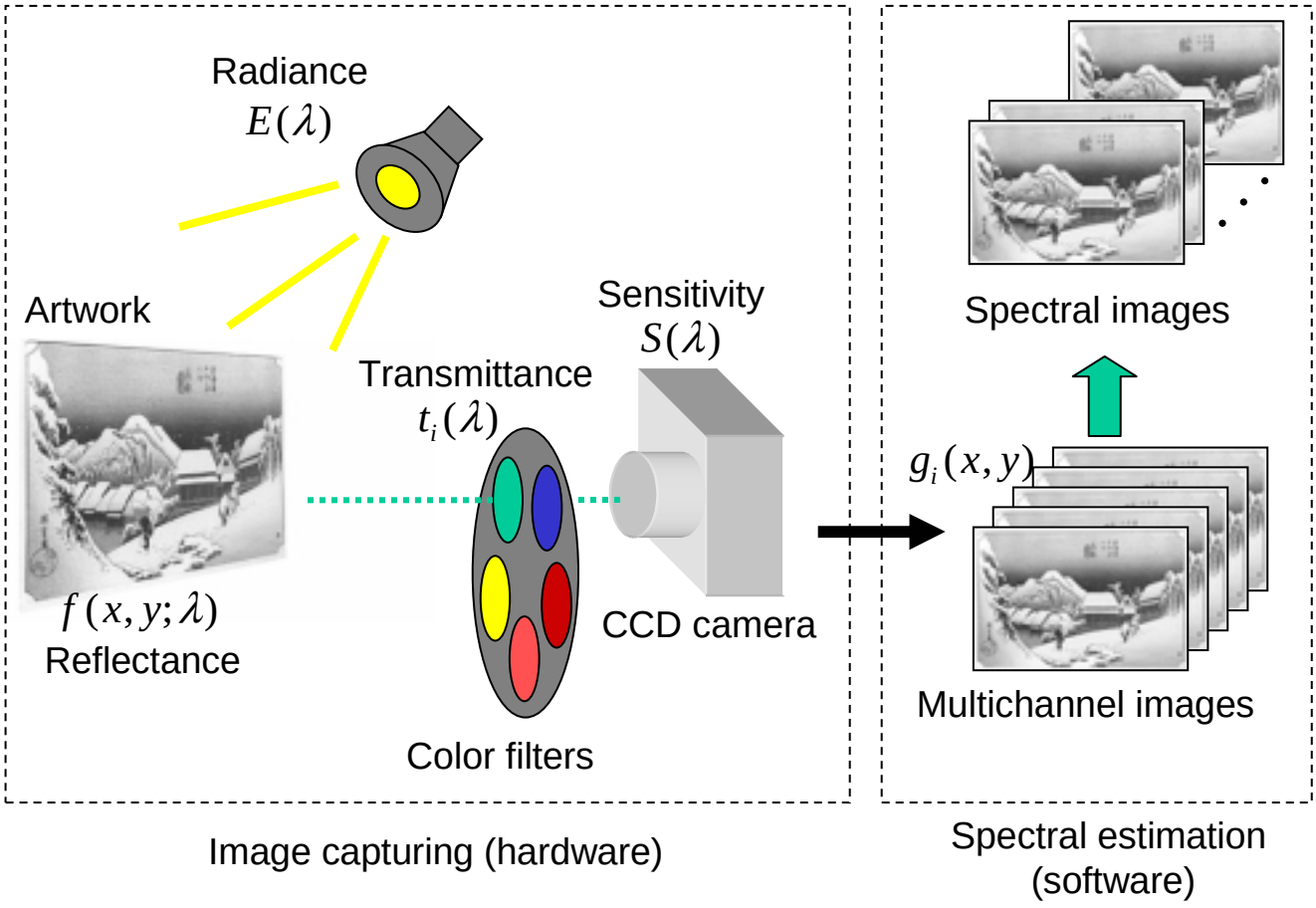


Figure 1 Multichannel imaging system.

