

W1.1 Image Quality of Printers

NCITS W1.1 2002 – 022

Gloss and Gloss Uniformity

Yee S. Ng, April 26, 2002

Ref:

1. NCITS – W1.1 2002-021 NCITS W1.1 Gloss Uniformity Ad Hoc Team Progress Report (Yee Ng, 3/27/2002).

Gloss/gloss uniformity ad hoc Teleconference Meeting Notes

(4/16/2002 teleconference)

Present: Yee Ng (NexPress, Chair), Chung H. Kuo (NexPress)

Absent members:

Norm Burningham (HP), Ted Bouk (Kodak), .Eric Schneider (HP), Jeff Wang (NexPress), Maguerite Doyle (Lexmark), Dale Mashtare (Xerox), John Kessler (Paxar)

Next Teleconference: Tuesday April 30, 2002 @ 1:30 PM EST

Agenda

1. Review/modify agenda
2. Discuss measurement method and result.
3. Schedule next teleconference

The Gloss/gloss uniformity ad hoc met on 4/16/2002. This meeting is only lightly attended, so we can progress pretty quickly through the discussion topics. Chung H. Kuo (NexPress) becomes the newest member of the W1.1 team on Gloss Uniformity. YN reports on the PICS2002 meeting and discuss about the status report (NCITS – W1.1 2002-0021) that he has presented for the W1.1 ad hoc team on Gloss Uniformity. The NCITS-W1.1 2002-0021 defines the gloss measurement accuracy for the 20 degree as well as the 60 degree round-robin experiment. DM, YN and ES have now completed the objective differential gloss analysis for the (20, 60 and 75 degree gloss measurements respectively) – see the Tables below for the 3 angular gloss measurement for Differential gloss (DF). C.K. Kuo has agreed to help Ted Bouk to complete the 85 degree gloss analysis as well.

supplier_printer_substrate	Max 20 Gloss	Patch_Max	Min 20 Gloss	Patch_Min	DG20 (Max-Min)
Xerox_NC60_LustroGloss	6.62	5	0.54	9	6.08
Xerox_NC60_ColorExpUncoated	1.58	5	0.53	9	1.05
Xerox_FujitsuPictro3000_glossy	11.29	5	8.93	33	2.36
Nexpress_Mohawk_Overgloss	15.28	32	1.46	19	13.82
Nexpress_Spect_Overgloss	38.21	2	3.79	29	34.42
Nexpress_Wausau_Overgloss	40.32	2	3.18	34	37.14
Nexpress_Mohawk_Reg	2.42	2	0.92	29	1.49
Nexpress_Spect_Reg	10.46	2	1.87	39	8.58
Lexmark_LexC720_MohNavajo	1.45	40	0.15	9	1.30
Lexmark_HP8550_SappiLustro	3.23	40	0.17	14	3.07
Lexmark_HP2250_PremPict	38.37	5	12.67	35	25.70
Lexmark_LxmrkC720_SappiLustro	4.07	40	0.29	9	3.78
Lexmark_LxmrkJ110_PremPict	41.29	40	18.47	9	22.81
Lexmark_HP8550_MohNavajo	1.44	40	0.28	6	1.17
HP_4550_SpectratechLustr	4.91	40	0.43	14	4.48
HP_4550_Exactgloss	4.48	40	0.73	14	3.74
HP_4550_WestcoastWhiteNavajo	1.53	5	0.32	14	1.22

