

ESD264/1.264
Lecture 35 case study
Fall, 2013

Short answer. Be prepared to discuss in class

Long fiber optic spans are possible. Read the text to be able to compute the signal losses over long distances, to understand the possible ranges.

An 0.2 db/km loss implies 1% of the fiber optic signal carries 100 km without amplification:

- $DB = 100 \text{ km} * 0.2 \text{ db/km} = 20 \text{ db}$
- $Loss = 10^{(DB/10)} = 10^2 = 100$
- $Signal = 1/loss = 0.01$

400 km spans common on land, and longer undersea spans are used as well.

Your short exercise is to compute:

- With 0.15 db/km loss, what is the signal strength 200 km from origin? Express the signal strength as a decimal number (e.g. 0.01), which is the signal level relative to the original.

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