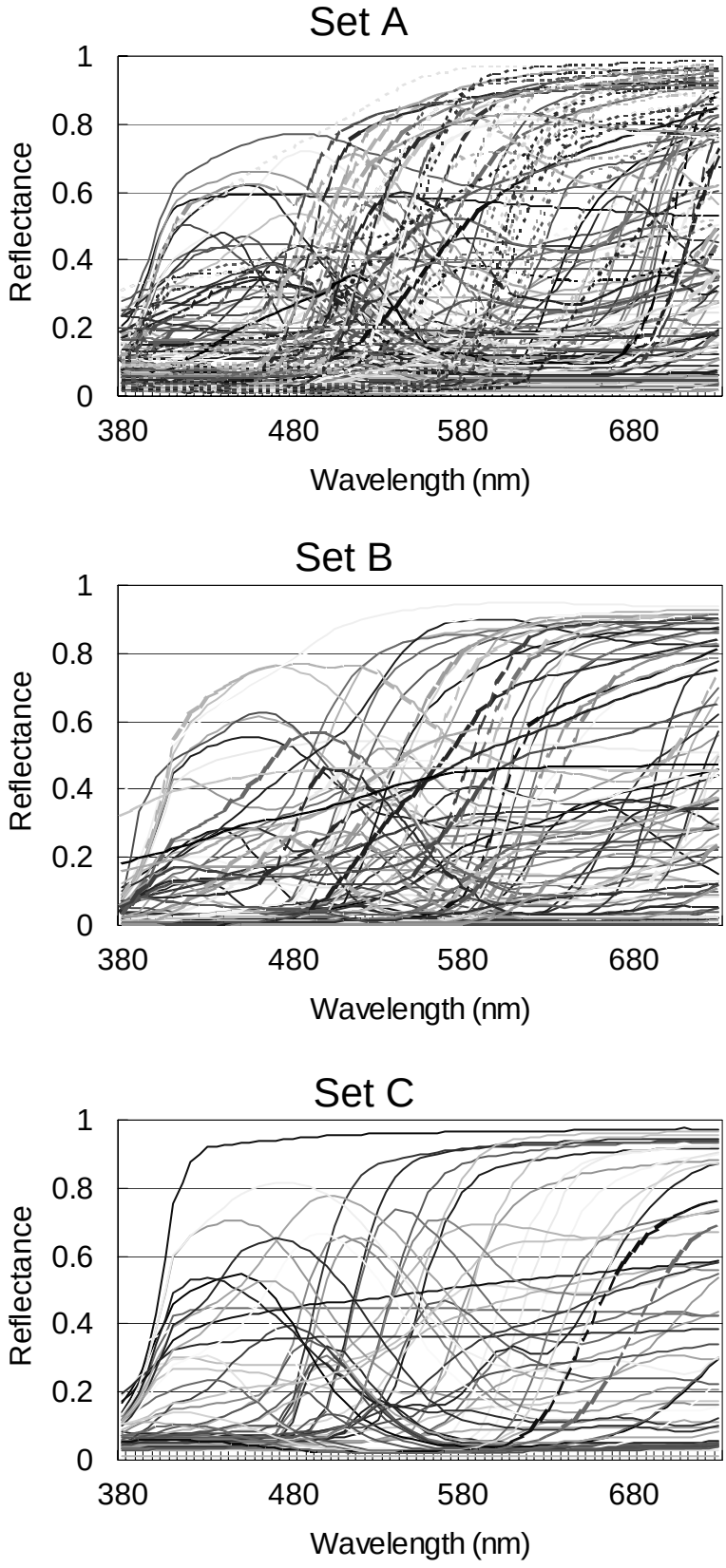


Figure 2 Reflectance spectra of three sets of paint patches. Sets A and B: oil paint; Set C: water color paint.

