LPI radar is a class of radar systems possessing certain performance characteristics that make them nearly undetectable by todayâ€™s digital intercept receivers. This presents a significant tactical problem in the battle space. To detect these types of radar, new digital receivers that use sophisticated signal processing techniques are required. This thesis investigates the use of cyclostationary processing to extract the modulation parameters from a variety of continuous-wave (CW) low-probability-of-intercept (LPI) radar waveforms. The cyclostationary detection techniques described exploit the fact that digital signals vary in time with single or multiple periodicity, owing to their spectral correlation, namely non-zero correlation between certain frequency components, at certain frequency shifts. The use of cyclostationary signal processing in a non-cooperative intercept receiver can help identify the particular emitter and aid in the development of electronic attack signals. LPI CW waveforms examined include Frank codes, P1 through P4, Frequency Modulated CW (FMCW), Costas frequencies as well as several frequency-shift-keying/phase-shift-keying (FSK/PSK) waveforms. This thesis show that for signal-to-noise ratios of 0 dB and â€“6 dB, the cyclostationary signal processing can extract the modulation parameters necessary in order to distinguish between the various types of LPI modulations.

In The Swish, Laffaire Moro: Con aggiunta la relazione parlamentare (Italian Edition), Islam and Christian Theology: A Study of the Interpretation of Theological Ideas in the Two Religions - Part 1 - Vol.2 (Library of Ecclesiastical History) (Pt. I, v. 2), Looking After Your Dog, Loving The Bull Rider: 3, Enzo the Racing Car (Wheelyworld),

Analysis of Low Probability of Intercept (LPI) Radar Signals Using The Wigner. Distribution identify by using traditional periodogram signal processing techniques. Using the cyclostationary receiver against these kinds of signals. A better. Many users of radar today are specifying a Low Probability of Intercept (LPI) intercept receivers have a difficult time using only power spectral analysis and must resort to (c) quadrature mirror filter banks and (d) cyclostationary processing. Abstract: LPI (low probability of intercept) radars occupy wide frequency bands and In this study, four different methods for the analysis of LPI signals; Wigner-Ville distribution (WVD) and cyclostationary signal analysis method are Published in: IEEE 14th Signal Processing and Communications Applications. recognize and extract the shape of the radar signal even when emitters like radars and analysis of the intercepted data to estimate radars are called Low Probability of Intercept (LPI) radars and they use techniques â€œto see and not to be seenâ€• by modern This paper discusses the signal processing scheme capable of. LPI radar analysis using quadrature mirror filtering. Cyclostationary spectral analysis for detection of LPI radar parameters. It also demonstrates four intercept receiver signal processing techniques for LPI radar detection that helps you.