Collaborative Testing Services, Inc.

Color & Appearance Testing Program

Summary Report #207 - 1st Qtr 2024

About the Color Program, About CTS

Key to Tables and Graphs (Color Tests)

Key to Tables and Graphs (Spectro Test)

Key to Tables and Graphs (Gloss Tests)

Analysis	Analysis Name
408	Color & Color Difference-45-0, D65/10° Observer
409	Color & Color Difference Sphere, D65/10°Observer
411	Spectrophotometric - Sphere
440	Gloss 60 Degree

About The Color & Appearance Program

The Collaborative Reference Program for Color & Appearance is operated and maintained by Collaborative Testing Services, Inc. (CTS), with technical guidance and advice provided by representatives from various instrument manufacturers. The program allows laboratories to compare periodically the performance of their testing with that of other laboratories.

Paint chip samples, which have been custom-made specifically for Collaborative Testing Services by Munsell Color, X-Rite Inc., Grand Rapids, MI, are distributed four times per year to participating laboratories. Gloss participants test two pairs of paint chip samples at different gloss levels, approximately 5-10 units apart. Color & Color Difference participants measure a set of two opaque color paint chips, selected from throughout the full color spectrum, consisting of a nonmetameric match with small color differences. These data are analyzed in two separate tables based on the conditions of measurement used. Laboratories that also participate in the Spectrophotometric analyses measure one of the opaque color chips for % reflectance at 16 wavelengths.

Please refer to each test's 'Key' for definitions of terms used in the tables and graphs and guidelines to interpreting the results. Also shown are notes concerning specific laboratory results, as well as significant findings related to instrument types or other testing variations.

ABOUT CTS

Founded in 1971, Collaborative Testing Services, Inc. (CTS) is a privately - owned company that specializes in interlaboratory tests for a variety of industries including color, rubber, plastics, fasteners and metals, containerboard, paper, agriculture, hemp, and wine, as well as proficiency tests for forensic laboratories. All of the tests are designed to assist organizations in achieving and maintaining quality assurance objectives. Labs from the U.S., as well as more than 100 countries, currently participate in the CTS programs.

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Key for Color Program Web Summary Report

WebCode — Assigned laboratory identification number (temporary) used to ensure lab confidentiality while permitting a lab to locate its data in the Color Report published on the CTS web site. The Web Code for each analysis can be found in the Performance Analysis Report emailed to each participant.

Lab Mean — The average of the 2 test results obtained by the participant for CIE L*,a*,b* color space values.

Grand Mean — The average of the LAB MEANS for all included participants. Laboratories flagged with an X or an M (see DATA FLAG column) are excluded from the GRAND MEAN.

Between-Lab Standard Deviation — An indication of the precision of measurement between the laboratories. The greater the spread of the LAB MEANS about the GRAND MEAN, the larger the BETWEEN-LAB STANDARD DEVIATION (and vice versa).

Comparative Performance Value — An indication of how well a laboratory's results agree with the other participants. The CPV is a ratio indicating the number of standard deviations from the GRAND MEAN. The closer a laboratory's COMPARATIVE PERFORMANCE VALUE is to zero, the more consistent its results are with the other participants' data (and vice versa). The critical value for each CPV will vary depending on the number of labs participating in a test.

Graphs — For each laboratory, the LAB MEAN for the first sample is plotted against the LAB MEAN for the second sample with each point representing a laboratory. The horizontal and vertical axes are the GRAND MEANS for each sample. For each test there are three plots: L*2 vs L*1, a*2 vs a*1 and b*2 vs b*1. The a* and b* plots are created using absolute values.

Inst Code — A code indicating the manufacturer of the instrument used to perform the test (see separate INSTRUMENT CODE LIST for each test section).

Data Flag — DATA FLAGS are assigned based on the simultaneous analysis of both samples tested. Refer to the following chart for an explanation of each symbol:

DATA FLAG	STATISTICALLY INCLUDED/EXCLUDED	ACTION REQUIRED
*	INCLUDED	**CAUTION** - review testing procedure and monitor future results. Results fall outside 95% ellipse but within a 99% ellipse that is calculated but not drawn.
X	EXCLUDED	**STOP** - immediate review of data and/or testing procedure is required. Results fall outside the 99% ellipse and one or more CPV are greater than critical value. See specific notes following each table for more information on why the data is excluded. It is also possible to have an "X" for individual color coordinate (L*, a* or b*) without overall "X" flag. It means that results fall outside the 99% ellipse for particular coordinate but have no CPV flags. Those results will not require any action.
M	EXCLUDED	**PROCEED** - lab was unable to report data for at least one sample. However, a lab receiving two of more M flags for a test may need to stop and review its testing procedures.

Key for Spectrophotometric Web Summary Report

WebCode — Assigned laboratory identification number (temporary) used to ensure lab confidentiality while permitting a lab to locate its data in the Color Report published on the CTS web site. The Web Code for each analysis can be found in the Performance Analysis Report emailed to each participant.

Grand Mean — The average of the LAB MEANS for all included participants. Laboratories flagged with an X or an M (see DATA FLAG column) are excluded from the GRAND MEAN.

Between-Lab Standard Deviation — An indication of the precision of measurement between the laboratories. The greater the spread of the LAB MEANS about the GRAND MEAN, the larger the BETWEEN-LAB STANDARD DEVIATION (and vice versa).

Inst Code — A code indicating the manufacturer of the instrument used to perform the test (see separate INSTRUMENT CODE LIST for each test section).

Data Flag — DATA FLAGS are assigned based on the simultaneous analysis of both samples tested. Refer to the following chart for an explanation of each symbol:

DATA FLAG	STATISTICALLY INCLUDED/EXCLUDED	ACTION REQUIRED
X	EXCLUDED	**STOP** - immediate review of data and/or testing procedure is required. See specific notes following each table for more information on why the data is excluded.

In addition to the DATA FLAG column, it is also possible to have a flag on individual wavelength values as follows:

*	The laboratory's mean for that wavelength deviates from the GRAND MEAN by more than two BETWEEN-LAB STANDARD DEVIATIONS.
X	The laboratory's mean for that wavelength deviates from the GRAND MEAN by more than the critical limit determined by a 99.5% confidence interval.

Key for Gloss Web Summary Report

WebCode — Assigned laboratory identification number (temporary) used to ensure lab confidentiality while permitting a lab to locate its data in the Color Report published on the CTS web site. The Web Code for each analysis can be found in the Performance Analysis Report emailed to each participant.

Lab Mean — The average of the test results obtained by the participant.

Grand Mean — The average of the LAB MEANS for all included participants. Laboratories flagged with an X or an M (see DATA FLAG column) are excluded from the GRAND MEAN.

Difference from Grand Mean — The difference of the LAB MEAN from the GRAND MEAN.

Between-Lab Standard Deviation — An indication of the precision of measurement between the laboratories. The greater the spread of the LAB MEANS about the GRAND MEAN, the larger the BETWEEN-LAB STANDARD DEVIATION (and vice versa).

Comparative Performance Value — An indication of how well a laboratory's results agree with the other participants. The CPV is a ratio indicating the number of standard deviations from the GRAND MEAN. The closer a laboratory's COMPARATIVE PERFORMANCE VALUE is to zero, the more consistent its results are with the other participants' data (and vice versa). The critical value for each CPV will vary depending on the number of labs participating in a test.

Inst Code — A code indicating the manufacturer of the instrument used to perform the test (see separate INSTRUMENT CODE LIST for each test section).

Graphs — For each laboratory, the LAB MEAN for the first sample (x-axis) is plotted against the LAB MEAN for the second sample (y-axis) with each point representing a laboratory. The horizontal and vertical cross-hairs are the GRAND MEANS for each sample. When 20 or more laboratories are in the statistics, an ellipse is also drawn so that 95% of the time a randomly selected laboratory will be included inside the ellipse. Plotted data flags are explained above.

Data Flag — DATA FLAGS are assigned based on the simultaneous analysis of both samples tested. Refer to the following chart for an explanation of each symbol:

DATA FLAG	STATISTICALLY INCLUDED/EXCLUDED	ACTION REQUIRED
*	INCLUDED	**CAUTION** - review testing procedure and monitor future results. Results fall outside 95% ellipse but within a 99% ellipse that is calculated but not drawn.
X	EXCLUDED	**STOP** - immediate review of data and/or testing procedure is required. Results fall outside the 99% ellipse. See specific notes following each table for more information on why the data is excluded.
M	EXCLUDED	**PROCEED** - lab was unable to report data for at least one sample. However, a lab receiving two of more M flags for a test may need to stop and review its testing procedures.

			CIE L* a* b* Color Values			Color Difference Values				
WebCode	Flag	Samples	L*	a*	b*	ΔL*	Δa*	Δb*	ΔE*	InstrCode
24PHJG		A241	59.74	9.47	15.38	0.92	-0.37	-0.39	1.07	GA
		A242	60.66	9.10	14.99					
28NTFG		A241	60.70	9.40	15.40	0.90	-0.40	-0.40	1.06	HL
		A242	61.60	9.00	15.00					
2P43FH	X	A241	60.57	9.52	14.17	0.92	-0.30	-0.21	1.00	XD
		A242	61.50	9.22	13.95					
3BHA6F	X	A241	61.28	10.37	16.12	0.77	-0.25	-0.29	0.86	XU
		A242	62.05	10.12	15.83					
3CVNTP		A241	60.47	9.28	14.70	0.97	-0.30	-0.32	1.06	MS
		A242	61.44	8.98	14.38					
3RKZWJ		A241	59.33	9.68	15.28	0.92	-0.34	-0.38	1.05	HX
		A242	60.25	9.34	14.90					
7WQJWN		A241	60.34	9.44	15.40	0.93	-0.34	-0.37	1.06	HW
		A242	61.27	9.10	15.04					
8A9VJG		A241	60.14	9.50	15.55	1.07	-0.35	-0.37	1.18	BG
		A242	61.20	9.15	15.19					
8QCEAE		A241	60.76	9.45	15.21	1.05	-0.37	-0.32	1.16	XE
		A242	61.81	9.08	14.89					
8WKVRE		A241	60.54	9.33	14.74	0.96	-0.32	-0.36	1.07	XJ
		A242	61.49	9.01	14.38					
9BXJHN		A241	60.19	9.53	15.28	0.85	-0.29	-0.30	0.95	GU
		A242	61.04	9.23	14.99					
9DPHWM		A241	60.60	9.33	15.51	0.86	-0.29	-0.36	0.97	GH
		A242	61.46	9.05	15.15					
AV3GGB		A241	60.33	9.42	15.23	0.94	-0.24	-0.29	1.01	XS
		A242	61.27	9.18	14.94					
AXN4AX		A241	60.79	9.33	14.91	0.94	-0.31	-0.35	1.05	XE
		A242	61.72	9.02	14.56					
BTBKRG		A241	60.17	9.48	15.23	0.96	-0.28	-0.30	1.04	XU
		A242	61.12	9.20	14.93					
CYBNQE		A241	60.85	9.50	15.40	0.95	-0.40	-0.35	1.09	HW
		A242	61.80	9.10	15.05					

