Updated: December 19, 2020

Page xvii, last line in Table 2
Change: Exa
To: exa

Page 16, 2nd line in exercise 1.4
Change: $\mathbf{C} = \hat{\mathbf{x}}17 + \hat{\mathbf{y}}8 - \hat{\mathbf{z}}11$
To: $\mathbf{C} = \hat{\mathbf{x}}17 - \hat{\mathbf{y}}8 - \hat{\mathbf{z}}11$

Page 18, 1st line from top of page
Change: *cx*
To: *cz*

Page 38, Lines 4 and 5 of Example 1.21
Remove the sentence:
(c) Show that the two representations are the same

Page 49, 3rd expression above Figure 2.4
Change: $\int_{x=-0}^{0}$
To: $\int_{x=-1}^{0}$

Page 59, Eq. 2.26, in the denominator
Change: $d\mathbf{l}$
To: dl

Page 59, Eq. first line below Eq. (2.26)
Change: $dU/d\mathbf{l}$
To: dU/dl

Page 59, Eq. 2.27, in the denominator
Change: $d\mathbf{l}$ (two locations)
To: dl (two locations)

Page 59, Eq. 2.28, in the denominator
Change: $d\mathbf{l}$
To: dl

Page 59, Eq. first line above Eq. (2.28)
Change: $dU/d\mathbf{l}$
To: dU/dl

Page 59, Eq. 2.29, in the denominator
Change: $d\mathbf{l}$

To: dl

Page 72, Eq. (2.75)
Change: $\partial A\phi$
To: ∂A_ϕ

Page 71, Eq. (2.69)
Change: $\left(\Delta x\right)^3$
To: $\left(\Delta x\right)^2$

Page 75, 2nd expression from top of page
Change: $d\mathbf{s}_2 = \hat{\mathbf{x}}dydz$
To: $d\mathbf{s}_2 = -\hat{\mathbf{x}}dydz$

Page 75, 3rd expression from top of page
Change: $d\mathbf{s}_4 = \hat{\mathbf{y}}dxdz$
To: $d\mathbf{s}_4 = -\hat{\mathbf{y}}dxdz$

Page 77, Eq. (2.87)
Add $\Big]_{\max}$ to the end of the equation

Page 80, Eq. (2.102)
Change: $\nabla\times\left(\mathbf{A}+\mathbf{B}\right)\neq\left(\nabla\times\mathbf{A}\right)\times\mathbf{B}$
To: $\nabla\times\left(\mathbf{A}\times\mathbf{B}\right)\neq\left(\nabla\times\mathbf{A}\right)\times\mathbf{B}$

Page 84, 3rd expression from top of page, inside third set of brackets

Page 93, Problem 2.35
Change: F (two locations)
To: **F** (two locations)

Page 98, 3rd line in Example 3.2
Change: $\rho_0 = 10^{-7}$ C
To: $\rho_0 = 10^{-7}$

Page 99, Eq. (3.4)
Change: R_2
To: R^2

Page 103, line above Eq. (3.16)

Change: Q^2
To: Q_2

Page 109, Eq. (3.26)

Change: $$-\frac{\left(\mathbf{R}+\mathbf{d}/2\right)}{\left|\mathbf{R}-\mathbf{d}/2\right|^3}$$

To: $$-\frac{\left(\mathbf{R}+\mathbf{d}/2\right)}{\left|\mathbf{R}+\mathbf{d}/2\right|^3}$$

Page 111, Eq. (3.38)

Change: $$=\frac{p}{4\pi\varepsilon_0 R^3}\left(\hat{\mathbf{R}}2\cos\theta-\hat{\theta}\sin\theta\right)$$

To: $$=\frac{p}{4\pi\varepsilon_0 R^3}\left(\hat{\mathbf{R}}2\cos\theta+\hat{\theta}\sin\theta\right)$$

Page 114, first expression from top of page

Change: $4\pi\rho_0$
To: $4\pi\varepsilon_0$

Page 118, first expression from top of page

Change: $$\frac{1}{\sqrt{x'^2+y'^2}}\Bigg|_{x'=-a}^{x'=+a}$$

To: $$\frac{dy'}{\sqrt{x'^2+y'^2}}\Bigg|_{x'=-a}^{x'=+a}$$

Page 121, 2nd line from top of page

Change: $dv'r'dr'd\phi'dz'$
To: $dv'=r'dr'd\phi'dz'$

Page 146, 3rd expression from bottom of page

Change: $E_{s2}=E4\pi R^2=\ldots$

To: $4\pi R^2E=\ldots$

Page 146, 1st expression from bottom of page

Change: $E_{s1}=E4\pi R^2=\ldots$

To: $4\pi R^2E=\ldots$

Page 153, Eq. (4.20)

