

## February 23, 2009 Errata for Frequency Synthesis by Phase Lock, 2nd Edition

Number of the printing is given by last number in "10 9 8 7 ..." on bottom of copyright page.  
Spaces are not included in line counts below.

### ERRORS IN FIRST THROUGH THIRD PRINTINGS

pages xxii and 567, last line: 212-850-6753 becomes 317-572-3994.

p. 112, Fig. 3.38b: delete "13" on bottom-right.

p. 114, Fig. 3.38d: Remove the  $\varphi$  subscript from script-L, 2 places.

p. 115, Fig. 3.38(e), #s 23-25: "Mono"  $\Rightarrow$  "Astable", 3 places.

p. 117, Table 3.1, lines 23-25: "monostable"  $\Rightarrow$  "astable", 3 places.

p. 131, Fig. 3.53b: label for dashed line:  $S_{\varphi, \text{ref}} \Rightarrow N^2 S_{\varphi, \text{ref}}$ .

p. 157, Eq. (4.14):  $N_{2, \text{min}} \Rightarrow (N_{2, \text{min}} + 1)$

p. 161, middle: "ORing"  $\Rightarrow$  "ANDing".

p. 187, 188: Revised Correction:

In Eq. (5.13)-(5.21), the arguments of the logs should be absolute values, [ ]  $\Rightarrow$  | |.

Delete  $n$  in the denominator of Eq. (5.14). Other changes follow from that.

In the line above Eq. (5.17), delete: ", plus the doubling of the value of  $n$ ,".

Delete "-6 dB" at the end of Eq. (5.17).

Two lines below Eq. (5.17), insert "deletion of the" before "last term".

Delete 2 from the denominator of Eqs. (5.18), change 4 to 2 in the denominator of Eq. (5.19), and change -12 dB to -6 dB in Eq. (5.20).

Change the lines above Eq. (5.21): This 10 dB reduction, ~~combined with the change in  $n$  from 2 to 1~~, gives a 4 dB ~~smaller sideband~~.

p. 214, Fig. 5.37(b), switch + with - at the op-amp inputs and  $\overline{CD} \Rightarrow CD$  (i.e., no inverted inputs)

p. 273, 7 lines from the end: In the second equation,  $z$ 's should be bold capitals, representing matrices, i.e.,

$$\text{"becomes } \mathbf{Z}^n = \prod_{i=1}^n \mathbf{Z} \text{."}$$

p. 303, 2 lines above Eq. (7.1):  $\Delta t$  moves left to follow "change".

p. 322, Fig. 719: "6.T.1" becomes "6.T.2" at end of caption

p. 329, last sentence:  $f_{\text{ref}} \Rightarrow \varphi_{\text{ref}}$ .

p. 330, Fig. 7.24a, b. The corrections due to sampling have the wrong sign. The signs on the vertical axes should be reversed except for the hold function, which is correct.

