

- We need to send 265 kbps over a noiseless channel with a bandwidth of 20 kHz. How many signal levels do we need?
- A signal with 200 milliwatts power passes through 10 devices, each with an average noise of 2 microwatts. What is the SNR? What is the SNR in dB?
- What is the total delay (latency) for a frame of size 5 million bits that is being sent on a link with 10 routers each having a queuing time of $2 \mu\text{s}$ and a processing time of $1 \mu\text{s}$? The length of the link is 2000 Km. The speed of light inside the link is $2 \times 10^8 \text{ m/s}$. The link has a bandwidth of 5 Mbps.