



## Color & Appearance Testing Program

Summary Report # 171 - 1st Qtr 2015

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Analysis   Analysis Name

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## 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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## Key for Color Program Web Summary Report

<b>WebCode</b>	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.
<b>Lab Mean</b>	The average of the 2 test results obtained by the participant for CIE L*,a*,b* color space values.
<b>Grand Mean</b>	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.
<b>Between-Lab Standard Deviation</b>	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).
<b>Comparative Performance Value</b>	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.
<b>Graphs</b>	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* <sub>2</sub> vs L* <sub>1</sub> , a* <sub>2</sub> vs a* <sub>1</sub> and b* <sub>2</sub> vs b* <sub>1</sub> . The a* and b* plots are created using absolute values.
<b>Inst Code</b>	A code indicating the manufacturer of the instrument used to perform the test (see separate INSTRUMENT CODE LIST for each test section).
<b>Data Flag</b>	DATA FLAGS are assigned based on the simultaneous analysis of both samples tested. Refer to the following chart for an explanation of each symbol:

<u>DATA FLAG</u>	<u>STATISTICALLY INCLUDED/EXCLUDED</u>	<u>ACTION REQUIRED</u>
*	INCLUDED	<b>CAUTION</b> - 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	<b>STOP</b> - 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	<b>PROCEED</b> - 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

<b>WebCode</b>	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.
<b>Grand Mean</b>	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.
<b>Between-Lab Standard Deviation</b>	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).
<b>Inst Code</b>	A code indicating the manufacturer of the instrument used to perform the test (see separate INSTRUMENT CODE LIST for each test section).
<b>Data Flag</b>	DATA FLAGS are assigned based on the simultaneous analysis of both samples tested. Refer to the following chart for an explanation of each symbol:

<u>DATA FLAG</u>	<u>STATISTICALLY INCLUDED/EXCLUDED</u>	<u>ACTION REQUIRED</u>
*	INCLUDED	<b>CAUTION</b> - 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	<b>STOP</b> - 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.

## Key for Color Program (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 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:

<u>DATA FLAG</u>	<u>STATISTICALLY INCLUDED/EXCLUDED</u>	<u>ACTION REQUIRED</u>
*	INCLUDED	<b>CAUTION</b> - 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	<b>STOP</b> - 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	<b>PROCEED</b> - 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

<u>WebCode</u> <u>Flag</u>	<u>Samples</u>	<u>CIE L* a* b* Color Values</u>			<u>Color Difference Values</u>				<u>InstrCode</u>
		<u>L*</u>	<u>a*</u>	<u>b*</u>	<u>ΔL*</u>	<u>Δa*</u>	<u>Δb*</u>	<u>ΔE*</u>	
2D8G2C	A151	57.33	25.72	25.23	0.82	-0.68	-0.48	1.17	HW
	A152	58.15	25.04	24.76					
2KPAUM	A151	57.38	25.39	24.13	0.77	-0.57	-0.39	1.03	GQ
	A152	58.15	24.82	23.75					
2VMX2J	A151	57.49	25.84	25.37	0.85	-0.73	-0.51	1.23	HW
	A152	58.34	25.11	24.86					
36DQXG	A151	57.32	25.70	24.15	0.83	-0.85	-0.59	1.32	AE
	A152	58.15	24.85	23.56					
3VKP9Q	A151	57.61	25.86	25.47	0.81	-0.54	-0.41	1.05	HW
	A152	58.42	25.32	25.06					
6U3DPB	A151	57.08	25.79	25.12	0.82	-0.50	-0.36	1.02	XU
	A152	57.90	25.29	24.77					
7KAG3Z	A151	57.35	25.46	25.50	0.97	-0.41	-0.19	1.07	HW
	A152	58.31	25.05	25.31					
7QW8MB	A151	57.04	25.84	24.81	0.77	-0.51	-0.34	0.98	XZ
	A152	57.81	25.33	24.47					
82EB8F	A151	57.52	25.64	25.31	0.86	-0.58	-0.42	1.12	HW
	A152	58.38	25.06	24.90					
8H3JAJ	A151	57.29	25.76	25.11	0.82	-0.74	-0.57	1.24	HK
	A152	58.11	25.02	24.54					
8JEZKC	A151	57.63	25.98	25.51	0.84	-0.52	-0.35	1.04	HW
	A152	58.46	25.46	25.16					
AQ8939	A151	57.85	25.72	25.12	0.80	-0.82	-0.60	1.29	XD
	A152	58.65	24.91	24.52					
B7TXQA	A151	57.45	25.59	25.28	0.72	-0.39	-0.26	0.86	HW
	A152	58.17	25.20	25.02					
BC3FMG	A151	57.92	25.97	25.57	0.79	-0.52	-0.40	1.02	HW
	A152	58.71	25.45	25.17					

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

<u>WebCode</u> <u>Flag</u>	<u>Samples</u>	<u>CIE L* a* b* Color Values</u>			<u>Color Difference Values</u>				<u>InstrCode</u>
		<u>L*</u>	<u>a*</u>	<u>b*</u>	<u>ΔL*</u>	<u>Δa*</u>	<u>Δb*</u>	<u>ΔE*</u>	
DUC8MP	A151	57.63	25.74	24.64	0.74	-0.50	-0.36	0.96	XZ
	A152	58.37	25.24	24.28					
FVHCDH	A151	57.19	25.82	25.04	0.78	-0.64	-0.42	1.09	XO
	A152	57.97	25.19	24.63					
GQ3YBA	A151	57.42	25.67	25.33	0.81	-0.67	-0.47	1.15	HW
	A152	58.23	25.00	24.86					
H2U86W	A151	57.44	25.91	25.02	0.91	-0.65	-0.47	1.20	XN
	A152	58.35	25.26	24.55					
HCCVYV	A151	57.70	25.66	24.92	0.88	-0.57	-0.36	1.10	XZ
	A152	58.58	25.10	24.56					
JV7KBC	A151	57.46	25.83	25.06	0.76	-0.47	-0.26	0.93	XO
	A152	58.22	25.36	24.81					
JVCYK7	A151	57.27	26.10	24.95	0.83	-0.40	-0.19	0.93	GH
	A152	58.09	25.70	24.76					
K976Q7	A151	57.21	25.77	24.45	0.87	-0.44	-0.28	1.01	XZ
	A152	58.08	25.34	24.17					
KKKZ6K	A151	57.46	25.80	25.48	0.86	-0.56	-0.40	1.10	HW
	A152	58.32	25.24	25.08					
LYKYU3	A151	57.26	25.66	24.75	0.67	-0.55	-0.32	0.93	XZ
	A152	57.94	25.11	24.43					
M4NJV6	A151	57.39	25.84	25.17	0.77	-0.53	-0.37	1.00	XM
	A152	58.16	25.31	24.80					
M8UPTY	A151	57.24	26.10	25.07	0.82	-0.57	-0.46	1.10	GB
	A152	58.06	25.53	24.61					
N6YTEP	A151	57.21	26.47	25.85	0.85	-0.65	-0.47	1.17	GA
	A152	58.05	25.82	25.38					
NCF7HU	A151	57.25	25.74	25.02	0.74	-0.40	-0.33	0.90	XO
	A152	57.99	25.34	24.69					

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

<u>WebCode</u> <u>Flag</u>	<u>Samples</u>	<u>CIE L* a* b* Color Values</u>			<u>Color Difference Values</u>				<u>InstrCode</u>
		<u>L*</u>	<u>a*</u>	<u>b*</u>	<u>ΔL*</u>	<u>Δa*</u>	<u>Δb*</u>	<u>ΔE*</u>	
NX2WXE	A151	57.46	26.02	25.81	0.85	-0.70	-0.53	1.22	MG
	A152	58.30	25.33	25.27					
PXV9PY	A151	57.41	25.99	25.06	0.80	-0.52	-0.35	1.01	XK
	A152	58.21	25.47	24.71					
RER9YB	A151	57.67	25.86	25.26	0.82	-0.52	-0.35	1.03	GH
	A152	58.48	25.34	24.91					
RHU7A4 X	A151	59.90	26.66	24.08	0.77	-0.48	-0.35	0.97	TO
	A152	60.67	26.19	23.73					
RZBHRV	A151	57.03	25.81	24.76	0.90	-0.55	-0.43	1.14	HK
	A152	57.93	25.26	24.33					
TKFD6K	A151	57.32	26.01	25.23	0.88	-0.75	-0.55	1.28	XU
	A152	58.20	25.26	24.68					
VA8H4Q	A151	56.87	26.03	25.20	0.80	-0.78	-0.63	1.28	HY
	A152	57.67	25.25	24.57					
VATVR4	A151	56.77	25.83	24.80	0.91	-0.58	-0.39	1.14	XR
	A152	57.68	25.25	24.41					
VUXFJW	A151	57.93	26.06	25.61	0.88	-0.59	-0.43	1.14	HW
	A152	58.81	25.47	25.18					

**Summary Statistics**

<u>Samples</u>	<u>L*</u>	<u>a*</u>	<u>b*</u>	<u>ΔL*</u>	<u>Δa*</u>	<u>Δb*</u>	<u>ΔE*</u>
Grand Means							
A151	57.38	25.83	25.08	0.82	-0.58	-0.41	1.09
A152	58.20	25.25	24.68				
Std Dev Btwn Labs							
A151	0.26	0.20	0.42	0.06	0.12	0.11	0.12
A152	0.26	0.21	0.42				

Statistics based on 36 of 37 reporting participants



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

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**Comments assigned on Data Flags for Test #408**

RHU7A4(X) - High L\* and a\* values.

