Color & Appearance Testing Program

Summary Report # 168 - 2nd Qtr 2014

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 (GlossTests)

ABOUT THE 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, CTS is a privately-owned company that specializes in interlaboratory tests for a wide variety of industries, including rubber, plastics, fasteners and metals, containerboard, paper, color, and wine as well as proficiency tests for forensic laboratories. All of the tests are designed to assist organizations in achieving and maintaining quality control objectives. Labs from the U.S., as well as more than 80 countries, currently participate in the CTS programs.

If there are any questions on the report or testing program, please contact:

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(Toll-free fax within the U.S.:   1-866-fax-2cts)

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 mailed 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.

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 mailed 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   An indication of the precision of measurement between the laboratories.
Standard Deviation 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
*	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. 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 an X on individual wavelength values as follows:

X   - The laboratory's mean for that wavelength is greater than a 95% deviation from the GRAND MEAN.

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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 mailed 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.

Interlaboratory Testing Program for Color & Appearance

Analysis 408

Color and Color Difference - Paint Chips - 45-0 Geometry Instruments
CIE L*a*b* Color Space - Illuminant D65 - CIE 1964 (10 Degree) Observer

WebCode	Flag	Samples	CIE L* a* b* Color Values			Color Difference Values				
			L*	a*	b*	ΔL*	Δa*	Δb*	ΔE*	InstrCode
2KUEMQ		B141	52.08	6.55	-9.29	1.21	-0.13	-0.18	1.23	XZ
		B142	53.29	6.42	-9.47					
2V8LJR		B141	52.13	6.56	-9.43	1.02	-0.16	-0.12	1.03	HK
		B142	53.15	6.40	-9.55					
2YD4LT		B141	51.88	6.33	-9.43	0.87	-0.09	-0.11	0.88	GU
		B142	52.75	6.24	-9.53					
39RPZM		B141	52.50	6.77	-9.46	1.09	-0.11	-0.17	1.10	HW
		B142	53.58	6.66	-9.63					
4628EA		B141	51.96	6.80	-9.31	1.21	-0.10	-0.18	1.23	HW
		B142	53.17	6.70	-9.49					
64H2YH		B141	52.22	6.55	-9.37	1.12	-0.11	-0.18	1.14	XU
		B142	53.34	6.44	-9.55					
6GLAUE		B141	52.13	6.44	-9.33	1.05	-0.09	-0.19	1.07	XU
		B142	53.17	6.35	-9.51					
7GA97Q		B141	52.24	6.69	-9.42	1.26	-0.07	-0.22	1.28	XO
		B142	53.49	6.62	-9.63					
7UU6VW	X	B141	50.95	6.36	-8.59	1.01	-0.09	-0.19	1.03	GA
		B142	51.96	6.28	-8.78					
7WP797		B141	52.25	6.75	-9.32	1.05	-0.11	-0.21	1.07	HW
		B142	53.30	6.64	-9.53					
8CWVTA		B141	52.51	6.52	-9.58	1.00	-0.10	-0.16	1.01	XZ
		B142	53.50	6.42	-9.74					
8WL6XW		B141	52.30	6.70	-9.38	0.92	-0.08	-0.15	0.94	XO
		B142	53.22	6.62	-9.53					
96GFXK		B141	52.06	6.78	-9.29	1.05	-0.10	-0.18	1.07	HW
		B142	53.11	6.69	-9.47					
BD38CN		B141	52.42	6.56	-9.43	1.07	-0.09	-0.21	1.09	GH
		B142	53.49	6.48	-9.64					

Interlaboratory Testing Program for Color & Appearance

Analysis 408

Color and Color Difference - Paint Chips - 45-0 Geometry Instruments
CIE L*a*b* Color Space - Illuminant D65 - CIE 1964 (10 Degree) Observer

| WebCode | Flag | Samples | CIE L* a* b* Color Values | | | Color Difference Values | | | | |
			L*	a*	b*	ΔL*	Δa*	Δb*	ΔE*	InstrCode
BRZ7BD		B141	52.34	6.56	-9.27	1.04	-0.09	-0.15	1.05	XM
		B142	53.38	6.47	-9.42					
C39HRE		B141	52.20	6.57	-9.20	1.18	-0.17	-0.12	1.20	HK
		B142	53.38	6.40	-9.32					
CN3BXW		B141	52.32	6.73	-9.33	0.98	-0.09	-0.18	0.99	HW
		B142	53.29	6.65	-9.51					
DR8JEY		B141	52.23	6.66	-9.43	1.03	-0.10	-0.19	1.05	HW
		B142	53.25	6.56	-9.61					
EHKV4W		B141	52.48	6.62	-9.47	0.90	-0.09	-0.15	0.92	XO
		B142	53.38	6.53	-9.62					
EP24VZ		B141	52.04	6.45	-9.53	0.94	-0.11	-0.16	0.95	XR
		B142	52.97	6.34	-9.68					
EUXYLE		B141	52.38	6.67	-9.52	1.01	-0.10	-0.17	1.03	XN
		B142	53.39	6.57	-9.69					
FRCCTQ		B141	52.53	6.57	-9.24	1.02	-0.08	-0.17	1.03	GD
		B142	53.55	6.49	-9.40					
GZ86VN		B141	52.32	6.79	-9.49	1.08	-0.10	-0.16	1.09	HW
		B142	53.39	6.69	-9.65					
H6HJA8		B141	52.18	6.85	-9.18	0.98	-0.10	-0.16	0.99	HW
		B142	53.16	6.75	-9.34					
JNNV4V		B141	52.31	6.67	-9.48	1.17	-0.12	-0.14	1.18	XO
		B142	53.48	6.55	-9.61					
KMKTRW		B141	52.24	6.65	-9.30	1.14	-0.12	-0.16	1.15	XO
		B142	53.37	6.53	-9.45					
KNAC6P		B141	52.04	7.06	-9.32	1.03	-0.09	-0.17	1.05	MG
		B142	53.08	6.97	-9.49					
NAF7EP		B141	52.16	6.60	-9.33	1.02	-0.08	-0.33	1.08	TN
		B142	53.18	6.52	-9.66					

Interlaboratory Testing Program for Color & Appearance

Analysis 408

Color and Color Difference - Paint Chips - 45-0 Geometry Instruments
CIE L*a*b* Color Space - Illuminant D65 - CIE 1964 (10 Degree) Observer

WebCode	Flag	Samples	CIE L* a* b* Color Values			Color Difference Values				
			L*	a*	b*	ΔL*	Δa*	Δb*	ΔE*	InstrCode
P9VNVG		B141	51.74	6.66	-9.42	1.16	-0.11	-0.16	1.17	HY
		B142	52.89	6.55	-9.58					
PPLU2P		B141	52.66	6.51	-9.79	1.05	-0.12	-0.15	1.06	AE
		B142	53.70	6.40	-9.93					
QCEW2V		B141	52.03	6.65	-9.02	1.01	-0.07	-0.19	1.03	GH
		B142	53.04	6.59	-9.21					
QK6JRR	X	B141	44.74	7.51	-8.56	0.93	0.01	-0.17	0.94	HW
		B142	45.66	7.51	-8.73					
QRPMW9		B141	52.14	6.92	-9.39	1.05	-0.10	-0.16	1.07	GE
		B142	53.19	6.82	-9.55					
VATR8D		B141	52.21	6.83	-9.39	1.13	-0.10	-0.18	1.14	HW
		B142	53.34	6.73	-9.57					
XA6ACV	X	B141	98.78	0.25	-14.21	-0.04	-0.02	0.07	0.08	HW
		B142	98.74	0.24	-14.14					
XTG9AX		B141	51.86	6.42	-9.43	1.00	-0.08	-0.17	1.02	MQ
		B142	52.86	6.34	-9.60					
Y94XUT		B141	52.14	6.43	-9.30	0.81	-0.13	-0.18	0.84	XV
		B142	52.95	6.31	-9.48					
YK2U22		B141	52.03	6.80	-9.66	1.15	-0.12	-0.13	1.16	XK
		B142	53.18	6.69	-9.79					
YTEMP4		B141	52.58	6.50	-9.54	1.03	-0.09	-0.18	1.05	XZ
		B142	53.61	6.41	-9.72					

Interlaboratory Testing Program for Color & Appearance

Analysis 408

Color and Color Difference - Paint Chips - 45-0 Geometry Instruments
CIE L*a*b* Color Space - Illuminant D65 - CIE 1964 (10 Degree) Observer

Summary Statistics

Samples	L*	a*	b*	ΔL*	Δa*	Δb*	ΔE*
Grand Means							
B141	52.22	6.63	-9.39				
B142	53.26	6.53	-9.55	1.05	-0.10	-0.17	1.07
Stnd Dev Btwn Labs							
B141	0.21	0.16	0.14				
B142	0.22	0.16	0.14	0.10	0.02	0.04	0.10

Statistics based on 36 of 39 reporting participants

Comments assigned on Data Flags for Test #408

7UU6VW(X) - Low L* and high b* values.

QK6JRR(X) - High a* and b* values. Low L* values. Small Da values.

XA6ACV(X) - Very High L* values and very low a* and b* values. Small DL, Da, Db and DE values.

Interlaboratory Testing Program for Color & Appearance

Analysis 408

Color and Color Difference - Paint Chips - 45-0 Geometry Instruments
CIE L*a*b* Color Space - Illuminant D65 - CIE 1964 (10 Degree) Observer

L2* vs   L1*

SAMPLE B141 = 52.22   SAMPLE B142 = 53.26

ANALYSIS 408 – L2* vs L1*

Interlaboratory Testing Program for Color & Appearance
Analysis 408
Color and Color Difference - Paint Chips - 45-0 Geometry Instruments
CIE L*a*b* Color Space - Illuminant D65 - CIE 1964 (10 Degree) Observer