H. Haneishi, Applied Optics

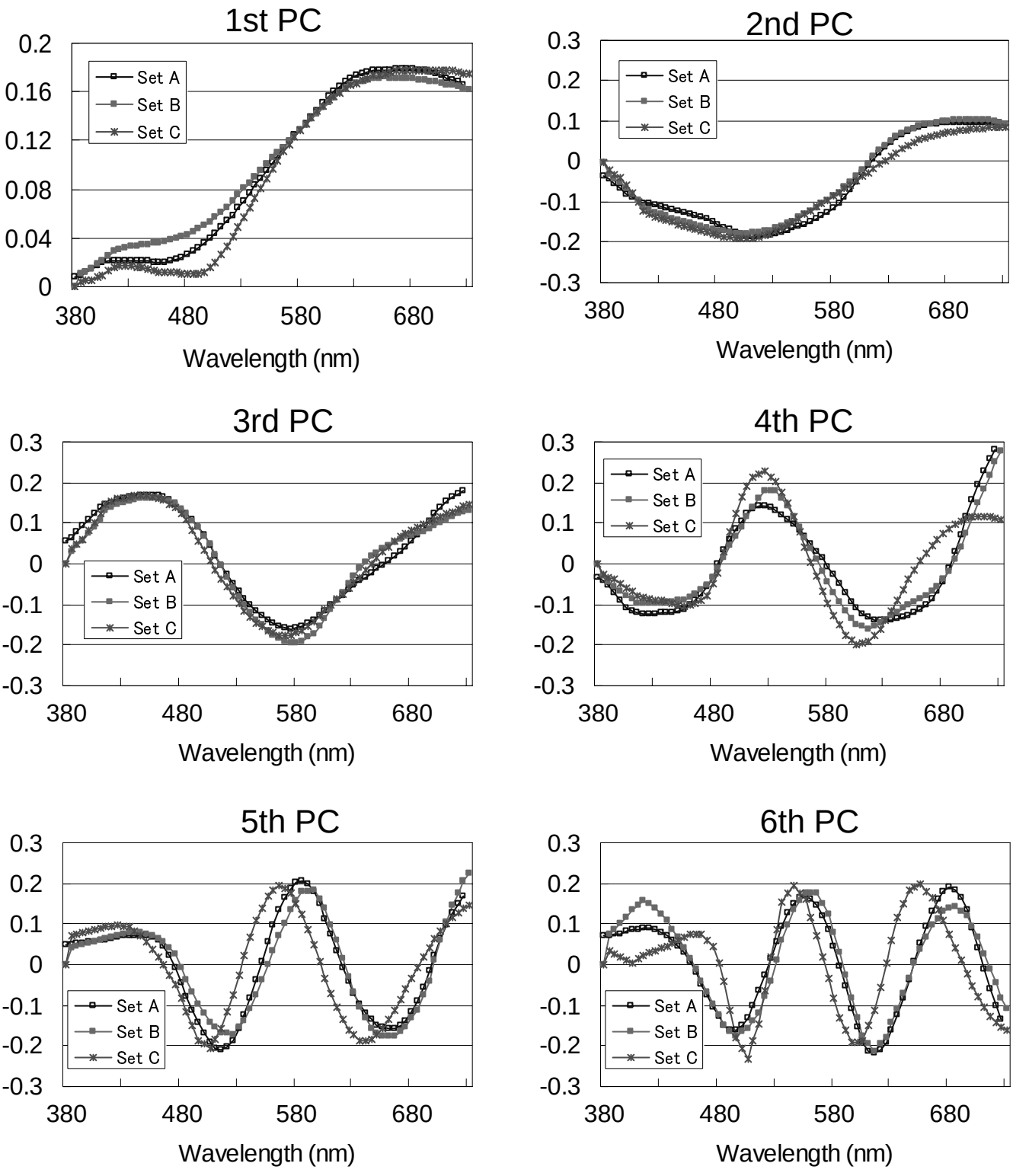
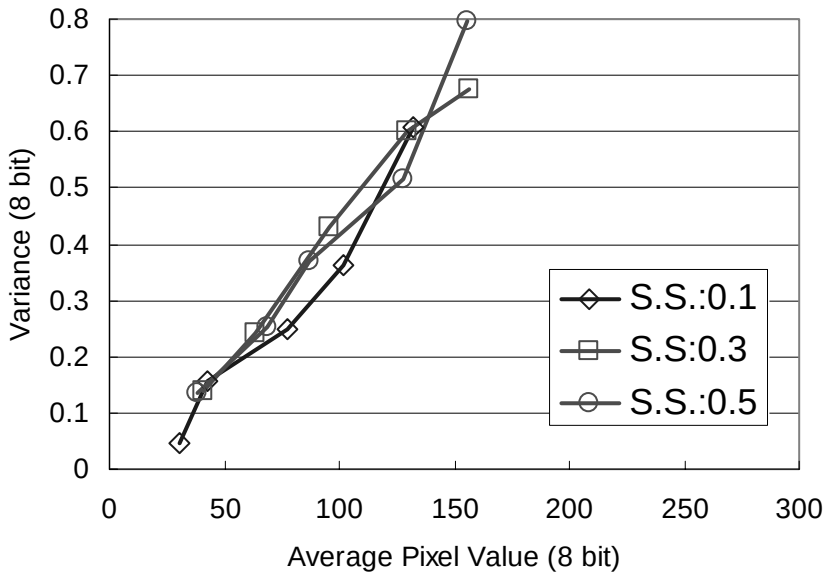


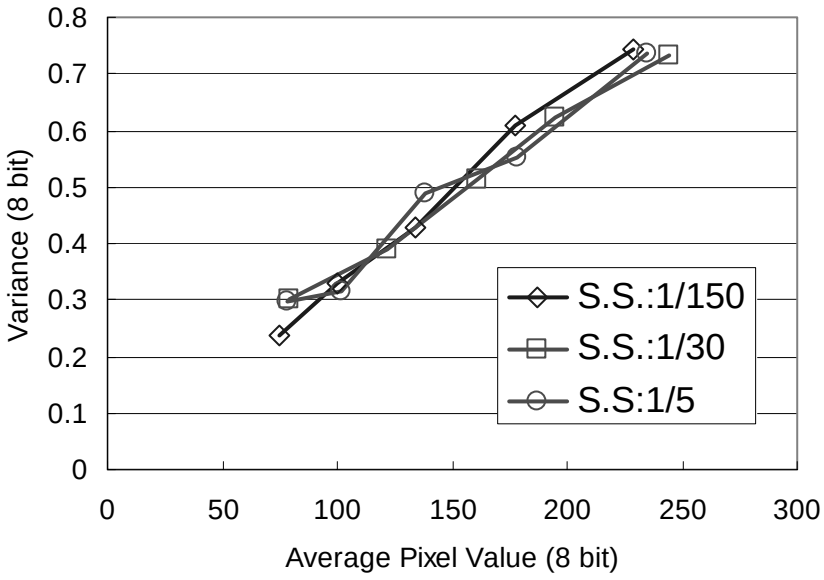
Figure 3 First six principal components of three sets of paint patches.

