

Optimal LED Selection for Multispectral Lighting Reproduction

Supplemental Material

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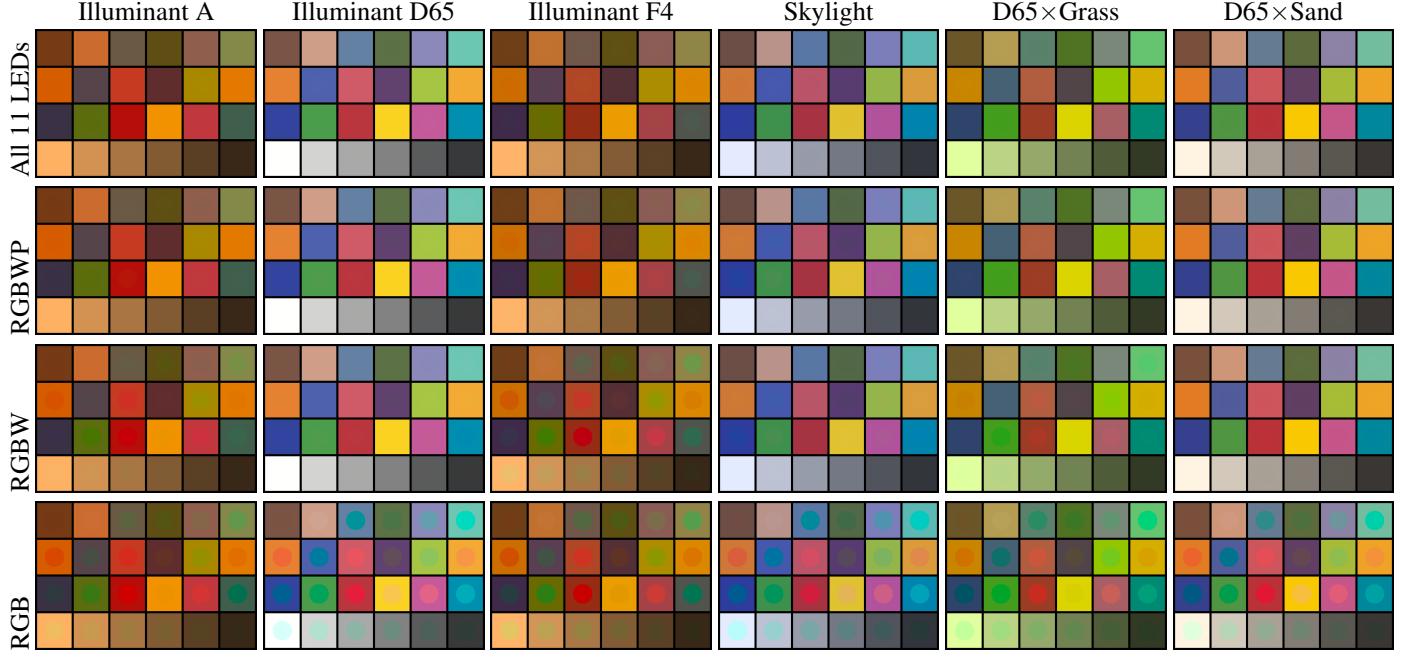


Figure 1: Color matching results using Metameric Reflectance Matching for different direct and indirect illuminants for the CIE 2° standard observer, with illumination reproduced using various LED combinations. The background squares represent the ground truth computed color chart appearances under the target illuminants, while the foreground circles represent the computed color chart appearances under LED-reproduced illumination. Row 1 shows the lighting reproduction results using all 11 LEDs of distinct spectra. Row 2 shows results using 5 LEDs only (RGB, White and PC Amber). Row 3 shows results using RGBW only. Row 4 shows the result using RGB only. XYZ tristimulus values are converted to the sRGB color space for display. RGBW lighting produces accurate color rendition for D65, Skylight, and D65 modulated by grass and sand reflectance spectra. Adding PC Amber yields accurate color rendition for illuminants A and F4.

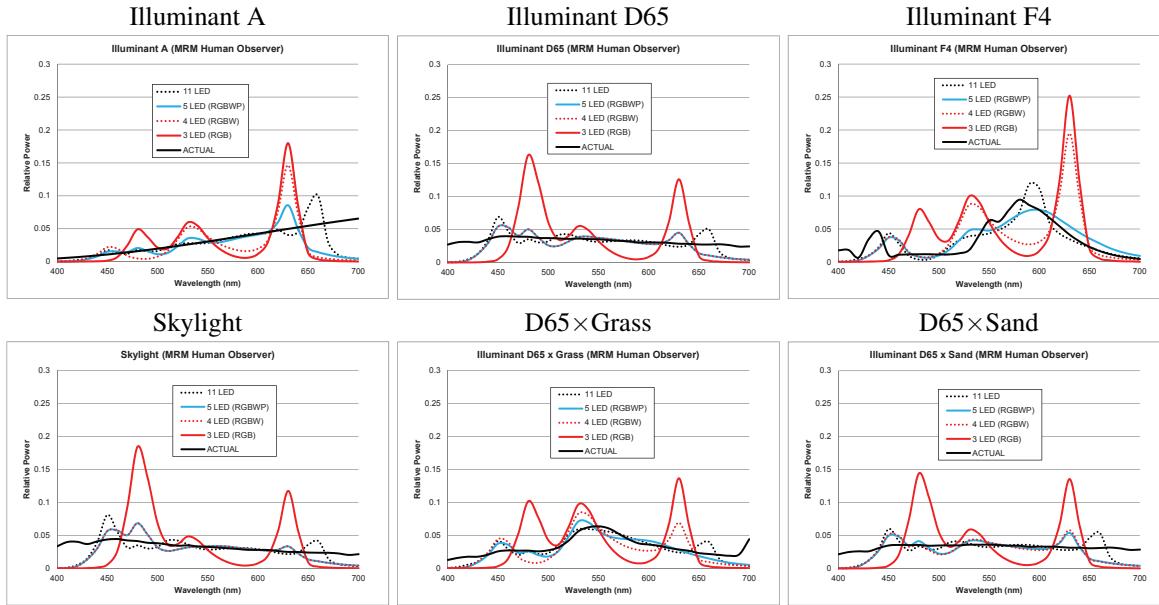


Figure 2: Spectra produced using Metameric Reflectance Matching for different direct and indirect illuminants for the CIE 2° standard observer, using various LED combinations. Solid black lines represent the ground truth illuminant spectra re-sampled at 10 nm resolution.