a2* vs a1*

SAMPLE B141 = 6.63   SAMPLE B142   = 6.53

ANALYSIS 408 – a2* vs a1*

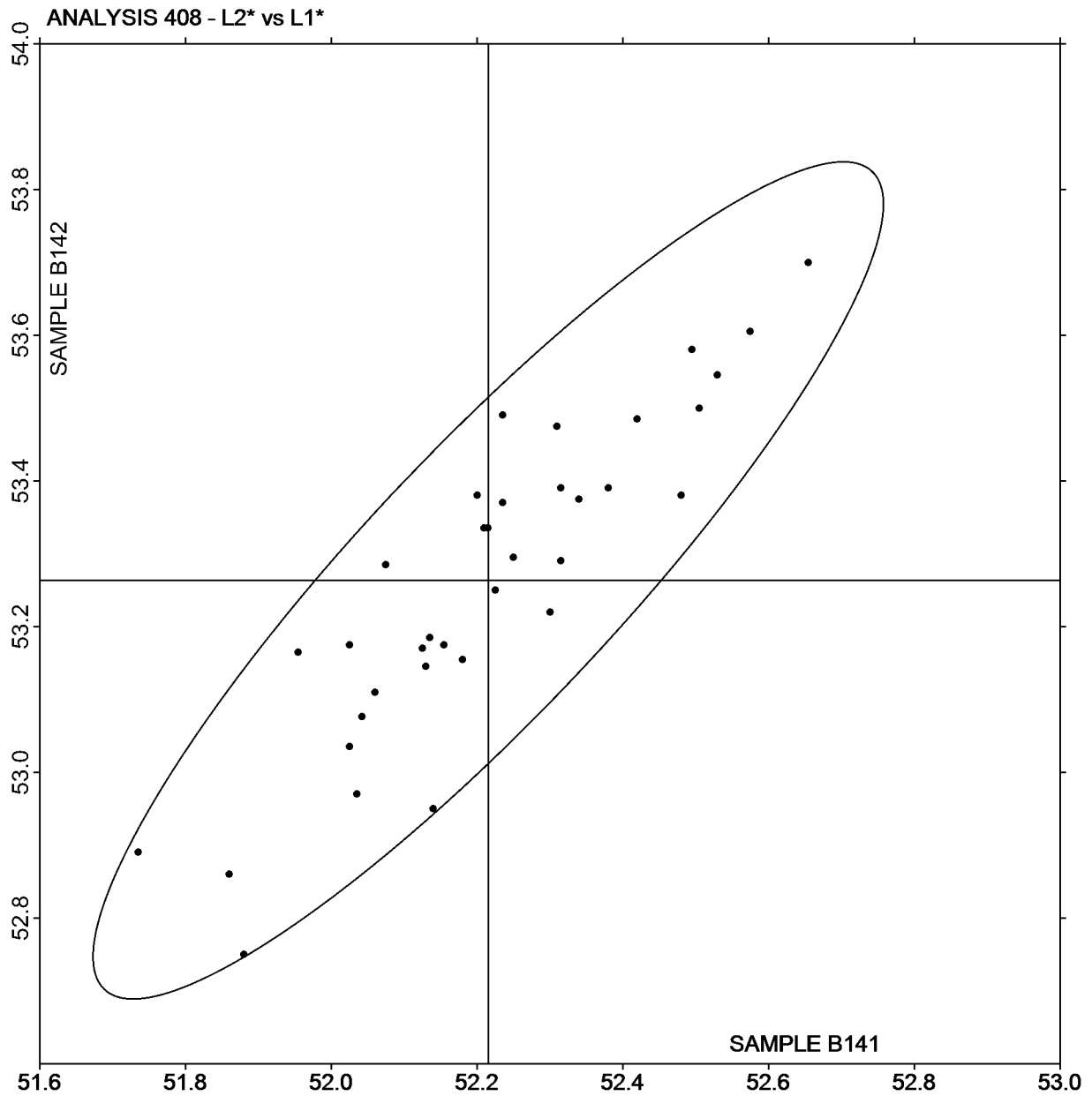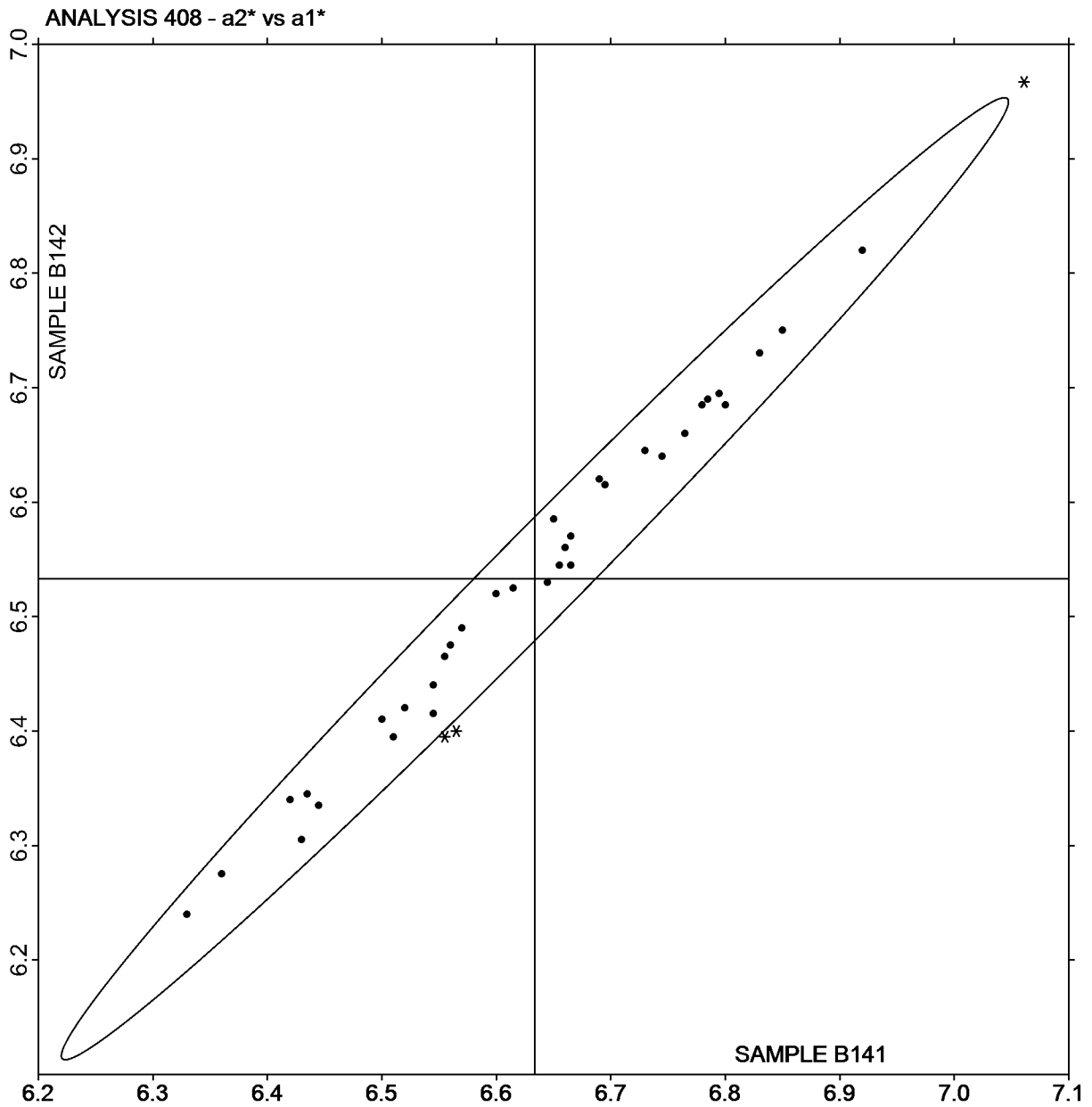# Interlaboratory Testing Program for Color & Appearance

Analysis 408

Color and Color Difference - Paint Chips - 45-0 Geometry Instruments
CIE L*a*b* Color Space - Illuminant D65 - CIE 1964 (10 Degree) Observer

b2* vs b1*

SAMPLE B141   = -9.39   SAMPLE B142   = -9.55

ANALYSIS 408 – b2* vs b1*

Plot created using absolute values.

Interlaboratory Testing Program for Color & Appearance

Analysis 409

Color and Color Difference - Paint Chips - Sphere Geometry Instruments
CIE L*a*b* Color Space - Illuminant D65 - CIE 1964 (10 Degree) Observer

WebCode	Flag	Samples	CIE L* a* b* Color Values			Color Difference Values				
			L*	a*	b*	ΔL*	Δa*	Δb*	ΔE*	InstrCode
24JT42		B141	52.49	6.50	-9.82	1.08	-0.11	-0.19	1.10	AM
		B142	53.57	6.39	-10.00					
27AWW9		B141	52.37	6.41	-9.66	0.98	-0.09	-0.17	1.00	XI
		B142	53.35	6.33	-9.82					
2AXE77		B141	52.47	6.36	-9.80	1.11	-0.12	-0.17	1.13	AJ
		B142	53.58	6.25	-9.97					
2BBPJD	X	B141	52.26	6.89	-9.51	0.96	-0.06	-0.18	0.97	GD
		B142	53.21	6.83	-9.69					
2JCCWH		B141	52.32	6.48	-9.85	1.24	-0.14	-0.33	1.29	AJ
		B142	53.56	6.34	-10.17					
2N7GJV		B141	52.58	6.54	-9.75	0.97	-0.10	-0.17	0.98	AJ
		B142	53.55	6.44	-9.92					
2U23VG		B141	52.46	6.41	-9.64	0.94	-0.07	-0.19	0.96	MM
		B142	53.40	6.34	-9.82					
36R872		B141	52.61	6.48	-9.73	1.09	-0.11	-0.18	1.11	AO
		B142	53.70	6.37	-9.91					
3EF6TZ		B141	52.51	6.43	-9.72	1.15	-0.11	-0.17	1.16	AJ
		B142	53.66	6.32	-9.89					
3LUHN8		B141	52.33	6.59	-9.60	1.12	-0.12	-0.19	1.14	XI
		B142	53.44	6.47	-9.78					
3NQHXB		B141	52.37	6.58	-9.49	1.00	-0.10	-0.17	1.02	XM
		B142	53.37	6.48	-9.65					
478YNA		B141	52.63	6.44	-9.73	1.11	-0.12	-0.15	1.13	AO
		B142	53.74	6.33	-9.88					
4D84U9		B141	52.67	6.41	-9.75	1.08	-0.10	-0.19	1.10	AO
		B142	53.75	6.31	-9.94					
4DCD9R		B141	52.37	6.50	-9.53	1.18	-0.12	-0.20	1.20	MU
		B142	53.54	6.38	-9.73					

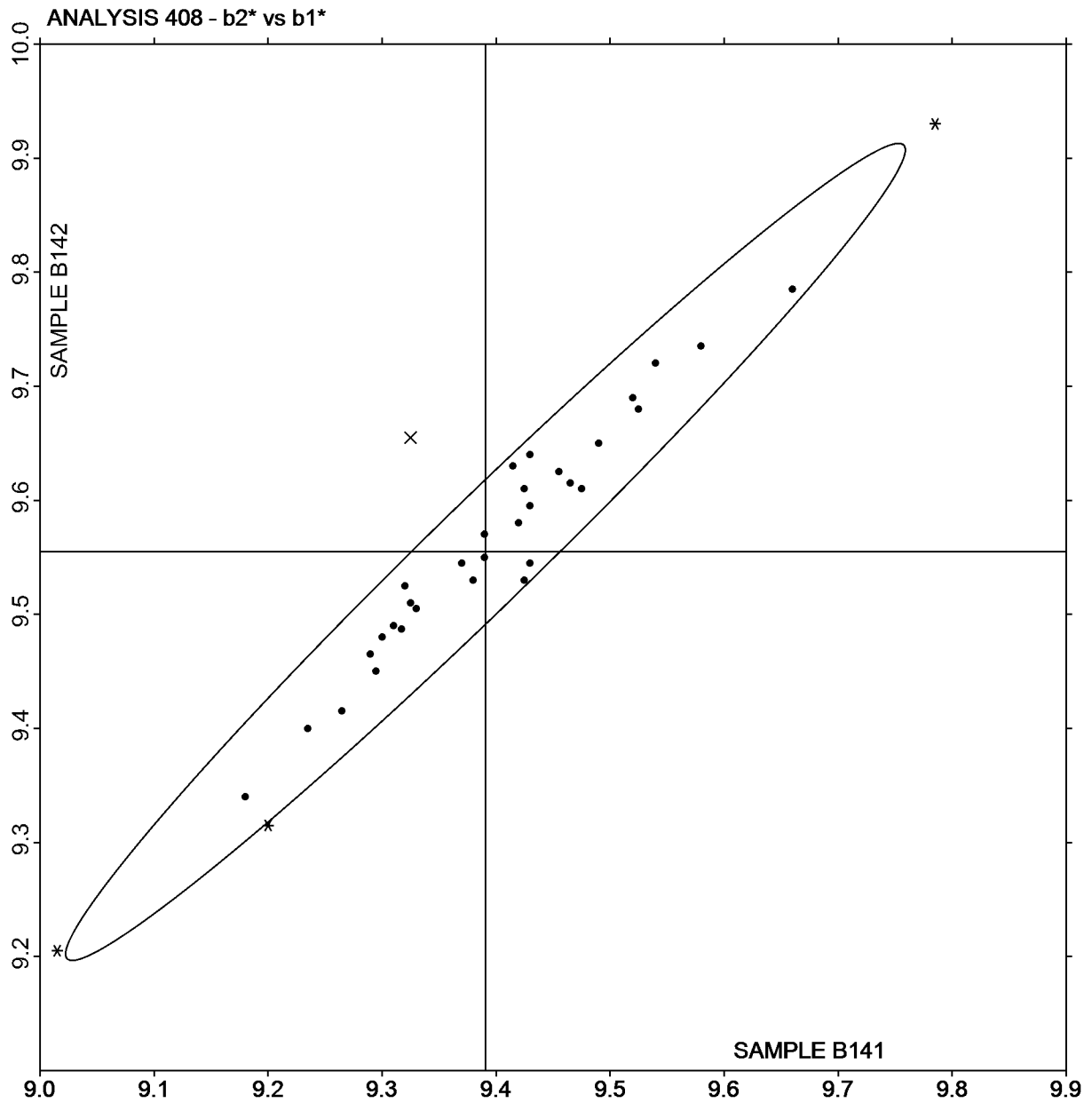# Interlaboratory Testing Program for Color & Appearance

Analysis 409

Color and Color Difference - Paint Chips - Sphere Geometry Instruments
CIE L*a*b* Color Space - Illuminant D65 - CIE 1964 (10 Degree) Observer

WebCode	Flag	Samples	CIE L* a* b* Color Values			Color Difference Values				
			L*	a*	b*	ΔL*	Δa*	Δb*	ΔE*	InstrCode
4EY9D8		B141	52.41	6.54	-9.81	1.16	-0.10	-0.16	1.17	AJ
		B142	53.56	6.44	-9.96					
64H2YH		B141	52.41	6.45	-9.67	1.13	-0.09	-0.20	1.15	XI
		B142	53.53	6.36	-9.87					
6GLAUE		B141	52.48	6.43	-9.54	1.03	-0.10	-0.17	1.05	XI
		B142	53.51	6.33	-9.71					
6UDVF3		B141	52.47	6.48	-9.59	1.17	-0.12	-0.17	1.18	MM
		B142	53.64	6.36	-9.76					
6UJEP6		B141	52.37	6.32	-9.68	1.00	-0.09	-0.19	1.02	PE
		B142	53.37	6.23	-9.86					
6VYPT6	X	B141	52.67	6.25	-9.47	1.06	-0.15	-0.15	1.08	GF
		B142	53.73	6.10	-9.62					
6XN6UZ		B141	52.32	6.60	-9.45	1.09	-0.10	-0.18	1.11	XO
		B142	53.41	6.50	-9.63					
7NQL6P		B141	52.84	6.48	-9.54	1.08	-0.12	-0.18	1.10	XI
		B142	53.92	6.36	-9.72					
7TCKJX		B141	52.35	6.64	-9.51	1.02	-0.09	-0.21	1.04	XH
		B142	53.37	6.55	-9.72					
86JMKL		B141	52.60	6.41	-9.76	1.07	-0.10	-0.20	1.09	AJ
		B142	53.67	6.31	-9.95					
8E3A7H		B141	52.03	6.67	-9.59	0.98	-0.11	-0.18	1.00	MK
		B142	53.01	6.56	-9.77					
8U3TGF		B141	52.53	6.53	-9.62	0.99	-0.09	-0.18	1.00	MM
		B142	53.52	6.44	-9.80					
8WL6XW		B141	52.13	6.63	-9.51	0.98	-0.07	-0.23	1.00	MI
		B142	53.11	6.56	-9.74					
97LGGY	X	B141	53.69	6.61	-10.31	1.31	-0.13	-0.19	1.33	AR
		B142	55.00	6.49	-10.50					