Change: $V_b = V_a$

To: $V_b - V_a$

Page 157, Eq. (4.30)

Change: R'_j

To: R'_i

Page 157, Eq. (4.31)

Change: R'_j

To: R'_i

Page 159, 2nd expression from top of page, in the denominator

Change: $$\frac{2\sqrt{r^2+\left(z-L/2\right)^2}+L-2z}{2\sqrt{r^2+\left(z-L/2\right)^2}-L-2z}$$

To: $$\frac{2\sqrt{r^2+\left(z-L/2\right)^2}+L-2z}{2\sqrt{r^2+\left(z+L/2\right)^2}-L-2z}$$

Page 162, 4th expression from top of page

Change: $\int_{x=}^{d/2-a} \mathbf{E}\cdot d\mathbf{l}$

To: $\int_{x=0}^{d/2-a} \mathbf{E}\cdot d\mathbf{l}$

Page 165, 2nd expression from bottom of page

Change: $E_p = \nabla V_p = ...$

To: $\mathbf{E}_p = -\nabla V_p = ...$

Page 176, 3rd expression from top of page

Change: $\varepsilon_0 \frac{Q}{2\pi r}$

To: $\varepsilon_0 \frac{Q}{2\pi\varepsilon r}$

Page 181, Eq. (4.76)

Change: $\varepsilon_1 E_{1n} = \varepsilon_2 E_{2n}$

To: $\varepsilon_1 E_{1n} - \varepsilon_2 E_{2n}$

Page 183, 3rd row in last column of Table 4.3

Change: $D_{1n} - D_{2n}$

To: $D_{1n} = D_{2n}$

Page 184, 2nd line in the statement for Example 4.19

Change: $z = 0$

To: $x = 0$

Page 189, 2nd expression from bottom of page

Change: [rF]

To: [F]

Page 190, 1st expression from top of page

Change: $... = \dfrac{8.854 \times 10^{-12} \times 0.03 \times 2}{0.0001} = ...$

To: $... = \dfrac{8.854 \times 10^{-12} \times 2.5 \times 0.03 \times 2}{0.0001} = ...$

Page 191, 3rd expression from bottom of page

Change: $D 2\pi rl = \rho_s 2\pi aL$

To: $D 2\pi rL = \rho_s 2\pi aL$

Page 195, 3rd expression from bottom of page

Change: $E 2\pi rb = \dfrac{Q}{\varepsilon}$

To: $E 2\pi rh = \dfrac{Q}{\varepsilon}$

Change: $E = \dfrac{Q}{2\pi h\varepsilon}$

To: $E = \dfrac{Q}{2\pi rh\varepsilon}$

Page 196, 2nd expression from top of page

Change: $\left(d - b\right)$

To: $\left(d - h\right)$

Page 196, 3rd expression from top of page

Change: $\left(d - b\right)$

To: $\left(d - h\right)$

Page 202, 1st expression in Example 4.28

Change: $\mathbf{E} = \hat{\mathbf{R}} \frac{\rho_v R}{3_{\varepsilon 0}}$

To: $\mathbf{E} = \hat{\mathbf{R}} \frac{\rho_v R}{3\varepsilon_0}$

Page 203, Eq. (4.124)
Second equal sign should be a minus sign

Page 205, Line below 4th expression from top of page
Change: $... = 10^{-2} \ \text{C/m}^3 ...$

To: $... = 10^{-2} \ \text{C/m}^2 ...$

Page 206, 3rd expression on the page:
Change: Q_2 (two locations in the expression)
To: Q^2 (two locations in the expression)

Page 206, 4th expression on the page:
Change: Q_2
To: Q^2

Page 215, Eq. (4.52)
Change: $... = \nabla' \cdot \mathbf{P}$

To: $... = -\nabla' \cdot \mathbf{P}$

Page 215, last expression on the page:
Change: $E_{1n} = E_{2n}$

To: $E_{1t} = E_{2t}$

Page 254, last expression on the page:
Missing closing square bracket at the end of the first line of the expression

Page 342 and 343, Example 7.1
Place **(a)** at the beginning of the 3rd line from bottom of page 342
Change **(d)** to **(b)** at the top of page 343.
Change **(e)** to **(c)** at top of page 343

