ECE 513 - Lecture 1

dB, dBW, dBm

Power ratios are expressed in dB (decibels)

$$P_{in}\Big|_{dB} = 10 \log_{10}(P_{in})$$

$P_{in} = 1W \Rightarrow 0\,dBW \leftarrow dB\ Watts$

$P_{in} = 1mW \Rightarrow 0\,dBm \leftarrow dB\ milli\ Watt$

for voltages: $P \simeq V^2$

$$V_r\Big|_{dB} = 20 \log_{10}(V_{in})$$

10 dB gain $\Rightarrow$ Power gain of 10X

20 dB gain $\Rightarrow$ Power gain of 100X