Interlaboratory Testing Program for Color & Appearance

Analysis 409

Color and Color Difference - Paint Chips - Sphere Geometry Instruments
CIE L*a*b* Color Space - Illuminant D65 - CIE 1964 (10 Degree) Observer

WebCode	Flag	Samples	CIE L* a* b* Color Values			Color Difference Values				
			L*	a*	b*	ΔL*	Δa*	Δb*	ΔE*	InstrCode
A4FY29		B141	52.15	6.48	-9.53	1.14	-0.12	-0.16	1.15	MU
		B142	53.28	6.36	-9.68					
AB9NCC		B141	52.49	6.53	-9.77	1.09	-0.10	-0.17	1.10	CA
		B142	53.57	6.43	-9.94					
AFR4BP		B141	52.64	6.24	-9.44	1.10	-0.10	-0.20	1.12	HW
		B142	53.74	6.14	-9.64					
AWQYDA		B141	52.93	6.36	-9.85	1.09	-0.12	-0.14	1.10	AJ
		B142	54.02	6.24	-9.98					
B4R7BV		B141	52.46	6.50	-9.64	0.95	-0.08	-0.19	0.97	MM
		B142	53.41	6.43	-9.83					
B9JDVN		B141	52.23	6.44	-9.42	1.02	-0.09	-0.15	1.03	XO
		B142	53.25	6.35	-9.57					
BBNWZC		B141	52.36	6.50	-9.69	0.87	-0.07	-0.18	0.89	XH
		B142	53.23	6.43	-9.87					
BD38CN		B141	52.51	6.49	-9.60	1.17	-0.12	-0.18	1.18	MV
		B142	53.68	6.38	-9.77					
BDYLH3		B141	52.62	6.50	-9.69	1.06	-0.09	-0.18	1.07	MM
		B142	53.67	6.41	-9.87					
BF64K6	X	B141	51.03	6.51	-9.26	1.09	-0.11	-0.16	1.10	XO
		B142	52.11	6.40	-9.42					
BWBBVZ		B141	52.35	6.43	-9.74	0.86	-0.10	-0.14	0.88	HP
		B142	53.21	6.33	-9.87					
C4Z9CE		B141	52.66	6.46	-9.79	1.08	-0.10	-0.17	1.10	AO
		B142	53.74	6.36	-9.96					
CBV9PL	X	B141	51.80	8.69	-9.89	1.17	-0.08	-0.20	1.18	MU
		B142	52.97	8.61	-10.09					
CFKXLQ		B141	52.55	6.50	-9.82	1.01	-0.10	-0.18	1.03	AJ
		B142	53.56	6.40	-10.00					

Interlaboratory Testing Program for Color & Appearance

Analysis 409

Color and Color Difference - Paint Chips - Sphere Geometry Instruments
CIE L*a*b* Color Space - Illuminant D65 - CIE 1964 (10 Degree) Observer

			CIE L* a* b* Color Values			Color Difference Values				
WebCode	Flag	Samples	L*	a*	b*	ΔL*	Δa*	Δb*	ΔE*	InstrCode
CN3BXW		B141	52.57	6.48	-9.68	0.98	-0.07	-0.15	0.99	HP
		B142	53.55	6.41	-9.83					
CT8WPM		B141	52.75	6.31	-9.51	0.95	-0.06	-0.17	0.97	HW
		B142	53.70	6.25	-9.68					
CWUHNP		B141	52.54	6.40	-9.61	0.99	-0.09	-0.18	1.01	HH
		B142	53.53	6.31	-9.79					
D3BK36		B141	52.39	6.44	-9.64	1.19	-0.13	-0.18	1.21	MM
		B142	53.59	6.31	-9.82					
DAA7RJ		B141	52.39	6.32	-9.80	1.00	-0.11	-0.17	1.02	HP
		B142	53.39	6.21	-9.97					
DBNKM9		B141	52.28	6.54	-9.63	1.17	-0.13	-0.16	1.19	XI
		B142	53.45	6.42	-9.78					
DGQMH9		B141	52.18	6.58	-9.46	1.05	-0.10	-0.13	1.06	MG
		B142	53.23	6.48	-9.58					
DJAGQM		B141	52.51	6.44	-9.74	1.23	-0.06	-0.20	1.25	XX
		B142	53.74	6.38	-9.93					
EEG4TB		B141	52.58	6.32	-9.92	1.01	-0.10	-0.16	1.03	AJ
		B142	53.59	6.23	-10.08					
ER6BL7		B141	52.35	6.47	-9.66	1.05	-0.08	-0.20	1.07	AJ
		B142	53.40	6.39	-9.85					
EUXYLE	X	B141	52.31	6.62	-9.35	1.02	-0.11	-0.10	1.03	XO
		B142	53.33	6.51	-9.45					
EXAZA6		B141	52.56	6.50	-9.78	1.08	-0.08	-0.20	1.10	AQ
		B142	53.64	6.42	-9.98					
EZEHLF		B141	52.55	6.65	-10.08	1.17	-0.12	-0.18	1.19	AM
		B142	53.72	6.53	-10.26					
FC2QKM		B141	52.43	6.54	-9.83	1.07	-0.11	-0.15	1.09	AM
		B142	53.50	6.44	-9.98					

Interlaboratory Testing Program for Color & Appearance

Analysis 409

Color and Color Difference - Paint Chips - Sphere Geometry Instruments
CIE L*a*b* Color Space - Illuminant D65 - CIE 1964 (10 Degree) Observer

			CIE L* a* b* Color Values				Color Difference Values			
WebCode	Flag Samples		L*	a*	b*	ΔL*	Δa*	Δb*	ΔE*	InstrCode
FY4YAP	B141	52.61	6.53	-9.80		1.05	-0.10	-0.16	1.06	AJ
	B142	53.65	6.44	-9.96						
G89HVR	B141	52.41	6.56	-9.85		1.01	-0.10	-0.15	1.03	AM
	B142	53.42	6.46	-10.00						
GKEDEU	B141	52.27	6.59	-9.58		1.07	-0.11	-0.17	1.09	XI
	B142	53.34	6.48	-9.74						
H2228P	B141	52.38	6.54	-9.60		1.09	-0.12	-0.17	1.10	XI
	B142	53.47	6.42	-9.77						
HFMCZL	B141	52.47	6.51	-9.86		1.02	-0.10	-0.17	1.03	AJ
	B142	53.49	6.41	-10.03						
HVKENL	B141	52.61	6.59	-9.53		0.92	-0.08	-0.18	0.94	XI
	B142	53.53	6.51	-9.71						
J2CE3C	B141	52.59	6.46	-9.74		0.96	-0.10	-0.16	0.98	AM
	B142	53.55	6.36	-9.90						
J6BTLV	B141	52.37	6.53	-9.68		1.06	-0.10	-0.16	1.07	MM
	B142	53.43	6.43	-9.84						
JHPRTA	B141	52.43	6.36	-9.63		1.03	-0.08	-0.19	1.05	AL
	B142	53.46	6.29	-9.82						
JJGQ33	B141	52.41	6.45	-9.60		0.99	-0.10	-0.16	1.00	MM
	B142	53.39	6.35	-9.76						
K2M878	B141	52.49	6.41	-9.71		1.09	-0.10	-0.17	1.10	MT
	B142	53.57	6.32	-9.88						
K6TYPR	B141	52.40	6.55	-9.69		1.10	-0.12	-0.18	1.12	MM
	B142	53.50	6.44	-9.87						
KB486N	B141	52.17	6.36	-9.68		1.03	-0.06	-0.17	1.04	MJ
	B142	53.20	6.30	-9.85						
KRTARJ	B141	52.40	6.66	-9.54		1.07	-0.11	-0.17	1.09	XH
	B142	53.47	6.55	-9.71						

Interlaboratory Testing Program for Color & Appearance

Analysis 409

Color and Color Difference - Paint Chips - Sphere Geometry Instruments
CIE L*a*b* Color Space - Illuminant D65 - CIE 1964 (10 Degree) Observer

WebCode	Flag	Samples	CIE L* a* b* Color Values			Color Difference Values				
			L*	a*	b*	ΔL*	Δa*	Δb*	ΔE*	InstrCode
KXFYFA	X	B141	51.58	8.94	-9.52	1.11	-0.07	-0.22	1.13	GC
		B142	52.68	8.87	-9.73					
KY84L3		B141	52.30	6.51	-9.69	1.15	-0.11	-0.16	1.16	MV
		B142	53.45	6.40	-9.84					
L2B8YB		B141	52.54	6.42	-9.59	1.18	-0.11	-0.17	1.19	MM
		B142	53.71	6.31	-9.75					
M8QGDX	X	B141	52.26	6.57	-9.59	0.67	-0.12	-0.20	0.71	XI
		B142	52.93	6.45	-9.78					
M93YTW		B141	52.32	6.42	-9.67	1.15	-0.11	-0.17	1.17	CE
		B142	53.47	6.30	-9.85					
MDNMPF		B141	52.44	6.51	-9.77	1.01	-0.09	-0.17	1.03	MV
		B142	53.45	6.42	-9.94					
MZE399		B141	52.48	6.48	-9.56	0.97	-0.07	-0.19	0.99	XH
		B142	53.45	6.41	-9.75					
MZRVP4		B141	52.64	6.45	-9.89	1.00	-0.09	-0.19	1.02	XX
		B142	53.63	6.36	-10.07					
N828XG		B141	52.26	6.47	-9.90	1.20	-0.12	-0.16	1.21	AQ
		B142	53.46	6.36	-10.06					
NAF7EP	X	B141	52.80	6.48	-10.19	0.90	-0.11	-0.17	0.92	CA
		B142	53.70	6.38	-10.36					
NTN7QB	X	B141	95.57	1.45	-7.89	-0.07	0.01	-0.02	0.07	AM
		B142	95.50	1.46	-7.90					
PKBEV8		B141	52.63	6.47	-9.88	0.98	-0.09	-0.20	1.00	AJ
		B142	53.61	6.39	-10.08					
PVWNEY		B141	52.48	6.48	-9.62	1.06	-0.10	-0.18	1.08	MM
		B142	53.54	6.38	-9.79					
PXMR87		B141	52.43	6.49	-9.42	1.06	-0.08	-0.17	1.07	XU
		B142	53.49	6.41	-9.58					

Interlaboratory Testing Program for Color & Appearance

Analysis 409

Color and Color Difference - Paint Chips - Sphere Geometry Instruments
CIE L*a*b* Color Space - Illuminant D65 - CIE 1964 (10 Degree) Observer

			CIE L* a* b* Color Values			Color Difference Values				
WebCode	Flag	Samples	L*	a*	b*	ΔL*	Δa*	Δb*	ΔE*	InstrCode
QCEW2V	X	B141	52.16	6.83	-9.50	1.16	-0.13	-0.18	1.18	GD
		B142	53.32	6.70	-9.68					
QDWX9G		B141	52.55	6.50	-9.82	1.12	-0.10	-0.19	1.14	AM
		B142	53.67	6.40	-10.01					
QHJQ2H		B141	52.43	6.51	-9.75	1.12	-0.11	-0.18	1.13	AJ
		B142	53.55	6.40	-9.93					
QK6JRR		B141	52.20	6.55	-9.54	1.09	-0.10	-0.16	1.10	MI
		B142	53.28	6.46	-9.70					
QNQEJQ		B141	52.70	6.30	-9.55	1.01	-0.10	-0.17	1.03	HF
		B142	53.71	6.20	-9.71					
R2YEA3	X	B141	52.04	6.58	-9.17	1.11	-0.12	-0.15	1.13	XM
		B142	53.15	6.46	-9.32					
RBZ7WA	X	B141	52.39	6.17	-9.66	1.12	-0.07	-0.22	1.14	HG
		B142	53.51	6.11	-9.88					
RRMFZY		B141	52.35	6.49	-9.49	1.13	-0.11	-0.16	1.14	XI
		B142	53.48	6.39	-9.65					
RX9FC6		B141	52.05	6.58	-9.53	1.11	-0.15	-0.12	1.13	MI
		B142	53.16	6.43	-9.65					
RYZ8EB		B141	52.60	6.42	-9.74	1.08	-0.10	-0.18	1.09	AR
		B142	53.67	6.33	-9.92					
TAXLY9		B141	52.43	6.50	-9.66	1.12	-0.11	-0.17	1.13	MU
		B142	53.55	6.40	-9.83					
TERK8C		B141	52.48	6.43	-9.74	1.02	-0.09	-0.17	1.03	AQ
		B142	53.49	6.34	-9.91					
TNARM8		B141	52.46	6.41	-9.62	1.10	-0.10	-0.17	1.12	MM
		B142	53.56	6.31	-9.79					
UJK328		B141	52.52	6.44	-9.89	1.16	-0.13	-0.15	1.17	AM
		B142	53.68	6.32	-10.03					