Page 361, 3rd expression from bottom of page
Change: $... = \sigma ds = ...$

To: $... = \frac{\sigma ds}{l} = ...$

Page 391, 2nd expression from top of page
Change: ϕ

To: φ

Page 391, line between 2nd and 3rd expression from top of page

Change: ϕ

To: φ

Page 391, 3rd expression from top of page

Change: ϕ

To: φ

Page 395, 3rd line from top of page

Change: $b = 0.1$

To: $h = 0.1$

Page 449, Eq. 9.41

Change: $\frac{B_{1t}}{\mu_1} - \frac{B_{2t}}{\mu_2}$

To: $\frac{B_{1t}}{\mu_1} = \frac{B_{2t}}{\mu_2}$

Page 471, Eq. 9.81

Change: $\frac{1}{S'}$

To: $\frac{I}{S'}$

Page 471, 1st expression under Figure 9.43

Change: 1.6×10^{-4}

To: 1.6×10^{-14}

Page 494, first line in section 9.9

Change: flispping

To: flipping

Page 515, 2nd expression on the page

Change: $\mathbf{E}.d\mathbf{l}$

To: $\mathbf{H}.d\mathbf{l}$

Page 535, 2nd Eq. (10.41)

Change: Z^2

To: Z_2

Page 535, 2nd Eq. (10.58)

Change: $[N/m^2]$

To: [N/m^3]

Page 554, 1st line below Eq. (10.5)
Change: *Lentz's law*
To: *Lenz's law*

Page 586, Eq. (11.69)
Change: J
To: $\mathbf{J}$
(that is, J should be a vector)

Page 590, 2nd line in Problem 11.3
Change: $r = a$ and $r = b$ [A]
To: $r = a$ [m] and $r = b$ [m]
Change: length L [A]
To: length L [m]

Page 590, 5th line in Problem 11.6
Change: and frequency ω
To: and angular frequency ω

Page 590, Figure 11.6
Change: 100 MHz
To: 1 GHz

Page 611, line above Eq. (12.36)
Change: **12.32**
To: **12.34**

Page 615, 5th line above Figure 12.7
Change: intensities
To: intensity

Page 615, 4th line above Figure 12.7
Change: **Example 12.8**
To: **Example 8.8**

Page 624, 3rd expression from bottom of page
Change: $\left[\frac{t}{2}+...\right.$
To: $\left[\frac{t}{2}-...\right.$

Page 631, 2nd line from bottom page
Change: …field intensity…

To: …field intensities…

Page 637, 1st expression below Figure 12.14

Change: $10^{-7} \times 10^{7}$

To: $10^{-7} \times 3.7 \times 10^{7}$

Page 639, 3rd expression from the bottom of page

Change: $\left[\frac{\mathrm{W}}{\mathrm{m}}\right]$

To: $\left[\frac{\Omega}{\mathrm{m}}\right]$

Page 646, 1st line above Figure 12.18

Change: (or $\tan^{-1}\left(E_y / E_x\right)$ if the two are 180º…

To: (or $\tan^{-1}\left(-E_y / E_x\right)$ if the two are 180º…

Page 647, Eq. (12.131)

Change: $\cos(\omega t) + ...$

To: $\cos^2(\omega t) + ...$

Page 648, Eq. (12.135)

Change: $E_x^2 + E_y^2 + E_0^2$

To: $E_x^2 + E_y^2 = E_0^2$

Page 649, 5th expression from bottom of page

Change: $+\hat{\mathbf{y}} j\beta H_1 e^{-j\beta z}$

To: $+\hat{\mathbf{y}} \beta H_1 e^{-j\beta z}$

Page 656, 3rd line from the bottom of page

Change: $\mathbf{E} = \hat{\mathbf{x}} 100 e^{-j220z} + \hat{\mathbf{x}} 100 e^{-j220z}$

To: $\mathbf{E} = \hat{\mathbf{x}} 100 e^{-j220z} + \hat{\mathbf{x}} 100 e^{j220z}$

Page 656, Subtitle above Problem 2.7

Change: **Solution for plane waves**

To: **Solution for uniform plane waves**

Page 658, 1st line in Problem 12.15

Change: …the time averaged pointing vector…

To: …the time averaged Poynting vector…

Page 666, in Eq. (13.1)

Change: $e^{-\gamma 1 z}$

To: $e^{-\gamma_1 z}$
(note: 1 is a subscript)

Page 670, in Eq. (13.32)
Change: $\hat{y}$
To: $\hat{\mathbf{y}}$

Page 675, in 1st expression from top of page
Change: $\alpha = \dfrac{\alpha}{2}\sqrt{\dfrac{\mu}{\varepsilon}}$
To: $\alpha = \dfrac{\sigma}{2}\sqrt{\dfrac{\mu}{\varepsilon}}$

Page 687, Eq. (13.81)
Change: $e^{-jb_1 z\sin q_i} =$
To: $e^{-jb_1 x\sin q_i} =$

