

ASYMPTOTIC PROPERTIES OF THE LEAST SQUARES ESTIMATORS OF THE PARAMETERS OF THE CHIRP SIGNALS

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(Received December 16, 2002; revised September 24, 2003)

Abstract. Chirp signals are quite common in different areas of science and engineering. In this paper we consider the asymptotic properties of the least squares estimators of the parameters of the chirp signals. We obtain the consistency property of the least squares estimators and also obtain the asymptotic distribution under the assumptions that the errors are independent and identically distributed. We also consider the generalized chirp signals and obtain the asymptotic properties of the least squares estimators of the unknown parameters. Finally we perform some simulations experiments to see how the asymptotic results behave for small sample and the performances are quite satisfactory.

Key words and phrases: Chirp signal, least squares estimators, asymptotic distribution, consistent estimators.