

ABSTRACT

**FAST COHERENT PROCESSING FOR CODES WITH PERIODIC LINE
SPECTRA**

The present invention consists of a method allowing the computational load caused by the implementation of conventional signal processing methods operating by multicopy correlation, in other words by simultaneous correlation of the spectrum of the received signal to copies of said signal, each of the copies having a different doppler shift.

According to the invention, the multicopy correlation operation comprises at least the following steps:

- a step (32) for the time-frequency transformation of the received signal,
- a step (61) for the formation of synthetic spectra by selection of spectral lines and concatenation, starting from the spectrum of the received signal,
- a step (64) for the computation of the inter-spectral product, in other words of the product of each synthetic spectrum with the concatenated conjugate spectrum of the corresponding doppler copy,
- a step (66) for the frequency-time transformation of the inter-spectral products.

The field of the invention is that of sonar signal processing methods. The invention relates more particularly to sonar echos coming from objects that are irradiated by sonar emissions with a 'comb' line spectrum composed of spectral lines.

Figure 6