Page 687, Eq. (13.82)
Change: $e^{-jb_1 z\sin q_i}$
To: $e^{-jb_1 x\sin q_i}$

Page 695, 1st and 2nd lines above 2nd expression from bottom of page
Change: we are interested in the time-averaged
Poynting vector:
To: we are interested in the time-averaged Poynting vector:
(note: the two lines should be on one)

Page 695, 2nd expression from top of page
Change: $= \dfrac{2\sqrt{\varepsilon_0}\cos\theta_i}{\sqrt{\varepsilon_0}\cos\theta_i + \sqrt{\varepsilon_0\varepsilon_{r2}}\cos\theta_t} =$
To: $= \dfrac{2\cos\theta_i}{\cos\theta_i + \sqrt{\varepsilon_{r2}}\cos\theta_t} =$

Page 695, 1st line in the 2nd expression from bottom of page
Change: $= \hat{\mathbf{y}}\dfrac{T_\perp E_{i1}}{2}e^{-j\beta_2(x\sin\theta_t + z\cos\theta_t)} \times \dfrac{T_\perp E_{i1}}{2}\left(-\hat{\mathbf{x}}\cos\theta_t + \hat{\mathbf{z}}\sin\theta_t\right)e^{-j\beta_2(x\sin\theta_t + z\cos\theta_t)}$
To: $= \hat{\mathbf{y}}\dfrac{1}{2}\left[T_\perp E_{i1}e^{-j\beta_2(x\sin\theta_t + z\cos\theta_t)} \times \dfrac{T_\perp E_{i1}}{\eta_2}\left(-\hat{\mathbf{x}}\cos\theta_t + \hat{\mathbf{z}}\sin\theta_t\right)e^{-j\beta_2(x\sin\theta_t + z\cos\theta_t)}\right]$

Page 695, 2nd expression from bottom of page, 2nd line of the expression

Change: $= \frac{T_{\perp}^2 E_{i1}^2}{2\eta_2}\left(-\hat{\mathbf{x}}\cos\theta_i + \hat{\mathbf{z}}\sin\theta_i\right)$

To: $= \frac{T_{\perp}^2 E_{i1}^2}{2\eta_2}\left(\hat{\mathbf{x}}\cos\theta_i + \hat{\mathbf{z}}\sin\theta_i\right)$

Page 698, 4th expression from bottom of page

Change: $\ldots = \frac{T_{\parallel}}{\eta_0}\ldots$

To: $\ldots = \frac{E_{i1}T_{\parallel}}{\eta_0}\ldots$

Page 698, 3rd expression from bottom of page

Change: $\ldots = \frac{T_{\parallel}}{\eta_0}\ldots$

To: $\ldots = \frac{E_{i1}T_{\parallel}}{\eta_0}\ldots$

Page 702, 1st line in Example 13.10

Change: $\varepsilon = 81\varepsilon_0$

To: $\varepsilon = 25\varepsilon_0$

Page 707, Eq. (13.157)

Change: $\frac{\Gamma_{12} + \Gamma_{23}e^{-2\gamma_2 d}}{1 + \Gamma_{12} + \Gamma_{23}e^{-2\gamma_2 d}}$

To: $\frac{\Gamma_{12} + \Gamma_{23}e^{-2\gamma_2 d}}{1 + \Gamma_{12}\Gamma_{23}e^{-2\gamma_2 d}}$

Page 707, Eq. (13.158)

Change: $\frac{T_{12}T_{23}e^{-2\gamma_2 d}}{1 + \Gamma_{12} + \Gamma_{23}e^{-2\gamma_2 d}}$

To: $\frac{T_{12}T_{23}e^{-2\gamma_2 d}}{1 + \Gamma_{12}\Gamma_{23}e^{-2\gamma_2 d}}$

Page 714, 1st line in Experiment 3

Change: **…Drying Of Materials)**

To: **…Drying of Materials)**

Page 715, 1st line below Eq. (13.21)

Change: **(3.11)**

To: **(13.11)**

Page 735, 2nd line in caption to Figure 14.10

Change: Δl One segment

To: $\Delta l.$ One segment

Page 748, 2nd line under the heading for Section 4.6

Change: …primary variable here were…

To: …primary variable were…

Page 753, 1st expression from top of page

Change: $\frac{50}{50} = 1$

To: $= \frac{V_L}{Z_L} = \frac{50}{50} = 1$

Page 753, 2nd expression from top of page

Change: $V^+ = 50$

To: $V^+ = 75$

Page 755, 1st expression in Example 14.11

Change: $\frac{V_L^2}{2Z_L}$

To: $\frac{V_L^2}{Z_L}$

Change: $Z_L = \frac{V_L^2}{P} = \frac{(750{,}000)^2}{2 \times 1.5 \times 10^9} = 187.5$

