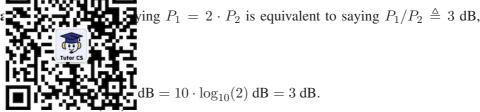
## 程序代写代做 CS编程辅导

IBm cheat sheet

• dB is a logarithmic **r** because



The unit dBi can be treated just like dB, because it measures the gain of an antenna relative to an isotropic antenna which has the warp of lodb at: cstutorcs
dBm and dBW is a (logarithmic) unit to measure powers. Since dB is a ratio of powers, dBm and dBW

• dBm and dBW is a (logarithmic) unit to measure powers. Since dB is a ratio of powers, dBm and dBW are defined by forming the ratio of the power you want to express relative to a reference power, which is 1 W for dBW and 1 mW for dBm. Formally speaking Project Exam Help

$$\begin{array}{c} E_{T}^{P_{T}|_{dBm}} \bar{I} \stackrel{10 \cdot \log_{10}}{\text{tuto}} \left( \frac{P_{T}}{\text{test}} \right) & \text{and } 163.com \\ P_{T}|_{dBW} = 10 \cdot \log_{10} \left( \frac{P_{T}}{1 \text{ W}} \right) = P_{T}|_{dBm} - 30 \text{ dB} \end{array}$$

Consequently, two things are obay: 749389476

• Starting with a **power** (dBW or dBm) you can *add* and *subtract* **ratios** (dB or dBi) as often as you like and you still have a **power** (dBW or dBm):

\*\*The contract ratios\*\*

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$$P_1 \cdot G_1 / L_1 = P_2 \quad \Leftrightarrow \quad 10 \cdot \log_{10} \left( \frac{P_1 \cdot G_1 / L_1}{1 \text{ W}} \right) = 10 \cdot \log_{10} \frac{P_2}{1 \text{ W}}$$
$$\Leftrightarrow \quad P_1 |_{\mathbf{dBW}} + G_1 |_{\mathbf{dB}} - L_1 |_{\mathbf{dB}} = P_2 |_{\mathbf{dBW}}$$

• Subtracting two powers (dBW or dBm) which is equivalent to computing their ratio (dB):

$$\begin{split} \frac{P_1}{P_2} &\triangleq 10 \cdot \log_{10} \left( \frac{P_1}{P_2} \right) \, \mathrm{dB} = 10 \cdot \log_{10} \left( \frac{P_1}{1 \, \mathrm{W}} \right) - 10 \cdot \log_{10} \left( \frac{P_2}{1 \, \mathrm{W}} \right) = P_1 |_{\mathrm{dBW}} - P_2 |_{\mathrm{dBW}} \\ &= 10 \cdot \log_{10} \left( \frac{P_1}{1 \, \mathrm{mW}} \right) - 10 \cdot \log_{10} \left( \frac{P_2}{1 \, \mathrm{mW}} \right) = P_1 |_{\mathrm{dBm}} - P_2 |_{\mathrm{dBm}} \end{split}$$

Both powers must have the same unit, do not mix dBW and dBm.

Short hand notation for things that are okay:

$$dBW \pm dB = dBW$$

$$dBm \pm dB = dBm$$

$$dBW - dBW = dB$$

$$dBm - dBm = dB$$

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On the other hand, the fo

• Never ever multiply ( seen students claiming that a power of  $P_{
m T}$  =10 W with an antenna gain of  $G_{\rm T} =$ diated power of 100 dBW. No! 100 dBW is 10 Gigawatts! Multiply in linear scale n in logarithmic scale:

> $-100 \text{ W} \triangleq 20 \text{ dBW}$  $\Leftrightarrow P_{\rm T}|_{\mbox{\footnotesize dBW}} + G_{\rm T}|_{\mbox{\footnotesize dBi}} = 10 \mbox{\footnotesize dBW} + 10 \mbox{\footnotesize dBi} = 20 \mbox{\footnotesize dBW}$

• Never add a bunch of dun the single terms. Lucio pices in log scale means multiplying them in linear scale. If you add 10 dBW with 3 dBW and 6 dBW then you have

## ssignment Project Exam Help

What unit is Watt cuber? I don't know, you tell me... tutores @ 163.com

• A power cannot be measured in dB. A gain/loss cannot be measured in dBm or dBW.

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