# Interlaboratory Testing Program for Color & Appearance

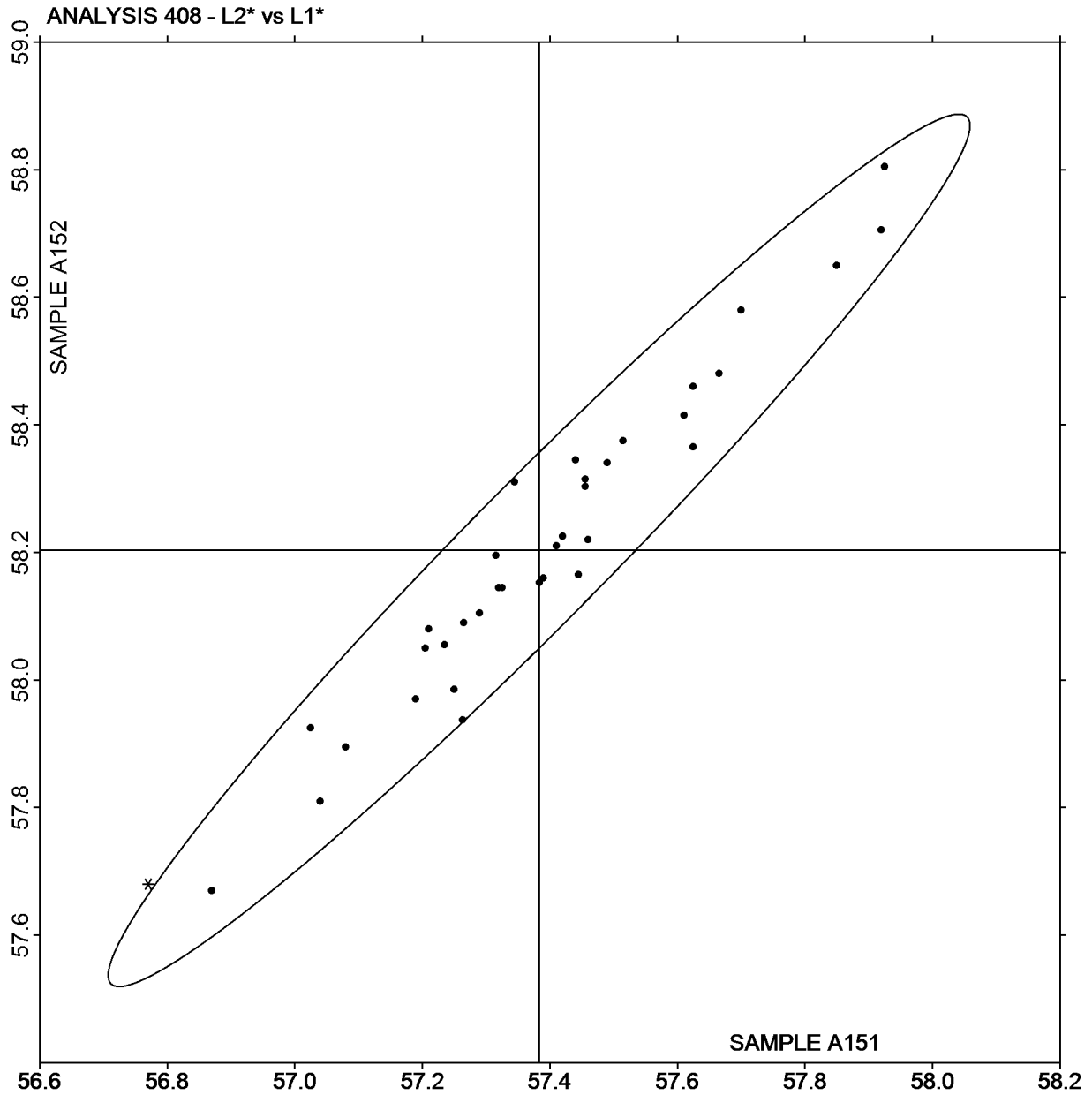
## Analysis 408

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 A151 = 57.38

SAMPLE A152 = 58.20



Interlaboratory Testing Program for Color & Appearance

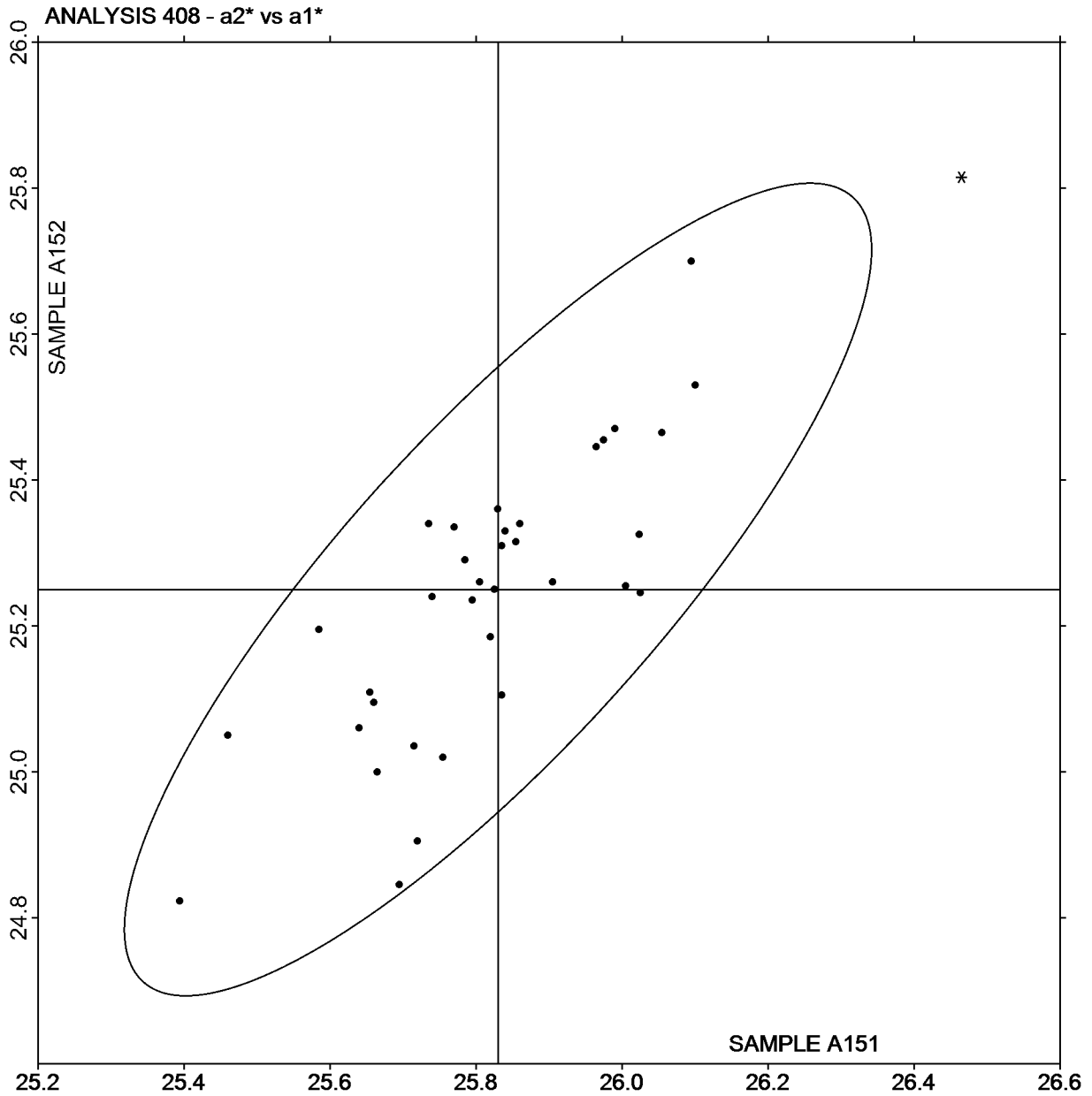
Analysis 408

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 A151 = 25.83

SAMPLE A152 = 25.25



Interlaboratory Testing Program for Color & Appearance

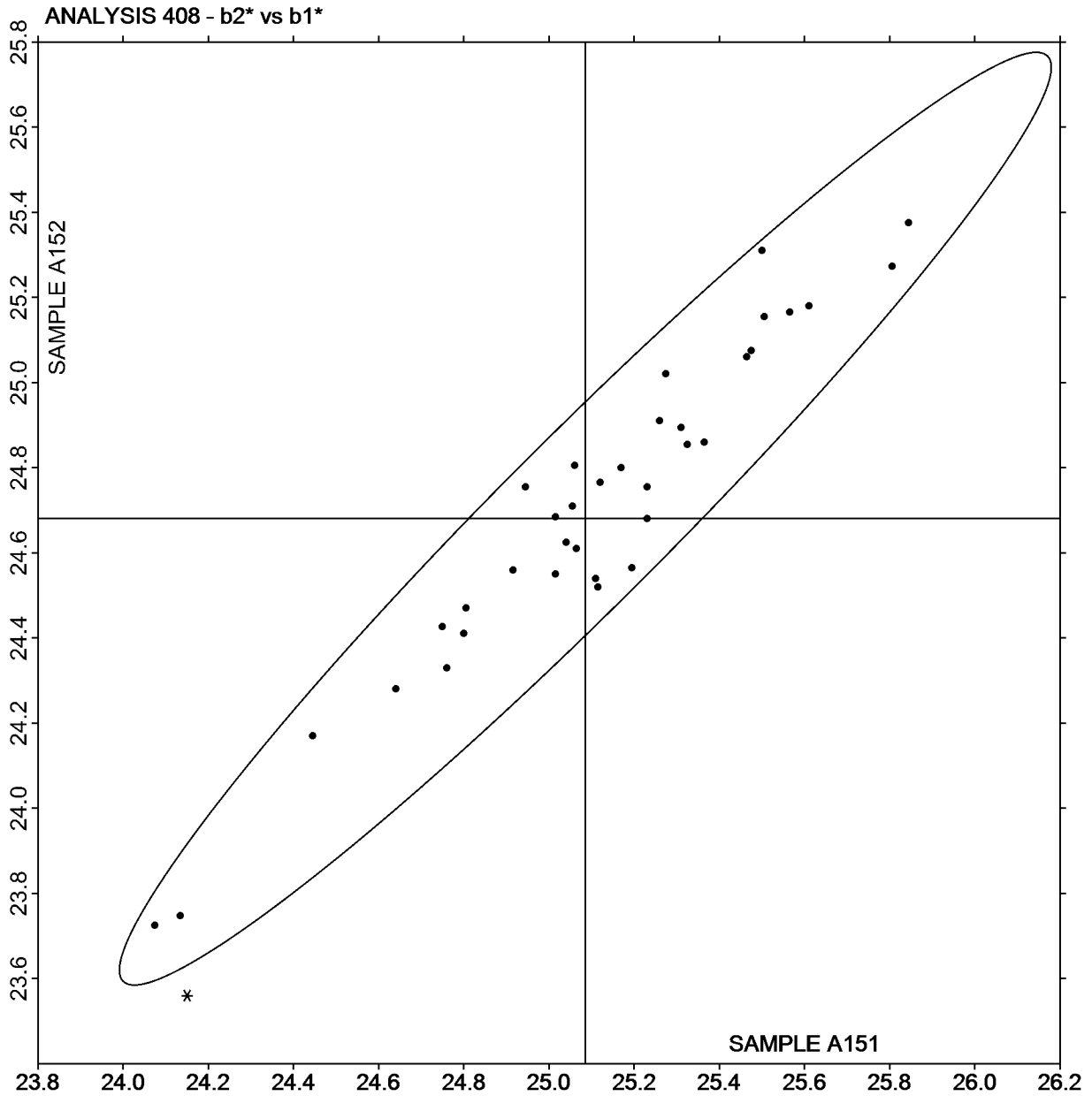
Analysis 408

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 A151 = 25.08

SAMPLE A152 = 24.68



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

<u>WebCode</u> <u>Flag</u>	<u>Samples</u>	<u>CIE L* a* b* Color Values</u>			<u>Color Difference Values</u>				<u>InstrCode</u>
		<u>L*</u>	<u>a*</u>	<u>b*</u>	<u>ΔL*</u>	<u>Δa*</u>	<u>Δb*</u>	<u>ΔE*</u>	
22FVVG	A151	57.30	25.87	24.40	0.86	-0.73	-0.54	1.25	AJ
	A152	58.16	25.14	23.86					
26TT6P	A151	57.25	25.58	24.21	0.80	-0.57	-0.41	1.06	MV
	A152	58.05	25.02	23.81					
27NEVU	A151	57.37	25.25	24.18	0.77	-0.42	-0.28	0.92	MM
	A152	58.14	24.83	23.90					
2JDBV8	A151	57.29	25.64	24.10	0.82	-0.41	-0.28	0.95	MV
	A152	58.10	25.23	23.83					
2KPAUM	A151	57.38	25.39	24.13	0.77	-0.57	-0.39	1.03	MM
	A152	58.15	24.82	23.75					
2LJVKT	A151	57.20	25.47	24.21	0.81	-0.29	-0.14	0.87	PE
	A152	58.01	25.18	24.08					
2QWE7F	A151	57.38	25.75	24.47	0.80	-0.69	-0.50	1.17	AJ
	A152	58.18	25.06	23.97					
2TXJGF	A151	57.03	25.30	24.28	0.83	-0.67	-0.52	1.18	MJ
	A152	57.86	24.63	23.76					
3PYPWJ	A151	57.15	25.80	24.60	0.86	-0.46	-0.29	1.02	XH
	A152	58.01	25.34	24.31					
44DDL8	A151	57.43	25.52	24.05	0.79	-0.42	-0.29	0.93	AO
	A152	58.21	25.10	23.76					
44V4WD	A151	57.35	25.70	24.56	0.79	-0.48	-0.33	0.98	XH
	A152	58.13	25.22	24.23					
4AXBE2	A151	57.41	25.71	24.54	0.85	-0.67	-0.46	1.17	XI
	A152	58.25	25.04	24.08					
4GHEJH	A151	57.40	25.70	24.01	0.80	-0.57	-0.41	1.06	AJ
	A152	58.20	25.13	23.60					
4K2NCG	A151	57.17	25.42	24.02	0.79	-0.66	-0.48	1.13	MM
	A152	57.96	24.77	23.54					