			CIE L* a* b* Color Values			Color Difference Values				
WebCode	Flag	Samples	L*	a*	b*	ΔL*	Δa*	Δb*	ΔE*	InstrCode
DHLVL8		A241	60.39	9.63	15.38	0.89	-0.23	-0.29	0.96	GE
		A242	61.28	9.40	15.09					
F4ZZJF		A241	60.47	9.36	15.40	0.97	-0.34	-0.38	1.09	MG
		A242	61.43	9.01	15.02					
FC8W6X		A241	60.61	9.36	15.25	0.97	-0.30	-0.34	1.06	XE
		A242	61.57	9.06	14.92					
FPEM87		A241	60.23	9.51	15.25	0.98	-0.29	-0.33	1.08	XU
		A242	61.22	9.22	14.92					
GX3369		A241	60.41	9.71	15.43	0.91	-0.25	-0.29	0.99	GE
		A242	61.32	9.47	15.14					
HWQKPA		A241	60.38	9.41	15.16	0.95	-0.34	-0.37	1.07	XE
		A242	61.33	9.07	14.79					
J9HQXY		A241	60.47	9.64	15.42	0.92	-0.24	-0.30	0.99	GE
		A242	61.39	9.40	15.11					
JQWWJ3		A241	60.16	9.73	15.39	0.94	-0.33	-0.38	1.07	HM
		A242	61.10	9.40	15.01					
JT7XNA		A241	60.55	9.27	14.71	0.91	-0.26	-0.31	0.99	XJ
		A242	61.45	9.01	14.39					
KBJYZM	X	A241	60.98	8.89	15.98	0.88	-0.23	-0.31	0.96	GE
		A242	61.86	8.67	15.67					
MAHXQ2		A241	60.18	9.30	14.94	0.92	-0.30	-0.32	1.02	XW
		A242	61.09	8.99	14.62					
N3TU9X		A241	60.26	9.33	15.22	0.92	-0.29	-0.32	1.02	XU
		A242	61.18	9.04	14.90					
N63P32		A241	60.47	9.39	15.26	0.99	-0.30	-0.33	1.09	HW
		A242	61.46	9.09	14.93					
NHMAG4		A241	60.12	9.63	15.83	0.92	-0.39	-0.42	1.09	BG
		A242	61.05	9.23	15.40					
PUZP43		A241	60.39	9.38	15.15	1.38	-0.29	-0.30	1.44	XU
		A242	61.77	9.09	14.86					
PVBLKZ	X	A241	58.46	9.87	15.28	0.98	-0.41	-0.32	1.10	HK
		A242	59.44	9.47	14.96					

			CIE L* a* b* Color Values			Color Difference Values				
WebCode	Flag	Samples	L*	a*	b*	ΔL*	Δa*	Δb*	ΔE*	InstrCode
PVRNG2		A241	60.29	9.43	15.26	0.96	-0.32	-0.35	1.07	XU
		A242	61.25	9.11	14.90					
PXZ3N8		A241	60.57	9.37	15.33	0.89	-0.31	-0.34	1.00	HW
		A242	61.45	9.06	14.99					
RMQAAW		A241	60.21	9.42	15.22	0.95	-0.29	-0.31	1.04	XU
		A242	61.16	9.13	14.91					
T6L87X		A241	59.71	9.26	15.21	0.90	-0.33	-0.33	1.01	HW
		A242	60.61	8.94	14.88					
T6QMHX		A241	60.35	9.54	15.35	0.94	-0.34	-0.40	1.07	XP
		A242	61.28	9.20	14.95					
TEDLA4		A241	60.69	9.36	15.34	0.94	-0.36	-0.40	1.08	HW
		A242	61.63	9.00	14.94					
TWVKGM		A241	59.87	9.41	15.28	0.95	-0.36	-0.38	1.08	GG
		A242	60.82	9.06	14.89					
U894DN		A241	59.71	9.37	15.30	0.92	-0.33	-0.39	1.05	GG
		A242	60.62	9.04	14.90					
UEQEKX		A241	60.45	9.30	15.25	1.05	-0.30	-0.35	1.15	HL
		A242	61.50	9.00	14.90					
VLJ77W		A241	60.90	9.50	15.30	0.90	-0.40	-0.40	1.06	HW
		A242	61.80	9.10	14.90					
W36A3Q		A241	60.85	9.50	15.40	1.00	-0.40	-0.40	1.15	HW
		A242	61.85	9.10	15.00					
WED2LQ		A241	60.36	9.38	14.85	0.93	-0.30	-0.33	1.03	XE
		A242	61.29	9.07	14.51					
WJC9EZ		A241	60.58	9.44	15.25	0.90	-0.31	-0.34	1.01	XM
		A242	61.48	9.13	14.91					
WRMMYG		A241	60.92	9.38	15.23	0.89	-0.30	-0.32	1.00	XE
		A242	61.81	9.08	14.91					
WW27GY		A241	59.93	9.65	15.41	0.95	-0.38	-0.40	1.10	XO
		A242	60.88	9.26	15.01					
XY3T9T		A241	60.21	9.42	15.14	0.91	-0.28	-0.31	1.00	MT
		A242	61.12	9.15	14.83					

			CIE L* a* b* Color Values			Color Difference Values				
WebCode	Flag	Samples	L*	a*	b*	ΔL*	Δa*	Δb*	ΔE*	InstrCode
YVH78T		A241	60.22	9.44	15.30	0.98	-0.30	-0.33	1.07	XE
		A242	61.20	9.15	14.97					
YYGFKF		A241	60.39	9.42	15.93	0.96	-0.35	-0.40	1.10	GE
		A242	61.35	9.07	15.53					

Summary Statistics

Samples	L*	a*	b*	ΔL*	Δa*	Δb*	ΔE*
Grand Means							
A241	60.37	9.44	15.27	0.95	-0.32	-0.35	1.06
A242	61.31	9.12	14.92				
Stnd Dev Btwn Labs							
A241	0.34	0.12	0.23	0.08	0.04	0.04	0.08
A242	0.35	0.12	0.22				

Statistics based on 46 of 50 reporting participants

Comments Assigned on Data Flags for Test #408

2P43FH(X) - Low b* values for both samples. Large Delta b.

3BHA6F(X) - Inconsistent in testing between the L* values. Extreme data for both a* values. High b* values for both samples. Large replication difference for a* & b* Sample A242.

KBJYZM(X) - Low a* values for both samples. Large replication difference for a* Sample A242. High b* values for both samples.

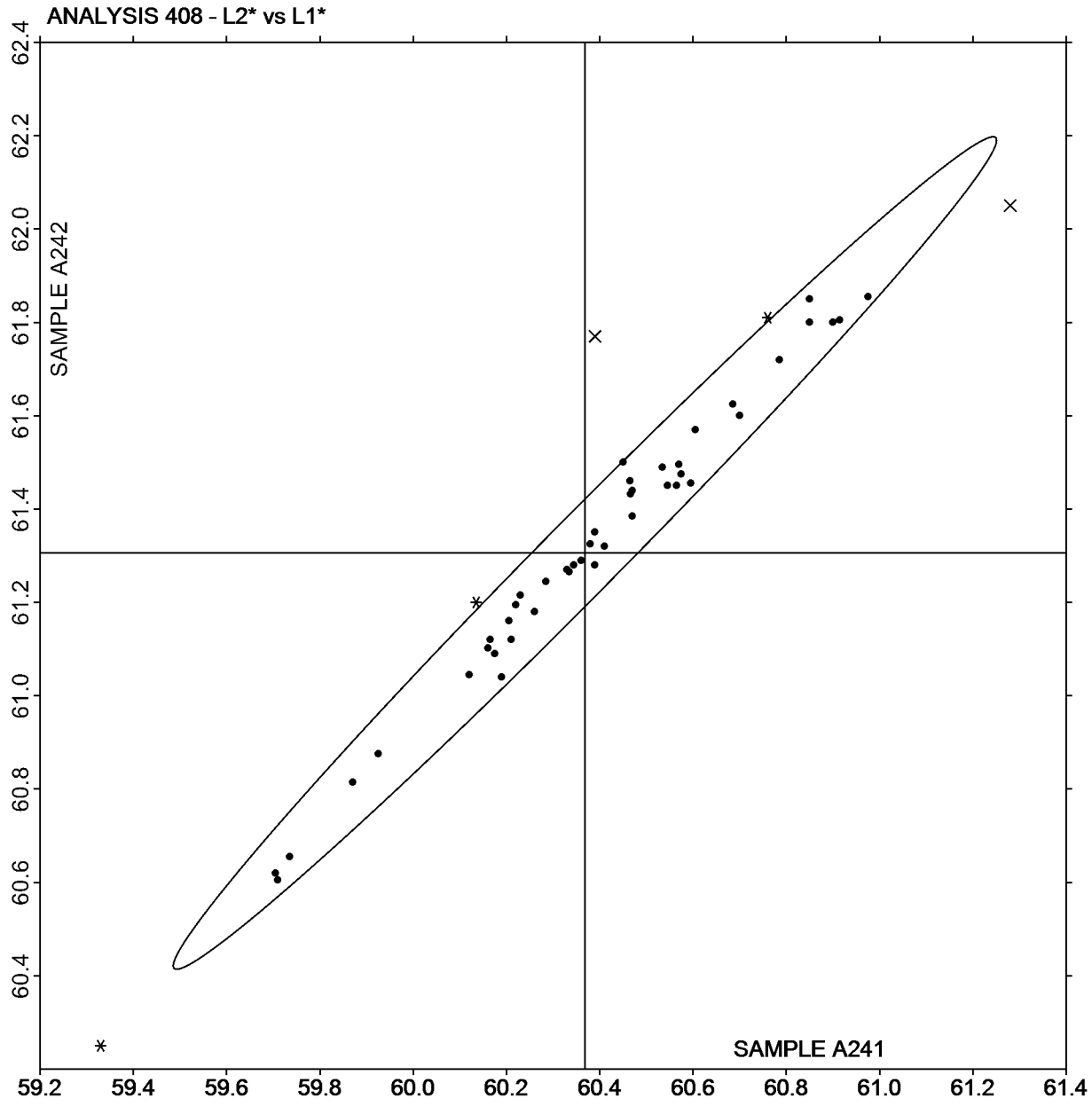
PVBLKZ(X) - Very low L* values for both samples. High a* values for both samples.