H. Haneishi, Applied Optics



(a) CV-04

Figure 4 Noise characteristics against average pixel value. (a) CV-04, (b) DCS420.



(b) DCS420

Figure 4 Noise characteristics against average pixel value. (a) CV-04, (b) DCS420.

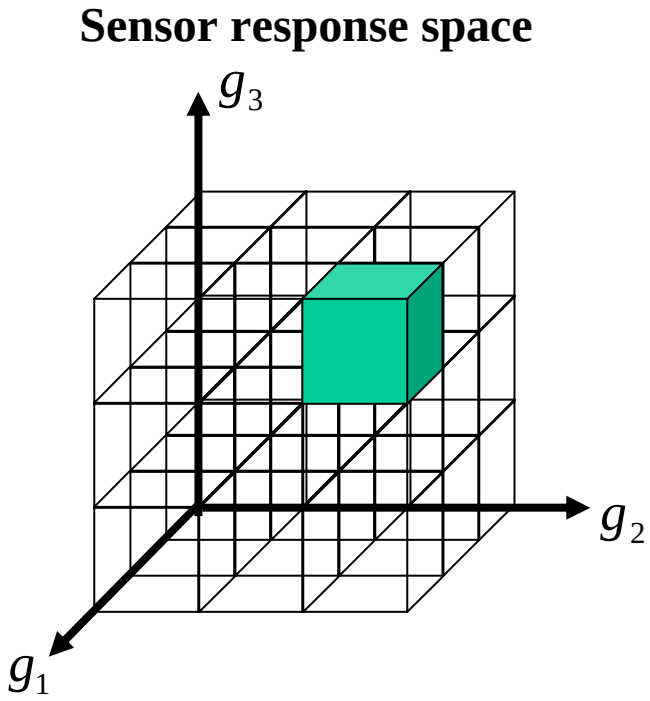


Figure 5 Schematic illustration of dividing the sensor response space into sub-blocks for signal dependent Wiener estimation.

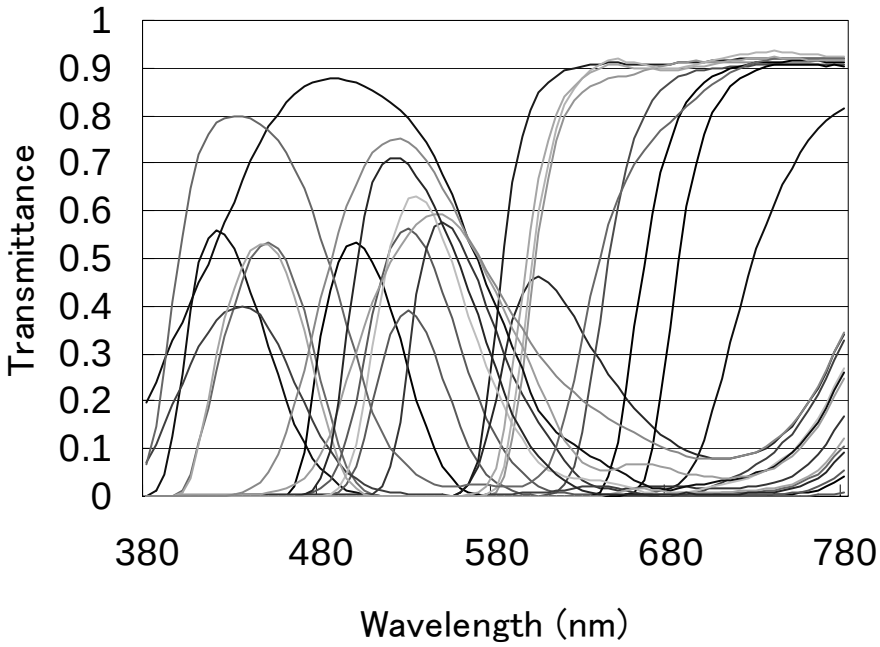


Figure 6 Transmittance spectra of 22 commercially available color filters.