Interlaboratory Testing Program for Color & Appearance

Analysis 409

Color and Color Difference - Paint Chips - Sphere Geometry Instruments
CIE L*a*b* Color Space - Illuminant D65 - CIE 1964 (10 Degree) Observer

WebCode	Flag	Samples	CIE L* a* b* Color Values			Color Difference Values				
			L*	a*	b*	ΔL*	Δa*	Δb*	ΔE*	InstrCode
VQKRCK		B141	52.67	6.41	-9.76	1.15	-0.13	-0.16	1.16	AO
		B142	53.82	6.28	-9.92					
VUEVUQ		B141	52.36	6.59	-9.59	1.11	-0.11	-0.19	1.13	XH
		B142	53.46	6.48	-9.78					
VYJAV3		B141	52.63	6.46	-9.87	1.02	-0.07	-0.19	1.04	AO
		B142	53.65	6.39	-10.06					
W24HVF		B141	52.64	6.40	-9.57	1.11	-0.10	-0.17	1.13	MM
		B142	53.75	6.30	-9.73					
W7UNG6		B141	52.37	6.38	-9.64	1.07	-0.09	-0.18	1.08	XI
		B142	53.43	6.29	-9.82					
WPMP92		B141	52.59	6.51	-9.68	0.95	-0.09	-0.18	0.97	AJ
		B142	53.54	6.42	-9.86					
XCWGN6		B141	52.55	6.49	-9.84	1.10	-0.09	-0.19	1.11	AJ
		B142	53.64	6.40	-10.03					
XJPTJ9		B141	52.64	6.65	-9.89	1.00	-0.09	-0.20	1.02	AJ
		B142	53.64	6.56	-10.08					
XMU93X		B141	52.45	6.41	-9.79	1.02	-0.09	-0.17	1.04	HP
		B142	53.47	6.32	-9.95					
XPF3VR		B141	51.92	6.42	-9.50	1.17	-0.16	-0.17	1.20	MG
		B142	53.09	6.27	-9.67					
XQLP4Q	X	B141	52.23	6.74	-9.20	1.00	-0.06	-0.15	1.01	GA
		B142	53.23	6.68	-9.35					
XWKQZE		B141	52.24	6.40	-9.70	1.06	-0.09	-0.20	1.08	XI
		B142	53.29	6.31	-9.90					
XWWGVC		B141	52.28	6.67	-9.59	1.07	-0.11	-0.17	1.08	XH
		B142	53.34	6.56	-9.76					
XXH3V8		B141	52.52	6.51	-9.67	1.05	-0.10	-0.17	1.06	MK
		B142	53.56	6.41	-9.84					

Interlaboratory Testing Program for Color & Appearance

Analysis 409

Color and Color Difference - Paint Chips - Sphere Geometry Instruments
CIE L*a*b* Color Space - Illuminant D65 - CIE 1964 (10 Degree) Observer

WebCode	Flag	Samples	CIE L* a* b* Color Values			Color Difference Values				InstrCode
			L*	a*	b*	ΔL*	Δa*	Δb*	ΔE*	
Y24DUH		B141	52.21	6.41	-9.85	1.20	-0.13	-0.18	1.22	HP
		B142	53.41	6.28	-10.03					
Y94XUT		B141	52.44	6.52	-9.60	1.01	-0.10	-0.16	1.03	MK
		B142	53.45	6.42	-9.76					
Y9PDJV		B141	52.59	6.50	-9.69	1.09	-0.12	-0.12	1.10	GG
		B142	53.68	6.38	-9.81					
YCWPHB	X	B141	52.03	6.57	-9.17	1.11	-0.09	-0.17	1.13	XM
		B142	53.14	6.48	-9.34					
YK2U22		B141	52.54	6.43	-9.86	1.04	-0.10	-0.15	1.06	AO
		B142	53.58	6.33	-10.01					
ZA3C2C	X	B141	52.16	6.83	-9.51	1.15	-0.11	-0.15	1.16	GD
		B142	53.31	6.72	-9.66					
ZACH3T		B141	52.75	6.44	-9.82	0.95	-0.11	-0.10	0.96	AM
		B142	53.69	6.33	-9.92					
ZEPC8Q		B141	52.43	6.54	-9.60	1.00	-0.10	-0.18	1.02	XI
		B142	53.42	6.44	-9.77					
ZPQJ6B	X	B141	52.41	5.69	-8.87	0.93	-0.15	-0.22	0.97	XO
		B142	53.34	5.55	-9.09					

Summary Statistics

Samples	L*	a*	b*	ΔL*	Δa*	Δb*	ΔE*
Grand Means							
B141	52.44	6.48	-9.67				
B142	53.50	6.38	-9.84	1.06	-0.10	-0.17	1.08
Stnd Dev Btwn Labs							
B141	0.18	0.09	0.14				
B142	0.18	0.08	0.14	0.08	0.02	0.02	0.08

Statistics based on 104 of 121 reporting participants

Interlaboratory Testing Program for Color & Appearance

Analysis 409

Color and Color Difference - Paint Chips - Sphere Geometry Instruments
CIE L*a*b* Color Space - Illuminant D65 - CIE 1964 (10 Degree) Observer

Comments assigned on Data Flags for Test #409

2BBPJD(X) - High a* values.

6VYPT6(X) - Low a* values. Small Da value.

97LGGY(X) - Low b* values and high L* values. Large DL and DE value.

BF64K6(X) - Low L* values and high b* values. Large replication difference for L* on Sample B141.

CBV9PL(X) - Low L* values and high a* values.

EUXYLE(X) - High b* values for Sample B142. Large replication difference for L*, a*, and b* for Sample B142. Small Db value.

KXFYFA(X) - Low L* values and high a* values.

M8QGDX(X) - Low L* values for Sample B142. Large replication difference for L* for Sample B142. Small DL and DE value.

NAF7EP(X) - Low b* values. Large replication difference for L* for Sample B142.

NTN7QB(X) - Extreme Data. Apparently measured back of the samples.

QCEW2V(X) - High a* values.

R2YEA3(X) - High b* values.

RBZ7WA(X) - Low a* values.

XQLP4Q(X) - High a* and b* values.

YCWPHB(X) - High b* values.

ZA3C2C(X) - High a* values.

ZPQJ6B(X) - Low a* values and high b* values. Large replication difference for L* for Sample B141.

Interlaboratory Testing Program for Color & Appearance

Analysis 409

Color and Color Difference - Paint Chips - Sphere Geometry Instruments
CIE L*a*b* Color Space - Illuminant D65 - CIE 1964 (10 Degree) Observer

L2* vs L1*

SAMPLE B141 = 52.44   SAMPLE B142 = 53.50

ANALYSIS 409 – L2* vs L1*

Interlaboratory Testing Program for Color & Appearance

Analysis 409

Color and Color Difference - Paint Chips - Sphere Geometry Instruments
CIE L*a*b* Color Space - Illuminant D65 - CIE 1964 (10 Degree) Observer