Key to Instrument Codes Reported by Participants

BG	BYK Mac i	GA	BYK-Gardner
GE	BYK-Gardner spectro-guide (45/0)	GG	BYK-Gardner spectro2-guide (45/0) gloss
GH	BYK-Gardner Color-View	GU	Gretag Spectrolino Spectrophotometer
HK	Hunter MiniScan XE (45/0)	HL	Hunter Agera
HM	Hunter MiniScan EZ 4500L	HW	Hunter LabScan XE
HX	Hunter Color FlexEZ 45/0	MG	Macbeth 1500/PLUS or 2025+ Color Eye
MS	Minolta CM-600d Spectrophotometer	MT	Minolta CM-25cG Spectrophotometer
XD	X-Rite 500 Series SpectroDensitometer	XE	X-Rite eXact Portable Spectrophotometer
XJ	X-Rite CI7XX0	XM	X-Rite MA58 Multi-Angle Spectrophotometer
XO	X-Rite MA68 II Multi-Angle Spectrophotometer	XP	X-Rite MA9 Multi-Angle Spectrophotometer
XS	X-Rite 962 Portable Spectrophotometer	XU	X-Rite 964 Portable Spectrophotometer
XW	X-Rite		

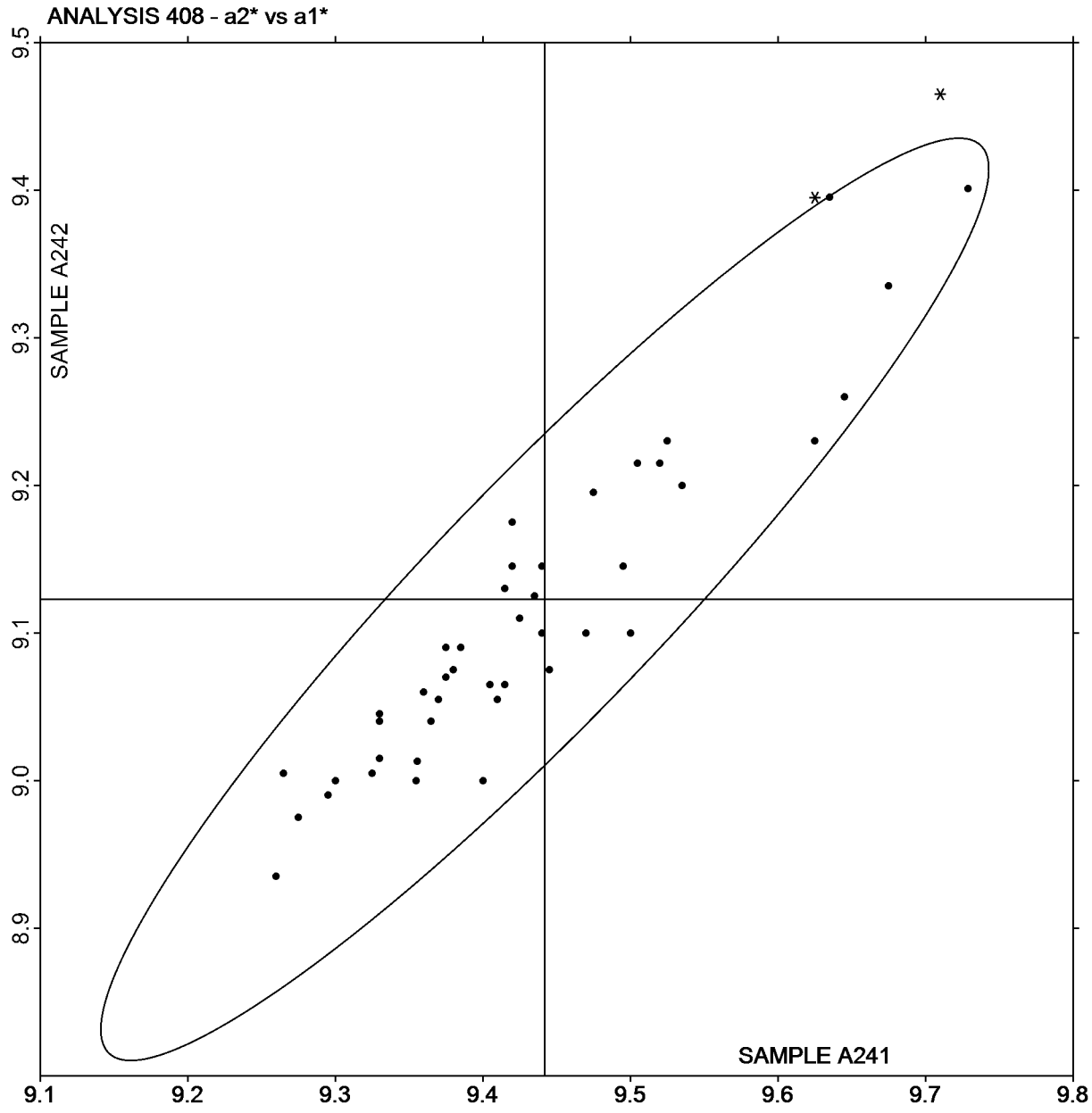
L2* vs L1*

SAMPLE A241 = 60.37 SAMPLE A242 = 61.31



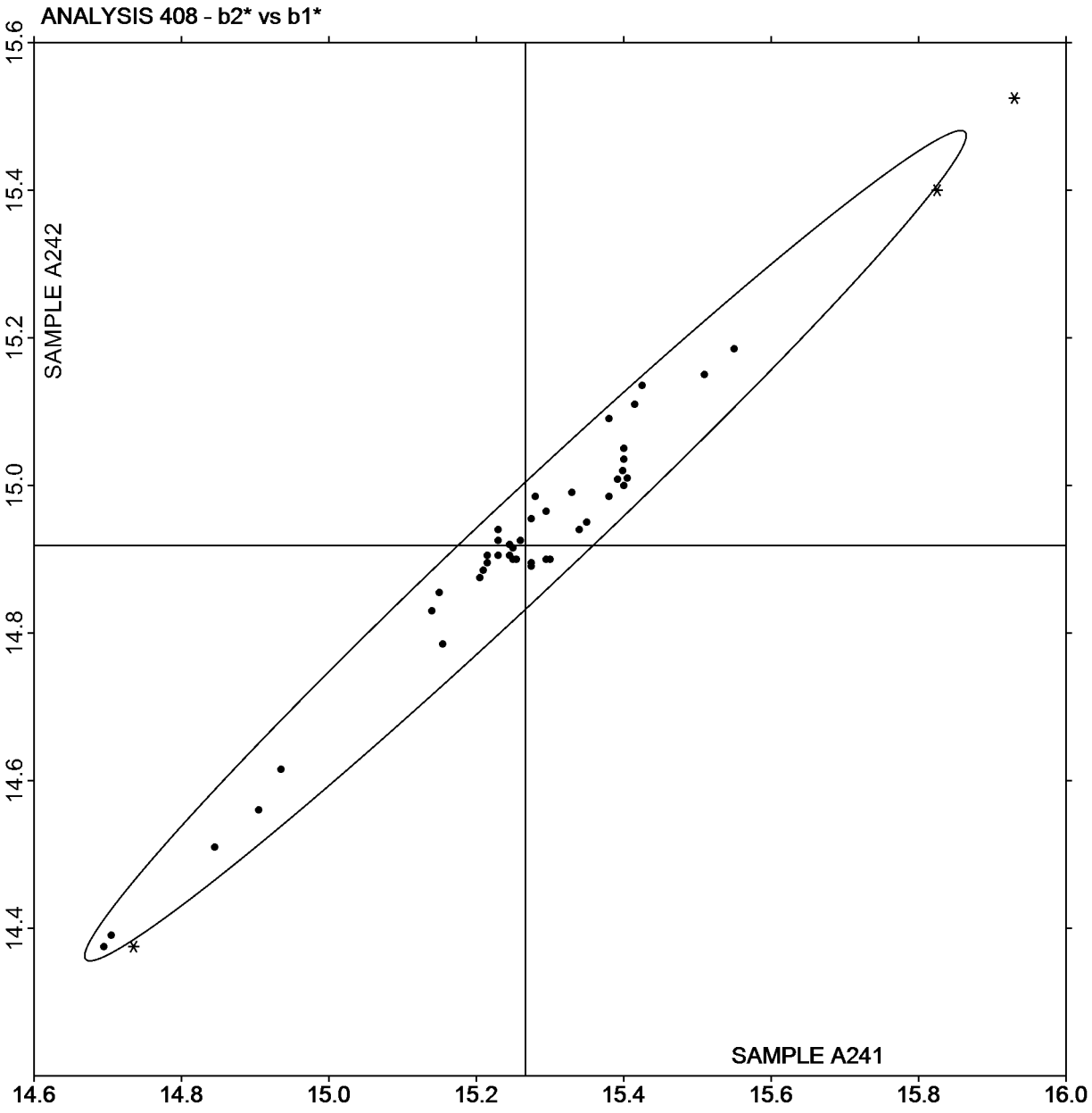
a2* vs a1*

SAMPLE A241 = 9.44 SAMPLE A242 = 9.12



b2* vs b1*

SAMPLE A241 = 15.27 SAMPLE A242 = 14.92



			CIE L* a* b* Color Values			Color Difference Values				
WebCode	Flag	Samples	L*	a*	b*	ΔL*	Δa*	Δb*	ΔE*	InstrCode
24PHJG		A241	60.53	9.42	14.81	0.93	-0.35	-0.40	1.07	AJ
		A242	61.46	9.07	14.41					
2XY6HT		A241	60.53	9.11	14.86	0.91	-0.29	-0.35	1.01	XO
		A242	61.44	8.83	14.51					
32CAPM	X	A241	60.93	9.45	14.78	0.90	-0.27	-0.33	1.00	CA
		A242	61.83	9.18	14.45					
3CVNTP		A241	60.47	9.29	14.64	0.97	-0.33	-0.28	1.06	MS
		A242	61.44	8.96	14.35					
44WGQV	X	A241	60.78	9.43	14.68	0.96	-0.30	-0.39	1.08	HP
		A242	61.74	9.13	14.28					
4C766U		A241	60.29	9.28	14.92	0.95	-0.33	-0.40	1.08	XO
		A242	61.23	8.95	14.52					
6Q74RQ		A241	60.64	9.26	14.71	0.91	-0.32	-0.36	1.03	AT
		A242	61.55	8.94	14.36					
73WFH9		A241	60.54	9.33	14.67	0.95	-0.29	-0.36	1.05	AU
		A242	61.48	9.04	14.31					
7B8ECK		A241	60.47	9.34	14.63	0.88	-0.27	-0.34	0.98	AT
		A242	61.35	9.07	14.29					
7E7TWN		A241	60.44	9.22	14.59	0.91	-0.27	-0.31	1.00	XI
		A242	61.35	8.95	14.28					
7J2MWB		A241	60.47	9.35	14.65	0.95	-0.37	-0.42	1.10	AQ
		A242	61.42	8.98	14.22					
8ARNBE		A241	60.53	9.36	14.71	0.92	-0.35	-0.38	1.06	AU
		A242	61.45	9.01	14.33					
8Z7DAZ		A241	60.49	9.37	14.76	0.96	-0.35	-0.37	1.09	XD
		A242	61.46	9.02	14.39					
9BXJHN		A241	60.38	9.33	14.66	0.95	-0.38	-0.39	1.09	XH
		A242	61.33	8.96	14.28					
9DPHWM		A241	60.71	9.30	14.81	0.88	-0.27	-0.29	0.96	MV
		A242	61.59	9.04	14.52					
9KMA6G		A241	60.30	9.34	14.69	0.91	-0.27	-0.32	1.00	XH
		A242	61.20	9.07	14.36					