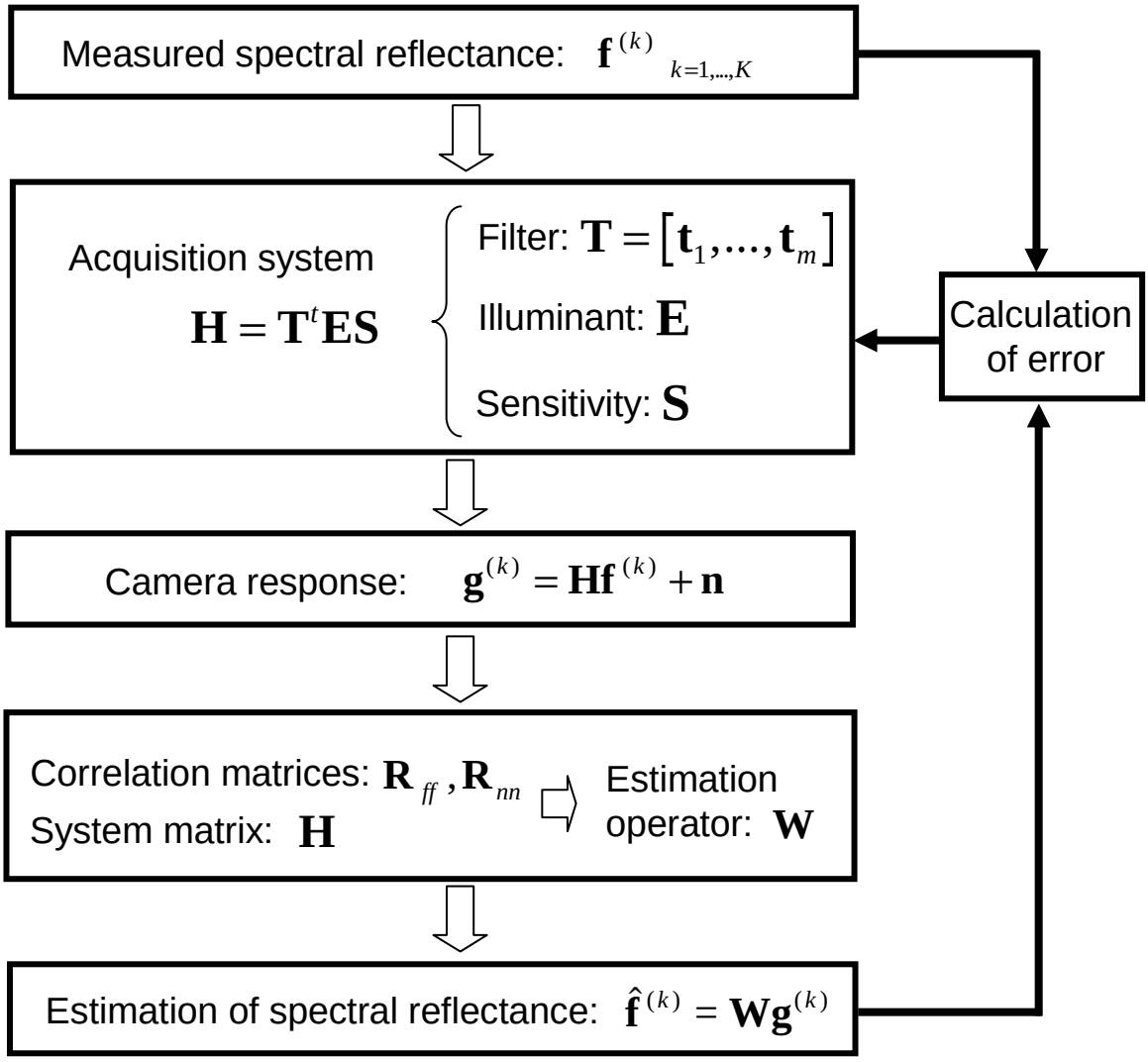
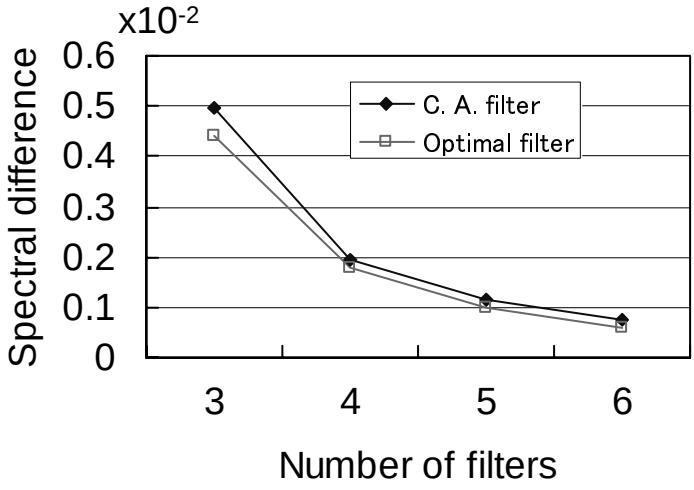
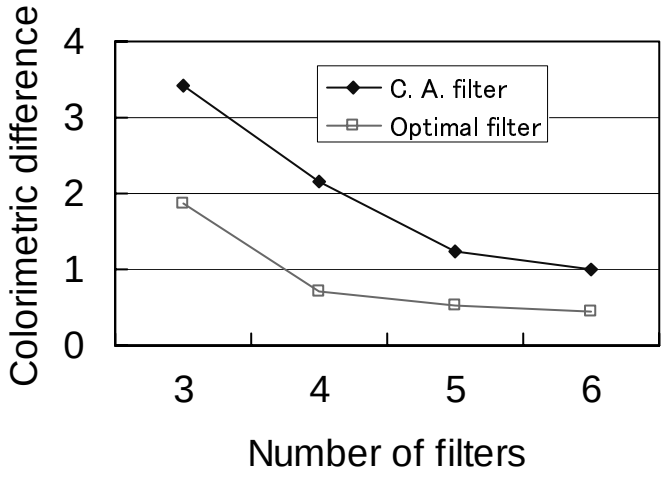


Figure 7 Color filter optimization procedure.

