


$$y = h x + n \quad \bar{x} = \frac{y}{h} + \frac{n}{h}$$

$$SNR = \frac{P_s}{P_n} = \frac{|x|^2}{(n/h)^2} = \frac{|0.5 + 0.1i|^2}{|0.01 - 0.02i|^2}$$

$$SNR(\text{dB}) = \log_{10} SNR \quad n = \bar{x} - x$$

$$y(t) = \underbrace{h(t)} \cdot x(t) \quad \xleftarrow{\text{IFFT}} \quad Y[k] = H[k] \cdot \underline{X[k]}$$


$$\frac{y(t)}{h(t)} = x'(t)$$

$$x'(t) \xrightarrow{\text{FFT}} \underline{x'[k]}$$

$$\text{SNR}_{[k]} = \frac{|x'[k]|^2}{|x'[k] - x[k]|^2}$$

$$y = h x + n$$

$$x' = \frac{y}{h}$$

~~$y(-)$~~
 ~~$h(t)$~~
 ~~x_p~~

$$\frac{Y[k]}{X[k]} = H[k] + \Delta$$

mean ~~[H]~~
H $(H^1[k], H^2[k], H^3[k])$