			CIE L* a* b* Color Values			Color Difference Values				
WebCode	Flag	Samples	L*	a*	b*	ΔL*	Δa*	Δb*	ΔE*	InstrCode
9NAU7E		A241	60.51	9.20	14.54	0.94	-0.32	-0.36	1.06	HP
		A242	61.46	8.88	14.18					
AV3GGB		A241	60.43	9.26	14.75	0.94	-0.26	-0.35	1.03	AJ
		A242	61.37	9.00	14.40					
B3JCX6	X	A241	61.07	9.32	14.60	0.92	-0.34	-0.37	1.04	CA
		A242	61.98	8.98	14.24					
B7YKL6	X	A241	60.49	9.33	15.08	0.92	-0.27	-0.81	1.25	XG
		A242	61.41	9.05	14.28					
BAEEYG		A241	60.22	9.22	14.60	0.91	-0.25	-0.31	0.99	XI
		A242	61.13	8.97	14.28					
BF4RZ6		A241	60.26	9.20	14.92	0.94	-0.31	-0.34	1.05	XM
		A242	61.20	8.88	14.57					
BKHAHL		A241	60.48	9.31	14.71	0.93	-0.38	-0.38	1.07	XE
		A242	61.41	8.93	14.33					
C7Y7BG		A241	60.60	9.38	14.67	0.90	-0.32	-0.32	1.00	AP
		A242	61.49	9.06	14.34					
DGPA6A		A241	60.60	9.24	14.53	0.94	-0.34	-0.38	1.07	XD
		A242	61.54	8.89	14.14					
DK8HEU		A241	60.69	9.31	14.76	0.95	-0.31	-0.34	1.06	AS
		A242	61.64	8.99	14.41					
DNRFJC		A241	60.40	9.34	14.67	0.94	-0.33	-0.35	1.05	XD
		A242	61.34	9.01	14.32					
DNXJL4		A241	60.48	9.33	14.68	0.91	-0.30	-0.32	1.01	XD
		A242	61.39	9.03	14.36					
DXJPCF		A241	60.48	9.27	14.67	0.91	-0.31	-0.35	1.02	XD
		A242	61.39	8.96	14.32					
DZ23X4		A241	60.54	9.32	14.62	0.94	-0.32	-0.32	1.04	AN
		A242	61.47	9.01	14.29					
E4KGYH		A241	60.32	9.44	14.71	0.93	-0.26	-0.30	1.01	MV
		A242	61.25	9.19	14.41					
E8G88F		A241	60.60	9.31	14.61	0.90	-0.31	-0.36	1.02	AM
		A242	61.51	8.99	14.25					

			CIE L* a* b* Color Values			Color Difference Values				
WebCode	Flag	Samples	L*	a*	b*	ΔL*	Δa*	Δb*	ΔE*	InstrCode
EJW3H9	X	A241 A242	60.94 61.86	9.36 9.10	14.30 14.00	0.92	-0.26	-0.30	1.00	SI
FLHYQY	X	A241 A242	60.52 60.45	9.38 9.28	14.68 14.57	-0.06	-0.10	-0.11	0.16	MV
FNMQHC		A241 A242	60.69 61.62	9.32 8.99	14.72 14.35	0.92	-0.33	-0.38	1.05	AO
FPEM87		A241 A242	60.52 61.45	9.33 8.99	14.60 14.22	0.92	-0.33	-0.38	1.05	XB
FQABJA		A241 A242	60.57 61.49	9.34 9.05	14.57 14.24	0.92	-0.29	-0.33	1.02	AS
GWVHMZ		A241 A242	60.51 61.44	9.29 8.95	14.79 14.39	0.94	-0.34	-0.39	1.07	XD
GXLVX7	X	A241 A242	60.21 61.14	9.40 9.14	15.03 14.74	0.93	-0.25	-0.28	1.01	XH
HEBBNA		A241 A242	60.69 61.57	9.21 8.92	14.70 14.32	0.88	-0.29	-0.38	1.01	AO
HF38D3		A241 A242	60.47 61.40	9.43 9.08	14.76 14.37	0.92	-0.35	-0.38	1.06	XD
HFKG3X		A241 A242	60.42 61.33	9.36 9.04	14.71 14.36	0.91	-0.32	-0.35	1.02	MU
J3B64A		A241 A242	60.53 61.43	9.34 9.06	14.75 14.40	0.89	-0.29	-0.36	1.00	AS
J7BFZA		A241 A242	60.41 61.32	9.23 8.94	14.58 14.25	0.91	-0.30	-0.33	1.01	MM
JAV4ZA		A241 A242	60.43 61.34	9.14 8.86	14.67 14.29	0.91	-0.28	-0.38	1.02	AJ
JD929W		A241 A242	60.57 61.47	9.25 8.89	14.55 14.17	0.90	-0.36	-0.38	1.04	MM
JNQPZA		A241 A242	60.63 61.55	9.31 9.02	14.76 14.44	0.92	-0.29	-0.33	1.02	MT
K8WGH3		A241 A242	60.56 61.48	9.32 9.03	14.70 14.38	0.92	-0.29	-0.32	1.02	XB

			CIE L* a* b* Color Values			Color Difference Values				
WebCode	Flag	Samples	L*	a*	b*	ΔL*	Δa*	Δb*	ΔE*	InstrCode
MJ6Y8B		A241	60.50	9.39	14.75	0.94	-0.35	-0.39	1.08	AS
		A242	61.44	9.04	14.36					
MNK8VB	X	A241	57.91	8.96	14.28	3.82	0.00	0.17	3.82	XC
		A242	61.73	8.96	14.45					
MZPP7B		A241	60.48	9.32	14.69	0.93	-0.35	-0.37	1.06	XD
		A242	61.41	8.97	14.32					
NFZQF7		A241	60.53	9.31	14.52	0.91	-0.34	-0.38	1.04	HP
		A242	61.44	8.96	14.14					
NHRPU4		A241	60.52	9.37	14.70	0.89	-0.32	-0.36	1.02	MK
		A242	61.41	9.05	14.34					
P2H332		A241	60.54	9.31	14.87	0.94	-0.36	-0.39	1.08	XB
		A242	61.47	8.95	14.48					
PUZP43		A241	60.52	9.39	14.40	0.83	-0.30	-0.34	0.95	XI
		A242	61.35	9.09	14.06					
PVRNG2		A241	60.49	9.33	14.63	0.91	-0.30	-0.33	1.02	XE
		A242	61.40	9.02	14.30					
QLZUE4		A241	60.43	9.34	14.75	0.92	-0.27	-0.31	1.00	MB
		A242	61.34	9.07	14.43					
QNP237		A241	60.46	9.45	14.78	0.95	-0.36	-0.39	1.08	MY
		A242	61.40	9.09	14.40					
R67NLZ		A241	60.50	9.36	14.73	0.92	-0.33	-0.37	1.05	AS
		A242	61.42	9.03	14.36					
R97V7X		A241	60.47	9.25	14.74	0.91	-0.27	-0.29	1.00	XD
		A242	61.38	8.98	14.45					
RMQAAW		A241	60.49	9.35	14.63	0.93	-0.31	-0.32	1.03	XD
		A242	61.42	9.04	14.30					
T63JN3		A241	60.39	9.26	14.64	0.91	-0.31	-0.34	1.02	XI
		A242	61.31	8.95	14.30					
T6QMHX		A241	60.33	9.15	14.47	0.97	-0.28	-0.13	1.02	XF
		A242	61.30	8.88	14.34					
TEUNTW		A241	60.44	9.30	14.73	0.94	-0.33	-0.36	1.06	XE
		A242	61.38	8.96	14.37					

			CIE L* a* b* Color Values			Color Difference Values				
WebCode	Flag	Samples	L*	a*	b*	ΔL*	Δa*	Δb*	ΔE*	InstrCode
TLADHX		A241	60.44	9.25	14.68	0.96	-0.34	-0.37	1.09	XG
		A242	61.40	8.91	14.31					
TR3KZ7		A241	60.54	9.39	14.71	0.93	-0.34	-0.38	1.06	AU
		A242	61.47	9.05	14.33					
TWVKGM	X	A241	60.18	9.29	15.23	0.92	-0.31	-0.35	1.03	GE
		A242	61.10	8.98	14.87					
U9YGNT		A241	60.39	9.32	14.75	0.95	-0.32	-0.36	1.07	MQ
		A242	61.34	9.00	14.40					
UCYF8Y		A241	60.46	9.39	14.68	0.94	-0.35	-0.38	1.07	AU
		A242	61.40	9.05	14.31					
UP9DVY		A241	60.51	9.26	14.78	0.95	-0.37	-0.40	1.10	XG
		A242	61.47	8.89	14.37					
UUJ3VV	X	A241	60.61	9.22	14.57	-0.10	-0.24	-0.31	0.40	XB
		A242	60.51	8.98	14.26					
UYX3RM		A241	60.59	9.41	14.62	0.94	-0.36	-0.40	1.08	AP
		A242	61.52	9.05	14.22					
UZN27L		A241	60.46	9.42	14.83	0.94	-0.39	-0.44	1.11	MW
		A242	61.40	9.02	14.39					
WPG6ZL		A241	60.27	9.25	14.93	0.97	-0.34	-0.38	1.09	XO
		A242	61.24	8.91	14.55					
WYT6UW		A241	60.53	9.30	14.69	0.89	-0.30	-0.35	1.01	AJ
		A242	61.42	9.00	14.34					
X2UPXM		A241	60.52	9.17	14.63	0.87	-0.21	-0.28	0.94	XH
		A242	61.39	8.97	14.35					
X7LWFV		A241	60.34	9.38	14.78	0.91	-0.32	-0.37	1.04	XI
		A242	61.26	9.05	14.42					
XY3T9T		A241	60.59	9.34	14.74	0.91	-0.36	-0.38	1.05	XB
		A242	61.51	8.99	14.37					
YQ763P		A241	60.47	9.32	14.65	0.86	-0.23	-0.25	0.92	MW
		A242	61.33	9.09	14.40					
YYGFKF	X	A241	60.15	9.14	14.79	0.93	-0.38	-0.40	1.08	GD
		A242	61.08	8.76	14.39					

			CIE L* a* b* Color Values			Color Difference Values				
WebCode	Flag	Samples	L*	a*	b*	ΔL*	Δa*	Δb*	ΔE*	InstrCode
ZC424G		A241	60.48	9.36	14.62	0.92	-0.26	-0.29	1.00	AJ
		A242	61.39	9.10	14.32					
ZKVJHP		A241	60.61	9.32	14.68	0.92	-0.33	-0.38	1.05	AT
		A242	61.53	8.99	14.30					
ZQ2XJT	X	A241	60.66	9.30	14.49	2.41	-0.30	-0.33	2.45	XD
		A242	63.07	9.00	14.16					
ZUJB4G		A241	60.38	9.40	14.70	0.91	-0.36	-0.39	1.06	AP
		A242	61.29	9.04	14.30					

Summary Statistics

Samples	L*	a*	b*	ΔL*	Δa*	Δb*	ΔE*
Grand Means							
A241	60.47	9.31	14.69	0.92	-0.32	-0.35	1.04
A242	61.40	9.00	14.34				
Stnd Dev Btwn Labs							
A241	0.12	0.07	0.10	0.03	0.04	0.04	0.04
A242	0.11	0.07	0.09				

Statistics based on 72 of 84 reporting participants

Comments Assigned on Data Flags for Test #409

32CAPM(X) - High L* values for both samples. Large replication difference for L* Sample A242.

44WGQV(X) - High L* values for Sample A242.

B3JCX6(X) - Very high L* values for both samples. Large replication difference for L* values for both samples.

B7YKL6(X) - High b* values for Sample A241. Large replication difference for b* Sample A241. Small Delta b. Large Delta E.

EJW3H9(X) - High L* values for both samples. Large replication difference for L* values for both samples. Low b* values for both samples.

FLHYQY(X) - Extreme data for L* values for Sample A242. High a* values for Sample A242. Inconsistent in testing within both b* samples. Small Delta L & E. Large Delta a & b.

GXLVX7(X) - High b* values for both samples.

MNK8VB(X) - Extreme data for both L* values. Very low data for a* & b* values for Sample A241. Large replication difference for a* & b* Sample A241. Large Delta L, a, b & E.

TWVKGM(X) - Very high b* values for both samples.

UUJ3VV(X) - Extreme data for L* values for Sample A242. Small Delta L & E.

YYGFKF(X) - Low a* values for Sample A242.

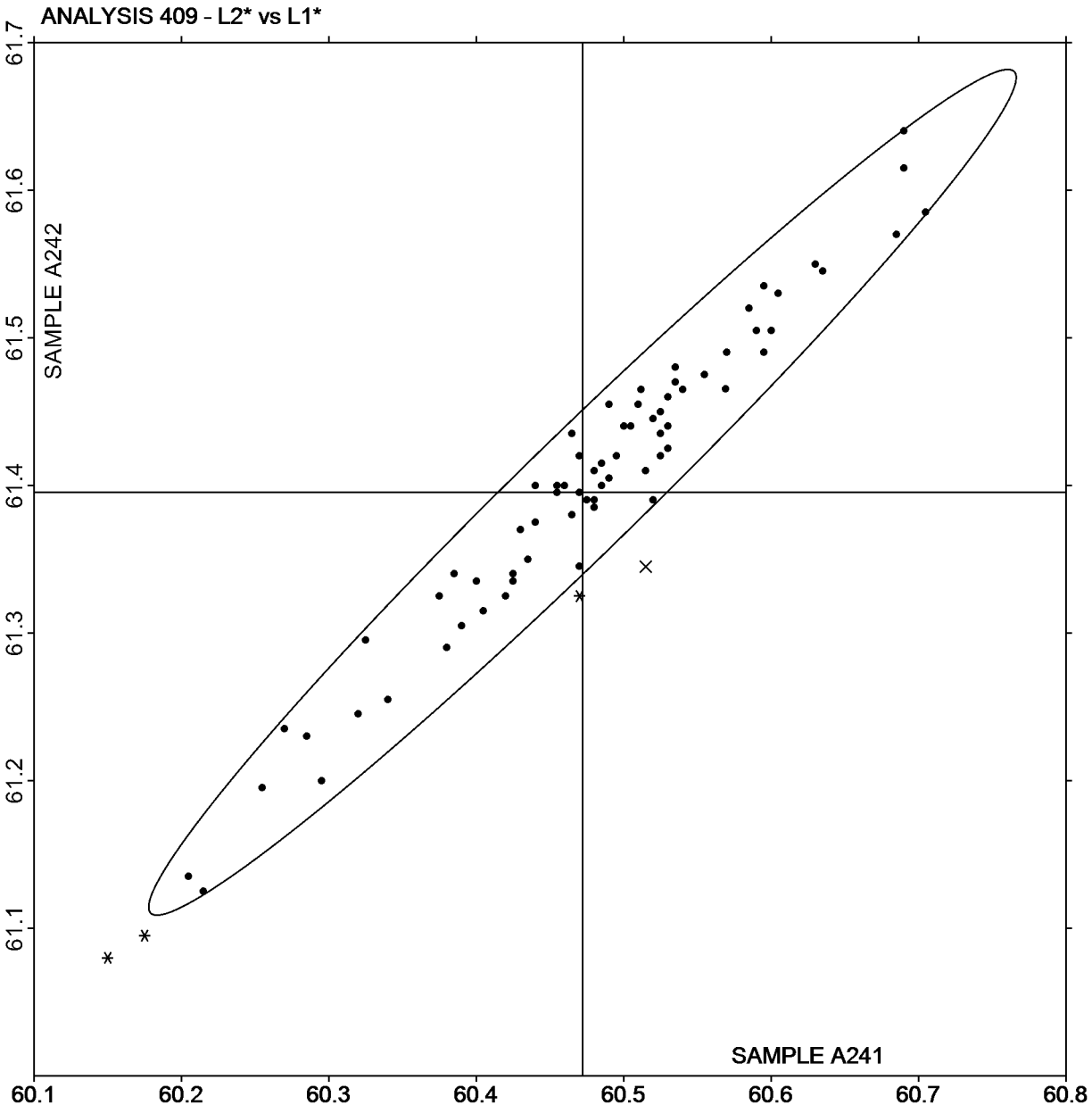
ZQ2XJT(X) - Extreme data for L* values for Sample A242. Large replication difference for L* Sample A242. Large Delta L & E.

Key to Instrument Codes Reported by Participants

AJ	Datacolor 600	AM	Datacolor 600 Plus
AN	Datacolor 650	AO	Datacolor 650x
AP	Datacolor 750	AQ	Datacolor 600x
AS	Datacolor 800	AT	Datacolor 850
AU	Datacolor 1000	CA	Cary 5000
GD	BYK-Gardner Spectro-Guide Sphere	GE	BYK-Gardner Spectro2-Guide Sphere Gloss
HP	Hunter UltraScan PRO	MB	Minolta CM 3700d Spectrophotometer
MK	Macbeth Color-Eye 7000	MM	Macbeth Color-Eye 7000a
MQ	Minolta CM-700d	MS	Minolta CM-600d
MT	Minolta CM-2600d	MU	Minolta
MV	Minolta CM-3000d Spectrophotometer	MW	Minolta CM 3700a Spectrophotometer
MY	Minolta Benchtop Spectrophotometer CM-3600a	SI	SHIMADZU 3700i
XB	X-Rite Ci7000 Series Benchtop Spectrophotometer	XC	X-Rite Ci4200 Benchtop Spectrophotometer
XD	X-Rite Ci7800 Benchtop Spectrophotometer	XE	X-Rite Ci7600 Benchtop Spectrophotometer
XF	X-Rite Ci6x Portable Spectrophotometer	XG	X-Rite Ci7860 Benchtop Spectrophotometer
XH	X-Rite Color i5 Benchtop Spectrophotometer	XI	X-Rite Color i7 Benchtop Spectrophotometer
XM	X-Rite SP62 Portable Sphere Spectrophotometer	XO	X-Rite SP64 Portable Sphere Spectrophotometer

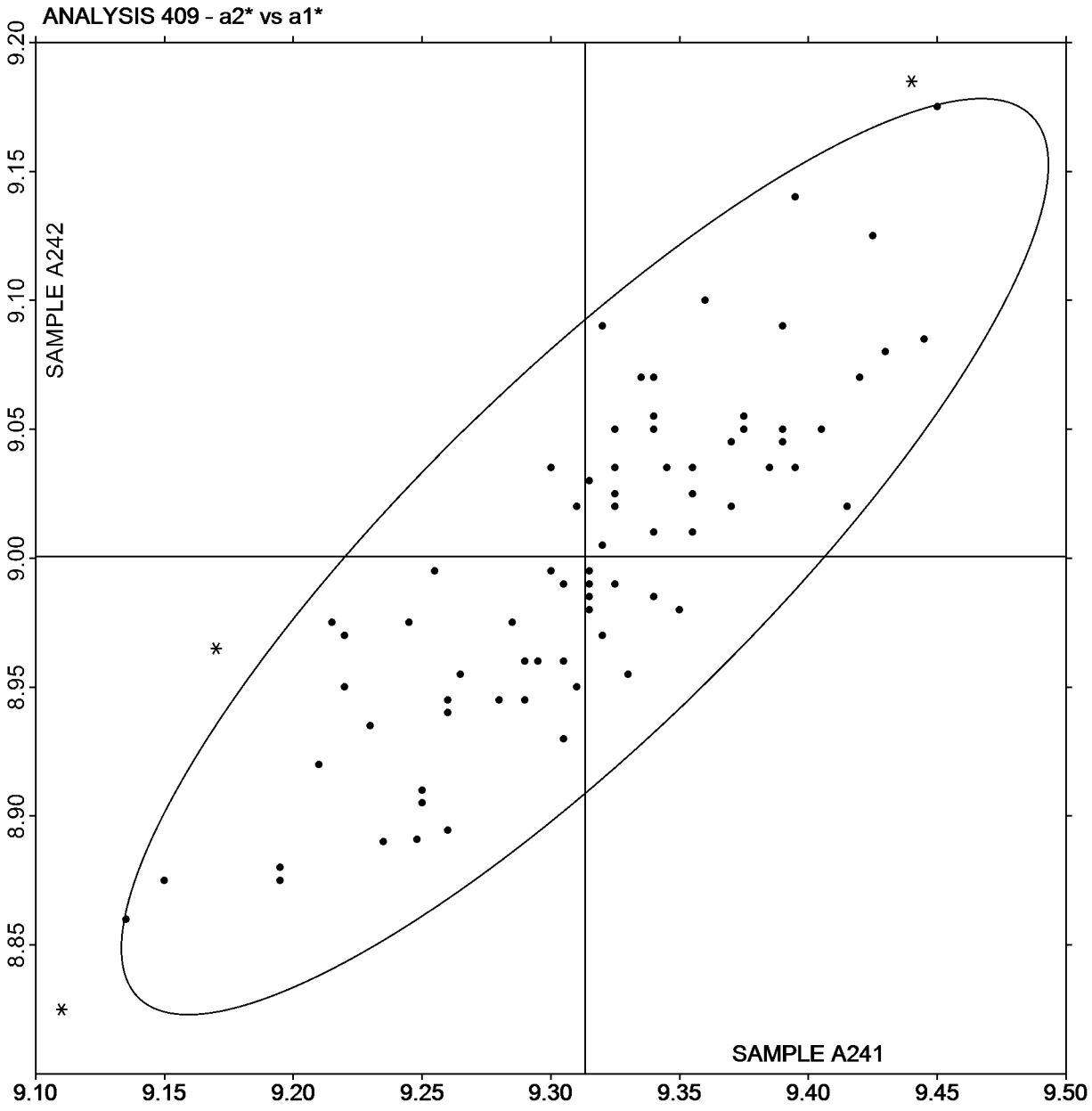
L2* vs L1*

SAMPLE A241 = 60.47 SAMPLE A242 = 61.40



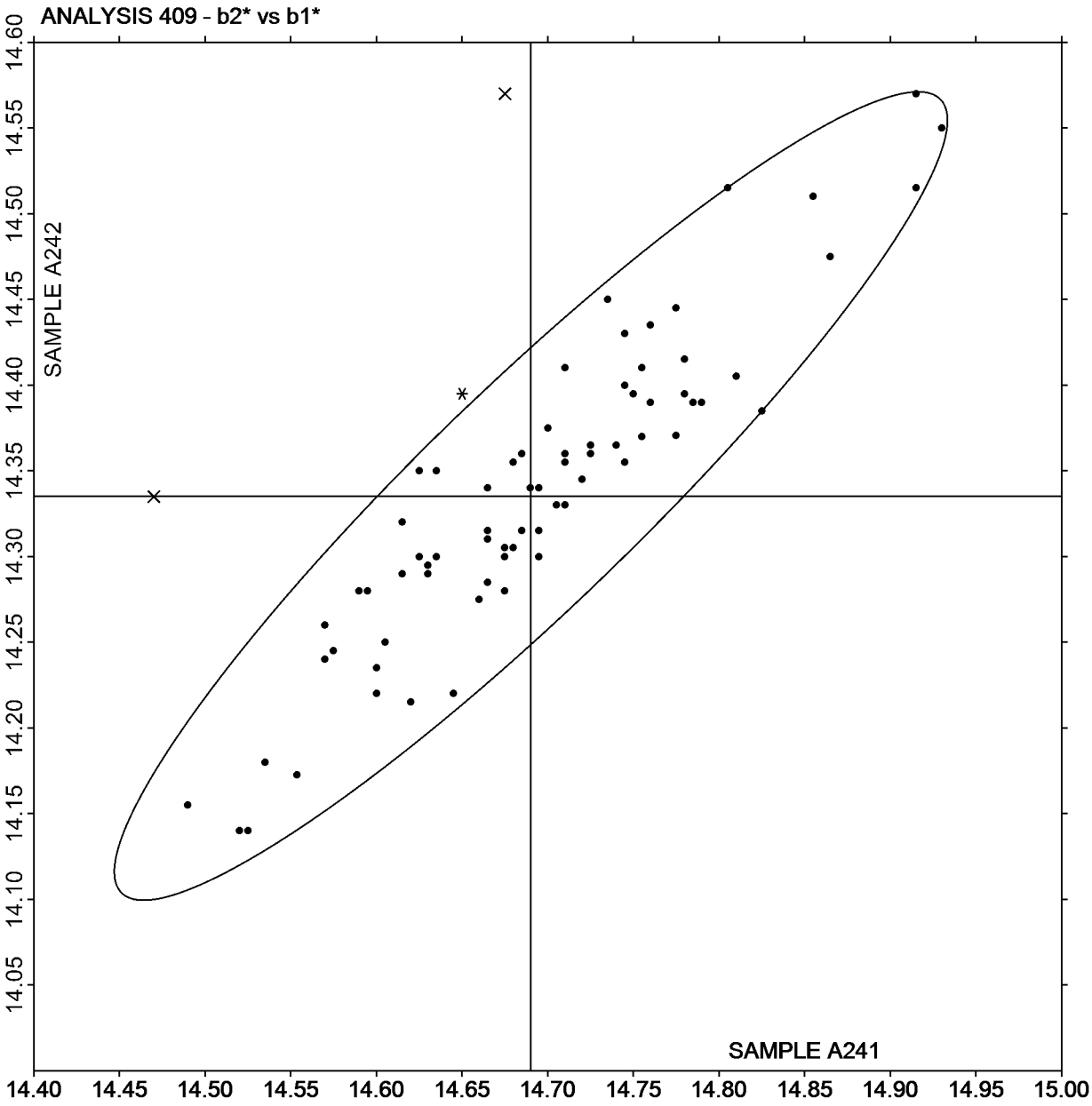
a2* vs a1*

SAMPLE A241 = 9.31 SAMPLE A242 = 9.00



b2* vs b1*

SAMPLE A241 = 14.69 SAMPLE A242 = 14.34



Spectrophotometric Reflectance values (as %) at selected wavelengths

WebCode	Data Flag	400	420	440	460	480	500	520	540	560	580	600	620	640	660	680	700	Instr Code
Sample A241																		
2XY6HT		15.28	17.72	19.73	20.68	20.96	22.08	23.94	25.92	28.84	34.01	37.05	37.38	37.26	37.17	37.21	37.38	XO
32CAPM		16.17*	18.25*	20.35X	21.37X	21.51*	22.62*	24.47X	26.47X	29.16*	34.71X	37.99X	38.34X	38.11X	37.97*	38.00*	38.12	CA
3CVNTP		15.37	17.73	19.71	20.79	21.00	22.03	23.94	25.90	28.60	33.69	37.09	37.65	37.53	37.41	37.49	37.61	MS
44WGQV		15.81	18.09	19.98	21.10	21.43*	22.42	24.27*	26.37*	28.12*	33.94	37.77*	38.48X	38.13X	37.88	38.10X	60.85X	HP
4C766U		15.22	17.59	19.45	20.46	20.77	21.74	23.69	25.71	27.54X	33.61	36.80	37.29	37.25	37.23	37.28	37.39	XO
6Q74RQ		15.57	17.82	19.89	20.88	21.21	22.21	24.09	26.07	28.83	34.01	37.32	37.80	37.59	37.63	37.36	37.12	AT
73WFH9	X	16.25X	18.79X	20.80X	21.85X	22.19X	23.21X	25.08X	26.95X	29.78X	34.92X	38.26X	38.67X	38.57X	38.66X	38.36X	37.28	AU
7B8ECK		15.56	17.75	19.80	20.77	21.08	22.08	23.91	25.84	28.53	33.88	37.13	37.55	37.44	37.44	36.96*	36.77	AT
7J2MWB		15.40	17.69	19.77	20.80	21.07	22.03	23.91	25.82	28.63	33.73	37.09	37.63	37.54	37.43	37.51	37.53	AQ
8ARNBE		15.46	17.75	19.77	20.80	21.09	22.10	23.94	25.84	28.68	33.86	37.27	37.70	37.62	37.73	37.25	36.31	AU
9BXJHN		15.51	17.73	19.67	20.71	20.88	21.92	23.75	25.79	28.58	33.68	36.93	37.39	37.21	37.18	37.24	37.29	XH
9DPHWM		15.58	17.85	19.93	20.95	21.16	22.23	24.14	26.05	28.91	34.10	37.52	37.88	37.80	37.65	37.73	37.86	MV
9KMA6G		15.52	17.67	19.56	20.61	20.81	21.82	23.67	25.71	28.51	33.58	36.86	37.36	37.18	37.10	37.15	37.20	XH
9NAU7E		15.92	17.96	19.85	20.92	21.14	22.20	24.08	26.01	28.59	33.56	37.09	37.71	37.58	37.46	37.55	37.60	HP
B3JCX6	X	16.08*	18.21*	20.34X	21.37X	21.57X	22.63*	24.51X	26.50X	29.19*	34.60X	37.95X	38.38X	38.18X	38.09X	38.14X	38.28	CA
B7YKL6		15.69	17.86	19.84	20.83	21.03	22.07	23.89	25.89	28.69	33.86	37.02	37.56	37.40	37.32	37.41	37.55	XG
BAEEYG		15.27	17.61	19.55	20.59	20.81	21.89	23.66	25.60	28.39	33.49	36.64*	37.14*	36.94*	36.83*	36.86*	37.03	XI
BF4RZ6		15.95	17.90	20.00	20.90	21.20	22.25	24.15	26.10	29.20*	34.40*	37.45	37.90	37.60	37.50	37.60	37.70	HW
BKHAHL		15.65	17.79	19.77	20.75	20.97	22.03	23.89	25.91	28.67	33.85	37.04	37.54	37.43	37.38	37.38	37.54	XE
C7Y7BG		15.63	17.82	19.87	20.89	21.19	22.19	24.02	25.97	28.74	34.01	37.35	37.77	37.65	37.65	37.68	36.88	AP
DGPA6A		15.89	17.99	19.99	20.95	21.15	22.22	24.07	26.01	28.73	33.94	37.18	37.68	37.54	37.52	37.54	37.62	XD
DK8HEU		15.67	17.94	19.77	20.95	21.24	22.24	24.11	26.09	28.87	34.10	37.41	37.91	37.74	37.78	37.94*	36.84	AS

Spectrophotometric Reflectance values (as %) at selected wavelengths

WebCode	Data Flag	400	420	440	460	480	500	520	540	560	580	600	620	640	660	680	700	Instr Code
									Sample A241									
DNRFJC		15.53	17.77	19.72	20.73	20.92	21.95	23.79	25.82	28.54	33.66	36.98	37.56	37.46	37.37	37.43	37.67	XD
DNXJL4		15.47	17.79	19.75	20.79	20.99	22.05	23.90	25.91	28.64	33.80	37.06	37.60	37.50	37.36	37.40	37.43	XD
DXJPCF		16.42X	17.80	19.77	20.80	20.98	22.05	23.87	25.91	28.65	33.77	37.05	37.60	37.44	37.36	37.44	37.50	XD
DZ23X4		15.65	17.89	19.88	20.85	21.14	22.13	23.99	25.91	28.59	33.92	37.25	37.70	37.60	37.51	37.46	36.95	AN
E4KGYH		15.33	17.60	19.61	20.67	20.82	21.86	23.74	25.65	28.38	33.71	37.03	37.47	37.28	37.23	37.29	37.50	MV
E8G88F		15.49	17.84	19.92	20.91	21.19	22.19	24.09	25.98	28.72	33.93	37.25	37.75	37.64	37.55	37.50	37.02	AM
EJW3H9		15.98	18.30X	20.39X	21.46X	21.61X	22.59	24.40X	26.39*	28.96	34.32*	37.74*	38.27*	38.09*	37.93*	38.00*	38.02	SI
FLHYQY		15.36	17.75	19.79	20.85	21.01	22.09	23.96	25.85	28.58	33.91	37.24	37.70	37.50	37.42	37.50	37.65	MV
FNMQHC		15.74	17.85	19.90	20.92	21.23	22.25	24.10	26.10	28.72	34.06	37.51	37.98	37.83	37.85	37.59	37.21	AN
FPEM87		15.70	17.87	19.85	20.85	21.06	22.13	23.93	25.93	28.68	33.92	37.12	37.60	37.37	37.36	37.42	37.55	XB
FQABJA		15.47	17.91	19.83	20.95	21.27	22.19	24.08	26.04	28.63	33.65	37.21	37.89	37.88	37.91*	37.79	37.50	AS
GWVHMZ		15.52	17.75	19.71	20.73	20.98	22.05	23.91	25.92	28.72	33.88	37.07	37.59	37.48	37.41	37.41	37.48	XD
GXLVX7		15.18	17.38*	19.29*	20.33*	20.61*	21.74	23.58*	25.51*	28.44	33.46	36.84	37.37	37.06*	37.17	37.15	37.24	XH
HEBBNA		15.70	17.96	19.91	20.94	21.35	22.30	24.16	26.17	28.68	33.96	37.41	37.94	37.78	37.85	37.61	37.30	AN
HF38D3		15.56	17.73	19.72	20.72	20.95	21.98	23.83	25.89	28.63	33.80	37.12	37.69	37.57	37.46	37.49	37.57	XD
HFKG3X		15.28	17.71	19.64	20.79	20.98	21.95	23.87	25.79	28.51	33.63	37.15	37.62	37.47	37.38	37.48	37.63	MV
J3B64A		15.46	17.68	19.76	20.78	21.11	22.13	23.94	25.89	28.68	33.86	37.21	37.70	37.60	37.51	37.12	36.93	AS
J7BFZA		15.61	17.77	19.73	20.80	20.98	22.04	23.84	25.86	28.50	33.58	36.96	37.52	37.38	37.34	37.35	37.48	MM
JAV4ZA		15.37	17.84	19.73	20.68	21.03	22.04	23.89	25.91	28.60	33.59	36.86	37.51	37.45	37.40	37.27	37.04	AJ
JD929W		15.62	17.96	19.91	20.92	21.16	22.19	24.02	26.01	28.75	33.75	37.17	37.77	37.62	37.55	37.64	37.74	MM
JNQPZA		15.37	17.74	19.85	20.97	21.14	22.19	24.11	26.02	28.76	33.95	37.34	37.89	37.72	37.60	37.67	37.89	MT
K8WGH3		15.61	17.83	19.82	20.83	21.04	22.11	23.96	25.97	28.73	33.94	37.17	37.65	37.48	37.37	37.40	37.56	XB

Spectrophotometric Reflectance values (as %) at selected wavelengths

WebCode	Data Flag	400	420	440	460	480	500	520	540	560	580	600	620	640	660	680	700	Instr Code
Sample A241																		
MJ6Y8B		15.86	17.71	19.73	20.79	21.08	22.07	23.92	25.88	28.59	33.84	37.21	37.70	37.58	37.60	37.57	37.57	AS
MNK8VB	X	13.91X	16.01X	17.82X	18.70X	18.91X	19.93X	21.60X	23.41X	25.99X	30.51X	33.46X	33.94X	33.86X	33.78X	33.82X	33.99	XC
MZPP7B		15.50	17.78	19.75	20.79	21.01	22.07	23.89	25.92	28.64	33.77	37.05	37.64	37.44	37.38	37.39	37.48	XD
NHRPU4		15.47	17.75	19.79	20.81	21.03	22.10	23.91	25.91	28.66	33.89	37.18	37.68	37.54	37.45	37.45	37.60	MK
P2H332		15.56	17.75	19.72	20.73	20.99	22.03	23.90	25.92	28.72	33.92	37.21	37.71	37.57	37.42	37.42	37.54	XB
PUZP43		15.68	18.04	19.96	20.93	21.13	22.16	23.93	25.86	28.67	33.87	37.12	37.60	37.44	37.47	37.49	37.57	XI
PVRNG2		15.66	17.82	19.80	20.80	21.00	22.07	23.92	25.90	28.67	33.77	37.04	37.61	37.46	37.38	37.48	37.53	XE
QNP237		15.68	17.61	19.68	20.80	20.95	21.94	23.89	25.77	28.55	33.76	37.29	37.72	37.52	37.43	37.51	37.66	NA
R67NLZ		15.44	17.71	19.74	20.78	21.10	22.07	23.89	25.87	28.66	33.80	37.22	37.75	37.67	37.58	37.25	36.75	AS
R97V7X		15.45	17.75	19.72	20.72	20.95	22.00	23.88	25.93	28.67	33.81	36.99	37.52	37.34	37.21	37.22	37.29	XD
RMQAAW		15.52	17.82	19.82	20.80	21.02	22.06	23.90	25.90	28.65	33.87	37.08	37.60	37.35	37.20	37.26	37.36	XD
T63JN3		15.45	17.76	19.69	20.73	20.91	22.01	23.81	25.76	28.58	33.76	36.87	37.37	37.23	37.06	37.14	37.14	XI
T6QMHX		15.38	17.66	19.62	20.66	20.87	21.90	23.81	25.75	28.51	33.52	36.75	37.27	37.13	37.08	37.12	37.22	XF
TEUNTW		15.57	17.77	19.74	20.71	20.93	21.95	23.82	25.88	28.62	33.80	37.03	37.53	37.41	37.24	37.25	37.45	XE
TLADHX		15.57	17.78	19.74	20.74	20.97	22.00	23.84	25.85	28.61	33.75	36.99	37.50	37.36	37.26	37.32	37.40	XG
TR3KZ7		15.78	17.77	19.81	20.79	21.09	22.12	23.97	25.89	28.69	33.89	37.24	37.70	37.60	37.87	38.03*	37.78	AU
TWVKGM		14.81X	17.00X	19.27X	20.24X	20.58*	21.67	23.54*	25.56	28.34	33.46	36.76	37.31	37.23	37.20	37.34	37.51	GE
U9YGNT		15.34	17.62	19.62	20.71	20.89	23.84X	23.84	25.81	28.49	33.61	37.00	37.56	37.43	37.34	37.43	37.57	MQ
UCYF8Y		15.39	17.72	19.73	20.77	21.03	22.04	23.90	25.78	28.59	33.74	37.16	37.63	37.53	37.53	37.24	36.72	AU
UP9DVY		15.55	17.80	19.76	20.75	21.01	22.07	23.93	25.93	28.70	33.82	37.11	37.68	37.57	37.45	37.45	37.57	XD
UUJ3VV		15.75	17.94	19.93	20.96	21.18	22.21	24.07	26.07	28.82	33.97	37.16	37.66	37.49	37.38	37.45	37.55	XB
UYX3RM		15.54	17.86	19.87	20.88	21.15	22.17	24.03	25.96	28.71	33.89	37.29	37.82	37.74	37.88	37.65	37.12	AP

Spectrophotometric - Sphere Geometry Instruments
Reflectance at 16 Selected Wavelengths

Spectrophotometric Reflectance values (as %) at selected wavelengths

WebCode	Data Flag	400	420	440	460	480	500	520	540	560	580	600	620	640	660	680	700	Instr Code
Sample A241																		
UZN27L		15.20	17.70	19.60	20.80	20.95	22.00	23.90	25.80	28.55	33.75	37.25	37.75	37.55	37.45	37.55	37.75	MW
WPG6ZL		15.30	17.49	19.44	20.50	20.74	21.78	23.71	25.68	28.58	33.58	36.86	37.28	37.28	37.11	37.34	37.44	XO
WYT6UW		15.56	17.81	19.63	20.87	21.16	22.13	23.95	25.95	28.62	33.80	37.16	37.76	37.53	37.56	37.47	37.49	AJ
X2UPXM		15.64	17.85	19.85	20.85	21.07	22.12	23.96	25.95	28.71	33.90	37.11	37.53	37.26	37.19	37.25	37.33	XH
X7LWFV		15.34	17.59	19.57	20.61	20.85	21.89	23.73	25.23X	28.51	33.64	36.93	37.48	37.34	37.31	37.37	37.49	XI
XY3T9T		15.53	17.81	19.82	20.85	21.10	22.14	24.02	26.02	28.71	34.02	37.30	37.77	37.48	37.32	37.41	37.43	XB
YQ763P		15.32	17.80	19.70	20.86	21.03	22.04	23.95	25.86	28.56	33.69	37.18	37.67	37.49	37.39	37.45	37.59	MW
YYGFKF		15.66	17.45	19.32*	20.46	20.82	21.91	23.67	25.57	28.21	33.46	36.43X	37.07*	37.05*	37.05	37.23	37.66	GD
ZC424G		15.56	17.74	19.77	20.80	21.07	22.09	23.91	25.85	28.61	33.76	37.15	37.63	37.46	37.48	37.29	37.02	AJ
ZKVJHP		15.67	17.87	19.85	20.89	21.17	22.19	24.03	26.00	28.78	33.98	37.29	37.76	37.64	37.53	37.69	36.81	AT
ZQ2XJT		15.85	18.05	20.05	21.03	21.22	22.26	24.09	26.06	28.86	34.14	37.25	37.72	37.51	37.46	37.49	37.57	XD
ZUJB4G		15.38	17.65	19.68	20.66	20.97	21.98	23.81	25.71	28.49	33.76	37.09	37.47	37.37	37.32	36.98	36.84	AP

Summary Statistics

	400	420	440	460	480	500	520	540	560	580	600	620	640	660	680	700
Grand Means	15.55	17.78	19.76	20.80	21.04	22.10	23.93	25.90	28.63	33.83	37.14	37.64	37.50	37.43	37.43	37.70
SD Btwn Labs	0.23	0.18	0.18	0.18	0.17	0.26	0.16	0.18	0.21	0.21	0.24	0.23	0.22	0.23	0.24	2.73

73WFH9 (X) - High % reflectance data at all wavelengths.

B3JCX6 (X) - High % reflectance data for almost all wavelengths.

MNK8VB (X) - Low % reflectance data at all wavelengths.

Key to Instrument Codes Reported by Participants

AJ	Datacolor 600	AM	Datacolor 600 Plus	AN	Datacolor 650
AP	Datacolor 750	AQ	Datacolor 600x	AS	Datacolor 800
AT	Datacolor 850	AU	Datacolor 1000	CA	Cary 5000
GD	BYK-Gardner Spectro-Guide Sphere	GE	BYK-Gardner Spectro2-Guide Sphere Gloss	HP	Hunter UltraScan PRO
HW	Hunter UltraScan XE	MK	Macbeth Color-Eye 7000	MM	Macbeth Color-Eye 7000a
MQ	Minolta CM-700d	MS	Minolta CM-600d	MT	Minolta CM-2600d
MV	Minolta CM-3000d Spectrophotometer	MW	Minolta CM 3700a Spectrophotometer	NA	Minolta Benchtop Spectrophotometer CM-3700A
SI	SHIMADZU 3700i	XB	X-Rite Ci7000 Series Benchtop Spectrophotometer	XC	X-Rite Ci4200 Benchtop Spectrophotometer
XD	X-Rite Ci7800 Benchtop Spectrophotometer	XE	X-Rite Ci7600 Benchtop Spectrophotometer	XF	X-Rite Ci6x Portable Spectrophotometer
XG	X-Rite Ci7860 Benchtop Spectrophotometer	XH	X-Rite Color i5 Benchtop Spectrophotometer	XI	X-Rite Color i7 Benchtop Spectrophotometer
XO	X-Rite SP64 Sphere Spectrophotometer				