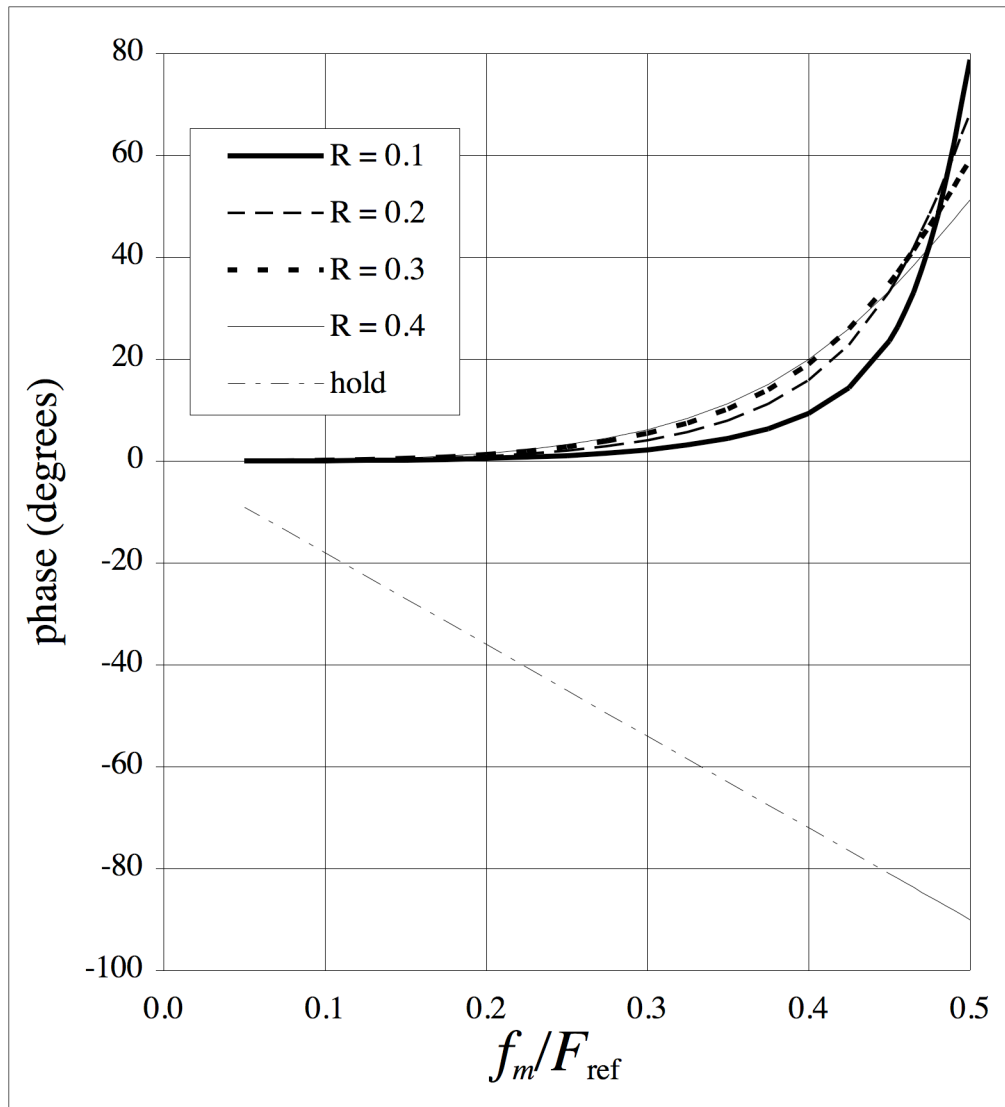


Fig. 7.24a Corrected

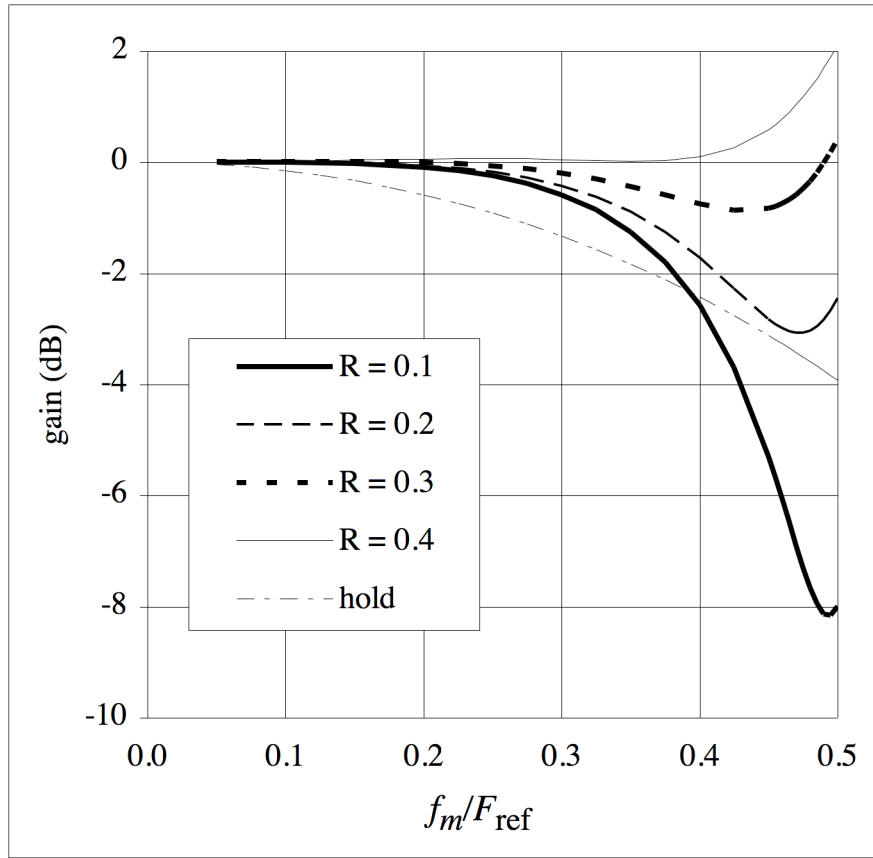


Fig. 7.24b Corrected

pp. 376, 380, Figs. 8.17, 8.21: In "\*DAC output is proportional to  $1/F_{ref}$ ",  $ref \Rightarrow out$

