

W1.1 Image Quality of Printers

W1.1 2003 – 039

MicroUniformity

Robert E. Zeman

June 20, 2003

Reference: W1.1 2003 – 018

Micro Uniformity Ad-hoc Group Meeting, June 20, 2003 1:30PM EDT

(Tele)present: Robert Zeman (Chair, Kodak), Eric Zeise (NexPress), Kevin Donohue (Univ. of Kentucky), Rene Rasmussen (Xerox), Dirk Hertel (Polaroid)

The agenda for today centered on an open discussion regarding printing of targets and next steps.

RR mentioned that since PICS 2003 and the decision to reprint all targets along with the new color calibration targets, he has received only silver print samples from RZ. A request is hereby made to all members of the MicroUniformity team to reprint their samples and transmit them to Rene. Also, Kevin Donohue has the ability to scan samples with a drum and flatbeds and is willing to receive them for this purpose. Mailing addresses are on the copy of the SPIE abstract sent to you earlier this week.

A mini-discussion ensued about perhaps revising the microuniformity test target to include several densities at, say, 2"x2" size. We decided to keep it as is, based on having enough area to cut for valid psychophysical samples, and Dirk Hertel (DH) added that flatbed scanner flare seems to require about 2"x2" areas for amelioration.

EZ questioned if anyone has been able to duplicate WK's scanner calibration of maximum $\Delta E's=2$. RR replied that it depends on the substrate and printer. He has seen $\Delta E's=2-3$, but as high as 15 in high gamut, high-density areas. These may not be visually significant. A MacBeth Color Checker Chart could be used to verify that the high values are only related to substrate and printer and not the method/scanner.

KD, RR and DH discussed scanning resolution, including using the native resolution of the scanner. Information about the scanning settings will be included in the scanned files. RZ questioned whether a public server could be obtained as a holding place for the scans; EZ will look into it. DH mentioned that he avoids pre-processing of the scanned data by using a generic scanner program by Hamrick (www.hamrick.com), which saves raw files.

Regarding public domain software for data analysis, EZ mentioned a paper he referenced earlier by Ted Bouk (on halftone noise in NIP8, 1992, pg.506), which we should review. RZ is to look for spectral analysis software that was already distributed by Marguerite Doyle (Lexmark) earlier. KD questioned if compiled Matlab code could be generally used, which was affirmatively answered. EZ mentioned that he is aware of a "PIKS" standard, which unfortunately does not address frequency analysis techniques. Also, he has come across a reference to newer standard activity, which he will investigate for relevancy here.

Next Teleconference: 1:30PM (EDT), July TBD, 2003, Ph: 1-888-590-2286; passcode: 35683#

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