

**Color Rendition Ad Hoc Group Teleconference Notes for 9/26/01**

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Next Teleconference: Wednesday October 10 @ 1:00 PM EST

Agenda for 9/26/01 Teleconference

1. Review discussion from PICS 2001 as necessary
2. Discussion of "Color Rendition Perceptual Attributes and Definitions"  
Key areas/topics for discussion are highlighted in color.  
The changes from the original distributed in July are based on feedback from group members.
3. Discussion of test target considerations
4. Subsequent teleconferences (proposed 2nd and 4th Wednesdays 1 to 2 PM EST in Oct and Nov (/10, 10/24, 11/14, and 11/28)

After a short review of the discussions from PICS 2001, we spent the remainder of the teleconference finalizing the color sub-attributes and definitions as indicated below.

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 graded backgrounds, etc. in graphical images)

## Test target considerations:

### 1. Color Fidelity

- Patch target for color fidelity measurement.
- Colorimetry of a selection of neutral and color patches including memory and other important colors
- Combine something like  $[\sum (w_i \cdot \Delta E_i)^2]^{-1/2}$
- Skin, sky and foliage are measured against the digital image colorimetric values

This section needs significant work

### 2. Color Scale

- RGB/CMYK printed, also maybe skin tone sweeps, and the delta E calculated from a digital scan of the sweep. Minimum steps would have to be defined such that anything less would result colors that are blocked, etc. (Concern that this would actually work)

### 3. Color Quantization

- RGBCMYK printed, also maybe skin tone sweeps, and the delta E calculated from a digital scan of the sweep. Maximum steps would have to be defined such that anything greater would result in visible contouring.
- Lightness and chroma gradients at different hues, could be 2D sheets or simulated 3D objects.

Everyone was able to attend teleconferences on the four dates proposed. Thus we will meet four subsequent teleconferences on the 2nd and 4th Wednesdays 1 to 2 PM EST in October and November:

October 10

October 24

November 14

November 28