a2* vs a1*

SAMPLE B141 = 6.48   SAMPLE B142   =   6.38

ANALYSIS 409 - a2* vs a1*

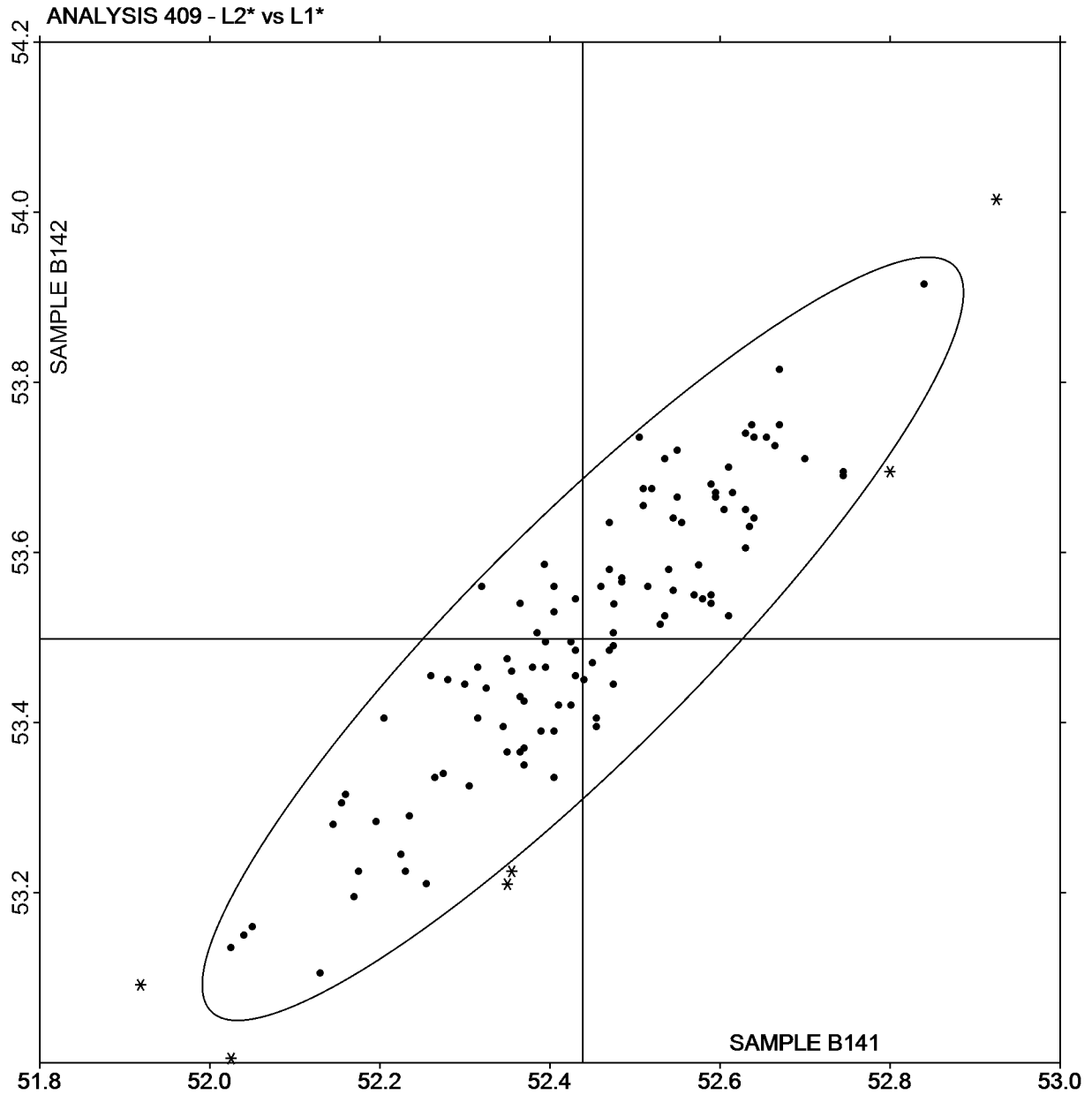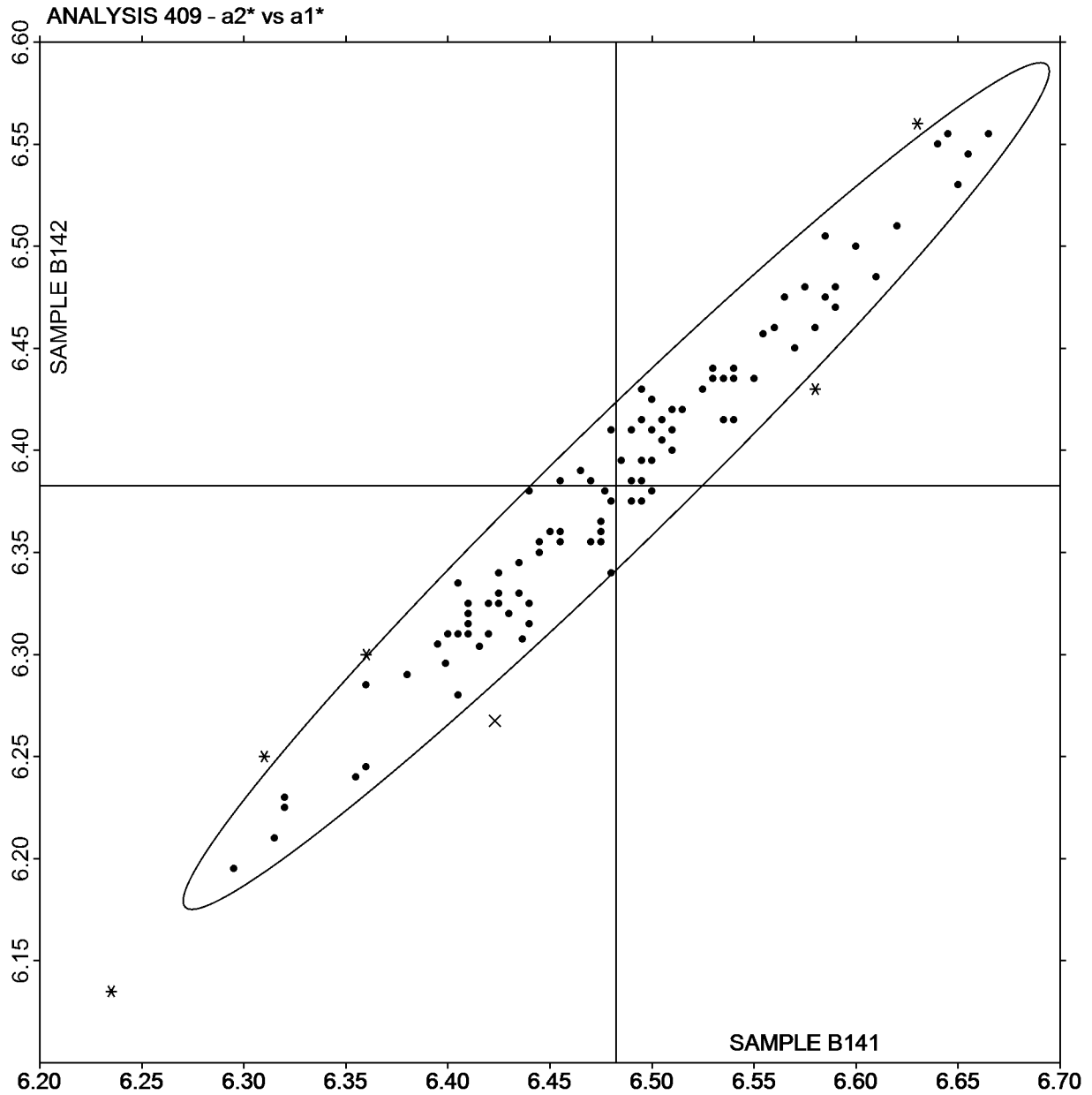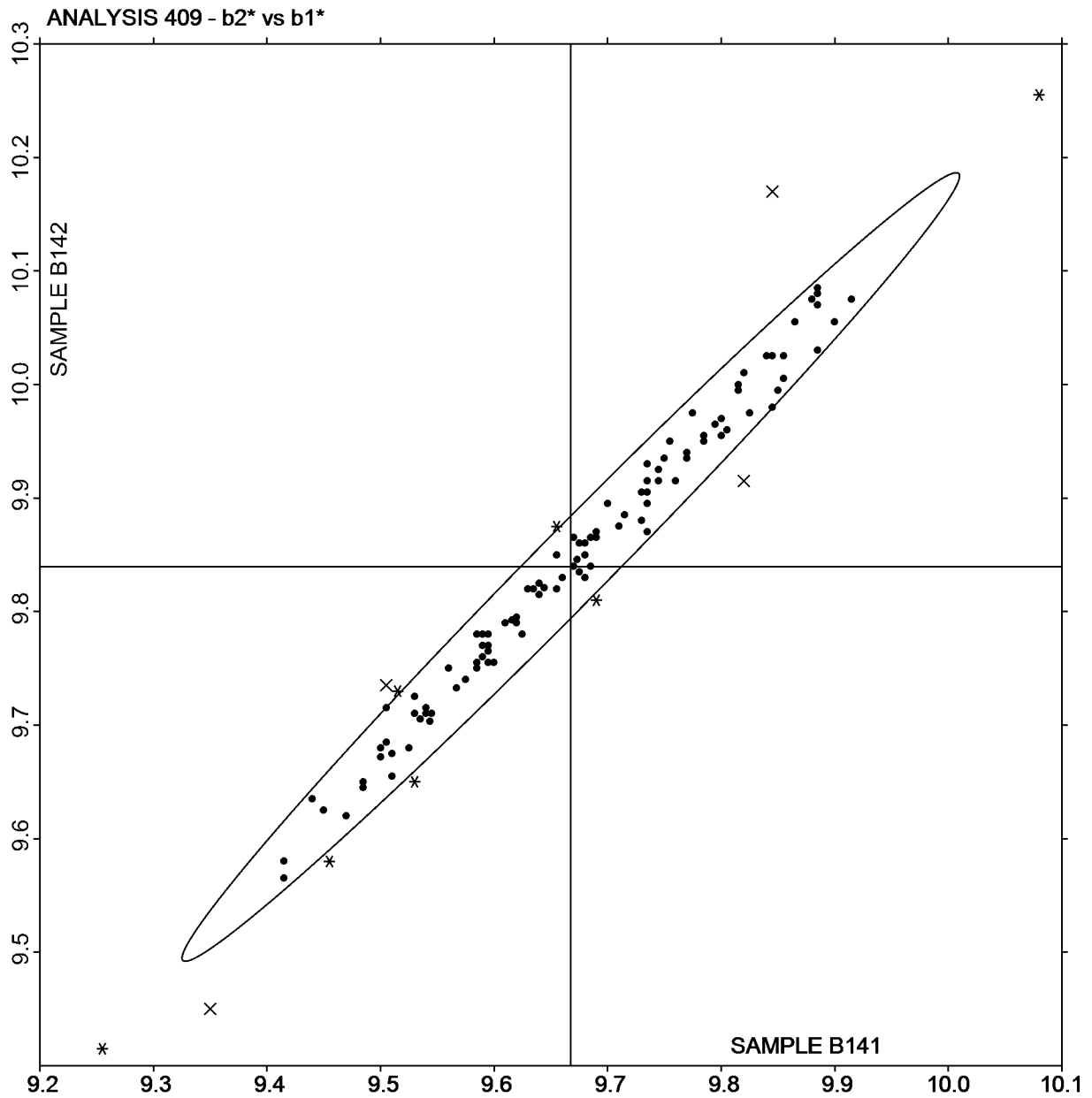# Interlaboratory Testing Program for Color & Appearance

Analysis 409

Color and Color Difference - Paint Chips - Sphere Geometry Instruments
CIE L*a*b* Color Space - Illuminant D65 - CIE 1964 (10 Degree) Observer

b2* vs   b1*

SAMPLE B141   =-9.67   SAMPLE B142   = -9.84

ANALYSIS 409 – b2* vs b1*

Plot created using absolute values.

Interlaboratory Testing Program for Color & Appearance

Analysis 411

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	B141								
24JT42		25.57	27.65	26.89	25.93	24.75	22.62	20.15	18.37	18.10	19.66	21.78	22.08	23.62	28.82	36.12	43.81	AM
27AWW9		23.99	27.44	26.66	25.82	24.60	22.47	20.01	18.28	17.98	19.56	21.58	21.88	23.61	28.67	35.68	44.28	XI
2AXE77		23.96	27.69	26.89	26.00	24.79	22.68	20.12	18.32	18.13	19.55	21.75	22.10	23.48	28.53	35.50	43.85	AJ
2BBPJD		26.76X	27.03	26.58	25.53	24.22	22.22	19.75	18.13	18.02	19.17	21.99	22.08	23.57	28.72	35.62	44.02	GD
2JCCWH		23.65	27.50	26.80	25.83	24.63	22.53	20.00	18.22	17.94	19.46	21.61	21.91	23.48	28.56	35.52	44.18	AJ
2U23VG		24.08	27.49	26.79	25.89	24.67	22.57	20.11	18.35	18.05	19.61	21.74	22.01	23.65	28.69	35.56	44.20	MM
36R872		24.33	27.66	26.98	26.05	24.87	22.78	20.21	18.42	18.23	19.79	21.97	22.21	23.77	28.91	36.07	42.97	AO
3EF6TZ		24.02	27.53	26.88	25.95	24.77	22.69	20.14	18.36	18.19	19.66	21.83	22.12	23.65	28.89	36.22	43.15	AJ
3LUHN8		23.76	27.29	26.58	25.74	24.52	22.41	19.95	18.18	17.98	19.59	21.63	21.90	23.80	28.98	35.96	44.63	XI
3NQHXB		25.07	27.57	26.85	25.98	24.73	22.64	20.15	18.47	18.40	20.10X	22.15	22.04	23.49	28.02	35.72	43.77	HW
478YNA		24.32	27.66	27.02	26.08	24.92	22.80	20.25	18.44	18.22	19.81	21.97	22.20	23.77	28.90	36.38	43.12	AO
4D84U9		24.30	27.69	27.07	26.17	24.99	22.87	20.31	18.50	18.22	19.84	22.01	22.26	23.80	28.98	36.45	42.96	AO
4DCD9R		24.67	27.45	26.57	25.73	24.51	22.49	19.96	18.21	17.97	19.60	21.77	21.95	23.46	28.66	35.67	44.45	MU
4EY9D8		24.08	27.56	26.85	25.85	24.64	22.53	20.04	18.26	18.09	19.61	21.71	22.05	23.53	28.64	36.20	43.33	AJ
64H2YH		23.82	27.43	26.73	25.86	24.64	22.54	20.03	18.34	18.02	19.64	21.67	21.94	23.66	28.61	35.53	44.18	XI
6GLAUE		23.50	27.38	26.69	25.88	24.65	22.61	20.11	18.37	18.08	19.68	21.70	22.04	23.79	28.98	36.01	44.75	XI
6UDVF3		24.03	27.48	26.76	25.88	24.66	22.56	20.09	18.35	18.07	19.63	21.76	22.04	23.76	28.91	35.92	44.75	MM
6UJEP6		24.17	27.45	26.70	25.82	24.64	22.52	20.00	18.24	17.96	19.55	21.75	21.88	23.40	28.55	35.45	44.15	PE
6XN6UZ		23.94	27.27	26.55	25.67	24.37	22.29	19.87	18.22	18.01	19.60	21.68	21.89	23.71	28.83	35.81	44.10	XO
7NQL6P		23.93	27.87	27.09	26.20	25.03	22.96	20.41	18.68	18.39	20.00	22.13	22.37	24.21	29.33	36.32	45.02	XI
7TCKJX		23.72	27.38	26.54	25.68	24.44	22.41	19.95	18.21	17.98	19.64	21.71	21.96	23.82	28.95	35.87	44.60	XH
86JMKL		23.96	27.65	26.98	26.08	24.89	22.78	20.26	18.42	18.27	19.75	21.87	22.18	23.76	28.84	36.21	43.05	AJ
8E3A7H		23.36	27.02	26.30	25.44	24.15	22.06	19.66	17.91	17.70	19.29	21.40	21.67	23.53	28.56	35.66	44.45	MI
8U3TGF		24.08	27.52	26.81	25.97	24.73	22.62	20.13	18.40	18.13	19.72	21.84	22.10	23.85	28.94	35.83	44.48	MM
8WL6XW		23.52	27.05	26.57	25.66	24.30	22.19	19.76	18.02	17.81	19.44	21.51	21.74	23.57	28.73	35.69	44.28	MI

