

Corrections to *Digital Communications*, 4th Edition

1. Page 31, Equation (2.1-54)
First line: y_1 instead of y_2
Second line: g_n instead of g_1
2. Page 78, problem 2.19, last line, replace “variance” with “power density spectrum”
3. Page 99, eq 3.3-16, - should be =
4. Page 109, eq 3.4-24, $f(1/2(2k\dots))$ should be $f'(1/2(2k\dots))$
5. Page 145, problem 3.30, there should be no = in the definition of $p(n)$
6. Page 146, problem 3.36, $R(D) = \text{Log}_2 M + D \text{Log}_2 D/(M-1) + (1-D) \text{Log}_2 (1-D)$
7. Page 156, eq. 4.1-48, left-most – sign should be =
8. Page 159, eq 4.2.6, + should be *
9. Page 163, Equation (4.2-30)
should be: $s(t) = a_0/2 + \sum_{k=1}^{\infty}$
10. Page 163, Equation (4.2-31)
should be: $a_k = (2/T) \int_0^T s(t) \cos 2\pi kt/T dt, k \geq 0$
 $b_k = (2/T) \int_0^T s(t) \sin 2\pi kt/T dt, k \geq 1$
11. Page 164, eq 4.2-37, $s_k(T)$ should be $s_k(t)$
12. Page 178, 7 lines from the top
should be: $\sqrt{2\epsilon}$ instead of $\epsilon \sqrt{2}$
13. Page 198, third paragraph, PCM should be CPM
14. Page 208, eq 4.4-32, = in the sum should be –

15. Page 222, problem 4.2, first line, the subscript of phi should be xx instead of ss
16. Page 224, problem 4.11, graph for $s_1(t)$, the 2 on the t-axis should be 1
17. Page 227, Figure P4.21, $H(f)$ should be $G(f)$
18. Page 238, Equation (5.1-19)
should be: $h(T-\tau)$ instead of $h(t-\tau)$
19. Page 238, two lines below Equation (5.1-20)
should be: $y_n^2(T)$ instead of $y_n^2(t)$
20. Page 244, Equation (5.1 – 45)
should be: $m = 1, 2, \dots, M$
21. Page 244, Figure 5.1-9, in the second branch replace ϵ_1 with ϵ_2
22. Page 245, Equation (5.1-48)
should be: $\sqrt{\epsilon_b}$ instead of $\sqrt{\epsilon_n}$
23. Page 248, second paragraph, $f(t=iT)$ should be $f(t-iT)$
24. Page 249, first paragraph, first line, $+ n$ should be $+n_1$
25. Page 252, eq 5.1-68 second line, there should be a closing parenthesis before closing curly brace.
26. Page 253, eq 5.1-71 second line, there should be a closing parenthesis before closing curly brace.
27. Page 309, Equation (5.4-39)
 $R_1 \sqrt{2\epsilon_s/N_0}$ instead of $\sqrt{2\epsilon_s R_1/N_0}$
28. Page 318, Equation (5.5-17)
add the term: $-(N_0)_{\text{dBW/Hz}}$
29. Page 320, problem 5.4, $t + T$ should be $t = T$

30. Page 323, problem 5.12, it “wa” shown should be it “was” shown

31. Page 329, problem 5.37 part a, $i = 1, 2, \dots, n$ should be $i = 1, 2, \dots, n$

32. Page 366, Equation (6.4-3)

Replace + sign with – sign in the second term of the summation

33. Page 367, Equation (6.4-6)

Replace + sign with – sign in the second term of the summation

34. Page 367, Equations (6.4-8) and (6.4-9)

add the subscript L to the log-likelihood function

35. Page 374, problem 6.14, $\cos(\dots)$ are missing the time argument t

36. Page 422, lines 2 and 3 above Equation (8.1-14)

delete the phrase “no more than”

37. Page 428, first paragraph, second line, “A” previously should be “As” previously

38. Page 467, Example 8.1-14, the 5 in $N = 2^4 - 1 = 5$ should be 15

39. Page 468, 12 lines from the top and 5 lines from the bottom

should be: $b <$ instead of $b \leq$

40. Page 491, Figure 8.2-15

solid line corresponds to soft-decision decoding
broken line corresponds to hard-decision decoding

41. Page 500, Equation (8.2-41)

In the denominator, M_k should be M_j and M_j should be M_j

42. Page 591, Figure P9.9

The lower shaping filter in the modulator and demodulator,

$q(t)$ should have a “hat” on it

43. Page 609, 6 lines above Equation (10.1-34)

$\varepsilon_{k+1-L-1}$ should be $\varepsilon_{k+L-L-1}$

44. Page 609, eq 10.1-34, $i = 1$ should be $i = k$ in the first summation

45. Page 623, eq. 10.2-29, δ_{ij} should be $\delta_{\perp j}$

46. Page 646, Figure 10.3-5

delete the “hat” from $I(z)$

47. Page 651, 4 lines from the top

replace “over” with “about”

48. Page 651, 2 lines above Section 10.6

“Turob” should be “Turbo”

49. Page 673, Figure 11.1-6

Lower delay line elements: z^1 should be z^{-1}

50. Page 732, eq 13.2-8, the opening parenthesis before $p_i(t)$ should be removed

51. Page 750, Figure 13.2-8

Replace “adders” with “multipliers”

52. Page 752, Figure 13.2-9

Replace “adders” with multipliers”

53. Page 856, Equation (14.6-5)

Replace K with k

54. Page 885, Figure 14.7-7

The "Input" should be 02310

55. Page 894, Problem 14.16

$$r_1 = h_1 s_1 + h_2 s_2 + n_1$$

$$r_2 = h_1 s_2^* + h_2 s_1^* + n_2$$

56. Page 895

Delete 2^k from the expression on the error probability

57. Page 915, top of page

(15.47) should be (15.3-47)

58. Page 925, 6 lines from top

T_0 should be T_p

59. Page 935

a) top of page:

$$r_1 = b_1 \sqrt{\epsilon_1} + b_2 \rho \sqrt{\epsilon_2} + n_1$$

$$r_2 = b_1 \rho \sqrt{\epsilon_1} + b_2 \sqrt{\epsilon_2} + n_2$$

b) Problem 15.8, last equation

delete factor of 1/2

c) Problem 15.9, first equation

delete comma after $b_2=1$

60. Page 936, first equation at top of page, second term

should be:

$$\ln \cosh \left\{ \left[r_2 \sqrt{\epsilon_2} - b_1 \rho \sqrt{\epsilon_1 \epsilon_2} \right] / N_0 \right\}$$

61. Page 936, second equation from top of page

divide each of the arguments in the cosh function by N_0

62. Page 936, Problem 15.10

should be $\eta_k = [\quad]^2$

63. Page 936, Problem 15.11

the last term in the equation should be:

$$(1/2) Q \left\{ \sqrt{\frac{\epsilon_1 + \epsilon_2 - 2|\rho| \sqrt{\epsilon_1 \epsilon_2}}{N_0/2}} \right\}$$

64. Page 998, Markov chair should be Markov chain