

## Errata for *The Art of Radiometry* (PM184), first printing

### Chapter 2

Page 16, Table 2.3 For the “Dime at 1 km” entry, the linear subtense should be 3.7 arcsec, and the solid angle should be  $2.52 \times 10^{-10}$  sr.

Page 20, Eq. (2.19) The subscript numbers on the left side of the equations should be switched; the equations should read:

$$T_{2 \rightarrow 1} = d\omega_1 dA_2 \cos \theta_2 = \frac{dA_1 \cos \theta_1 dA_2 \cos \theta_2}{d^2}$$

$$T_{1 \rightarrow 2} = d\omega_2 dA_1 \cos \theta_1 = \frac{dA_2 \cos \theta_2 dA_1 \cos \theta_1}{d^2}$$

Page 34, Eq. (2.24) The  $\cos^2$  should be a  $\cos^3$  instead.

Page 35, Table 2.7 Change  $\Phi_{1/2}$  to  $\Theta_{1/2}$

Page 35, end of first paragraph The equation  $E = \pi L \sin^2 \theta$  should read  $E = \pi L \sin^2 \Theta_{1/2}$

Page 38, Line after Eq. (2.49) “Both power terms are dimensionless” should read “The ratio of powers is dimensionless.”

Page 45, Eq. (2.69) Variable  $A_s$  should be  $A_p$ . The equation should read:

$$E_d = \pi L \frac{a^2}{b^2} = \frac{LA_p}{b^2} = \frac{I_s}{b^2}$$

Page 53, Figure 2.36 In the upper right of the drawing, figure label  $\Omega_{tc}$  should be  $\Omega_{ct}$ ; the equality at the center of the drawing,  $\Omega_{sc} = \Omega_{tc}$ , remains the same.

### Chapter 3

Page 65, note (3) The first sentence should be: “Gamma  $\gamma$  is a half-value angle, the angle from the normal where the intensity has dropped to one half the value at normal.”

Pages 69–73, Section 3.6.1 All instances of “transmittance” should read “transmissivity”, “reflectance” should read “reflectivity”, and “absorptance” should read “absorptivity”. NOTE: In the last paragraph of page 70, quantity  $\tau_i$  should remain “internal transmittance”.

Page 70, Second paragraph In the third sentence, the equation should read, “ $\kappa(\lambda) = (\lambda/4\pi)\alpha'(\lambda)$ ”.

Page 71, Fig. 3.5 The (a) ordinate label should read “Single surface reflectivity”, and the (b) ordinate label should read “Single surface transmissivity”.

Page 71, Last paragraph

The first sentence should read, "External transmittance is the quantity that is ordinarily measured, and includes Fresnel reflection losses, absorption, and material imperfections that cause measured and ideal values to differ." In the last sentence, remove "at normal incidence".

Page 72

The first sentence should read, "If the slab is nonabsorbing ( $\alpha' = 0, \tau_i=1$ ), then, for radiation at normal incidence, Equation 3.17 reduces to..."

#### Chapter 4

Page 90, First paragraph

Delete sentence beginning, "For wavelength in  $\mu\text{m}$ ...". The last sentence of the paragraph should read, "Thus,  $L_{q\lambda}$  is expressed in photons per second per area per unit solid angle per unit wavelength."

Page 98, Equation (4.31)

An " $\varepsilon$ " should be added after the triple integral sign. The equation should thus read:

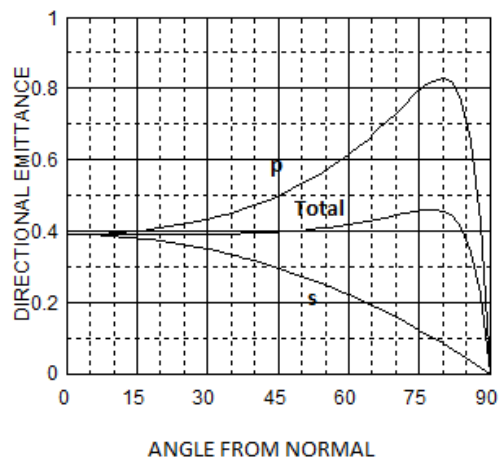
$$\varepsilon = \frac{\iiint \varepsilon(\theta, \phi; \lambda) L_{\lambda, BB} \sin \theta \cos \theta d\theta d\phi d\lambda}{\sigma T^4}$$

Page 102, Fifth paragraph

The first sentence should read, "The directional properties can be derived from the Fresnel equations." In the last sentence, "specular" should read "normal".

Page 104, Figure 4.13

The caption should read, "Directional emittance as a function of angle from normal". The following picture replaces the original:



## Chapter 5

- Page 141, Equation (5.28) Equation should read:  $\overline{\Delta T^2} = \frac{4kT^2KB}{K^2 + 4\pi^2 f^2 H^2}$
- Page 161, Table 5.10 The third entry under “Material” should read “LiTaO<sub>3</sub>”.
- Page 169, Figure 5.26. The distance “L” between the electrodes should be lowercase, and the callout in the last line of the first paragraph should be “l”.
- Page 171, Last paragraph The second sentence should read, “At a particular wavelength, it is  $\Phi\lambda$   $(hcA_d)^{-1}$ .”
- Page 187, Last paragraph Remove the superscript 2 from  $n_i^2$ .
- Page 195 The first paragraph should be removed (due to redundancy).

## Chapter 7

- Page 252, Last paragraph The second-to-last sentence should read: “It characterizes a system by its ability to distinguish a small temperature difference between an extended target (overfills the FOV) and the background.”
- Page 252, Eq. (7.15) The denominator in the right-most term should be  $A_o$ . The equation should be followed with the following clarification: “where  $A_o$  is the area of the entrance pupil.”
- Page 252, Eq. (7.17) The  $(f/\#)$  term in the numerator should be squared.

## Appendix A

- Page 273, Table A.6 The title should read “Photometric quantities”.

## Appendix D

- Page 283 The first column should read “ $\Theta_{1/2}$  (deg)”, and the second column should read “ $\Theta_{1/2}$  (rad)”.

## Appendix I

- Page 313, Second paragraph The line following Eq. I.1 should read, “where  $L_\lambda$  is spectral radiance in  $W/m^2$  sr  $\mu m...$ ”.