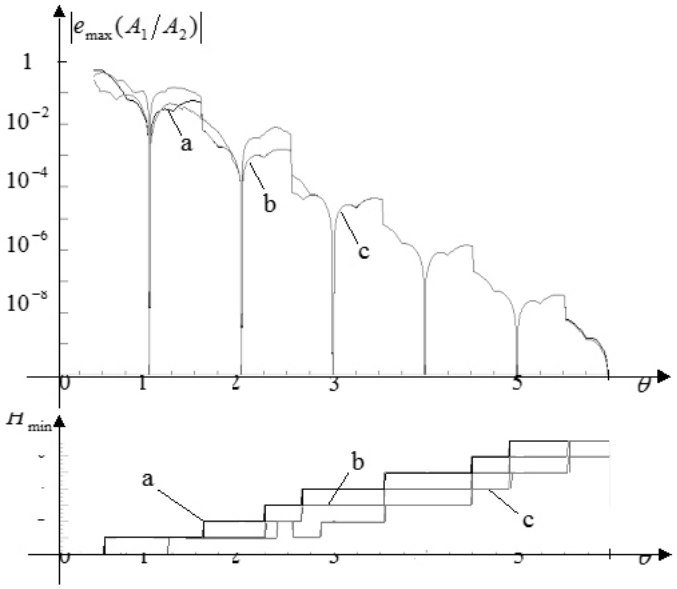
06SP011 Estimation of the Amplitude Quotient of Signals with Common Frequency

Tomaž Lušin[37], **Dušan Agrež**[38]

In the two channel acquisition systems, it is often to estimate the parameters of two common frequency sinusoidal signals. To estimate parameters of the periodic signals it is most suitable to use a transformation of the signal in the frequency domain.
In this paper we try to show the effectiveness of the systematic error reduction using weighted amplitude DFT coefficients of two sine signals with common frequency. In estimations the Rife-Vincent class I windows have been used.

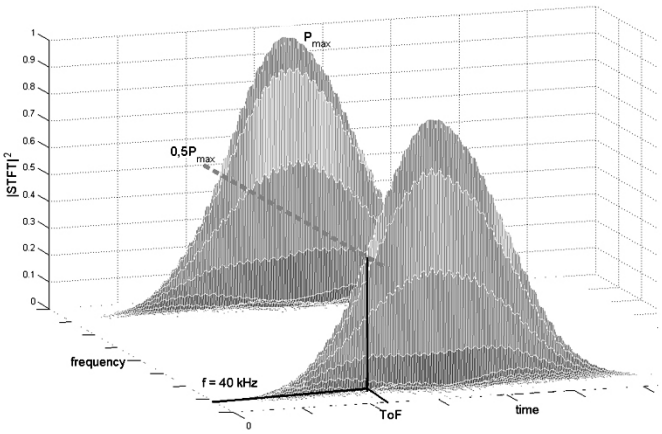


Minimal curves of the maximal errors of the apparent power estimations with interpolations of the DFT using RV1 windows and the coresponding orders : a - the one-point estimation (3), b - the three-point estimation (4), c - the five-point estimation (5)

06SP024 Ultrasonic Time of Flight Estimation for Wind Speed Measurement Based on Time-Frequency Domain Using STFT

Duarte R.M[39], Villanueva J.M.M[39], Costa M.M.[40], Freire R.C.S.[41], Cavalcanti Catunda S.Y., **Costa W.M.**

In this work was developed a based on STFT procedure for estimate ToF and ToF uncertainties, using three different windows. The triangular window exhibits a better performance than Boxcar and Hamming windows. It is shown for the chosen threshold, triangular window errors are the lowest. This level threshold can be used for ultrasonic signal detection. The measurement procedure provided results with a maximum wind speed estimation uncertainty of 4.30 μs for a 5% noise level.



ToF estimation procedure using STFT.