p. 383: Eq. (8.57), add, after =,  $F_{ref}n_{fract}$ , i.e.,

$$f_{fract} = F_{ref}n_{fract} = F_{ref}N_22^{-n_2};$$

3 lines lower,  $f_{ref} \Rightarrow F_{ref}$ .

pp. 383-387: Change  $f_{fract}$  to  $n_{fract}$  eleven places, namely 4 lines below Eq. (8.57), 2 lines above Eq. (8.58), first line p. 384, Eqs. (8.59), (8.60), (8.61), (8.64), (8.67), inputs (3 total) in Figs. 8.24-8.26.

p. 387, far right in Fig. 8.26, near the top right, the right side of  $N_3(z)$  is missing.

p. 388

Replace footnote 8 by:

Miller and Conley [1991, eq. (14)] showed by simulation that

$$S_{\varphi} = \frac{(2\pi \text{ rad})^2}{6f_{\text{ref}}} \left[ 2 \sin \left( \pi \frac{f_m}{f_{\text{ref}}} \right) \right]^{2(P-1)}. \quad (8.74a)$$

At low  $f_m$ , Eq. (8.75) approximates both (8.74) and (8.74a). We can obtain Eq. (8.74a) by computing the phase modulation produced by the sequence of changes in  $N$  with a fixed synthesized frequency. It is not accurate to equate modulation of  $N$  to an equivalent frequency injected after the VCO (Section 2.5), as is assumed in using Eq. (8.74), because that equivalence requires that  $N$  remain fixed following any change.

p. 412:

In Eq. (9.36), change 1.19 to 1.2.

In references in the middle of page:

interchange "Rey, 1960" with "Richman, 1954a."

p. 582, Answer to problem 3.3(a): 1% becomes 0.125%.

p. 592, index entry: Phase

detector

4044 Charge-Pump PFD: 23  $\Rightarrow$  233.

#### ERRORS IN FIRST AND SECOND PRINTINGS

p. 18, middle: after " $-\sin(-x)$ ", add " $= \sin(\pi - x)$ ".

p. 33, problem 1.2, first line: -50 becomes -60

p. 61: move horizontal line indicating end of example to bottom of page.

p. 291, Fig. 6.M.8, caption: add " $r = 1.5, 1.707, 2, 2.414, 3, 3.828, 5, 9, 21$ ."

p. 302, Fig. 7.1: subscript "2"  $\Rightarrow$  subscript "s" two places.

p. 320, in line above Sect. 7.3.3: "12.1.1.3"  $\Rightarrow$  "12.1.1.4".

p. 321, Fig. 7.18 legend: "type-3"  $\Rightarrow$  "type-2".

p. 329

Above Eq. (7.28): add "Here  $G$  will be the unsampled response ( $G_0$ )."

In Eq. (7.28): delete subscript zero from  $G$  two places.

p. 335

Line 8: delete subscript zero from  $G$ ; move ")" to left, before  $\approx$ , i.e.,  $G(f_m + nf_s) \approx 0$ .

Last line above Eq. (7.29):  $f_{\text{ref}} \Rightarrow \varphi_1$ .

Fourth line from end: "(7.29)" becomes "(7.28)".

p. 341

Line 2, equation numbers 7.13 becomes 7.18 and 7.14 becomes 7.19.

Above last line, insert " $f_{\text{ref}} = 10 \text{ kHz}$ ,".

Under "GSmp1", delete ", compiled for the Macintosh operating system,"

p. 427, Fig. 9.14: interchange the labels (a) and (b).

p. 446, below Eq. (10.1), "below" becomes "above".

p. 522, Fig. 12.4, in box above B: "compute PHA based on y" becomes "compute PHA change based on T".

p. 582

Answer to problem 5.2(1a): "13.5 dB" becomes "13.5 dB gain".