

C415566 · MAJOR ELECTRICAL ENGINEERING

KEY WORD: DISCRETE HARTLEY TRANSFORM/ DISCRETE FOURIER TRANSFORM

SUNISA CHANTAWEKUL : POWER SPECTRUM ANALYSIS BY DISCRETE HARTLEY
TRANSFORM. THESIS ADVISOR : ASSO. PROF. SOMCHAI JITAPUNKUL, Ph.D.
72 pp. ISBN 974-582-574-3

Recently, the discrete Fourier transform(DFT) is commonly used in power spectrum analysis of digital signal. However, this transform requires complex calculation and yields complex solutions. This thesis has introduced the discrete Hartley transform(DHT) in place of the DFT. Because the DHT has real calculation and real values result. The study has shown that the calculation time and the size of stored memory of the DHT was approximately 50 percent less than that of the DFT. In contrast, when used the DHT, its mean square error was greater than that the DFT, but was less than the scale of 1×10^{-7} . It has been shown by comparing to the DFT that the DHT could be used in power spectrum analysis of digitized real stationary and non stationary signals.