Abstract

Signal acquisition is the primary step in a GPS receiver. In this paper, frequency-domain methods of GPS L1 signal acquisition are proposed that use reduced number of FFT points to perform circular correlation for faster as well as reliable acquisition. The possibility of reduction has been considered by analyzing the spectrum of C/A code alone. Simulation of various FFT sizes are carried out on MATLAB and the results are verified by those obtained from the GPS Signal Tap Receiver. Besides, the performances of reduced-size FFT correlation techniques are compared and evaluated using different lengths of noncoherent pre-integration period.
Reference


Index Terms

Computer Science

Communications

Key words

GPS

Signal acquisition

C/A

code

FFT

Circular correlation

MATLAB