Errata Sheet

Introduction To Mixed-Signal IC Testing, 2nd Edition

Roberts, Taenzler and Burns

Chapter 5:

Exercise 5.7. The sigma in this problem should have been 10 mV (typesetting error).

The question should read:

A series of 100 measurements is made on the output of an op amp circuit whereby the distribution was found to be Gaussian with mean value of 12.5 mV and a standard deviation of **10 mV**. If this experiment is repeated, write an expression for the pdf of the mean values of each of these experiments?

Ans. $f(v) = \frac{1}{\left(10^{-3}\right)\sqrt{2\pi}} e^{\frac{-\left(v-12.5\times10^{-3}\right)^2}{2\left(10^{-3}\right)^2}}$

The answer to the existing question written as:

A series of 100 measurements is made on the output of an op amp circuit whereby the distribution was found to be Gaussian with mean value of 12.5 mV and a standard deviation of **1 mV**. If this experiment is repeated, write an expression for the pdf of the mean values of each of these experiments?

Ans. $f(v) = \frac{1}{\left(0.1\times10^{-3}\right)\sqrt{2\pi}} e^{\frac{-\left(v-12.5\times10^{-3}\right)^2}{2\left(0.1\times10^{-3}\right)^2}}$

Exercise 5.8. The sigma in this problem should have been 10 mV (typesetting error).

The question should read:

A series of 100 measurements is made on the output of an op amp circuit whereby the distribution was found to be Gaussian with mean value of 12.5 mV and a standard deviation of **10 mV**. If this experiment is repeated and the mean value is compared to a reference level of 10 mV, what is the mean and standard deviation of the error distribution that results? Write an expression for the pdf of these errors?

Ans. $f(v) = \frac{1}{\left(10^{-3}\right)\sqrt{2\pi}} e^{\frac{-\left(v-2.5\times10^{-3}\right)^2}{2\left(10^{-3}\right)^2}}$

The answer to the existing question written as:

A series of 100 measurements is made on the output of an op amp circuit whereby the distribution was found to be Gaussian with mean value of 12.5 mV and a standard deviation of **1 mV**. If this experiment is repeated and the mean value is compared to a reference level of 10 mV, what is the mean and standard deviation of the error distribution that results? Write an expression for the pdf of these errors?

Ans. $f(v) = \dfrac{1}{\left(0.1\times10^{-3}\right)\sqrt{2\pi}} e^{\frac{-\left(v-2.5\times10^{-3}\right)^2}{2\left(0.1\times10^{-3}\right)^2}}$

Exercise 5.9. The sigma in this problem should have been 10 mV (typesetting error).

The question should read:

A series of 100 measurements is made on the output of an op amp circuit whereby the distribution was found to be Gaussian with mean value of 12.5 mV and a standard deviation of **10 mV**. If this experiment and the mean value is compared to a reference value of 10 mV, in what range will the expected value of the error lie for a 99.7% conference interval.

Ans. -0.5 mV ≤ E[error] ≤+5.5 mV

The answer to the existing question written as

A series of 100 measurements is made on the output of an op amp circuit whereby the distribution was found to be Gaussian with mean value of 12.5 mV and a standard deviation of **1 mV**. If this experiment and the mean value is compared to a reference value of 10 mV, in what range will the expected value of the error lie for a 99.7% conference interval.

Ans. +2.2 mV ≤ E[error] ≤+2.8 mV

Chapter 13:

Special note on numbering problem at end-of-chapter: problems 13.1 – 13.9 appear twice and lead to the problem numbers above 13.9 to be offset by -10.

Specifically, problems are numbered as:

13.1, 13.2, ….., 13.8, 13.9, 13.1, 13.2, ….., 13.8, 13.9, 13.10, 13.11, 13.12, …., 13.27, 13.28.

This causes a misalignment with the solutions given at the end of the book.

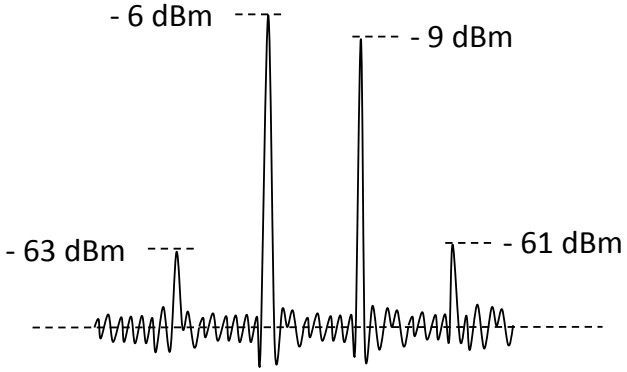
Correction to (Eqn. 13-15):

$$G_A'\big|_{dB} = G_A\big|_{dB} - \left[G_{o,IN}\big|_{dB} + G_{o,OUT}\big|_{dB}\right]$$

Problem 13.18 (written in textbook as 13.10):

The question should read:

The spectrum below has been measured when supplying an amplifier with a **-20 dBm** per tone two-tone signal. What is the *OIP3*, *IIP3* and the gain of this amplifier?



Chapter 15:

Problem 15.1:

The question is:

Calculate the parasitic resistance of a 13-in. PCB trace having a width of 20 mils and a thickness of 1 mil. A pair of these traces are used as the high-force and low-force lines of a Kelvin-connected voltage regulator located on the DIB. The regulator feeds a 3.3-V DC signal to a 5-Ω load resistance. How much current will flow through the four Kelvin lines? What will be the differential voltage between the high-force and low-force output of the voltage regulator, measured at the regulator side of the PCB traces?

The answer should be:

R_{trace}=0.44 Ω, $I_{Load}=I_{HF}=I_{LF}$=0.66 A, $I_{HS}=I_{LS}$=0 A, V_{drop} = 0.293 V, V_{REG}=3.87 V.

Corresponding to the situation: