

CSITC Task Force Contributions

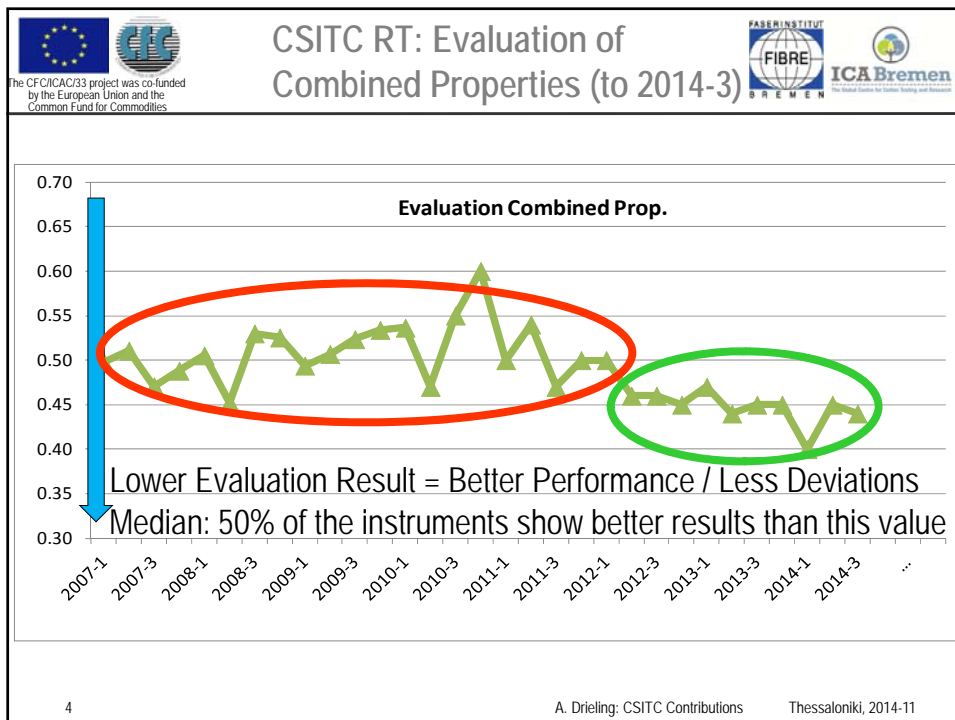
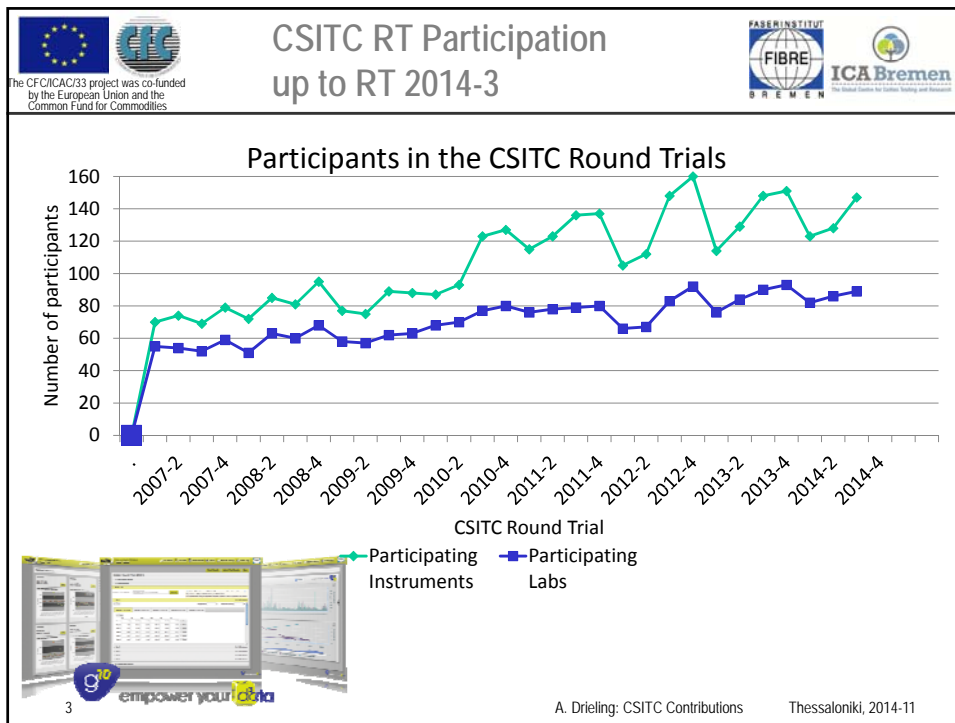
Axel Drieling
Bremen Fibre Institute (FIBRE) /
ICA Bremen



22nd Meeting of the CSITC Task Force
Thessaloniki, Greece, November 2, 2014



Development of CSITC RT Participation and Lab Evaluation Results

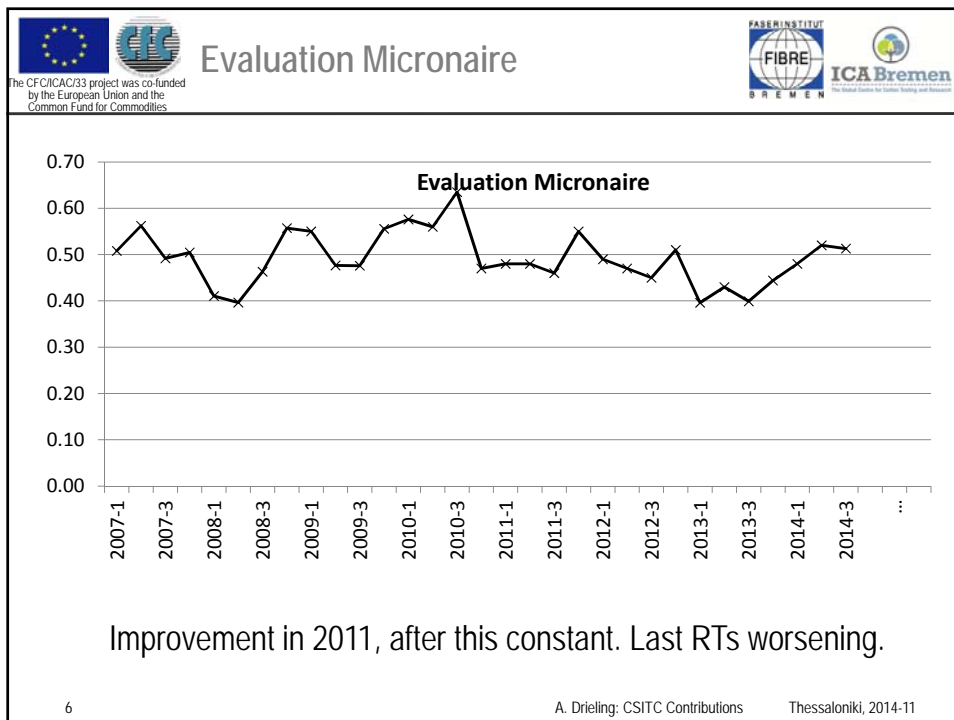


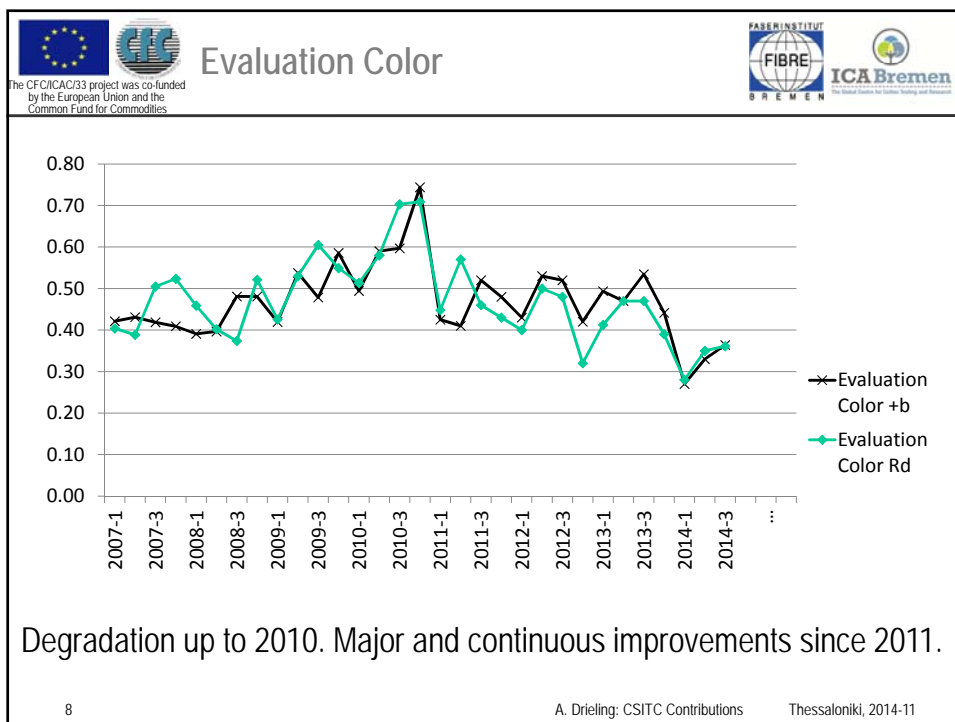
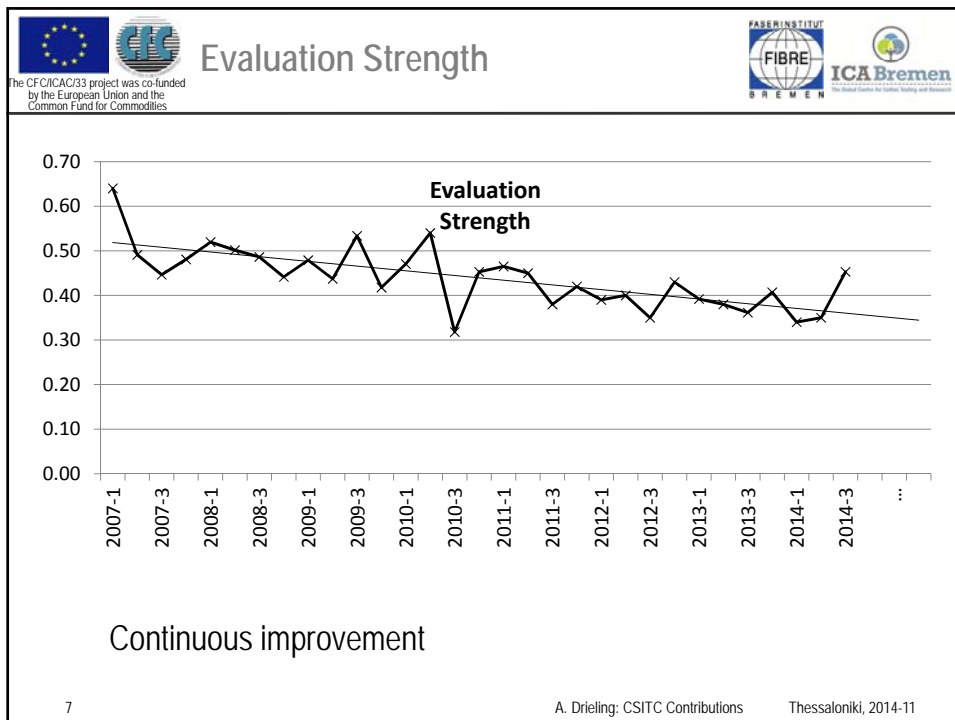
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Evaluations for Each Property

	Number of Participants		Median Evaluations						
	Participating Instrumen	Participating Labs	Evaluation Combined Prop.	Evaluation Micronaire	Evaluation Strength	Evaluation Length	Evaluation Uniformity	Evaluation Color Rd	Evaluation Color +b
Scale Value				0.1	1.5	0.02	1	1.5	0.5
AV 2007-14	108.4	71.5	0.49	0.49	0.44	0.40	0.37	0.47	0.47
AV 2007-11	94.8	65.5	0.51	0.51	0.47	0.41	0.37	0.50	0.49
AV 2013-14	134.3	85.7	0.44	0.45	0.38	0.38	0.38	0.39	0.41
2013-1	114	76	0.47	0.40	0.39	0.35	0.40	0.41	0.49
2013-2	129	84	0.44	0.43	0.38	0.38	0.36	0.47	0.47
2013-3	148	90	0.45	0.40	0.36	0.37	0.38	0.47	0.53
2013-4	151	93	0.45	0.44	0.41	0.39	0.37	0.39	0.44
2014-1	123	82	0.40	0.48	0.34	0.39	0.31	0.28	0.27
2014-2	128	86	0.45	0.52	0.35	0.43	0.42	0.35	0.33
2014-3	147	89	0.44	0.51	0.45	0.33	0.39	0.36	0.36
2014-4									

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Within Limit Evaluation based on 1 test per sample



% of instruments >=95% within limits
based on **single tests** per sample

RT	Mic	Str	Len: UHML	L-Unif	Col: Rd	Col: +b
Limits	0.2	2	0.03	2	1.5	1
Average	85.9	57.7	70.1	81.8	60.4	85.8
2011-3	90	57	74	84	61	82
2011-4	85	53	61	76	63	81
2012-1	87	52	70	74	61	85
2012-2	90	63	76	79	59	85
2012-3	88	61	78	90	60	80
2013-1	87	54	72	78	50	85
2013-2	86	57	69	81	52	87
2013-3	85	58	70	82	50	84
2013-4	85	50	70	85	63	90
2014-1	84	63	71	88	67	95
2014-2	83	69	61	82	71	88
2014-3	82	56	68	82	69	87
2014-4						



No
improve-
ments
visible

Commercially important results that include variation between single tests.

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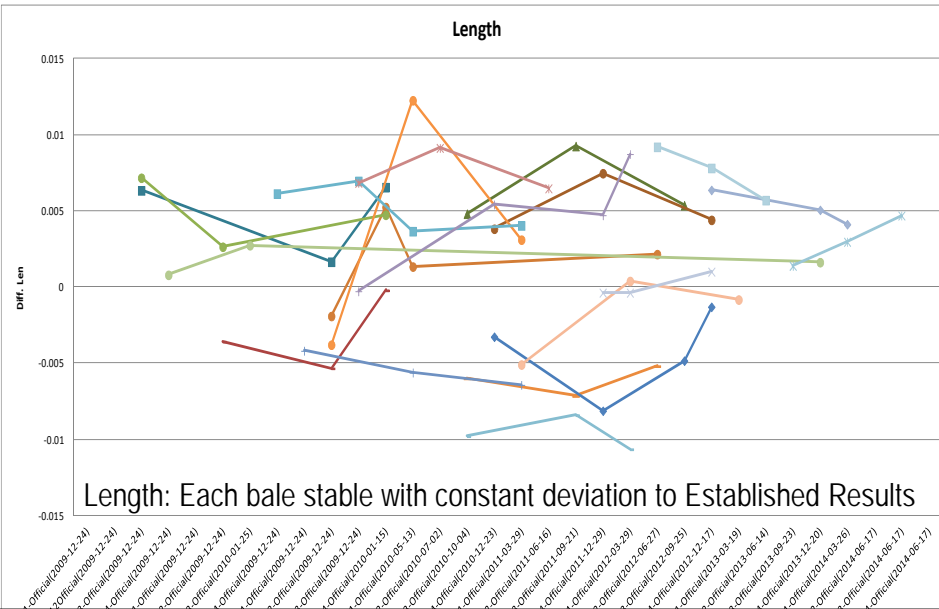
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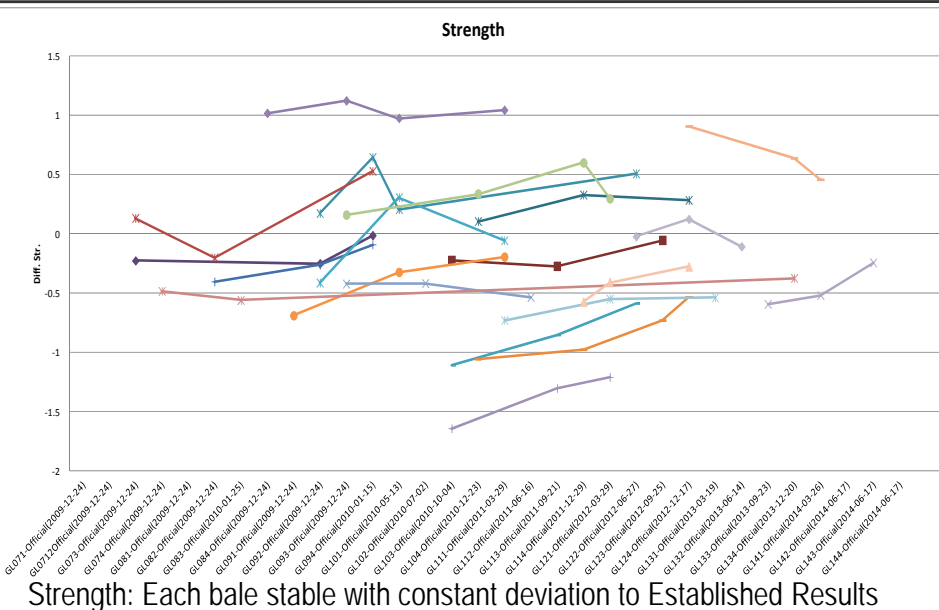
Comparison of RT Results to USDA Established Results

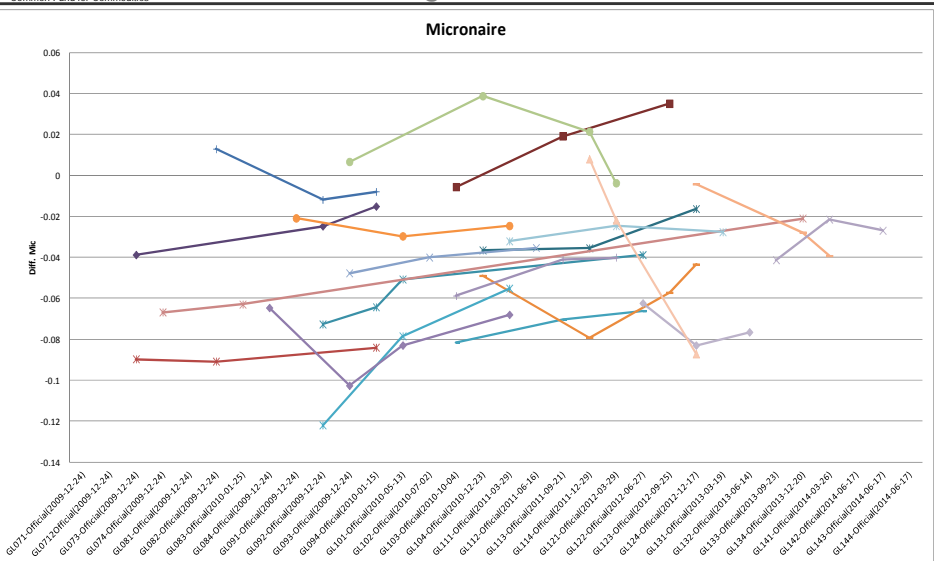
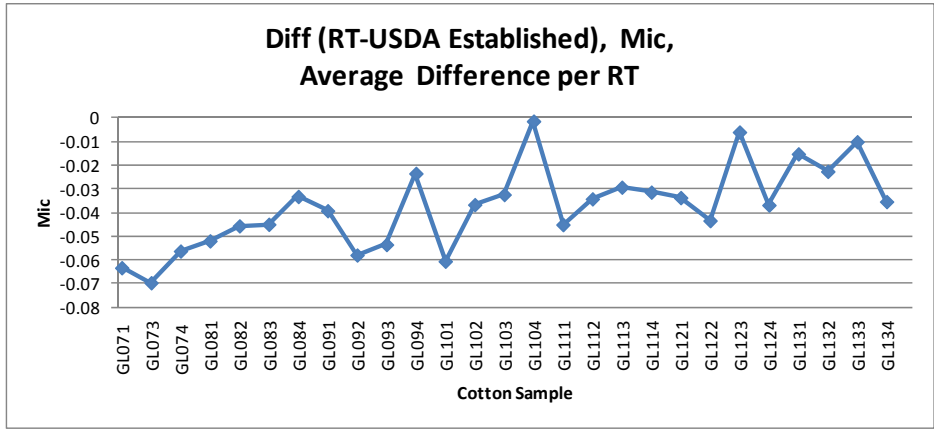
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Comparison to USDA Established Values; Following Same Bales



Comparison to USDA Established Values; Following Same Bales







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Comparison to USDA Established Values; Following Same Bales



- Conclusions
 - Following CSITC RT averages (which are taken for evaluating laboratories) for the same bale shows that results are very stable
 - If there are general systematic deviations from the USDA Established results (valid for all bales), this can be detected
 - Example: Micronaire
 - With no general systematic deviation, still there can be deviations for each bale. The results show that the RT averages are very stable, perhaps even more than the USDA Established results.
 - The decision for choosing RT averages as reference for evaluating labs, was and is the best choice.

 - Next analysis to do: detect systematic deviations in the result range

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Differences between Instrument Types

- a) Deviations From RT to RT
- b) Deviations analyzing the result range
- c) Inter-instrument variation
- d) Within-instrument variation





Based on RTs 2013-1 to 2014-3

Statistics are strongly influenced by different number of participating instruments

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  Micronaire		 				
<small>The CFC/ICAC/33 project was co-funded by the European Union and the Common Fund for Commodities</small>						
Micronaire	Number of instr.	AV result	AV - Diff.	SD inter-instr.	SD Within-instr. Between tests	SD Within-instr. Between days
Others	5					
Premier						
ART+HFT	13	4.23	-0.033	0.082	0.044	0.031
ART2	9	4.24	-0.019	0.074	0.059	0.044
Uster						
HVI 1000	64	4.28	0.019	0.047	0.034	0.029
Spectrum	18	4.24	-0.023	0.074	0.050	0.034
HVI 900	21	4.25	-0.012	0.063	0.043	0.036
All	130	4.26	0.000	0.066	0.041	0.032

Variation between instruments: ≤ 0.03
Bias over the range: no
Differences in within-instrument variation (betw. tests):
Differences in inter-instrument variation (betw. days):

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  Strength		 				
<small>The CFC/ICAC/33 project was co-funded by the European Union and the Common Fund for Commodities</small>						
Strength	Number of instr.	AV result	AV - Diff.	SD inter-instr.	SD Within-instr. Between tests	SD Within-instr. Between days
Others	6					
Premier						
ART+HFT	13	28.62	-0.06	0.91	0.55	0.37
ART2	9	28.77	0.10	0.84	0.50	0.39
Uster						
HVI 1000	64	28.68	0.01	0.66	0.55	0.40
Spectrum	18	28.53	-0.14	0.87	0.64	0.50
HVI 900	20	28.82	0.15	0.92	0.66	0.48
All	130	28.67	0.00	0.82	0.58	0.43

Variation between instruments: ≤ 0.15 g/tex
Bias over the range: no
Differences in within-instrument variation (betw. tests):
Differences in inter-instrument variation (betw. days):

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Length



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Length	Number of instr.	AV result	AV - Diff.	SD inter-instr.	SD Within-instr. Between tests	SD Within-instr. Between days
Others	6					
Premier						
ART+HFT	13	1.085	-0.002	0.013	0.013	0.008
ART2	9	1.087	0.000	0.010	0.011	0.007
Uster						
HVI 1000	64	1.087	0.000	0.009	0.009	0.006
Spectrum	19	1.086	-0.002	0.012	0.011	0.007
HVI 900	20	1.090	0.003	0.012	0.013	0.008
All	130	1.087	0.000	0.011	0.011	0.007

Variation between instruments: ≤ 0.003
 Bias over the range: no
 Differences in within-instrument variation (betw. tests):
 Differences in inter-instrument variation (betw. days):

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Length Uniformity



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L. Uniformity	Number of instr.	AV result	AV - Diff.	SD inter-instr.	SD Within-instr. Between tests	SD Within-instr. Between days
Others	6					
Premier						
ART+HFT	13	81.19	-0.02	0.59	0.58	0.36
ART2	9	81.29	0.07	0.56	0.51	0.36
Uster						
HVI 1000	64	81.13	-0.08	0.44	0.50	0.30
Spectrum	18	81.26	0.04	0.57	0.54	0.33
HVI 900	21	81.39	0.17	0.61	0.61	0.36
All	131	81.22	0.00	0.54	0.53	0.32

Variation between instruments: $\leq 0.17 !!!$
 Bias over the range: no
 Differences in within-instrument variation (betw. tests):
 Differences in inter-instrument variation (betw. days):

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Color Rd



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Color Rd	Number of instr.	AV result	AV - Diff.	SD inter-instr.	SD Within-instr. Between tests	SD Within-instr. Between days
Others	6					
Premier						
ART+HFT	12	76.18	-0.16	0.91	0.39	0.41
ART2	9	76.04	-0.30	0.95	0.44	0.36
Uster						
HVI 1000	64	76.68	0.35	0.56	0.16	0.20
Spectrum	17	75.84	-0.50	0.89	0.29	0.36
HVI 900	21	75.98	-0.36	0.87	0.37	0.45
All	127	76.34	0.00	0.85	0.27	0.30

Variation between instruments:

<= 0.5 !!!

Bias over the range:

no

Differences in within-instrument variation (betw. tests):

Differences in inter-instrument variation (betw. days):

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Color +b



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Color +b	Number of instr.	AV result	AV - Diff.	SD inter-instr.	SD Within-instr. Between tests	SD Within-instr. Between days
Others	5					
Premier						
ART+HFT	11	10.75	-0.11	0.34	0.20	0.22
ART2	9	10.85	-0.01	0.31	0.21	0.16
Uster						
HVI 1000	64	10.91	0.05	0.24	0.08	0.11
Spectrum	18	10.83	-0.03	0.29	0.13	0.14
HVI 900	21	10.83	-0.03	0.28	0.12	0.16
All	127	10.87	0.00	0.29	0.12	0.14

Variation between instruments:

<= 0.11

Bias over the range:

perhaps

Differences in within-instrument variation (betw. tests):

Differences in inter-instrument variation (betw. days):

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