Interlaboratory Testing Program for Color & Appearance

Analysis 411

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	B141										
97LGGY	X	25.94X	29.46X	28.62X	27.59X	26.17X	23.89X	21.25X	19.34X	19.12X	20.67X	22.85X	23.21X	24.85X	30.26X	37.74X	46.31X	AR
A4FY29		23.41	27.13	26.36	25.48	24.30	22.26	19.78	18.06	17.82	19.37	21.49	21.78	23.38	28.42	35.40	43.98	MU
AB9NCC		24.45	27.61	26.84	26.03	24.83	22.70	20.16	18.36	18.09	19.78	21.95	22.05	23.57	28.78	35.82	44.71	CA
AWQYD		24.77	28.07	27.41	26.50	25.26	23.12	20.57	18.71	18.53	19.99	22.13	22.49	24.02	29.09	36.24	44.03	AJ
B4R7BV		24.17	27.47	26.76	25.87	24.67	22.54	20.08	18.36	18.10	19.62	21.73	22.06	23.77	28.83	35.67	44.37	MM
B9JDVN		23.77	27.17	26.42	25.51	24.31	22.25	19.85	18.14	17.96	19.42	21.54	21.80	23.48	28.50	35.63	43.79	XO
BBNWZC		23.81	27.45	26.69	25.82	24.54	22.45	20.02	18.26	18.01	19.54	21.63	21.95	23.61	28.58	35.48	44.23	MM
BD38CN		23.86	27.61	26.78	25.92	24.71	22.64	20.10	18.33	18.07	19.74	21.88	22.02	23.65	28.81	35.91	44.61	MV
BDYLH3		24.01	27.70	26.97	26.07	24.86	22.74	20.26	18.47	18.21	19.77	21.91	22.17	23.90	29.09	36.07	44.92	MM
BF64K6	X	22.44X	25.73X	25.00X	24.30X	23.06X	21.04X	18.76X	17.21X	17.03X	18.53X	20.56X	20.72X	22.44X	27.28X	34.10X	42.06X	XO
BWBBVZ		24.58	27.45	26.69	25.84	24.58	22.46	20.01	18.20	17.99	19.47	21.72	21.95	23.14	28.37	35.38	43.73	HP
C4Z9CE		24.31	27.85	27.07	26.18	24.91	22.80	20.24	18.48	18.33	19.80	21.93	22.20	23.79	28.91	36.13	44.18	XX
CBV9PL		23.50	27.30	26.40	25.55	24.35	22.20	19.70	18.00	17.75	19.45	21.50	21.80	23.30	28.40	35.00	43.40	MU
CFKXLQ		25.56	27.86	26.97	25.99	24.81	22.68	20.20	18.42	18.11	19.70	21.84	22.15	23.67	28.89	36.21	43.87	AJ
CN3BXW		23.87	27.67	26.95	26.01	24.82	22.68	20.12	18.41	18.16	19.76	21.90	22.07	23.51	28.77	36.15	40.38X	HP
CT8WPM		24.89	27.68	26.99	26.14	24.90	22.79	20.29	18.55	18.41	20.06	22.12	22.10	23.47	28.02	35.60	43.86	HW
CWUHNP		24.06	27.60	26.90	25.88	24.77	22.57	20.15	18.37	18.10	19.80	21.98	21.92	23.28	28.41	35.60	43.85	HH
D3BK36		23.93	27.45	26.72	25.84	24.61	22.51	20.06	18.28	18.01	19.53	21.67	21.96	23.60	28.68	35.69	44.47	MM
DAA7RJ		24.30	27.46	26.86	25.93	24.72	22.63	20.09	18.33	18.04	19.55	21.72	21.99	23.32	28.32	35.29	43.88	HP
DBNKM9		23.69	27.54	26.54	25.72	24.47	22.38	19.94	18.18	17.92	19.50	21.60	21.85	23.67	28.83	35.71	44.28	XI
DGQMH9		23.81	27.01	26.34	25.50	24.26	22.21	19.85	18.02	17.88	19.51	21.51	21.72	23.53	28.63	35.48	43.69	MG
DJAGQM		25.00	30.00X	28.00X	25.00X	24.00	22.00	20.00	18.00	17.00X	20.00	23.00X	23.00X	26.00X	28.00X	35.00	42.00X	AM
EEG4TB		24.04	27.87	27.09	26.14	24.93	22.80	20.27	18.43	18.16	19.61	21.78	22.14	23.59	28.69	35.90	43.61	AJ
ER6BL7		23.72	27.35	26.67	25.77	24.49	22.45	20.00	18.24	18.06	19.53	21.70	22.00	23.49	28.60	35.66	43.41	AJ
EUXYLE		23.38	27.05	26.25	25.55	24.24	22.20	19.69	18.13	17.93	19.55	21.61	21.79	23.71	28.82	35.77	44.17	XO

Report #168
Interlaboratory Testing Program for Color & Appearance
2nd Qtr 2014
Analysis 411
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	B141									
EXAZA6		23.85	27.70	27.02	26.05	24.77	22.71	20.16	18.38	18.16	19.72	21.83	22.13	23.72	28.84	35.88	42.69	AQ
EZEHLF		24.11	27.96	27.19	26.21	24.92	22.76	20.20	18.36	18.12	19.70	21.80	22.17	23.79	29.32	36.41	43.27	AM
FC2QKM		24.05	27.66	26.86	25.93	24.71	22.56	20.06	18.30	18.04	19.62	21.73	22.00	23.62	28.73	35.71	43.43	AM
FY4YAP		24.38	27.83	27.11	26.09	24.87	22.75	20.23	18.41	18.16	19.75	21.83	22.20	23.84	29.24	36.46	43.12	AJ
G89HVR		23.86	27.64	26.82	25.91	24.62	22.63	20.05	18.27	18.01	19.59	21.71	22.04	23.65	28.91	35.91	42.92	AM
GKEDEU		23.73	27.24	26.51	25.65	24.43	22.35	19.92	18.15	17.89	19.48	21.65	21.90	23.67	28.79	35.80	44.53	XI
H2228P		23.80	27.34	26.67	25.79	24.57	22.48	19.99	18.27	18.00	19.65	21.66	21.90	23.76	29.05	36.06	44.56	MK
HFMCZL		23.77	27.66	26.96	25.97	24.81	22.69	20.12	18.34	18.04	19.59	21.73	22.06	23.73	28.92	35.86	42.70	AJ
HVKENL		24.03	27.52	26.84	26.01	24.77	22.64	20.19	18.45	18.20	19.84	21.95	22.18	24.05	29.21	36.16	44.77	XI
J2CE3C		24.05	27.65	26.96	26.03	24.85	22.76	20.22	18.43	18.17	19.74	21.91	22.23	23.71	28.92	36.30	43.76	AM
J6BTLV		23.92	27.42	26.70	25.82	24.60	22.49	20.01	18.27	18.01	19.57	21.66	21.93	23.69	28.85	35.79	44.61	MM
JHPRTA		23.64	27.51	26.74	25.86	24.66	22.60	20.07	18.31	18.03	19.57	21.70	22.00	23.56	28.59	35.51	44.12	AL
JJGQ33		23.88	27.39	26.70	25.83	24.61	22.51	20.05	18.30	18.03	19.59	21.67	22.01	23.70	28.72	35.53	44.16	MM
K2M878		23.73	27.54	26.84	25.99	24.74	22.67	20.10	18.37	18.06	19.65	21.76	21.97	23.58	28.64	35.67	44.53	MU
K6TYPR		24.08	27.45	26.74	25.84	24.62	22.50	20.02	18.29	18.01	19.60	21.72	21.99	23.72	28.79	35.60	44.25	MM
KB486N		24.93	27.25	26.41	25.63	24.35	22.34	19.83	18.12	17.91	19.43	21.38	21.69	23.35	28.25	35.12	43.49	MJ
KRTARJ		23.56	27.37	26.51	25.80	24.52	22.41	19.98	18.21	18.05	19.70	21.73	21.51	23.82	29.34	36.35	44.75	XH
KY84L3		23.95	27.51	26.64	25.77	24.53	22.51	19.93	18.54	17.91	19.54	21.73	21.86	23.39	28.54	35.54	44.37	MV
L2B8YB		23.95	27.50	26.81	25.93	24.72	22.63	20.18	18.45	18.17	19.69	21.76	22.11	23.82	28.84	35.73	44.49	MM
M8QGDX		23.71	27.17	26.51	25.71	24.42	22.33	19.89	18.11	17.85	19.50	21.59	21.93	23.63	28.53	35.61	44.25	XI
M93YTW		24.13	27.34	26.60	25.74	24.59	22.48	19.94	18.18	17.89	19.52	21.72	21.86	23.42	28.53	35.49	44.16	CE
MDNMPF		25.10	27.75	26.79	25.92	24.69	22.63	20.06	18.29	17.98	19.61	21.81	21.95	23.55	28.81	35.85	44.62	MV
MZRVP4		24.42	27.90	27.12	26.18	24.93	22.80	20.28	18.49	18.30	19.77	21.90	22.22	23.68	28.78	36.36	44.04	XX
N828XG		23.66	27.54	26.72	25.81	24.57	22.47	19.95	18.16	17.88	19.42	21.53	21.85	23.40	28.40	35.29	42.78	AJ
NAF7EP		25.30	28.49	27.59**X**	26.56	25.30	23.01	20.39	18.51	18.20	19.88	22.08	22.20	23.74	28.94	36.03	44.85	CA

Interlaboratory Testing Program for Color & Appearance

Analysis 411

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	B141										
NTN7QB	X	19.08X	81.90X	112.61X	101.84X	96.63X	92.32X	87.96X	87.08X	88.70X	87.27X	86.61X	86.36X	87.46X	87.67X	87.39X	88.03X	AM
PKBEV8		24.36	27.80	27.16	26.14	24.93	22.82	20.27	18.50	18.14	19.75	21.89	22.25	23.80	28.98	36.64	43.64	AJ
PVWNEY		23.90	27.52	26.80	25.90	24.67	22.57	20.09	18.35	18.07	19.64	21.77	22.04	23.75	28.84	35.72	44.37	MM
PXMR87		24.54	27.28	26.59	25.72	24.45	22.58	19.91	18.35	18.07	19.58	21.75	21.97	23.80	29.01	36.08	44.55	XU
QCEW2V		25.47	27.12	26.49	25.45	24.14	22.16	19.44X	18.13	17.77	19.88	21.75	21.75	23.48	28.57	35.48	43.95	GD
QK6JRR		23.49	27.18	26.45	25.56	24.35	22.25	19.78	18.08	17.87	19.45	21.53	21.79	23.52	28.52	35.72	44.42	MI
QNQEJQ		24.42	27.77	26.86	26.10	24.94	22.88	20.31	18.55	18.27	19.89	22.04	22.24	23.47	28.87	36.31	44.32	HF
R2YEA3		23.25	26.80	26.03	25.08X	23.99	21.91X	19.60	17.99	17.78	19.32	21.43	21.66	23.43	28.59	35.34	43.92	XM
RBZ7WA		25.12	27.35	26.69	25.77	24.68	22.66	20.17	18.40	17.99	19.44	21.60	21.88	23.41	28.27	35.02	43.48	HG
RRMFZY		23.64	27.25	26.55	25.72	24.50	22.44	19.96	18.22	17.96	19.60	21.65	21.93	23.71	28.83	35.77	44.31	XI
RX9FC6		22.85	26.98	26.27	25.37	24.16	22.17	19.74	17.94	17.74	19.35	21.39	21.75	23.44	28.39	35.37	44.18	MI
TAXLY9		23.75	27.68	26.73	25.87	24.66	22.58	20.03	18.26	18.01	19.64	21.82	21.97	23.56	28.49	35.81	44.24	MU
TERK8C		23.87	27.52	26.82	25.96	24.74	22.65	20.13	18.31	18.18	19.64	21.76	22.06	23.63	28.78	35.94	44.14	AQ
TNARM8		23.90	27.47	26.78	25.89	24.66	22.58	20.10	18.37	18.05	19.59	21.72	22.00	23.73	28.85	35.73	44.39	XX
UJK328		23.71	27.64	26.98	26.09	24.87	22.75	20.15	18.40	18.15	19.67	21.75	22.13	23.69	28.92	36.14	42.77	AM
VQKRCK		24.21	27.76	27.10	26.13	24.97	22.88	20.30	18.50	18.30	19.81	21.98	22.25	23.82	28.94	36.46	42.88	AO
VUEVUQ		23.84	27.34	26.61	25.78	24.52	22.40	19.96	18.26	18.02	19.57	21.68	21.97	23.78	28.83	35.67	44.22	XH
VYJAV3		24.24	27.88	27.06	26.20	24.90	22.82	20.24	18.45	18.29	19.76	21.89	22.19	23.69	28.86	35.98	44.26	AO
W24HVF		24.00	27.37	26.95	26.06	24.81	22.70	20.25	18.51	18.27	19.77	21.83	22.22	23.91	28.93	35.75	44.40	XX
W7UNG6		23.66	27.34	26.66	25.81	24.61	22.50	20.07	18.29	18.00	19.55	21.58	21.92	23.61	28.67	35.63	44.07	XI
WPMP92		24.53	27.74	26.93	25.98	24.84	22.71	20.24	18.42	18.17	19.82	21.88	22.17	23.83	29.18	36.31	44.07	AJ
XCWGN6		24.18	27.79	26.99	26.04	24.86	22.67	20.18	18.39	18.16	19.70	21.82	22.18	23.64	28.79	36.29	44.14	AJ
XJPTJ9		24.10	28.03	27.15	26.17	24.87	22.78	20.25	18.45	18.22	19.81	21.95	22.23	23.97	29.29	36.37	42.51	AJ
XMU93X		24.58	27.63	26.85	25.97	24.76	22.68	20.12	18.34	18.07	19.53	21.75	22.03	23.50	28.63	35.55	44.23	HP
XQLP4Q		23.03	26.77	27.10	25.42	23.64X	22.27	19.73	18.11	17.93	19.45	21.78	22.39	23.55	29.06	35.39	43.99	MH

