

**W1.1 Image Quality of Printers**

W1.1 2001 - 044

MicroUniformity

Robert E. Zeman

May 18, 2001

Reference: W1.1 2001 – 043

**Micro Uniformity Ad-hoc Group Meeting, May 18, 2001 1:00PM EDT**

(Tele)present: Paul Kane (Kodak), Rene Rasmussen (Xerox), Robert Zeman (Chair, Kodak), George Chiu (Purdue)

A new phone number for call-in has been established. It is: 1-888-394-5271. The passcode remains 71647.

Continuing the topic of target design started in last week's teleconference, RZ and PK proposed that the complexities considered are too unwieldy to incorporate into a workable standard and that this sub-group should arbitrarily adopt uniform code values (UCV) as the target flat field input. RR agreed and suggested that we take the additional step of not specifying the input at all, but specify only the method to evaluate the output. GC commented that we seem to be back to the PICS 2001 discussion of "where does the printer begin?" RZ asked if the 'no target' tack plays through the other sub-attributes (e.g., banding) and the other sub-groups. RR reversed, saying that the measurement procedure will require a target—we can't have wildly varying inputs attempting to achieve the same output, and that perhaps UCV is a good approach. GC questioned how detailed the target specification must be. RR commented by way of example that the Macro-uniformity sub group can not specify the input as RGB or CMYK, for obvious reasons. Rather, the desired output is specified. GC said that in our case, the desired output is a 'flat field.' It was noted that this output could be used for measuring all of the sub-attributes (banding, streaks, texture, noise and voids), since these are departures from uniformity. Thus, we may be able to evaluate all the sub-attributes with just one target. RR expressed some concern that an unscrupulous manufacturer might be able to preprocess the input to make the output look good. It was thus agreed that to avoid great complexities of specifying inputs, we would adopt a UCV as the primary input to achieve a flat field output.

RZ questioned how many UCV levels should be chosen to characterize the output (densities)? RR commented that we have many ranges of colors to cover. RZ mentioned we could sample just some of the test target patches for measurement purposes, but still cover a number of colors. It was suggested that we email one another non-proprietary test targets, which cover neutrals and 'important' axes in color/process space. GC then questioned how we, for example, subtract banding from an output to get an uncontaminated noise measurement. PK referenced his paper presented at PICS 2000, which does exactly that. We discussed then the need to refer to one another literature in the public domain, which describes measurements of the sub-attributes of interest to us.

**So, we have two homework assignments: 1. Email one another non-proprietary test targets as described above, and 2. Send literature references for the desired measurement procedures.**

**Next Teleconference: Friday, June 1st, 1:30 EDT. New phone number: 1-888-394-5271**

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