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

<u>WebCode</u> <u>Flag</u>	<u>Samples</u>	<u>CIE L* a* b* Color Values</u>			<u>Color Difference Values</u>				<u>InstrCode</u>
		<u>L*</u>	<u>a*</u>	<u>b*</u>	<u>ΔL*</u>	<u>Δa*</u>	<u>Δb*</u>	<u>ΔE*</u>	
4U8D7E	X A151	57.91	25.55	24.94	0.62	-0.43	-0.32	0.82	HW
	A152	58.53	25.12	24.62					
4X8JRC	A151	57.26	25.30	24.12	0.84	-0.50	-0.34	1.03	MM
	A152	58.09	24.81	23.78					
69MQ8D	A151	57.41	25.62	24.13	0.83	-0.54	-0.38	1.06	AJ
	A152	58.24	25.08	23.75					
6CZTRM	A151	57.49	25.30	24.74	0.83	-0.54	-0.38	1.06	XI
	A152	58.32	24.76	24.36					
6JLNQ7	A151	57.16	25.70	24.40	0.86	-0.76	-0.51	1.25	XI
	A152	58.02	24.95	23.89					
6U3DPB	A151	57.42	25.52	24.42	0.82	-0.54	-0.35	1.04	XI
	A152	58.24	24.99	24.07					
6UZGJL	A151	57.49	25.61	24.38	0.77	-0.75	-0.54	1.20	AJ
	A152	58.26	24.86	23.84					
7PMZNN	A151	57.13	25.28	24.46	0.84	-0.53	-0.36	1.05	XM
	A152	57.96	24.75	24.10					
82EB8F	A151	57.34	25.36	23.77	0.88	-0.68	-0.45	1.19	HP
	A152	58.21	24.68	23.33					
8MGWCR	A151	57.62	25.46	24.27	0.80	-0.53	-0.36	1.02	HF
	A152	58.42	24.94	23.91					
8T3YBH	A151	57.31	25.63	24.03	0.81	-0.58	-0.38	1.06	AJ
	A152	58.12	25.05	23.66					
97JC3H	A151	57.32	25.46	23.94	0.85	-0.52	-0.33	1.05	XX
	A152	58.17	24.94	23.61					
9FAUHB	A151	57.47	25.56	24.36	0.78	-0.43	-0.31	0.94	XI
	A152	58.25	25.14	24.05					
A7XBHC	A151	57.16	25.46	23.77	0.81	-0.58	-0.34	1.04	HP
	A152	57.97	24.88	23.43					

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

<u>WebCode</u>	<u>Flag</u>	<u>Samples</u>	<u>CIE L* a* b* Color Values</u>			<u>Color Difference Values</u>				<u>InstrCode</u>
			<u>L*</u>	<u>a*</u>	<u>b*</u>	<u>ΔL*</u>	<u>Δa*</u>	<u>Δb*</u>	<u>ΔE*</u>	
ABBQCA		A151	57.22	25.69	24.09	0.80	-0.67	-0.46	1.14	AM
		A152	58.02	25.02	23.64					
AC3YCD		A151	57.38	25.55	24.03	0.71	-0.34	-0.19	0.81	AM
		A152	58.09	25.21	23.84					
AJAHJJ		A151	57.26	25.67	24.34	0.79	-0.55	-0.40	1.04	MV
		A152	58.04	25.13	23.94					
AKJPJQ	X	A151	57.25	25.52	25.34	0.76	-0.53	-0.38	1.00	GC
		A152	58.01	24.99	24.96					
BBRBCE		A151	57.11	25.58	24.15	0.78	-0.75	-0.57	1.22	GD
		A152	57.89	24.83	23.58					
BJZ2V4		A151	57.24	25.84	24.62	0.88	-0.82	-0.55	1.31	GD
		A152	58.12	25.03	24.08					
BQHEU4		A151	57.47	25.59	24.18	0.77	-0.56	-0.40	1.03	AO
		A152	58.24	25.03	23.78					
BZAW9C	X	A151	58.39	25.67	25.51	0.70	-0.53	-0.38	0.95	MU
		A152	59.09	25.15	25.13					
DA96AU		A151	57.27	25.22	24.08	0.80	-0.37	-0.22	0.90	MM
		A152	58.06	24.85	23.86					
DGAG8C		A151	57.46	25.73	24.40	0.78	-0.58	-0.40	1.05	MV
		A152	58.24	25.15	24.00					
E9PZR8		A151	57.37	25.62	24.34	0.87	-0.52	-0.37	1.07	XI
		A152	58.23	25.10	23.98					
EB2DUH		A151	57.12	25.62	24.20	0.80	-0.53	-0.35	1.02	MI
		A152	57.92	25.10	23.85					
ENNMJ9		A151	57.20	25.34	23.86	0.88	-0.48	-0.33	1.05	AO
		A152	58.08	24.86	23.54					
F3HTNN		A151	57.44	25.60	24.45	0.83	-0.46	-0.30	0.99	AJ
		A152	58.27	25.14	24.15					

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

<u>WebCode</u> <u>Flag</u>	<u>Samples</u>	<u>CIE L* a* b* Color Values</u>			<u>Color Difference Values</u>				<u>InstrCode</u>
		<u>L*</u>	<u>a*</u>	<u>b*</u>	<u>ΔL*</u>	<u>Δa*</u>	<u>Δb*</u>	<u>ΔE*</u>	
FFMRWU X	A151	57.16	25.92	25.14	0.40	-0.36	-0.33	0.62	HG
	A152	57.55	25.57	24.82					
FVHCDH	A151	57.01	25.70	24.39	0.80	-0.56	-0.39	1.05	MI
	A152	57.81	25.14	24.00					
FWCX6N	A151	57.26	25.80	24.16	0.85	-0.46	-0.33	1.01	AJ
	A152	58.10	25.34	23.83					
FXL8WL	A151	57.55	25.60	24.39	0.83	-0.48	-0.27	1.00	AM
	A152	58.38	25.12	24.12					
G2N68D	A151	57.26	25.71	24.51	0.83	-0.49	-0.33	1.01	XH
	A152	58.09	25.22	24.18					
GFJMUQ	A151	57.42	25.56	24.10	0.82	-0.51	-0.37	1.03	AO
	A152	58.24	25.05	23.74					
GNY94U	A151	57.26	25.69	24.34	0.85	-0.66	-0.46	1.17	AL
	A152	58.11	25.03	23.88					
GRXK2F	A151	57.44	25.69	24.19	0.77	-0.62	-0.43	1.07	AJ
	A152	58.21	25.07	23.76					
H2U86W X	A151	56.34	25.32	24.34	0.83	-0.61	-0.40	1.10	XO
	A152	57.17	24.71	23.94					
HFGE4H X	A151	57.78	25.50	24.21	0.25	-0.41	-0.24	0.53	XI
	A152	58.03	25.09	23.97					
HKWR7Q	A151	57.37	25.71	24.18	0.84	-0.66	-0.51	1.18	AJ
	A152	58.20	25.05	23.67					
HMYMPU	A151	57.51	25.67	24.19	0.79	-0.39	-0.29	0.92	AO
	A152	58.30	25.29	23.90					
HP3LZM	A151	57.30	25.49	23.96	0.80	-0.51	-0.32	1.00	AM
	A152	58.10	24.98	23.65					
HWMLGY	A151	57.17	25.56	24.11	0.87	-0.68	-0.49	1.20	AJ
	A152	58.04	24.89	23.62					



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

<u>WebCode</u> <u>Flag</u>	<u>Samples</u>	<u>CIE L* a* b* Color Values</u>			<u>Color Difference Values</u>				<u>InstrCode</u>
		<u>L*</u>	<u>a*</u>	<u>b*</u>	<u>ΔL*</u>	<u>Δa*</u>	<u>Δb*</u>	<u>ΔE*</u>	
HYQCME	A151	57.30	25.42	24.08	0.84	-0.58	-0.40	1.09	AM
	A152	58.14	24.84	23.68					
J44GWU	A151	57.25	25.51	24.28	0.87	-0.64	-0.44	1.16	XH
	A152	58.12	24.87	23.84					
J4X8X2	A151	57.39	25.62	24.22	0.75	-0.55	-0.40	1.01	AQ
	A152	58.14	25.07	23.82					
J83Q6A	A151	57.16	25.44	24.38	0.85	-0.44	-0.28	0.99	MG
	A152	58.01	25.00	24.10					
JLMBMH	A151	57.45	25.63	24.20	0.80	-0.51	-0.34	1.01	AJ
	A152	58.25	25.12	23.86					
JLY8U9	A151	57.11	25.49	24.11	0.77	-0.50	-0.34	0.98	XH
	A152	57.88	24.99	23.77					
JVCYK7	A151	57.19	25.41	24.45	0.79	-0.54	-0.38	1.02	GD
	A152	57.98	24.88	24.07					
JZJPKQ	A151	57.40	25.68	24.47	0.87	-0.71	-0.53	1.23	XI
	A152	58.26	24.98	23.94					
K2VLRG	A151	57.44	25.32	24.06	0.77	-0.43	-0.29	0.93	MM
	A152	58.21	24.90	23.77					
K4VUWR	A151	57.37	25.63	24.22	0.78	-0.74	-0.59	1.22	AJ
	A152	58.14	24.90	23.63					
KQ8PQF	A151	57.59	25.13	24.08	0.84	-0.43	-0.31	0.99	XI
	A152	58.43	24.70	23.77					
L4FVEM	A151	57.30	25.66	24.14	0.82	-0.66	-0.53	1.17	AJ
	A152	58.12	25.00	23.62					
LKHU3G	A151	57.52	25.55	24.31	0.84	-0.59	-0.45	1.12	XI
	A152	58.36	24.96	23.87					
MEQKTJ X	A151	57.31	25.23	23.45	0.68	-0.52	-0.01	0.86	HP
	A152	57.99	24.71	23.44					

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

<u>WebCode</u> <u>Flag</u>	<u>Samples</u>	<u>CIE L* a* b* Color Values</u>			<u>Color Difference Values</u>				<u>InstrCode</u>
		<u>L*</u>	<u>a*</u>	<u>b*</u>	<u>ΔL*</u>	<u>Δa*</u>	<u>Δb*</u>	<u>ΔE*</u>	
MH7E9F	A151	57.50	25.79	24.38	0.83	-0.63	-0.47	1.14	AQ
	A152	58.33	25.16	23.91					
MJM9CB	A151	57.26	25.58	24.04	0.84	-0.57	-0.40	1.08	AO
	A152	58.09	25.02	23.64					
MYDFZW	A151	57.30	25.60	24.23	0.84	-0.46	-0.30	1.00	MM
	A152	58.14	25.14	23.94					
N3BEUL	A151	57.27	25.29	24.11	0.84	-0.31	-0.18	0.91	MM
	A152	58.11	24.98	23.93					
NARTXQ	A151	57.34	25.55	24.72	0.84	-0.60	-0.46	1.13	GD
	A152	58.18	24.96	24.26					
P2X3UV	A151	57.36	25.70	24.28	0.80	-0.47	-0.30	0.97	AJ
	A152	58.15	25.23	23.98					
P4MB2C	A151	57.56	25.40	24.77	0.71	-0.64	-0.48	1.07	XO
	A152	58.27	24.76	24.30					
PW2DAH	A151	57.33	25.60	24.39	0.83	-0.67	-0.59	1.21	MK
	A152	58.16	24.93	23.80					
PWHGY4	A151	57.26	25.55	24.18	0.86	-0.71	-0.51	1.22	HP
	A152	58.12	24.85	23.68					
PXV9PY	A151	57.28	25.67	24.02	0.85	-0.73	-0.53	1.23	AO
	A152	58.13	24.94	23.50					
Q7HGW8 X	A151	57.62	25.06	24.16	0.78	-0.57	-0.43	1.06	GF
	A152	58.40	24.49	23.73					
QLYF4U	A151	57.35	25.74	24.37	0.80	-0.81	-0.59	1.28	XI
	A152	58.15	24.94	23.78					
QM8PVQ	A151	57.44	25.76	24.26	0.78	-0.54	-0.42	1.03	AO
	A152	58.22	25.23	23.84					
QWWH4GX	A151	57.54	26.76	24.52	0.83	1.44	-0.38	1.70	MV
	A152	58.36	28.20	24.14					

