

DIGITAL FULL EVEN HARMONIC DEMODULATION METHOD BASED ON FULL-PHASE ANALYSIS FOR MAGNETIC MODULATOR

ABSTRACT OF THE DISCLOSURE

This application relates to the field of electrical technologies, and provides a full even harmonic digital demodulation method based on full-phase analysis for a magnetic modulator. According to the full even harmonic digital demodulation method based on full-phase analysis for a magnetic modulator, standard voltage timing data output by the magnetic modulator is obtained when a DC calibration current with a set amplitude is fed into the magnetic modulator during calibration of the magnetic modulator; an output voltage sequence from full-phase Fourier analysis is established based on the standard voltage sequence data, and the output voltage sequence is preprocessed; comprehensive analysis is performed on the preprocessed output voltage sequence from full-phase Fourier analysis to obtain all standard even harmonic signals and current conversion coefficients. This application adopts the full-phase Fourier analysis technology to perform comprehensive preprocessing and analysis on output voltage signals of the magnetic modulator. This approach significantly reduces spectrum leakage and phase distortion, ensuring that data sampled at different time points can be fully utilized and enhancing the accuracy of signal processing.

FIG.1