) signals or direct sequence spread spectrum (DSSS) signals in LPI (Low Probability of Intercept) wireless systems without knowledge of the hopping code or the code rate, the best the interceptor can hope to do is integrate energy in each hop-frequency cell and combine this energy optimally to make an overall decision. An LPI signal is a spread-spectrum waveform whose code is unknown from the viewpoint of an interceptor therefore any potential interceptor is forced to use wideband detection techniques because it cannot exploit the correlation detection option similar to the intended receiver who knows the spectrum spreading code used by transmitter and must only synchronize the code generated locally with the code spreading the incoming signal. Here we present a novel detection method in FH-SS-LPI systems in which by performing a proposed algorithm the frequency –hopping code can be extracted from the received signals. In contrast to other approaches, where only determine whether a signal is present in the observed band of interceptor system or not, here by performing a designed structure the spreading code can be extracted from the received signal. Simulations show the satisfactory results with a reasonable complexity of calculations.

کلمات کلیدی:

frequency-hopping spread-spectrum, hopping code, interceptor system, Low Probability of Intercept

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