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

<u>WebCode</u>	<u>Flag</u>	<u>Samples</u>	<u>CIE L* a* b* Color Values</u>			<u>Color Difference Values</u>				<u>InstrCode</u>
			<u>L*</u>	<u>a*</u>	<u>b*</u>	<u>ΔL*</u>	<u>Δa*</u>	<u>Δb*</u>	<u>ΔE*</u>	
R7JJDY		A151	57.34	25.72	24.48	0.86	-0.69	-0.51	1.22	CE
		A152	58.20	25.03	23.97					
RER9YB		A151	57.34	25.65	24.41	0.83	-0.45	-0.29	0.98	MV
		A152	58.17	25.21	24.12					
RHU7A4	X	A151	59.47	26.35	23.82	0.83	-0.43	-0.30	0.98	CA
		A152	60.30	25.93	23.53					
RPCHM4		A151	57.42	25.60	24.15	0.82	-0.71	-0.54	1.21	AO
		A152	58.24	24.90	23.61					
RQ774E		A151	56.96	25.72	24.49	0.87	-0.56	-0.41	1.11	XH
		A152	57.83	25.16	24.08					
RVHBFE	X	A151	57.32	24.96	24.06	0.85	-0.12	-0.45	0.96	MM
		A152	58.17	24.84	23.61					
TGDEQK		A151	57.30	25.66	24.17	0.71	-0.59	-0.40	1.00	AQ
		A152	58.00	25.07	23.78					
TJ4K9W	X	A151	57.21	25.92	25.13	0.88	-0.87	-0.67	1.40	XH
		A152	58.08	25.05	24.46					
TKA38R		A151	57.44	25.94	24.85	0.88	-0.63	-0.40	1.15	MH
		A152	58.32	25.31	24.45					
TKFD6K		A151	57.26	25.56	24.43	0.88	-0.69	-0.48	1.21	XI
		A152	58.14	24.87	23.95					
TVDBWQ		A151	57.47	25.36	24.64	0.81	-0.59	-0.43	1.08	XO
		A152	58.28	24.77	24.21					
UEL7Y		A151	57.44	25.62	24.17	0.88	-0.44	-0.31	1.03	AO
		A152	58.32	25.18	23.86					
UMFQJW	X	A151	56.37	27.22	22.63	0.84	-0.72	-0.58	1.25	HP
		A152	57.20	26.50	22.05					
UUWE36		A151	57.43	25.60	24.25	0.81	-0.47	-0.29	0.98	XI
		A152	58.24	25.13	23.96					

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

<u>WebCode</u> <u>Flag</u>	<u>Samples</u>	<u>CIE L* a* b* Color Values</u>			<u>Color Difference Values</u>				<u>InstrCode</u>
		<u>L*</u>	<u>a*</u>	<u>b*</u>	<u>ΔL*</u>	<u>Δa*</u>	<u>Δb*</u>	<u>ΔE*</u>	
VJBGTR	A151	57.49	25.65	24.56	0.82	-0.31	-0.18	0.89	MU
	A152	58.30	25.35	24.38					
VY728U	A151	57.45	25.35	24.22	0.84	-0.54	-0.39	1.07	AJ
	A152	58.29	24.81	23.83					
VZ6ZQ3	A151	57.14	25.65	24.37	0.92	-0.72	-0.54	1.29	MI
	A152	58.06	24.93	23.83					
W4ZDNC X	A151	57.17	25.18	24.06	0.00	-0.03	-0.02	0.03	AM
	A152	57.17	25.15	24.04					
WAHQKP	A151	57.37	25.53	24.11	0.85	-0.54	-0.36	1.07	MM
	A152	58.22	24.99	23.75					
WK6PCV	A151	57.21	25.86	24.73	0.86	-0.59	-0.38	1.11	XH
	A152	58.07	25.27	24.36					
Y9L32K	A151	57.43	25.37	24.10	0.79	-0.53	-0.39	1.03	MM
	A152	58.22	24.84	23.71					
YHAX3L	A151	57.23	25.57	24.18	0.83	-0.54	-0.35	1.05	AQ
	A152	58.06	25.03	23.83					
YRDXR X	A151	58.44	26.12	24.70	0.86	-0.58	-0.40	1.11	AR
	A152	59.30	25.54	24.31					
YWCAUE	A151	57.30	25.59	24.13	0.86	-0.56	-0.32	1.07	AM
	A152	58.16	25.04	23.81					
Z39L8M	A151	57.33	25.76	24.41	0.81	-0.74	-0.52	1.21	MU
	A152	58.14	25.02	23.90					
Z449FK	A151	57.34	25.65	24.26	0.71	-0.41	-0.29	0.87	AM
	A152	58.05	25.24	23.97					
ZMJD84	A151	57.40	25.40	24.15	0.81	-0.46	-0.29	0.98	XI
	A152	58.21	24.94	23.86					
ZW7CYA	A151	57.44	25.54	24.08	0.83	-0.51	-0.36	1.03	AJ
	A152	58.26	25.03	23.72					

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

**Summary Statistics**

<u>Samples</u>	<u>L*</u>	<u>a*</u>	<u>b*</u>	<u>ΔL*</u>	<u>Δa*</u>	<u>Δb*</u>	<u>ΔE*</u>
Grand Means							
A151	57.33	25.57	24.26				
A152	58.15	25.01	23.88	0.82	-0.56	-0.39	1.07
Std Dev Btwn Labs							
A151	0.13	0.16	0.22				
A152	0.13	0.16	0.22	0.04	0.11	0.10	0.11

Statistics based on 97 of 112 reporting participants

**Comments assigned on Data Flags for Test #409**

4U8D7E(X) - High L\* and b\* values. Small DL value.

AKJPJQ(X) - High b\* values.

BZAW9C(X) - High L\* and b\* values. Small DL value.

FFMRWU(X) - Low L\* and high a\* values for Sample A152. High b\* values. Large replication difference for L\*, a\* and b\* values. Small DL and DE values.

H2U86W(X) - Low L\* values.

HFGE4H(X) - High L\* values for Sample A151. Large replication difference for L\* values for Sample A151. Small DL and DE values.

MEQKTJ(X) - Low b\* values for Sample A151. Small DL and Db values.

Q7HGW8(X) - Low a\* values.

QWWH4G(X) - High a\* values. Large replication difference for a\* values on Sample A151. Large Da and DE values.

RHU7A4(X) - High L\* and a\* values. Large replication difference for L\* values on Sample A152.

RVHBFEX) - Low a\* values for Sample A151. Large replication difference for a\* values for Sample A151. Small Da values.

TJ4K9W(X) - High b\* values for Sample A151. Large Db, and DE values.

UMFQJW(X) - Low L\* and b\* values. High a\* values.

W4ZDNC(X) - Low L\* values for Sample A152. Small DL, Da, Db, and DE values.

YRDXXRM(X) - High L\* and a\* values.

