Main idea

- How to efficiently use the energy that stored in the transmitters is important.
- Define $C_J = C(\text{channel capacity}) / S(\text{channel average power})$ to calculate energy efficiency.
Some Channel Models

• For incoherent BFSK channel, \( C_j \text{ max } \) is achieved when \( E_s \text{(symbol energy)} = 3.084 \, N_0 \)

• For Coherent BFSK channel, \( C_j \text{ max } \) is achieved when \( E_s/N_0 \) is very small

• For distorted waveform channels, \( C_j \text{ max } \) is achieved when \( S \text{(channel average power)} \) is very small. And the paper suggest that we should picks narrow band with highest local SNR.
Further Subjects

- According to the last channel model and its suggestion for energy distribution, we would like to test some other channel models to see if it holds.
- Compare new method to water filling method.
- Try using new method to achieve energy efficiency with constrain $C$ (channel capacity) must bigger than $R$ (code rate)