Interlaboratory Testing Program for Color & Appearance

Analysis 411

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	B141									
XWKQZE		23.65	27.26	26.54	25.73	24.45	22.35	19.89	18.23	17.93	19.39	21.44	21.77	23.51	28.48	35.40	44.03	XI
XWWGV		23.61	27.16	26.52	25.72	24.52	22.26	19.90	18.15	17.93	19.52	21.63	22.01	23.73	28.77	35.82	44.54	XH
XXH3V8		24.01	27.56	26.85	25.96	24.76	22.63	20.14	18.41	18.11	19.67	21.81	22.10	23.81	28.85	35.65	44.23	MM
Y24DUH		24.86	27.41	26.60	25.77	24.46	22.41	19.93	18.12	17.79	19.31	21.58	21.78	23.08	28.09	35.24	43.78	HP
Y94XUT		24.27	27.48	26.73	25.82	24.64	22.52	20.05	18.31	18.05	19.59	21.78	22.00	23.72	28.83	35.75	44.44	XU
Y9PDJV		24.48	27.72	26.96	26.11	24.76	22.68	20.18	18.44	18.17	19.78	21.86	22.16	23.81	28.83	35.73	44.19	GG
YCWPHB		23.31	26.82	26.05	25.07**X**	24.03	21.92	19.59	17.99	17.78	19.32	21.45	21.68	23.43	28.59	35.33	43.84	XM
YK2U22		24.13	27.80	26.99	26.07	24.86	22.70	20.18	18.40	18.18	19.67	21.80	22.15	23.64	28.68	35.98	43.78	AO
ZA3C2C		25.91**X**	27.06	26.45	25.43	24.17	22.19	19.41**X**	17.96	17.76	19.83	21.57	22.01	23.42	28.48	35.44	43.81	GD
ZACH3T		24.77	28.16	27.29	26.30	25.00	22.93	20.34	18.60	18.34	19.86	22.05	22.34	23.80	28.98	35.98	44.11	AM
ZEPC8Q		23.76	27.39	26.69	25.84	24.61	22.53	20.04	18.29	18.03	19.69	21.73	21.98	23.78	28.94	36.00	44.54	XI
ZPQJ6B		23.95	27.38	26.63	25.67	24.48	22.31	19.87	18.24	18.01	19.59	21.71	21.89	23.66	28.94	35.95	44.30	XO

Summary Statistics

	400	420	440	460	480	500	520	540	560	580	600	620	640	660	680	700
Grand Means	24.11	27.52	26.78	25.86	24.63	22.54	20.05	18.30	18.05	19.63	21.76	22.02	23.66	28.75	35.80	43.96
Stnd Dev Btwn Labs	0.59	0.37	0.29	0.26	0.27	0.23	0.20	0.16	0.19	0.17	0.21	0.20	0.29	0.27	0.35	0.68

Comments assigned on Data Flags for Test #411

97LGGY (X) - High % reflectance data at all wavelengths.

BF64K6 (X) - Low % reflectance data at all wavelengths.

NTN7QB (X) - Extreme data for most wavelengths.

Interlaboratory Testing Program for Color & Appearance
Analysis 440
60 Degree Gloss - Paint Chips
ASTM Method D 523

WebCode	Data Flag	Lab Mean	Sample F141 Difference from Grand Mean	Comparative Performance Value	Lab Mean	Sample F142 Difference from Grand Mean	Comparative Performance Value	Instr Code
2BBPJD		55.95	0.57	0.97	66.58	0.60	0.97	GB
2FZKPP		55.93	0.55	0.93	66.93	0.95	1.54	GK
2JCCWH		55.28	-0.10	-0.17	66.00	0.03	0.04	MW
2N7GJV		55.20	-0.18	-0.30	66.23	0.25	0.41	GL
2V8LJR		54.98	-0.40	-0.68	65.58	-0.40	-0.64	GL
3EF6TZ		55.23	-0.15	-0.26	66.05	0.08	0.13	MW
3LUHN8		54.23	-1.15	-1.95	65.13	-0.85	-1.37	GL
3NQHXB		55.33	-0.05	-0.09	66.10	0.13	0.21	GK
427UUC	X	54.65	-0.73	-1.23	66.90	0.93	1.50	GN
64H2YH		55.03	-0.35	-0.59	65.30	-0.67	-1.08	GL
6ECDV4		55.58	0.20	0.34	66.58	0.60	0.97	GL
6GLAUE		55.13	-0.25	-0.43	65.73	-0.25	-0.40	GN
6VYPT6		55.88	0.50	0.84	66.10	0.13	0.21	GL
73JZNK		54.95	-0.43	-0.72	65.73	-0.25	-0.40	GK
7TCKJX		55.55	0.17	0.29	66.43	0.45	0.73	GK
86JMKL		55.18	-0.20	-0.34	65.50	-0.47	-0.76	XX
8E3A7H		55.08	-0.30	-0.51	66.23	0.25	0.41	GL
8WL6XW	X	53.20	-2.18	-3.68	63.48	-2.50	-4.03	GL
986TJH	X	55.48	0.10	0.17	61.70	-4.27	-6.89	GX
A4FY29	X	53.08	-2.30	-3.89	63.20	-2.77	-4.47	GK
AFR4BP		54.70	-0.68	-1.14	64.70	-1.27	-2.05	GL
AWQYDA		55.53	0.15	0.25	66.48	0.50	0.81	GK
B9JDVN	X	52.85	-2.53	-4.27	65.93	-0.05	-0.08	GK
BF64K6		55.55	0.17	0.29	66.23	0.25	0.41	GN
BRZ7BD		54.95	-0.43	-0.72	65.30	-0.67	-1.08	GL
C39HRE		55.60	0.22	0.38	66.60	0.63	1.01	GK
CT8WPM		55.15	-0.23	-0.38	65.45	-0.52	-0.84	GL
DBNKM9		54.73	-0.65	-1.10	65.13	-0.85	-1.37	GL
E424N3		55.25	-0.13	-0.21	66.40	0.43	0.69	GN
EHKV4W	*	56.05	0.67	1.14	65.68	-0.30	-0.48	GL
EUXYLE		55.00	-0.38	-0.64	65.93	-0.05	-0.08	GL
FHWUUZ		56.30	0.92	1.56	66.78	0.80	1.29	GL
FRCCTQ		56.10	0.72	1.22	66.53	0.55	0.89	GK
HVKENL		55.20	-0.18	-0.30	66.05	0.08	0.13	GL
J72FZY		55.95	0.57	0.97	66.10	0.13	0.21	GN
JHPRTA		55.05	-0.33	-0.55	65.65	-0.32	-0.52	GL
JNNV4V		55.45	0.07	0.12	66.00	0.03	0.04	GL
KRTARJ		56.00	0.62	1.05	66.00	0.03	0.04	GL
KW6AWX		56.03	0.65	1.10	66.60	0.63	1.01	GL
L2B8YB		54.10	-1.28	-2.16	64.75	-1.22	-1.97	RA
MBKNUF		55.43	0.05	0.08	65.83	-0.15	-0.24	GL
MDNMPF		55.85	0.47	0.80	66.23	0.25	0.41	RA
N8LCJ7		56.35	0.97	1.65	66.93	0.95	1.54	GN
NAF7EP		54.78	-0.60	-1.02	65.58	-0.40	-0.64	GL
NX92M3		55.30	-0.08	-0.13	65.73	-0.25	-0.40	XX

Interlaboratory Testing Program for Color & Appearance

Analysis 440

60 Degree Gloss - Paint Chips
ASTM Method D 523

WebCode	Data Flag	Sample F141 Lab Mean	Difference from Grand Mean	Comparative Performance Value	Sample F142 Lab Mean	Difference from Grand Mean	Comparative Performance Value	Instr Code
P4N7N2		55.73	0.35	0.59	66.40	0.43	0.69	GK
PKBEV8		54.75	-0.63	-1.06	65.78	-0.20	-0.32	GK
PVWNEY		56.83	1.45	2.45	67.38	1.40	2.26	GL
QCEW2V		54.70	-0.68	-1.14	65.05	-0.92	-1.49	GN
QDWX9G		56.55	1.17	1.99	67.13	1.15	1.86	PC
QK6JRR		55.05	-0.33	-0.55	65.45	-0.52	-0.84	GK
QRPMW9	X	51.65	-3.73	-6.30	62.55	-3.42	-5.52	GB
RYZ8EB		55.93	0.55	0.93	66.73	0.75	1.21	GN
TAXLY9		55.85	0.47	0.80	66.40	0.43	0.69	GL
TJWWWC	*	54.00	-1.38	-2.33	65.43	-0.55	-0.88	GK
TNARM8		55.88	0.50	0.84	66.48	0.50	0.81	GL
TPB4HV		54.35	-1.03	-1.74	65.48	-0.50	-0.80	GK
TT9KYW	X	51.03	-4.35	-7.36	62.13	-3.85	-6.20	PA
U4VZGX		55.35	-0.03	-0.04	65.98	0.00	0.00	GL
UUYZQJ		55.93	0.55	0.93	66.43	0.45	0.73	GN
V8J68E		56.50	1.12	1.90	67.43	1.45	2.34	GL
VUEVUQ		55.10	-0.28	-0.47	65.78	-0.20	-0.32	GL
VWDP83		56.15	0.77	1.31	66.58	0.60	0.97	GK
WPMP92		55.10	-0.28	-0.47	65.25	-0.72	-1.16	GN
XMU93X		55.38	0.00	0.00	66.10	0.13	0.21	GL
XQLP4Q		55.40	0.02	0.04	65.65	-0.32	-0.52	GK
XWKQZE		55.58	0.20	0.34	66.35	0.38	0.61	MH
YCWPHB		55.53	0.15	0.25	65.33	-0.65	-1.04	HA
YK2U22		54.78	-0.60	-1.02	65.70	-0.27	-0.44	GQ
YTEMP4		55.20	-0.18	-0.30	65.70	-0.27	-0.44	GL
ZA3C2C		54.78	-0.60	-1.02	65.78	-0.20	-0.32	GB
ZACH3T		55.00	-0.38	-0.64	65.25	-0.72	-1.16	GK
ZEPC8Q	*	54.67	-0.71	-1.20	64.46	-1.51	-2.43	GL
ZPQJ6B	X	52.07	-3.31	-5.60	60.47	-5.50	-8.87	MR

Summary Statistics

Grand Means			
	55.38 Gloss Units		65.97 Gloss Units
Stnd Dev Btwn Labs			
	0.59 Gloss Units		0.62 Gloss Units
			Statistics based on 66 of 74 reporting participants

Interlaboratory Testing Program for Color & Appearance
Analysis 440
60 Degree Gloss - Paint Chips
ASTM Method D 523

Comments on assigned Data Flags for Test #440

427UUC(X) - Inconsistent in testing between samples.

8WL6XW(X) - Data for both samples are low.

986TJH(X) - Inconsistent in testing between samples, data for Sample F142 are low.

A4FY29(X) - Data for both samples are low.

B9JDVN(X) - Inconsistent in testing between samples, data for Sample F141 are low. Also Inconsistent in testing within both samples.

QRPMW9(X) - Data for both samples are low.

TT9KYW(X) - Data for both samples are low. Also Inconsistent in testing within both samples.

ZPQJ6B(X) - Data for both samples are low. Also Inconsistent in testing within Sample F141.
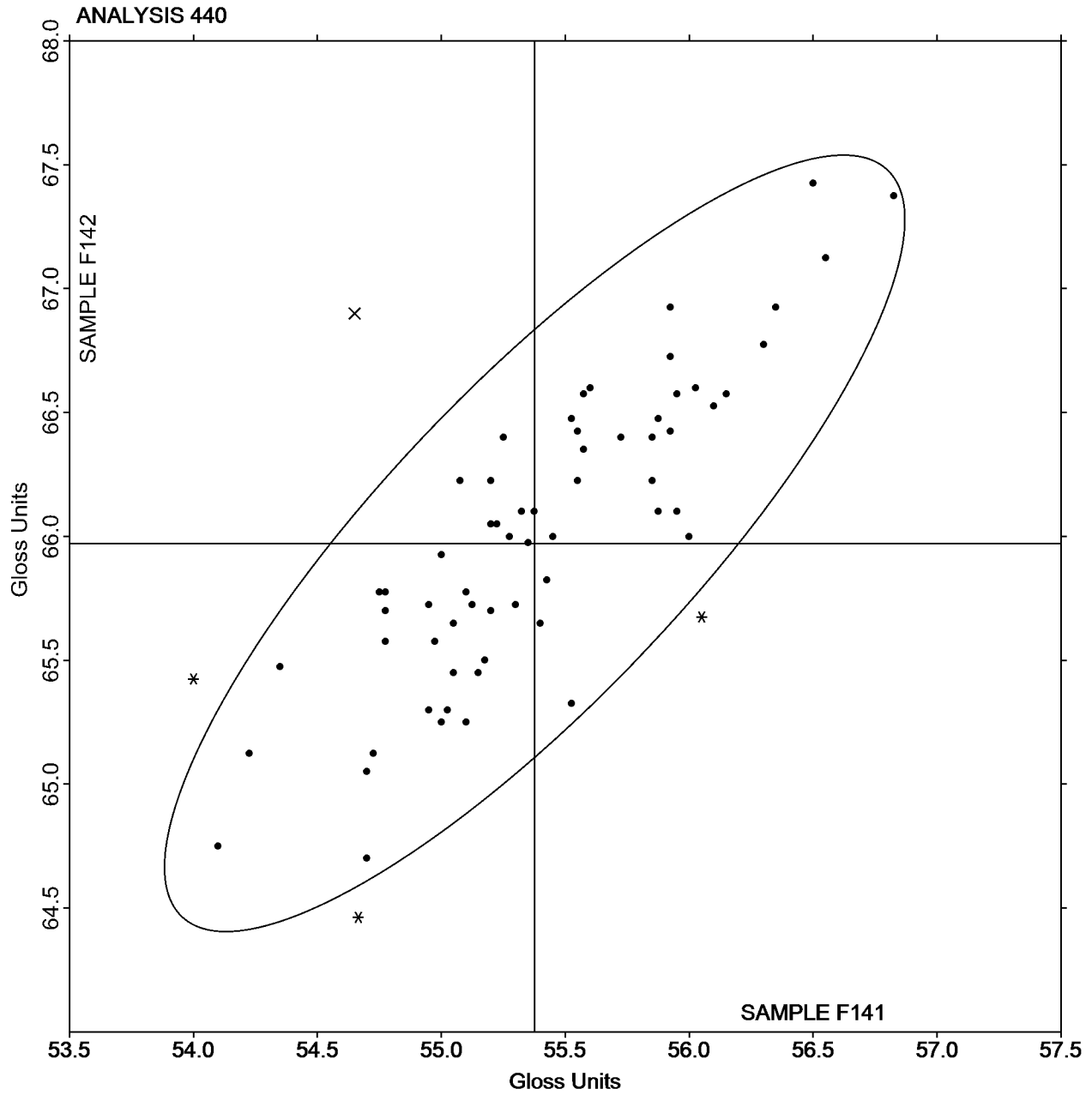
Interlaboratory Testing Program for Color & Appearance
Analysis 440
60 Degree Gloss - Paint Chips
ASTM Method D 523