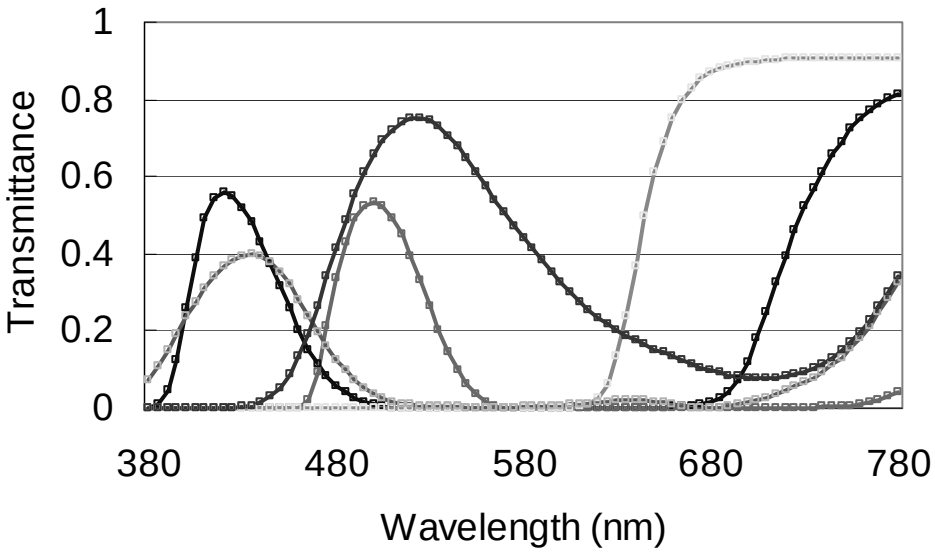


(a)

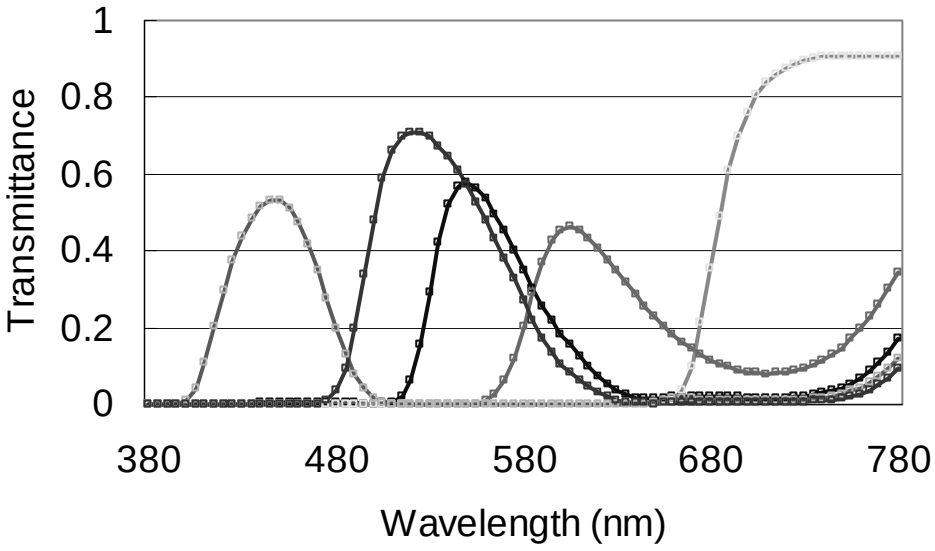


(b)

Figure 8 Estimation accuracy of spectral reflectance.
(a) Spectral color difference, (b) colorimetric color difference.