# Interlaboratory Testing Program for Color & Appearance

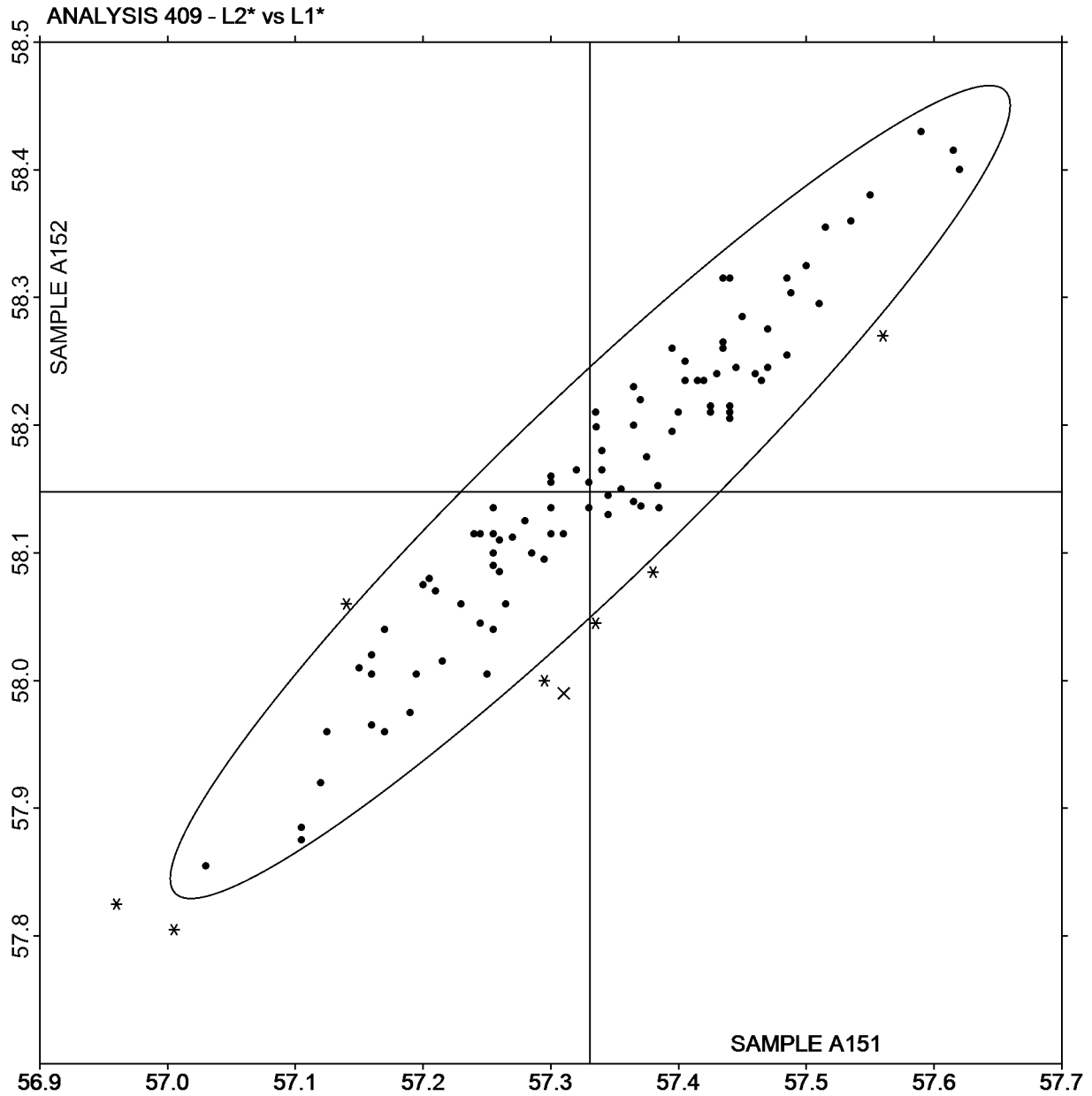
## Analysis 409

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

### L2\* vs L1\*

SAMPLE A151 = 57.33

SAMPLE A152 = 58.15



# Interlaboratory Testing Program for Color & Appearance

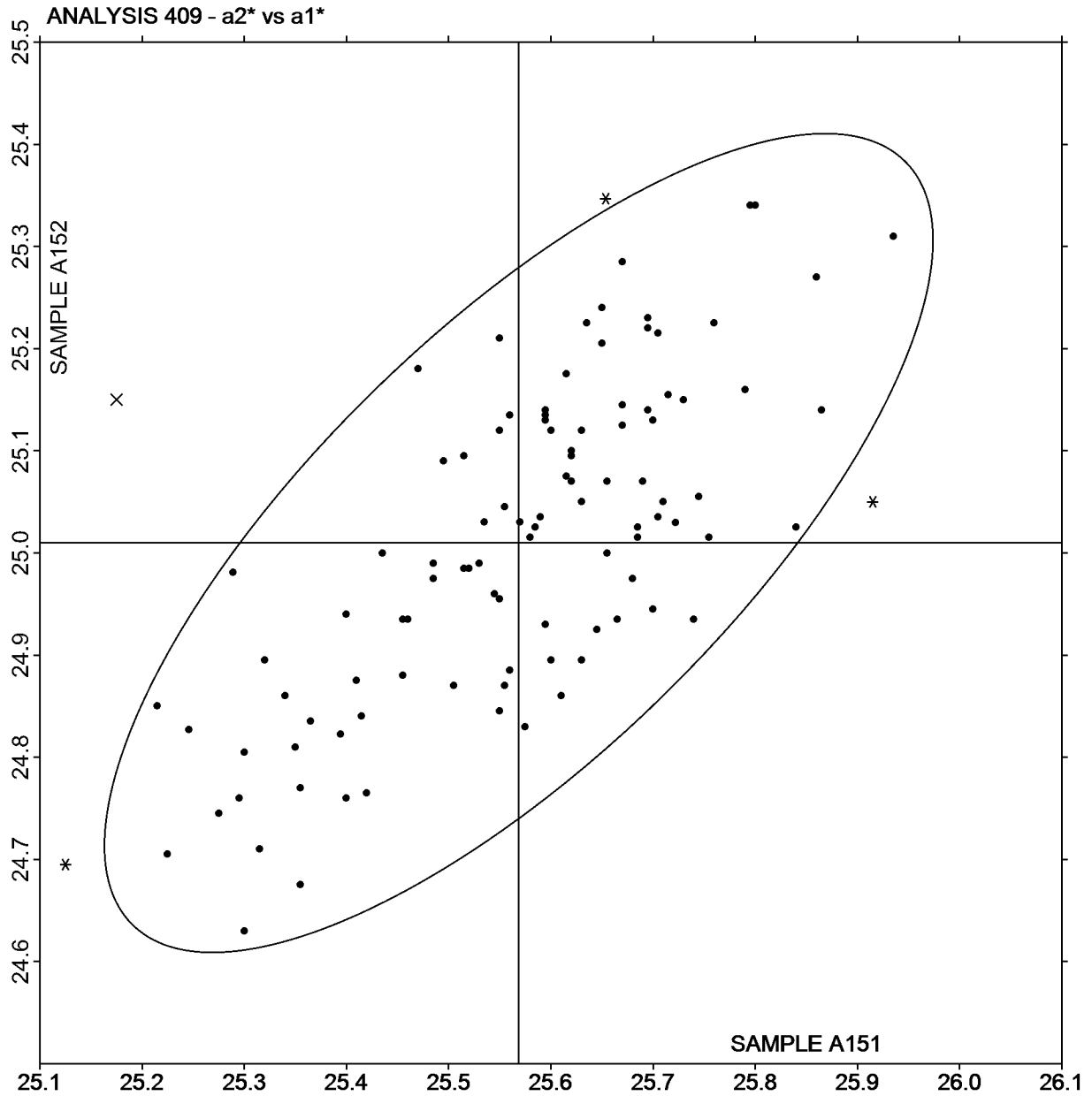
## Analysis 409

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 A151 = 25.57

SAMPLE A152 = 25.01



# Interlaboratory Testing Program for Color & Appearance

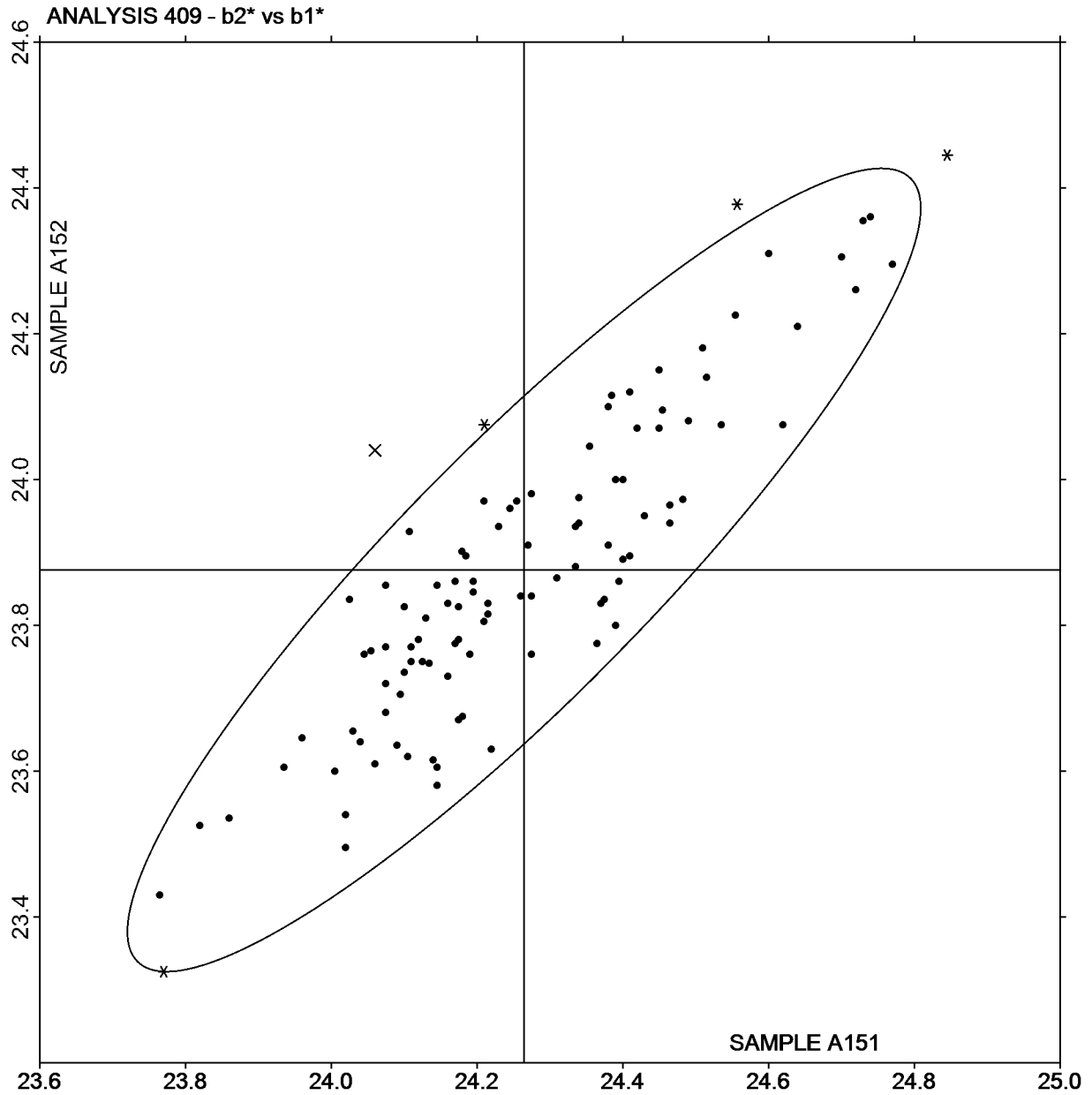
## Analysis 409

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 A151 = 24.26

SAMPLE A152 = 23.88



Plot created using absolute values.



Interlaboratory Testing Program for Color & Appearance

Analysis 411

Spectrophotometric - Sphere Geometry Instruments

Reflectance at 16 Selected Wavelengths

WebCode	Data Flag	Spectrophotometric Reflectance values (as %)at selected wavelengths																Instr Code
		400	420	440	460	480	500	520	540	560	580	600	620	640	660	680	700	
Sample A151																		
22FVVG		10.65	11.75	13.10	13.67	13.85	14.56	15.96	17.75	21.49	32.11	43.69	48.61	50.41	52.77	56.27	59.56	AJ
26TT6P		10.68	11.73	13.09	13.68	13.80	14.60	16.00	17.71	21.39	31.84	43.58	48.43	50.28	52.59	55.97	60.70	MV
27NEVU		10.75	11.87	13.16	13.79	13.97	14.76	16.13	17.97	21.79	31.88	43.37	48.35	50.36	52.68	55.93	60.45	MM
2JDBV8		10.89	11.83	13.16	13.80	13.89	14.65	16.09	17.78	21.43	31.88	43.67	48.49	50.36	52.70	56.18	60.89	MV
2KPAUM		10.81	11.93	13.18	13.84	13.99	14.75	16.17	17.92	21.73	31.88	43.55	48.50	50.53	52.87	56.29	60.95	MM
2LJVKT		10.69	11.70	13.06	13.69	13.82	14.61	16.04	17.77	21.33	31.74	43.51	48.32	50.23	52.49	55.85	60.49	PE
2TXJGF		11.28	11.75	12.85	13.54	13.69	14.46	15.89	17.61	21.62	31.70	42.74	47.66X	49.76X	52.05X	55.35X	59.73	MJ
3PYPWJ		10.52	11.63	12.86	13.46	13.61	14.39	15.78	17.52	21.59	32.14	43.43	48.15	50.10	52.33	55.78	60.46	XH
44DDL8		10.83	11.89	13.30	13.88	14.09	14.86	16.24	18.03	21.60	32.04	43.59	48.64	50.69	53.10	56.44	59.14	AO
44V4WD		10.60	11.75	13.02	13.65	13.79	14.60	15.97	17.76	21.75	32.10	43.57	48.28	50.08	52.60	56.02	60.56	XH
4AXBE2		10.60	11.76	13.05	13.67	13.85	14.68	16.08	17.86	21.76	32.18	43.72	48.66	50.67	53.13	56.72	61.34	XI
4GHEJH		10.84	12.00	13.27	13.88	14.07	14.75	16.17	17.92	21.61	32.01	43.61	48.81	50.71	53.16	56.71	60.71	AJ
4U8D7E		10.95	11.87	13.25	13.87	14.04	14.85	16.32	18.11	22.57	33.28X	44.68X	49.16	50.76	52.68	56.40	60.84	HW
4X8JRC		10.76	11.83	13.10	13.75	13.91	14.69	16.09	17.91	21.64	31.59	43.21	48.28	50.39	52.76	56.10	60.71	MM
69MQ8D		10.82	11.91	13.21	13.83	14.04	14.81	16.22	17.93	21.59	31.90	43.62	48.72	50.88	53.32	56.52	58.64X	AJ
6CZTRM		10.62	11.84	13.03	13.58	13.87	14.71	16.17	17.96	21.95	32.39	43.63	48.35	50.54	53.00	56.62	61.26	XI
6JLNQ7		10.56	11.65	12.95	13.56	13.71	14.48	15.89	17.75	21.53	31.74	43.30	48.23	50.37	52.71	56.24	61.02	XI
6U3DPB		10.64	11.79	13.09	13.73	13.94	14.77	16.14	17.96	21.80	32.12	43.56	48.58	50.60	52.94	56.36	60.92	XI
6UZGJL		10.75	11.90	13.19	13.80	14.02	14.73	16.16	17.97	21.75	32.15	43.79	48.87	50.85	53.20	56.77	60.56	AJ
7PMZNN		10.99	11.92	13.29	13.86	14.02	14.85	16.33	18.16	22.62X	33.07X	44.21	48.83	50.48	52.35	56.19	60.50	HW
82EB8F		10.81	12.03	13.30	13.95	14.08	14.88	16.28	18.02	21.47	31.38	43.46	48.56	50.52	52.82	56.49	61.01	HP
8MGWCR		10.78	11.99	13.33	13.89	14.14	14.77	16.34	18.10	22.05	32.20	43.95	48.89	51.01	53.36	57.05	61.05	HF
8T3YBH		10.77	11.90	13.18	13.81	14.01	14.74	16.14	17.91	21.41	31.85	43.40	48.56	50.63	53.09	56.66	59.83	AJ
97JC3H		10.81	11.90	13.23	13.88	14.08	14.79	16.21	17.97	21.64	31.73	43.17	48.55	50.58	53.06	56.70	60.67	XX
9FAUHB		10.84	11.92	13.15	13.79	13.97	14.49	16.18	17.84	22.37	32.29	43.72	48.55	50.60	52.97	56.51	61.18	XI