SAMPLE F141 = 55.38   Gloss Units   SAMPLE F142 = 65.97   Gloss Units

ANALYSIS 440

Gloss Units

SAMPLE F142

SAMPLE F141

Gloss Units

Interlaboratory Testing Program for Color & Appearance

Analysis 442

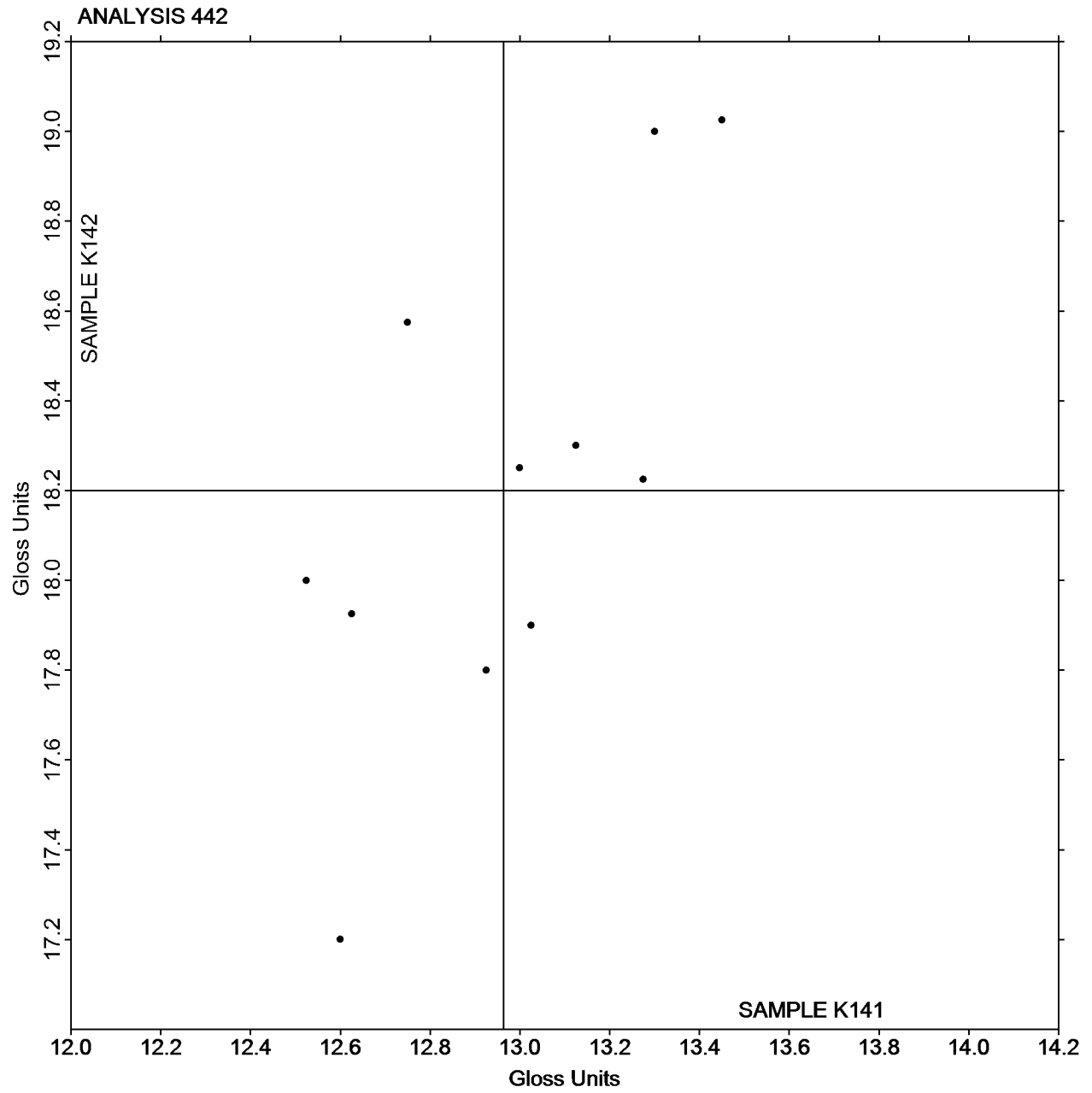### 85 Degree Gloss - Paint Chips
ASTM Method D 523

| WebCode | Data Flag | Sample K141 | | | Sample K142 | | | Instr Code |
		Lab Mean	Difference from Grand Mean	Comparative Performance Value	Lab Mean	Difference from Grand Mean	Comparative Performance Value	
3LUHN8		13.03	0.06	0.20	17.90	-0.30	-0.56	GL
64H2YH		12.60	-0.36	-1.17	17.20	-1.00	-1.88	GL
6GLAUE		13.28	0.31	1.00	18.23	0.03	0.05	GL
6XN6UZ		13.30	0.34	1.08	19.00	0.80	1.50	GN
BF64K6		12.75	-0.21	-0.69	18.58	0.38	0.70	GN
DBNKM9		12.63	-0.34	-1.09	17.93	-0.28	-0.52	GL
KRTARJ		13.00	0.04	0.12	18.25	0.05	0.09	GL
NAF7EP		12.53	-0.44	-1.41	18.00	-0.20	-0.38	GL
QCEW2V		12.93	-0.04	-0.12	17.80	-0.40	-0.75	GN
TAXLY9		13.45	0.49	1.57	19.03	0.83	1.55	GL
TNARM8		13.13	0.16	0.52	18.30	0.10	0.19	GL

Summary Statistics

Grand Means

    12.96   Gloss Units   18.20   Gloss Units

Stnd Dev Btwn Labs

    0.31   Gloss Units   0.53 Gloss Units

Statistics based on 11 of 11 reporting participants

SAMPLE K141 = 12.96   Gloss Units   SAMPLE K142 = 18.20   Gloss Units

ANALYSIS 442

Analysis	Analysis Name
440	Gloss 60 Degree (Paint Chips)

Instrument code and descript

GB	BYK Gardner Spectro - Guide Sphere Gloss
GK	BYK-Gardner micro-gloss (60)
GL	BYK-Gardner micro-TRI-gloss
GN	BYK-Gardner new micro-TRI-gloss
GQ	BYK-Gardner haze-gloss
GX	BYK-Gardner (model not specified)
HA	Horiba 60 Degree Glossmeter
MH	X-Rite/Macbeth Color-Eye XTH
MR	Macbeth Novo-Gloss (20/60/85)
MW	Minolta Multi-Gloss 268
PA	Photovolt micto-TRI-gloss G3
PC	Picogloss 503 Erichson
RA	Rhopoint Novo-Gloss Glossmeter
XX	Instrument make/model not specified by lab

Analysis	Analysis Name
442	Gloss 85 Degree (Paint Chips)

Instrument code and descript

GL	BYK-Gardner micro-TRI-gloss
GN	BYK-Gardner new micro-TRI-gloss

Instrument information as provided by laboratories

Analysis	Analysis Name

408 Color & Color Difference (Paint Chips) - 45-0

Instrument code and descript

AE	ACS Chroma-Sensor CS-3
GA	BYK-Gardner Color Guide (45/0)
GD	BYK-Gardner The Color Machine
GE	BYK-Gardner spectro-guide (45/0)
GH	BYK-Gardner Color-View
GU	Gretag Spectrolino Spectrophotometer
HK	Hunter MiniScan XE (45/0)
HW	Hunter LabScan XE
HY	Hunter Color Flex 45/0
MG	Macbeth 1500/PLUS or 2025+ Color Eye
MQ	Minolta CM-503c Spectrophotometer
TN	Topcon SR-1 Spectroradiometer
XK	X-Rite MA100 Multi-Angle SpectroPhotometer
XM	X-Rite MA58 Multi-Angle SpectroPhotometer
XN	X-Rite MA68 Multi-Angle SpectroPhotometer
XO	X-Rite MA68 II Multi-Angle SpectroPhotometer
XR	X-Rite 968 Portable SpectroPhotometer
XU	X-Rite 964 Portable SpectroPhotometer
XV	X-Rite 939 SpectroDensitometer
XZ	X-Rite Model not specified

409 Color & Color Difference (Paint Chips) Sphere

Instrument code and descript

AJ	ACS-Datacolor 600	MK	Macbeth Color-Eye 7000
AL	ACS-Datacolor Intl. Dataflash 100	MM	Macbeth Color-Eye 7000a
AM	ACS-Datacolor 600 Plus	MT	Minolta CM-2600d
AO	ACS-Datacolor 650X	MU	Minolta
AQ	ACS-Datacolor 600X	MV	Minolta CM-3000d Series Spectrophotometer
AR	Datacolor 400	PE	Perkin Elmer Spectrophotometer
CA	Cary 5000	XH	X-Rite Color i5
CE	Cary 500	X I	X-Rite Color i7
GA	BYK Gardner Color-Guide Gloss	XM	X-Rite SP62 Portable Sphere Spectrophotometer
GC	BYK-Gardner color-sphere		
GD	BYK-Gardner spectro-guide sphere	XO	X-Rite SP64 Portable Sphere Spectrophotometer
GF	BYK-Gardner The Color Sphere (TCS)		
GG	BYK-Gardner TCS II	XU	X-Rite Color Premier 8200 Spectrophotometer
HF	Hunter ColorFlex Diffuse	XX	Instrument make/model not specified by lab
HG	Hunter ColorQUEST		
HH	Hunter ColorQUEST XE		
HP	Hunter UltraScan PRO		
HW	Hunter UltraScan XE		
MG	Macbeth 2180 Color Eye		
M I	Macbeth Color i 5		
MJ	Macbeth Color-Eye 3000		

Instrument Code List - Report# 168

Instrument information as provided by laboratories

Analysis Analysis Name

411 Spectrophotometric (Paint Chips) - Sphere

Instrument code and descript

A J	ACS-Datacolor 600
A L	ACS-Datacolor Intl. Dataflash 100
AM	ACS-Datacolor 600 Plus
AO	ACS-Datacolor 650
AQ	ACS-Datacolor 600X
A R	Datacolor 400
C A	Cary 5000
C E	Cary 500
GD	BYK-Gardner spectro-guide sphere
GG	BYK-Gardner TCS II
H F	Hunter ColorFlex Diffuse
HG	Hunter ColorQUEST
HH	Hunter ColorQUEST XE
H P	Hunter UltraScan PRO
HW	Hunter UltraScan XE
MG	Macbeth 2180 Color Eye
MH	Macbeth Color-Eye XTH
M I	Macbeth Color i5
M J	Macbeth Color-Eye 3000 Spectrophotometer
MK	Macbeth Color-Eye 7000 Spectrophotometer
MM	Macbeth Color-Eye 7000a
MU	Minolta
MV	Minolta CM-3000d Series Spectrophotometer
P E	Perkin Elmer Spectrophotometer
XH	X-Rite Color i5
X I	X-Rite Color i7
XM	X-Rite SP62
XO	X-Rite SP64
X U	X-RiteColor Premier 8200 Spectrophotometer
X X	Instrument make/model not specified by lab