

AN ADAPTIVE FILTER DESIGN FOR SIDE LOBE REDUCTION IN PULSE COMPRESSION RADAR SYSTEMS

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ABSTRACT

Pulse compression techniques are widely used and active research topic in radar systems. There were few demerits like masking with the existing methods. In order to overcome these limitations, in this project a R-G filter is used to suppress the sidelobes of the radar coming out from the matched filter and BLMS algorithm is used to calculate the filter coefficients. A weighting function is utilized to shape the sidelobe energy in an iterative manner that will yield more sidelobe reduction. Comparison of the (R-G) filter using BLMS algorithm and the matched filter shows that at the expense of insignificant loss in signal-to-noise ratio (LSNR), adequate mainlobe-to-peak-sidelobe ratio (MSR) can be achieved.

KEYWORDS: LSNR, MSR, BLMS Algorithm, Radar Range Resolution