To: $Z_L = \frac{V_L^2}{P} = \frac{(750{,}000)^2}{1.5 \times 10^9} = 375$

Page 755, 3rd expression in Example 14.11

Change: 187.5 (two locations)

To: 375 (two locations)

Change: $= \frac{-12.5 + j100}{387.5 + j100} = 0.0827 + j0.2341 = 0.2518 e^{j0.38\pi}$

To: $= \frac{-175 + j100}{575 + j100} = 0.2606 + j0.2202 = 0.345 e^{j0.78\pi}$

Page 757, Eq. 14.97

Change: γ_z (4 locations in the equation)

To: γz (4 locations in the equation)

(z is not a subscript)

Page 769, 3rd and 3rd line of Eq. (14.154)

Change: $e^{-j\beta_0}$

To: $e^{-j\theta_{z_0}}$

Page 769, 3rd and 4th line of Eq. (14.154)

Change: $\left(\theta_{z_0} - \beta z_0\right)$ (three locations)

To: $\left(\theta_{z_0} - 2\beta z_0\right)$ (three locations)

CHECK Eq. (14.154) thoroughly!!!!

Page 769, 1st expression above Eq. (14.155)

Change: $Z=Z_0$ (two locations)

To: $z=z_0$ (two locations)

(Change upper case to lower case)

Page 771, 2nd expression from top of page

Change: $V_{max} =$

To: $V_{\min} =$

Page 795, Eq. 15.11 – maybe not

Remove brackets from the denominator (two location)

Page 795, Eq. 15.13 – maybe not

Remove brackets from the denominator

Page 846, 1st expression under Figure 16.16

Change: $\Gamma_L \dfrac{Z_L - Z_0}{Z_L + Z_0} = \ldots$

To: $\Gamma_L = \dfrac{Z_L - Z_0}{Z_L + Z_0} = \ldots$

Page 885, Eq. (17.85)

Change: $\dfrac{f^2}{f_{cm}^2}$

To: $\dfrac{f_{cm}^2}{f^2}$

Page 900, Eq. 17.144

Change: $Z_{TE}=$

To: $Z_{TM}=$

Page 926, Eq. 17.39

Change: $\alpha_e = \omega\sqrt{\mu\varepsilon}\sqrt{\dfrac{f_c^2}{f^2} - 1}$

To: $$\alpha_e = \omega\sqrt{\mu\varepsilon}\sqrt{\frac{f_c^2}{f^2}-1}$$

Page 928, Eq. 17.190

Change: $\alpha_{bc} = \omega\sqrt{\mu\varepsilon}\sqrt{\frac{f_{cmn}^2}{f^2}-1}$

To: $\alpha_{bc} = \omega\sqrt{\mu\varepsilon}\sqrt{\frac{f_{cmn}^2}{f^2}-1}$

Page 957, Eq. 18.69, last integral in the expression

Change: $sin\phi' d\phi'$

To: $sin^2\phi' d\phi'$

Page 959, Eq. 18.78

Change: η^2

To: η

Page 959, Table. 18.1, 7th row

Change: $= \frac{\omega^2\mu^2 m^2}{8\lambda^2} sin^2\theta$

To: $= \frac{\omega^2\mu^2 m^2}{8\eta\lambda^2} sin^2\theta$

Page 985, line below 3rd expression from top of page

Change: $h = \lambda / 2$

To: $h = \lambda$

Page 963, Eq. 18.81

Remove η from the equation

Page 994, Eq. 18.161

Change: $P_r = A_{er} P_s$.....

To: $P_r = A_{er} P_s =$.....

Page 1002, 1st expression from top of page

Change: $\theta \frac{jV0}{R}$...

To: $\hat{\theta} \frac{jV0}{R}$...

Page 1021, answer to Problem 11.8

Change: 49.43

To: 494.3

The following are notes to myself – not corrections

Page 679, Eq. 13.62

Change: $T = \dfrac{2(1+j)}{\sigma_2 \delta_2 \eta_0 + (1+j)}$

To: $T = \dfrac{2(1+j)}{1+j+\sigma_2 \delta_2 \eta_0}$

Page 719, Problem 13.17

Move the problem to the next section on page 720, before Problem 13.21. Renumber problems accordingly and also the answers on page 1023

Page 1028, Answer to Problem 18.12

Change: 1.464×10^{-7}

To: 4.659×10^{-8}