

- 5.13 a) We have for a white stochastic sequence $x(n)$ (which is a wide-band signal): $E\{x(n)\} = 0$ and the autocorrelation function is: $r(nT) = \sigma_x^2 \delta(n)$. Hence, we have:

$$S_x(e^{j\omega T}) = \sum_{n=-\infty}^{\infty} r(nT) e^{-j\omega nT} = \sigma_x^2$$

and

$$\|S_x\|_{\infty} = \max\{|S_x(e^{j\omega T})|\} = \sigma_x^2$$

- b) For a narrow-band signal, for example, a sinusoidal we have: $\|S_x\|_1 = A$ where A is the amplitude.