

Color Rendition Perceptual Attributes and Definitions

This summary is being posted to the NCITS W1.1 website to document the completion of the written statement of the color rendition attribute which includes three associated sub-attributes. This is the first significant milestone in the development of the W1.1 perceptual image quality standards for color rendition. By posting this document we seek to ensure all participants share a common understanding of the attribute and sub-attribute definitions. In the definitions below, each sub-attribute is designed to be appearance-based and contains no technology-based definitions for details (see NCITS W1.1 website http://www.ncits.org/tc_home/w11htm/ncits_w11.htm).

With the posting of this document, the Color Rendition Ad Hoc Group invites comments and questions concerning this set of sub-attributes and definitions. Please address comments and questions to the ad hoc group chair, through the website, by email to robert.cookingham@kodak.com, or by telephone (716) 722-4003.

Color sub-attributes and definitions:

1. Color Fidelity
 - Colors look correct
 - Does not necessarily imply matching to an original or target print
2. Color Scale
 - Colors that should be perceived as separate are distinguishable
3. Color Quantization
 - Colors that should be perceived as smoothly varying are free of contouring

Examples of attribute appearance in images:

1. Color Fidelity

- Image looks real, natural, or reasonable
- Skintones, grass, sky look real and natural (pictorial images only)
- Image is not too saturated or too washed out or too dark, etc.
- This attribute would include hue, lightness, and chroma accuracy, color balance, and memory color reproduction
- Logos are accurate (text and graphical images only)

2. Color Scale

- Distinguish between dark colors to avoid blocked shadows (pictorial images only)
- Distinguish between light or pale colors to avoid blown highlights (pictorial images only)
- Adequate separation of colors to provide contrast in pictorial images and distinguishability in graphics.
- Are there enough colors and are they distinct where they should be
- The equivalent of "tone scale", but extended to cover C^* and h in addition to L^*

3. Color Quantization

- Freedom from contouring in smooth sweeps (human faces, sky, differentially lit backgrounds, walls, etc. in pictorial images or vignettes, fades, or gradated backgrounds, etc. in graphical images)