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To the **Editor-in-Chief**
of the ACTA IMEKO Journal

Dr. Dusan Agrež

Dear Editor,

the paper entitled “Contribution of interharmonic component on the interpolated DFT frequency estimator”, presented at the last IMEKO TC4 Conference, analyses the accuracy of the frequency estimator provided by the classical two-point interpolated Discrete Fourier Transform (IpDFT) algorithm based on a maximum sidelobe decay window (MSD) in the case of a sine-wave affected by an small amplitude interharmonic component located at least one bin apart the unknown frequency. The analytical expression for the frequency estimation error has been derived in the paper. From the derived expression some useful remarks about the contribution of such interharmonic component on the frequency estimation have been drawn. Moreover, the accuracy of the derived expression has been verified through computer simulations.

The enclosed manuscript, submitted to the IMEKO TC4 2020 Special Issue, entitled “*Contribution of an interharmonic component to the sine-wave parameters estimators returned by the interpolated DFT algorithm*” is a technically-extended version of the proceedings paper. The main technical novelties are:

1. The analytical expression for the amplitude estimation error achieved by the classical two-point IpDFT algorithm based on a MSD window in the case of a sine-wave affected by an small amplitude interharmonic component located at least one bin apart the unknown frequency has been derived.
2. The derived expressions for the aforementioned estimation errors have been analysed and some important remarks about the contribution of an interharmonic on the sine-wave amplitude estimates achieved by the IpDFT algorithm has been drawn.
3. The derived theoretical results have been verified through computer simulations.
4. The points 1)-3) above have been investigated also for phase estimation by means of the IpDFT algorithm based on a MSD window.

Paper Authors

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