WebCode	Data Flag	Sample E241 Lab Mean	Sample E241 Diff from Grand Mean	Sample E241 CPV	Sample E242 Lab Mean	Sample E242 Diff from Grand Mean	Sample E242 CPV	Instr Code
24PHJG		26.53	-0.26	-0.38	35.28	-0.32	-0.43	GK
2FFBUP	*	25.88	-0.91	-1.33	35.73	0.13	0.18	GK
3BHA6F		26.88	0.09	0.14	36.23	0.63	0.85	GK
3CVNTP		26.20	-0.58	-0.85	34.93	-0.67	-0.90	GK
4C766U		26.53	-0.26	-0.38	35.65	0.06	0.08	MW
6YHC6L		27.45	0.67	0.98	35.73	0.13	0.18	RQ
73WFH9		26.35	-0.43	-0.63	34.58	-1.02	-1.37	GL
7E7TWN		26.15	-0.63	-0.93	35.05	-0.54	-0.73	GL
8ARNBE		27.00	0.22	0.32	35.63	0.03	0.04	GL
8Z7DAZ		26.23	-0.56	-0.82	35.20	-0.39	-0.53	GL
9BXJHN	*	28.15	1.37	2.01	37.50	1.91	2.57	GL
9ME7UB		27.13	0.34	0.51	35.68	0.08	0.11	GL
AD62GK	*	28.53	1.74	2.56	37.25	1.66	2.23	GL
AV3GGB		26.75	-0.03	-0.04	35.83	0.23	0.31	GL
AXN4AX		26.23	-0.56	-0.82	35.90	0.31	0.41	DE
B7YKL6		26.88	0.09	0.14	35.80	0.21	0.28	GL
BAEEYG		26.43	-0.36	-0.52	35.70	0.11	0.15	MM
BF4RZ6		26.65	-0.13	-0.19	34.70	-0.89	-1.20	GK
BTBKRG		26.15	-0.63	-0.93	34.98	-0.62	-0.83	GL
DHLVL8		27.00	0.22	0.32	36.20	0.61	0.82	GK
DNRFJC		25.63	-1.16	-1.70	34.93	-0.67	-0.90	GK
DNXJL4		27.60	0.82	1.20	36.58	0.98	1.32	GL
DWN6PG		28.23	1.44	2.12	36.80	1.21	1.63	RB
DXJPCF		26.90	0.12	0.18	35.60	0.01	0.01	RA
FPEM87		27.30	0.52	0.76	35.93	0.33	0.45	GL
FQABJA		26.50	-0.28	-0.41	35.50	-0.09	-0.12	GK
GX3369		26.58	-0.20	-0.29	35.13	-0.46	-0.62	GL
GX8HHA		26.70	-0.08	-0.12	35.48	-0.12	-0.16	GL
HFKG3X		26.25	-0.53	-0.78	35.33	-0.27	-0.36	GL
HWQKPA		27.43	0.64	0.95	36.23	0.63	0.85	RQ
J7BFZA		27.77	0.99	1.45	36.65	1.06	1.42	GL
J9HQXY	X	27.95	1.17	1.72	34.73	-0.87	-1.17	GL
JAQNN9		27.15	0.37	0.54	36.48	0.88	1.19	GK

WebCode	Data Flag	Sample E241 Lab Mean	Sample E241 Diff from Grand Mean	Sample E241 CPV	Sample E242 Lab Mean	Sample E242 Diff from Grand Mean	Sample E242 CPV	Instr Code
JAV4ZA		27.48	0.69	1.02	36.53	0.93	1.26	GL
JD929W		27.00	0.22	0.32	35.98	0.38	0.52	GL
K7QVA6		26.13	-0.66	-0.96	35.20	-0.39	-0.53	GK
KBJYZM		26.60	-0.18	-0.26	34.60	-0.99	-1.33	GD
LJTNEL		27.73	0.94	1.39	36.20	0.61	0.82	RC
MAHXQ2		27.30	0.52	0.76	35.98	0.38	0.52	GN
N3TU9X		25.95	-0.83	-1.22	34.98	-0.62	-0.83	EN
NFZQF7		26.53	-0.26	-0.38	35.40	-0.19	-0.26	GL
NHMAG4		27.58	0.79	1.17	36.18	0.58	0.78	GL
PG8E7V		26.60	-0.18	-0.26	35.03	-0.57	-0.76	GL
PUZP43		27.15	0.37	0.54	35.85	0.26	0.35	GN
PVRNG2		26.75	-0.03	-0.04	36.18	0.58	0.78	GL
PXZ3N8		27.43	0.64	0.95	35.88	0.28	0.38	GL
QNP237		27.05	0.27	0.40	35.73	0.13	0.18	GL
RMQAAW		25.63	-1.16	-1.70	34.68	-0.92	-1.23	GL
RQQL7W		26.75	-0.03	-0.04	35.65	0.06	0.08	XX
T63JN3		26.56	-0.22	-0.32	34.96	-0.63	-0.85	GL
T6QMHX		26.40	-0.38	-0.56	35.25	-0.34	-0.46	GL
U894DN		27.40	0.62	0.91	36.13	0.53	0.72	GD
U9YGNT		26.15	-0.63	-0.93	34.80	-0.79	-1.07	MX
UCYF8Y	*	25.35	-1.43	-2.10	33.70	-1.89	-2.55	GL
UZN27L		28.03	1.24	1.83	36.33	0.73	0.99	GK
WJC9EZ		25.93	-0.86	-1.26	35.10	-0.49	-0.66	GL
WPG6ZL		26.63	-0.16	-0.23	35.93	0.33	0.45	GN
WW27GY		26.50	-0.28	-0.41	36.28	0.68	0.92	GL
WYT6UW		27.35	0.57	0.84	35.73	0.13	0.18	NH
X2UPXM	*	26.15	-0.63	-0.93	34.03	-1.57	-2.11	GL
XK6LBR		25.88	-0.91	-1.33	34.30	-1.29	-1.74	GN
XY3T9T		27.60	0.82	1.20	36.33	0.73	0.99	ZA
YQ763P		26.03	-0.76	-1.11	34.35	-1.24	-1.67	GT
YYGFKF		26.53	-0.26	-0.38	35.00	-0.59	-0.80	GN

Summary Statistics

Grand Means			
	26.78 Gloss Units		35.59 Gloss Units
Stnd Dev Btwn Labs			
	0.68 Gloss Units		0.74 Gloss Units

Statistics based on 63 of 64 reporting participants

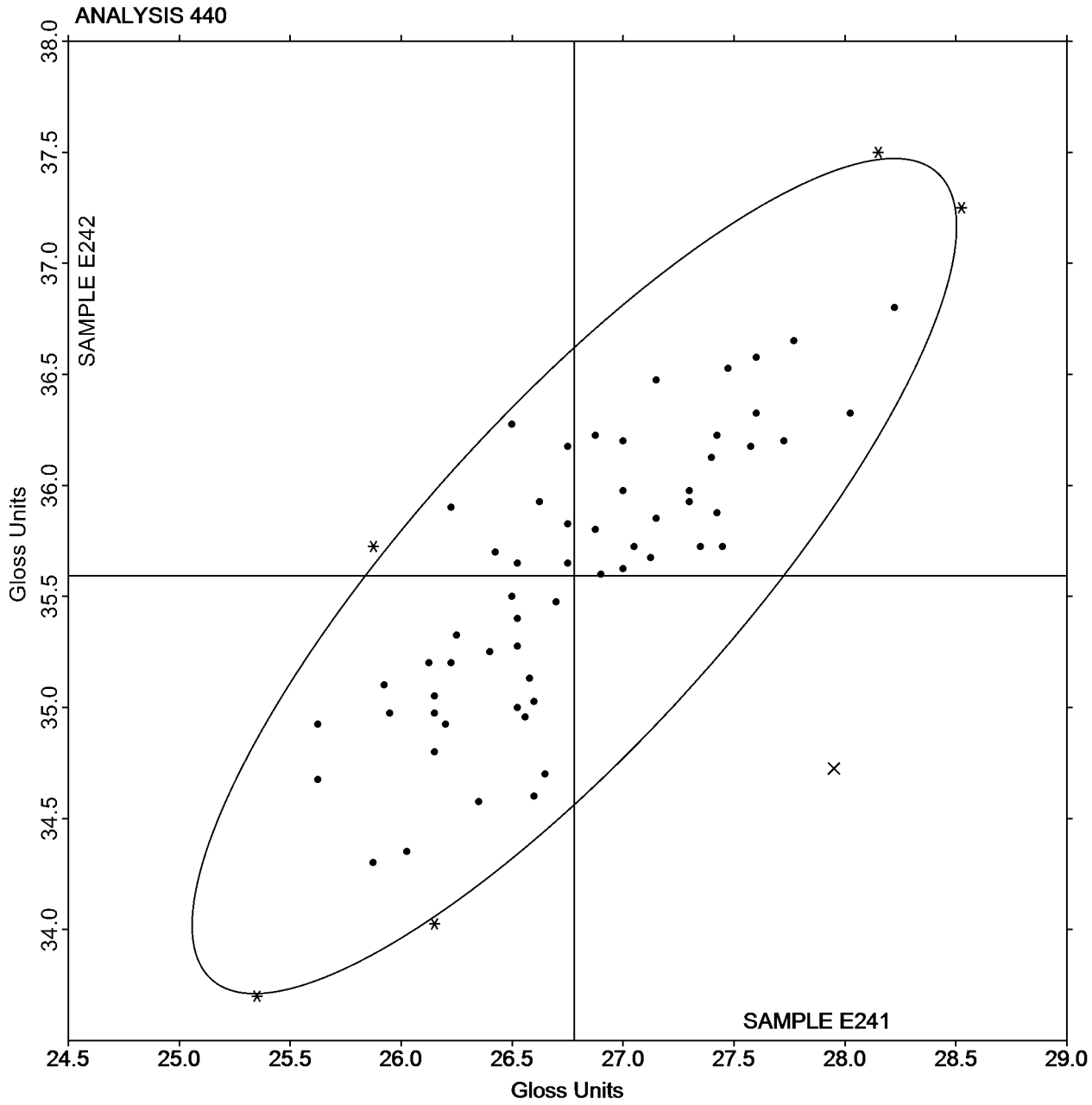
Comments on Assigned Data Flags for Test #440

J9HQXY(X) - Inconsistent in testing between samples.

Key to Instrument Codes Reported by Participants

DE	DeFelsko PosiTector GLS 60	EN	Elcometer 480
GD	BYK Gardner Spectro2Guide 45/0	GK	BYK-Gardner micro-gloss (60)
GL	BYK-Gardner micro-TRI-gloss	GN	BYK-Gardner new micro-TRI-gloss
GT	Gardco Novo-Gloss (20/60/85)	MM	Macbeth Lab-Gloss
MW	Minolta Multi-Gloss 268	MX	Minolta Multi-Gloss 268 Plus
NH	3nh NHG268 Multi-angle Precise Gloss Meter	RA	Rhopoint Novo-Gloss Glossmeter
RB	Rhopoint Novo-Gloss LITE Glossmeter	RC	Novo-Gloss Trio 20/60/85 Glossmeter
RQ	Rhopoint IQ Goniophotometer 20/60/85°	XX	Instrument make/model not specified by lab
ZA	Zehntner ZGM Series		

SAMPLE E241 = 26.78 Gloss Units SAMPLE E242 = 35.59 Gloss Units



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