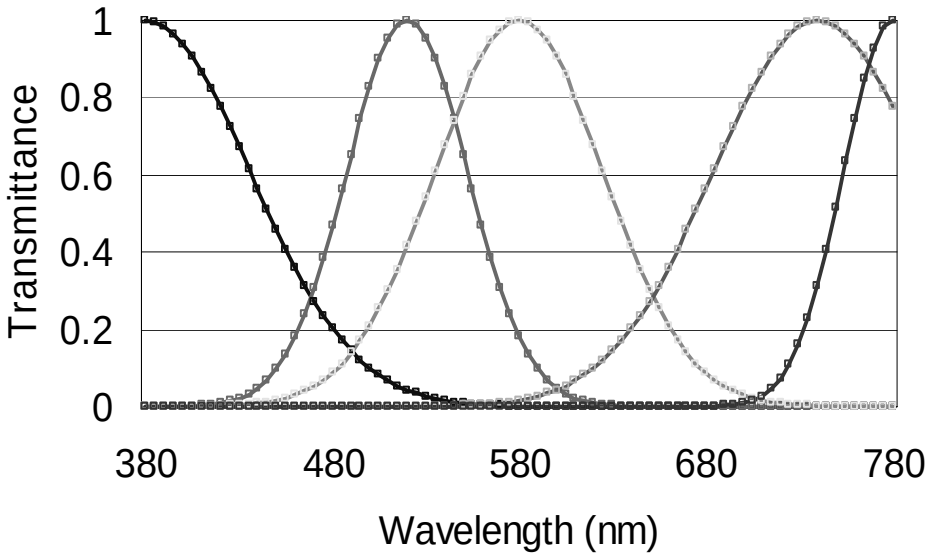


(a) Spectral measure

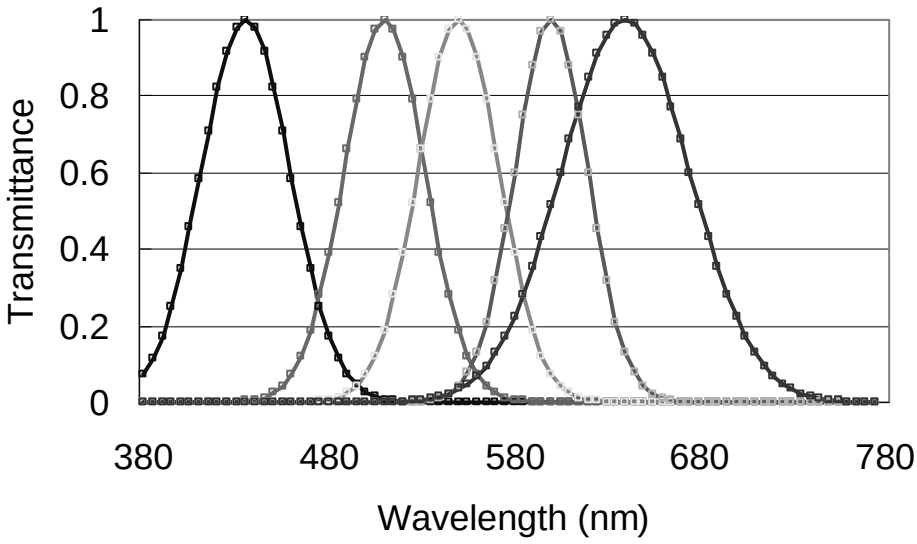


(b) Colorimetric measure

Figure 9 Best combination of five filters from 22 commercially available filters. (a) Spectral measure, (b) colorimetric measure.