Interlaboratory Testing Program for Color & Appearance  
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Spectrophotometric - Sphere Geometry Instruments

Reflectance at 16 Selected Wavelengths

WebCode	Data Flag	Spectrophotometric Reflectance values (as %)at selected wavelengths																Instr Code
		400	420	440	460	480	500	520	540	560	580	600	620	640	660	680	700	
Sample A151																		
A7XBHC		10.84	11.80	13.25	13.76	13.97	14.73	16.15	17.85	21.38	31.24	43.20	48.48	50.27	52.49	55.85	60.46	HP
ABBQCA		10.83	11.79	13.09	13.73	13.90	14.65	16.05	17.78	21.56	31.63	43.27	48.57	50.68	53.13	56.74	60.56	AM
AC3YCD		11.42	11.98	13.21	13.84	14.05	14.78	16.20	17.97	21.55	31.92	43.47	48.60	50.64	53.11	56.86	61.04	AM
AJAHJJ		10.74	11.66	12.99	13.74	13.84	14.58	16.06	17.74	21.41	31.74	43.60	48.57	50.61	52.77	56.36	60.82	MV
BJZ2V4		11.74X	11.51	12.80	13.57	13.68	14.55	15.91	17.79	21.76	31.39	43.70	48.67	50.33	52.63	56.04	60.26	GD
BQHEU4		11.10	11.99	13.29	13.86	14.04	14.78	16.23	17.97	21.83	32.09	44.62X	48.68	50.74	53.19	56.81	61.20	AO
BZAW9C		10.90	11.90	13.20	13.90	14.00	14.80	16.40	17.90	21.75	32.50	44.10	48.80	50.65	52.85	56.10	60.45	MU
DA96AU		10.75	11.85	13.13	13.79	13.94	14.71	16.11	17.92	21.68	31.73	43.17	48.14	50.22	52.51	55.76	60.31	MM
DGAG8C		10.74	11.83	13.15	13.82	13.94	14.69	16.14	17.86	21.64	32.23	44.00	48.86	50.77	53.05	56.37	60.91	MV
E9PZR8		10.68	11.83	13.10	13.72	13.88	14.69	16.06	17.83	21.73	32.16	43.59	48.49	50.47	52.82	56.36	60.96	XI
EB2DUH		10.58	11.69	13.00	13.61	13.78	14.51	15.84	17.70	21.57	31.69	43.17	48.02	50.24	52.44	55.97	60.62	MI
ENNMJ9		10.79	11.86	13.16	13.82	14.04	14.79	16.18	17.95	21.46	31.49	42.86	48.24	50.54	52.93	56.10	58.84	AO
FFMRWU		10.61	11.35X	12.27X	13.36X	13.75	14.35	15.44X	17.39	21.71	32.10	43.30	48.55	50.41	53.10	55.35X	59.95	HG
FVHCDH		10.44	11.55	12.89	13.44	13.63	14.37	15.80	17.55	21.46	31.58	43.11	47.95	50.07	52.47	55.91	60.47	MI
FWCX6N		10.61	11.81	13.14	13.72	13.87	14.62	16.00	17.77	21.52	31.86	43.37	48.58	50.56	53.05	56.47	59.92	AJ
FXL8WL		10.97	11.86	13.17	13.85	14.08	14.82	16.26	18.08	21.78	32.35	43.90	48.89	50.80	53.25	56.93	61.02	AM
G2N68D		10.64	11.76	12.93	13.57	13.76	14.52	15.95	17.71	21.71	32.06	43.52	48.38	50.26	52.70	56.15	60.73	XH
GFJMUQ		10.84	11.94	13.19	13.88	14.06	14.78	16.19	17.97	21.73	31.96	43.58	48.64	50.57	53.04	56.46	60.76	AO
GNV94U		10.64	11.74	13.01	13.69	13.85	14.61	16.05	17.84	21.58	31.75	43.40	48.56	50.69	53.07	56.45	61.05	AL
GRXK2F		10.71	12.01	13.22	13.82	13.96	14.74	16.18	17.90	21.91	32.03	43.59	48.82	50.98	53.45	56.97	60.09	AJ
H2U86W	X	9.98X	11.23X	12.44X	13.01X	13.16X	13.94X	15.31X	17.11X	20.89	30.77X	41.90X	46.56X	48.70X	50.86X	54.37X	58.73X	XO
HFGE4H		10.65	11.85	13.08	13.69	13.91	14.65	16.07	17.82	21.67	32.02	43.37	48.19	50.18	52.59	56.18	60.75	XI
HKWR7Q		10.89	11.90	13.19	13.82	13.98	14.69	16.09	17.90	21.68	31.93	43.54	48.79	50.77	53.23	56.83	60.96	AJ
HMYMPU		10.85	11.95	13.25	13.88	14.08	14.82	16.24	17.98	21.64	32.28	43.94	48.79	50.82	53.12	56.44	59.20	AO
HWMLG		10.73	11.83	13.05	13.69	13.89	14.62	16.01	17.78	21.37	31.41	43.23	48.46	50.58	52.93	56.36	60.97	AJ

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Spectrophotometric - Sphere Geometry Instruments

Reflectance at 16 Selected Wavelengths

WebCode	Data Flag	Spectrophotometric Reflectance values (as %)at selected wavelengths																Instr Code
		400	420	440	460	480	500	520	540	560	580	600	620	640	660	680	700	
Sample A151																		
HYQCME		10.77	11.88	13.20	13.80	13.97	14.72	16.15	17.95	21.62	31.62	43.09	48.46	50.58	53.01	56.56	60.03	AM
J83Q6A		10.68	11.60	12.89	13.45	13.60	14.47	15.88	17.62	21.50	32.00	43.30	48.09	50.29	52.65	56.19	60.61	MG
JLMBMH		11.69X	11.96	13.19	13.82	14.04	14.81	16.22	17.98	21.70	32.08	43.64	48.80	50.77	53.26	56.93	61.10	AJ
JLY8U9		10.75	11.77	12.98	13.66	13.79	14.58	15.94	17.72	21.53	31.59	43.08	48.01	50.08	52.40	55.84	60.29	XH
JVCYK7		10.77	11.64	12.79	13.65	13.68	14.43	15.98	17.95	20.90	32.17	43.05	48.34	50.29	52.42	56.02	60.91	GD
JZJPKQ	X	4.25X	4.20X	4.20X	4.23X	4.24X	4.17X	4.07X	4.01X	4.00X	3.99X	4.02X	4.03X	4.13X	4.13X	4.19X	4.35X	XI
K2VLRG		10.86	11.98	13.25	13.88	14.08	14.82	16.24	18.07	21.92	32.04	43.50	48.41	50.42	52.74	56.04	60.61	MM
K4VUWR		10.84	11.91	13.16	13.75	13.96	14.72	16.14	17.87	21.63	32.07	43.62	48.60	50.56	53.00	56.24	59.28	AJ
KQ8PQF		10.91	12.11	13.31	14.01	14.16	14.94	16.38	18.14	22.00	32.27	43.65	48.46	50.52	52.80	56.20	60.65	XI
L4FVEM		10.84	11.82	13.14	13.76	13.95	14.71	16.08	17.87	21.55	31.83	43.32	48.64	50.70	53.14	56.76	60.69	AJ
LKHU3G		10.79	11.94	13.19	13.84	13.99	14.83	16.23	18.01	21.88	32.28	43.78	48.65	50.76	53.06	56.63	61.27	XI
MEQKTJ		10.87	11.79	13.10	13.75	13.88	14.67	16.11	17.86	21.42	31.07	43.00	48.37	50.46	52.85	56.23	60.94	HP
MH7E9F		11.23	11.96	13.19	13.81	14.01	14.72	16.19	17.99	21.73	32.15	43.87	49.04	50.95	53.48	57.00	61.34	AQ
MJM9CB		10.77	11.82	13.10	13.78	13.98	14.71	16.11	17.89	21.46	31.71	43.23	48.49	50.62	53.07	56.36	58.97	AO
MYDFZW		10.50	11.81	13.10	13.73	13.91	14.68	16.08	17.89	21.70	31.78	43.39	48.49	50.66	53.11	56.58	61.43	MM
N3BEUL		10.74	11.84	13.13	13.79	13.95	14.71	16.12	17.95	21.66	31.70	43.32	48.30	50.37	52.70	56.01	60.53	MM
NARTXQ		10.56	11.56	12.80	13.56	13.70	14.27X	15.92	17.66	21.06	32.80	43.30	48.63	50.12	52.38	55.72	60.10	GD
P2X3UV		10.68	11.79	13.11	13.76	13.98	14.73	16.13	17.93	21.55	31.90	43.55	48.74	50.82	53.40	56.69	59.87	AJ
P4MB2C		10.56	11.76	13.05	13.71	13.87	14.66	16.11	17.99	22.18	32.67	43.80	48.51	50.59	53.03	56.78	61.15	XO
PW2DAH		10.68	11.79	13.09	13.73	13.90	14.69	16.10	17.91	21.69	31.87	43.53	48.52	50.65	53.00	56.34	60.93	MK
PWHGY4		10.91	11.79	13.07	13.72	13.88	14.71	16.08	17.82	21.57	31.37	43.47	48.56	50.51	52.69	56.37	60.87	HP
PXV9PY		10.76	11.94	13.23	13.79	13.98	14.68	16.09	17.86	21.45	31.83	43.34	48.48	50.50	52.93	56.48	60.51	AO
QLYF4U		10.71	11.80	13.06	13.69	13.87	14.65	16.05	17.78	21.64	32.07	43.70	48.54	50.58	52.98	56.53	61.26	XI
QM8PVQ		10.79	11.86	13.15	13.82	14.03	14.78	16.18	17.93	21.54	32.07	43.79	48.94	51.03	53.40	56.45	59.16	AO
QWWH4		10.72	11.84	13.11	13.83	13.91	14.70	16.15	17.87	21.70	32.39	44.10	48.95	50.83	53.12	56.50	61.05	MV