supplier_printer_substrate	Max 60 Gloss	Patch_max	Min 60 Gloss	Patch_Min	DG 60 (Max-Min)
Xerox_NC60_LustroGloss	40.1	40	3.1	9	37
Xerox_NC60_ColorExpUncoated	12.8	2	2.9	10	9.9
Xerox_FujitsuPictro3000_glossy	47.8	20	33	33	14.8
Nexpress_Mohawk_Overgloss	62.4	32	4.6	40	57.8
Nexpress_Spect_Overgloss	90.3	2	22.9	21	67.4
Nexpress_Wausau_Overgloss	92.4	2	17.9	34	74.5
Nexpress_Mohawk_Reg	20.6	2	4.6	19	16
Nexpress_Spect_Reg	47.9	2	10.7	39	37.2
Lexmark_LexC720_MohNavajo	7	25	1.8	10	5.2
Lexmark_HP8550_SappiLustro	25.83	40	1.5	14	24.33
Lexmark_HP2250_PremPict	91.3	5	50.6	9	40.7
Lexmark_LxmrkC720_SappiLustro	31.83	40	3.6	9	28.23
Lexmark_LxmrkJ110_PremPict	82.3	40	40.63	3	41.67
Lexmark_HP8550_MohNavajo	5.5	15	2.5	7	3
HP_4550_SpectratechLustr	34.5	40	4.3	14	30.2
HP_4550_Exactgloss	28.6	40	5.6	35	23
HP_4550_WestcoastWhiteNavajo	5.6	5	2.8	39	2.8

supplier_printer_substrate	Max 75 Gloss	Patch_Max	Min 75 Gloss	Patch_Min	DG 75(Max-Min)
Xerox_NC60_LustroGloss	68.4	5	6.4	10	62.0
Xerox_NC60_ColorExpUncoated	39.1	2	7.8	38	31.3
Xerox_FujitsuPictro3000_glossy	74.2	30	63.7	3	10.5
Nexpress_Mohawk_Overgloss	93.3	32	13.0	16	80.3
Nexpress_Spect_Overgloss	100.3	2	55.2	13	45.1
Nexpress_Wausau_Overgloss	102.7	20	54.0	13	48.7
Nexpress_Mohawk_Reg	54.8	2	11.5	16	43.3
Nexpress_Spect_Reg	85.9	2	41.7	18	44.2
Lexmark_LexC720_MohNavajo	26.5	22	5.4	7	21.1
Lexmark_HP8550_SappiLustro	32.7	8	8.4	14	24.3
Lexmark_HP2250_PremPict	95.3	5	77.6	9	17.7
Lexmark_LxmrkC720_SappiLustro	50.8	14	9.0	7	41.8
Lexmark_LxmrkJ110_PremPict	94.7	8	71.8	9	22.9
Lexmark_HP8550_MohNavajo	24.8	17	7.5	34	17.3
HP_4550_SpectratechLustr	47.5	5	14.2	39	33.3
HP_4550_Exactgloss	49.8	5	19.2	15	30.6
HP_4550_WestcoastWhiteNavajo	20.3	1	8.2	34	12.1

YN has gotten back all the round-robin experiment prints in the PICS conference and is starting to perform the preliminary subjective evaluation of those samples for differential gloss. We are also concerned that in some cases in 75 degree gloss, since the gloss level of many patches with some samples are at saturation, so the selection of those samples for subjective scaling in differential gloss is not suitable (the DG measurement get reduce in magnitude artificially due to saturation). Similar situation also affects the lower gloss samples for the 20 degree measurement (under-saturation). What the data points to is the need to select proper measurement angles for differential gloss measurement. For very glossy images, the 75 degree objective measurement is probably not suitable. For very low gloss images, the 20 degree objective measurement is probably not suitable either. One can of course find similar restriction relating to the 60 degree measurement as well. So one of the future task of the ad hoc to define the suitable range for differential gloss measurement at different gloss measurement angle. In the mean time, YN will

concentrate on the DG60 interpretation first when he compared the objective measurement to the preliminary subjective scaling (with the known limitation of maximum and minimum gloss patches are not necessarily next to each other, so a better test chart will be created for subjective measurement as a follow-on).

Next call-in teleconference: Tuesday, April 30, 2002 @ 1:30 AM EST

Proposed agenda for April 30, 2002

1. Review/modify agenda
2. Discuss gloss cross-correlation test target results.
3. Schedule next teleconference

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