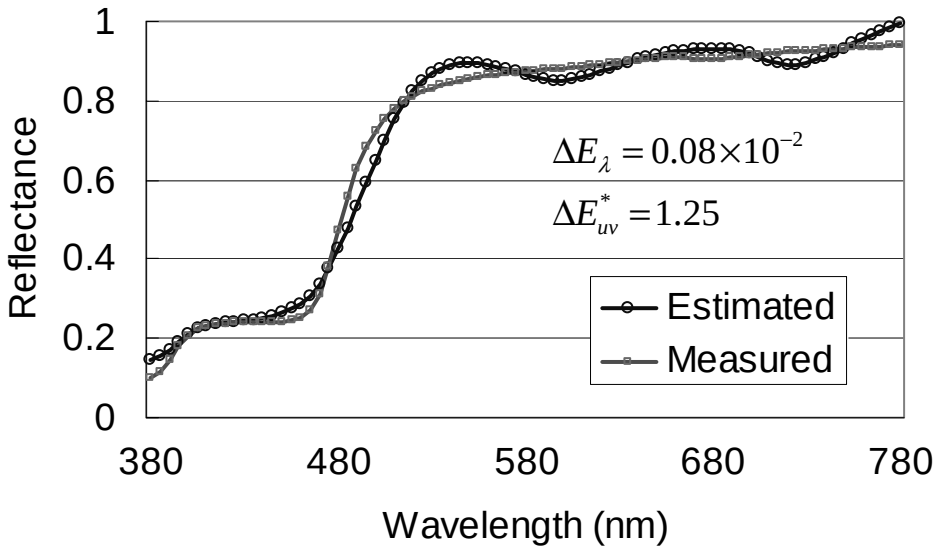


(a) Spectral measure

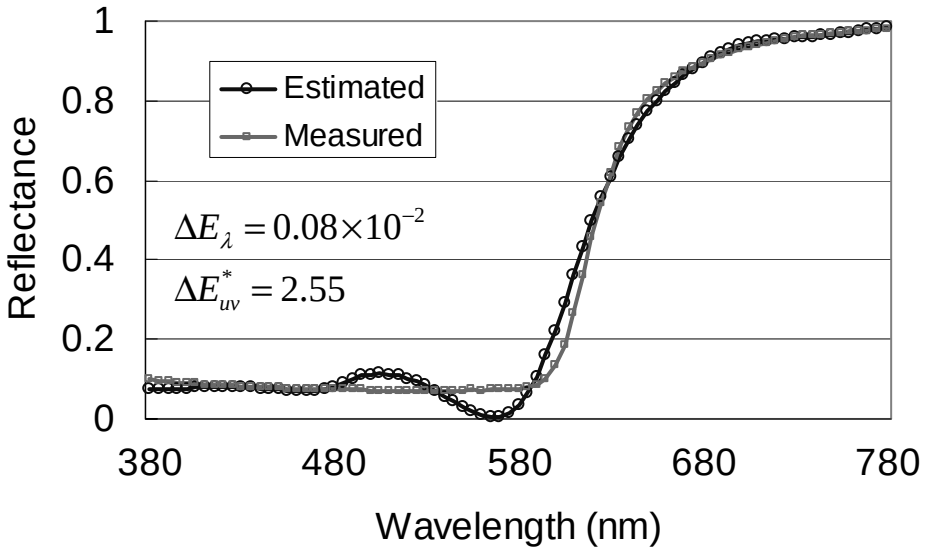


(b) Colorimetric measure

Figure 10 Five optimally designed color filters.
(a) Spectral measure, (b) colorimetric measure.

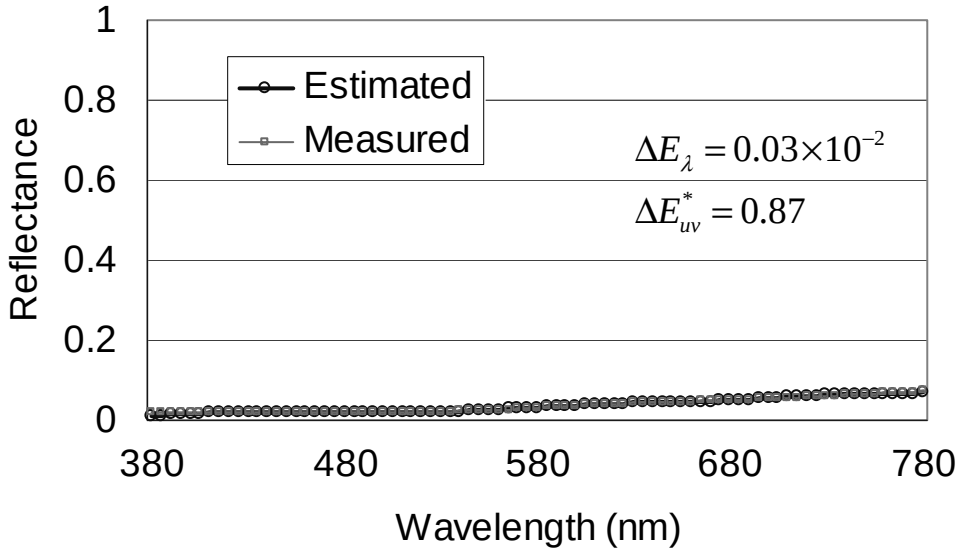


(a) Moderate

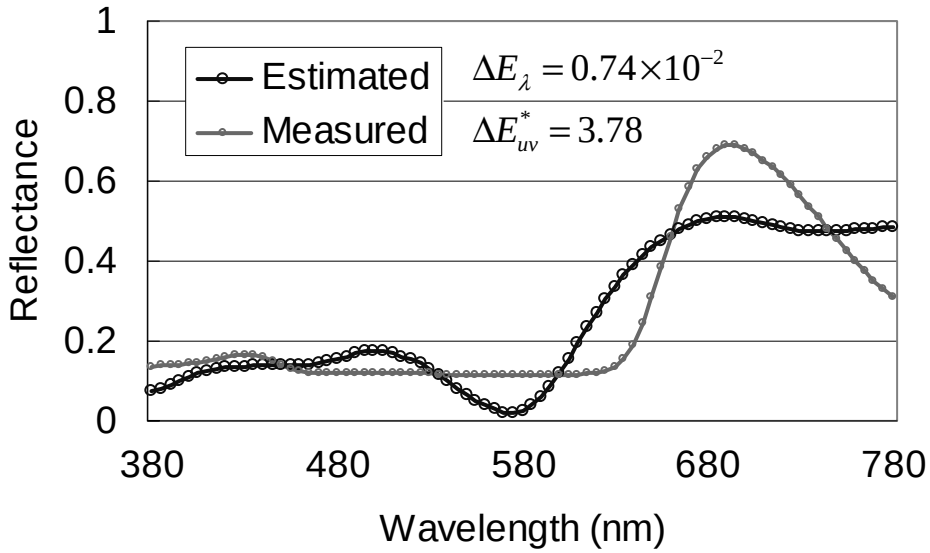


(b) Moderate

Figure 11 Examples of spectral reflectance estimation.



(c) Best



(d) Worst

Figure 11 Examples of spectral reflectance estimation.(continued)