Interlaboratory Testing Program for Color & Appearance

Analysis 411

Spectrophotometric - Sphere Geometry Instruments

Reflectance at 16 Selected Wavelengths

WebCode	Data Flag	Spectrophotometric Reflectance values (as %)at selected wavelengths																Instr Code
		400	420	440	460	480	500	520	540	560	580	600	620	640	660	680	700	
Sample A151																		
R7JJDY		10.65	11.68	13.03	13.64	13.81	14.64	16.06	17.83	21.45	31.98	43.88	48.71	50.65	52.87	56.21	60.84	CE
RER9YB		10.55	11.71	13.03	13.75	13.87	14.67	16.05	17.78	21.60	31.88	43.78	48.66	50.67	52.97	56.38	60.95	MV
RHU7A4	X	13.00X	13.61X	14.91X	15.40X	15.39X	16.13X	17.65X	19.45X	23.31X	34.68X	47.56X	52.83X	54.85X	57.59X	60.71X	65.70X	CA
RPCHM4		10.85	11.90	13.19	13.83	14.04	14.82	16.20	17.98	21.56	31.95	43.70	48.66	50.74	53.12	56.07	59.14	AO
RQ774E		10.36	11.50	12.70	13.43	13.56	14.41	15.78	17.52	21.31	31.43	43.05	48.08	50.09	52.37	55.72	60.34	XH
RVHBF E		10.87	11.92	13.19	13.79	13.96	14.74	16.16	17.96	21.71	31.75	43.37	48.38	50.50	52.83	56.16	60.73	MM
TGDEQK		11.89X	11.91	13.09	13.75	13.93	14.68	16.09	17.88	21.65	31.76	43.33	48.65	50.77	53.20	56.96	61.27	AQ
TJ4K9W		10.59	11.70	12.89	13.52	13.68	14.46	15.82	17.60	21.46	31.63	43.26	48.40	50.44	52.86	56.39	61.31	MM
TKA38R		10.56	11.61	12.94	13.59	13.78	14.56	16.05	17.83	21.55	32.27	43.95	49.17	51.41X	53.26	56.29	60.56	MH
TKFD6K		10.69	11.73	12.97	13.61	13.76	14.59	15.98	17.82	21.65	32.02	43.31	48.33	50.25	52.57	56.05	60.58	XI
TVDBWQ		10.64	11.77	13.06	13.67	13.88	14.65	16.11	17.93	22.12	32.44	43.89	48.30	50.41	52.56	56.06	60.46	XO
UEL7Y		10.80	11.89	13.23	13.84	14.04	14.80	16.24	17.99	21.56	32.08	43.73	48.73	50.75	53.16	56.38	59.10	AO
UMFQJW		10.85	11.80	13.10	13.71	13.85	14.68	15.85	16.21X	19.12X	29.83X	43.62	48.42	50.49	52.74	56.44	60.92	HP
UUWE36		10.80	11.93	13.20	13.77	13.98	14.75	16.11	17.91	21.78	32.29	43.69	48.50	50.44	52.96	56.44	61.09	XI
VJBGTR		10.43	11.70	13.02	13.86	13.92	14.79	16.13	17.94	21.64	32.19	43.93	48.95	50.92	53.20	56.66	61.39	MU
W4ZDNC		10.58	11.86	13.03	13.70	13.90	14.66	16.07	17.89	21.79	31.59	42.60X	48.03	50.24	52.51	55.82	59.53	AM
WAHQKP		10.84	11.92	13.19	13.83	13.98	14.76	16.17	17.98	21.74	31.84	43.50	48.54	50.67	53.10	56.55	61.42	MM
WK6PCV		10.45	11.58	12.88	13.46	13.61	14.40	15.82	17.52	21.51	32.07	43.71	48.43	50.41	52.66	56.23	60.87	XH
Y9L32K		10.66	11.93	13.25	13.86	14.02	14.82	16.22	18.04	21.83	32.06	43.56	48.40	50.38	52.67	55.94	60.48	MM
YHAX3L		10.62	11.79	13.08	13.71	13.91	14.64	16.06	17.78	21.60	31.74	43.25	48.41	50.44	52.83	56.28	60.46	AQ
YRDxRM	X	11.19	12.35X	13.73X	14.33X	14.53X	15.29X	16.77X	18.60X	22.61X	33.63X	45.61X	50.79X	52.82X	55.27X	58.90X	63.46X	AR
YWCAUE		10.65	11.82	13.16	13.76	13.94	14.67	16.10	17.84	21.69	31.79	43.55	48.53	50.51	52.95	56.62	60.33	AM
Z39L8M		10.59	11.74	13.02	13.72	13.86	14.60	16.07	17.77	21.49	31.89	43.82	48.72	50.73	52.96	56.63	61.27	MV
Z449FK		10.75	11.75	13.06	13.77	13.97	14.73	16.14	17.89	21.55	31.86	43.51	48.71	50.74	53.11	56.69	60.42	AM
ZMJD84		10.83	11.93	13.26	13.80	13.99	14.79	16.22	17.87	21.69	32.06	43.56	48.42	50.45	52.84	56.36	61.05	XI

Interlaboratory Testing Program for Color & Appearance  
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Spectrophotometric - Sphere Geometry Instruments  
 Reflectance at 16 Selected Wavelengths

WebCode	Data Flag	Spectrophotometric Reflectance values (as %) at selected wavelengths																Instr Code
		400	420	440	460	480	500	520	540	560	580	600	620	640	660	680	700	
Sample A151																		
ZW7CYA		10.84	11.93	13.25	13.87	14.08	14.86	16.26	17.99	21.53	32.09	43.56	48.69	50.68	53.05	56.65	59.44	AJ

**Summary Statistics**

Grand Means																		
		10.78	11.81	13.09	13.74	13.91	14.67	16.09	17.85	21.62	31.94	43.53	48.53	50.54	52.89	56.34	60.54	
Std Dev Btwn Labs																		
		0.24	0.13	0.15	0.12	0.13	0.13	0.15	0.22	0.36	0.41	0.33	0.26	0.25	0.29	0.35	0.65	

**Comments assigned on Data Flags for Test #411**

- H2U86W (X) - Low % reflectance data at all wavelengths.
- JZJPKQ (X) - Extreme data for all wavelengths.
- RHU7A4 (X) - High % reflectance data at all wavelengths.
- YRDxRM (X) - High % reflectance data for most wavelengths.

## Interlaboratory Testing Program for Color &amp; Appearance

## Analysis 440

## 60 Degree Gloss - Paint Chips

## ASTM Method D 523

WebCode	Data Flag	Sample E151			Sample E152			Instr Code
		Lab Mean	Difference from Grand Mean	Comparative Performance Value	Lab Mean	Difference from Grand Mean	Comparative Performance Value	
27NEVU		50.00	0.08	0.13	60.53	0.07	0.13	GL
2JDBV8		50.83	0.90	1.52	61.70	1.25	2.13	RA
2QWE7F		49.35	-0.57	-0.96	59.85	-0.60	-1.02	MW
3JQ8ZC		49.58	-0.35	-0.58	60.50	0.05	0.08	GK
3PYPWJ		50.00	0.08	0.13	60.00	-0.45	-0.77	GL
44V4WD		50.10	0.18	0.30	60.43	-0.03	-0.04	GK
4AXBE2		50.80	0.88	1.48	61.03	0.58	0.99	GL
4DWPY7		51.13	1.20	2.03	61.38	0.92	1.57	GK
4FLZRJ	X	51.68	1.75	2.95	60.95	0.50	0.85	EM
4U8D7E		49.98	0.05	0.09	60.88	0.42	0.72	GL
6CZTRM		49.58	-0.35	-0.58	59.63	-0.83	-1.41	GK
6JLNQ7		49.73	-0.20	-0.33	60.43	-0.03	-0.04	MH
6U3DPB		49.63	-0.30	-0.50	60.45	0.00	0.00	GN
6ZAYFU		50.80	0.88	1.48	61.48	1.02	1.74	GL
7PMZNN		49.13	-0.80	-1.34	60.28	-0.18	-0.30	GK
7QW8MB		50.25	0.33	0.55	60.60	0.15	0.25	GK
8H3JAJ		50.30	0.38	0.64	61.33	0.87	1.49	GK
8T3YBH		49.43	-0.50	-0.83	59.75	-0.70	-1.19	GK
9FAUHB		48.90	-1.02	-1.72	59.48	-0.98	-1.66	GL
A7XBHC		50.40	0.48	0.81	60.83	0.37	0.64	XX
AJAHJJ		51.18	1.25	2.11	61.45	1.00	1.70	GL
BBRBCE	X	43.63	-6.30	-10.60	53.68	-6.78	-11.54	GB
BJZ2V4		49.20	-0.72	-1.21	59.53	-0.93	-1.58	GB
DFEWG7		49.40	-0.52	-0.88	59.63	-0.83	-1.41	GL
DUC8MP		50.33	0.41	0.68	60.53	0.08	0.13	GL
EB2DUH		50.18	0.25	0.43	61.15	0.70	1.19	GL
FFMRWU		50.63	0.70	1.19	61.30	0.85	1.44	GL
FVHCDH		49.75	-0.17	-0.29	60.43	-0.03	-0.04	GL
GNV94U		49.55	-0.37	-0.62	60.35	-0.10	-0.17	GL
H2U86W		50.15	0.23	0.39	61.03	0.57	0.98	GL
H8PYGZ		49.85	-0.07	-0.12	60.23	-0.23	-0.39	GL
HP3LZM	X	47.35	-2.57	-4.33	57.33	-3.13	-5.32	GK
J4X8X2		50.53	0.60	1.02	61.05	0.60	1.02	PC
JLY8U9		50.00	0.08	0.13	59.98	-0.48	-0.81	GL
JV7KBC		49.68	-0.25	-0.41	60.38	-0.08	-0.13	GL
JVCYK7		50.15	0.23	0.39	60.90	0.45	0.76	GN
K2VLRG	*	49.18	-0.75	-1.26	58.93	-1.53	-2.60	RA
KEEBJ7		49.25	-0.67	-1.13	59.95	-0.50	-0.85	GK
KJQEDE		50.15	0.23	0.39	60.98	0.52	0.89	GL
L4FVEM		49.55	-0.37	-0.62	60.33	-0.13	-0.22	GN
LKHU3G		50.40	0.48	0.81	60.68	0.22	0.38	GL
M4NJV6		49.93	0.00	0.01	59.85	-0.60	-1.02	GL
M8UPTY	X	47.80	-2.12	-3.57	57.85	-2.60	-4.43	GB
MEQKTJ		49.58	-0.35	-0.58	60.35	-0.10	-0.17	GL
MH7E9F		48.95	-0.97	-1.63	59.63	-0.83	-1.41	GK

## Interlaboratory Testing Program for Color &amp; Appearance

## Analysis 440

## 60 Degree Gloss - Paint Chips

## ASTM Method D 523

WebCode	Data Flag	Sample E151			Sample E152			Instr Code
		Lab Mean	Difference from Grand Mean	Comparative Performance Value	Lab Mean	Difference from Grand Mean	Comparative Performance Value	
N3BEUL		50.05	0.13	0.22	60.08	-0.38	-0.64	GL
N6YTEP		51.00	1.08	1.82	61.58	1.12	1.91	GX
NARTXQ		48.88	-1.05	-1.76	60.03	-0.43	-0.73	GB
P2X3UV		50.03	0.10	0.18	60.18	-0.28	-0.47	MW
P4MB2C	X	46.57	-3.35	-5.64	56.59	-3.86	-6.57	MR
PXV9PY		49.93	0.00	0.01	60.85	0.40	0.68	GQ
Q7HGW8		50.00	0.08	0.13	60.55	0.10	0.17	GL
RHU7A4		49.65	-0.27	-0.46	60.33	-0.13	-0.22	GL
RZBHRV		48.98	-0.95	-1.59	60.18	-0.28	-0.47	GL
TJ4K9W	X	47.75	-2.17	-3.66	57.63	-2.83	-4.81	GL
TKA38R		48.63	-1.30	-2.18	59.78	-0.68	-1.15	GL
TKEFYV		50.08	0.15	0.26	60.25	-0.20	-0.34	GK
TKFD6K		49.83	-0.10	-0.16	60.73	0.27	0.47	GL
TVDBWQ	*	51.05	1.13	1.90	60.68	0.22	0.38	GN
URRTCK		50.28	0.35	0.60	60.98	0.52	0.89	GK
VY728U		50.68	0.75	1.27	61.20	0.75	1.27	GL
WK6PCV		49.60	-0.32	-0.54	60.30	-0.15	-0.26	GL
WMA9GH		49.75	-0.17	-0.29	59.93	-0.53	-0.90	GL
WTE8UT		50.05	0.13	0.22	60.10	-0.35	-0.60	GX
YDXZML		49.80	-0.12	-0.20	60.10	-0.35	-0.60	GK
Z39L8M		49.15	-0.77	-1.30	60.03	-0.43	-0.73	GL
ZW7CYA		50.40	0.48	0.81	60.65	0.20	0.34	XX

## Summary Statistics

Grand Means

49.92 Gloss Units

60.45 Gloss Units

Std Dev Btwn Labs

0.59 Gloss Units

0.59 Gloss Units

Statistics based on 61 of 67 reporting participants

**Comments on assigned Data Flags for Test #440**

4FLZRJ(X) - Inconsistent in testing between samples, data for Sample E151 are high.

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

HP3LZM(X) - Data for both samples are low. Also Inconsistent in testing within both samples.

M8UPTY(X) - Data for both samples are low. Also Inconsistent in testing within both samples.

P4MB2C(X) - Data for both samples are low. Also Inconsistent in testing within both samples.

TJ4K9W(X) - Data for both samples are low.

# Interlaboratory Testing Program for Color & Appearance

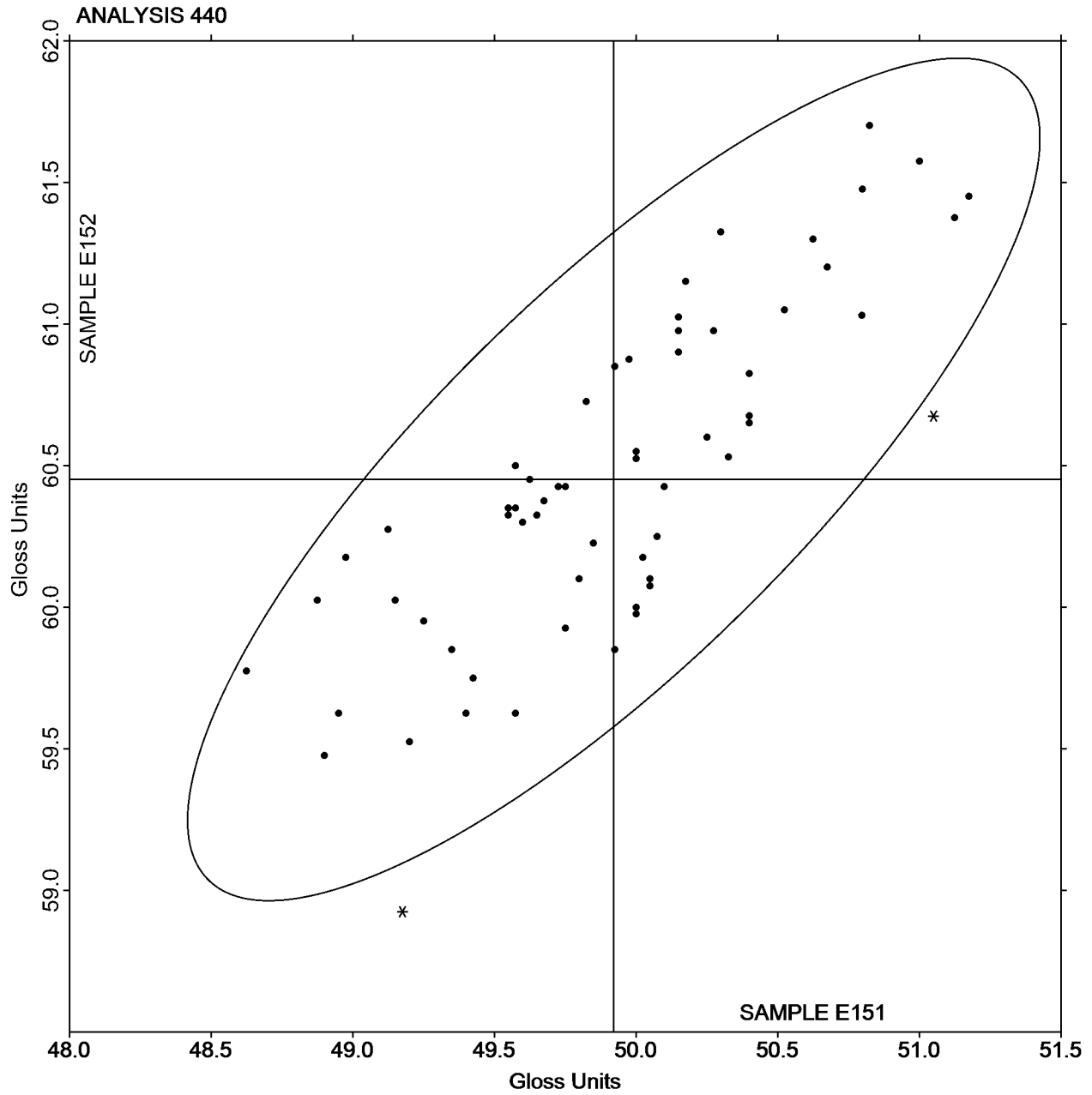
## Analysis 440

### 60 Degree Gloss - Paint Chips

#### ASTM Method D 523

SAMPLE E151 = 49.92 Gloss Units

SAMPLE E152 = 60.45 Gloss Units





Interlaboratory Testing Program for Color & Appearance

Analysis 442

85 Degree Gloss - Paint Chips

ASTM Method D 523

WebCode	Data Flag	Sample J151			Sample J152			Instr Code
		Lab Mean	Difference from Grand Mean	Comparative Performance Value	Lab Mean	Difference from Grand Mean	Comparative Performance Value	
27NEVU		4.93	0.00	-0.02	9.10	0.03	0.09	GN
3PYPWJ		5.00	0.07	0.61	9.00	-0.07	-0.19	GL
6U3DPB		4.88	-0.05	-0.44	8.83	-0.24	-0.70	GL
9FAUHB		4.85	-0.08	-0.65	8.93	-0.14	-0.41	GL
AJAHJJ		4.83	-0.10	-0.85	8.85	-0.22	-0.62	GL
FFMRWU		4.83	-0.10	-0.85	8.83	-0.24	-0.70	GL
JVCYK7		5.20	0.27	2.29	9.80	0.73	2.10	GN
L4FVEM		4.93	0.00	-0.02	8.98	-0.09	-0.27	GN
RHU7A4		4.73	-0.20	-1.69	8.40	-0.67	-1.92	GL
TKA38R		5.00	0.07	0.61	9.33	0.26	0.74	GL
TKFD6K		4.93	0.00	-0.02	9.08	0.01	0.02	GL
TVDBWQ		5.05	0.12	1.03	9.35	0.28	0.81	GN
Z39L8M		4.93	0.00	-0.02	9.43	0.36	1.03	GL

Summary Statistics

Grand Means	4.93	Gloss Units	9.07	Gloss Units
Std Dev Btwn Labs	0.12	Gloss Units	0.35	Gloss Units
Statistics based on 13 of 13 reporting participants				

# Interlaboratory Testing Program for Color & Appearance

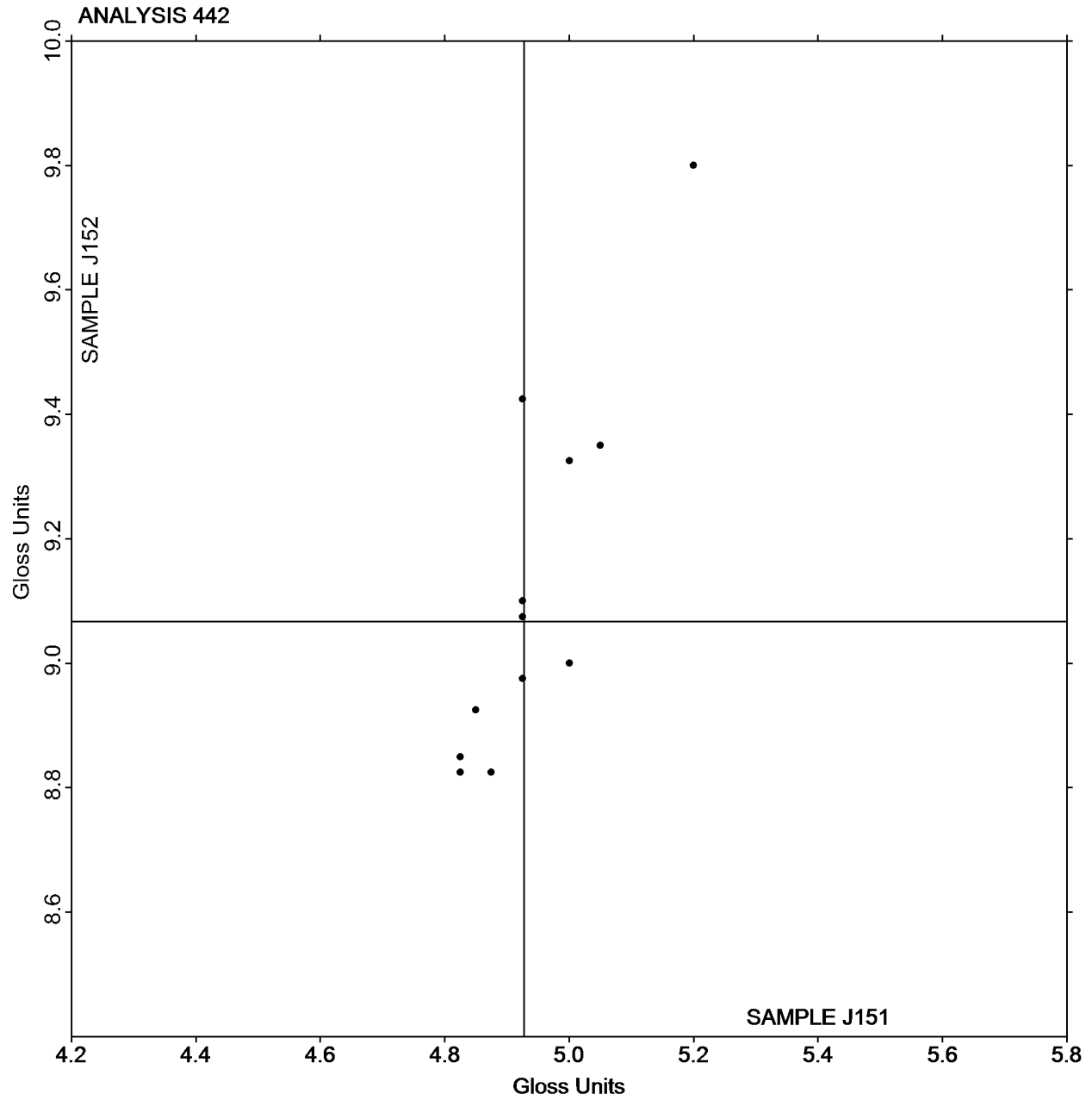
## Analysis 442

### 85 Degree Gloss - Paint Chips

#### ASTM Method D 523

SAMPLE J151 = 4.93 Gloss Units

SAMPLE J152 = 9.07 Gloss Units



## Instrument Code List - Report# 171

Instrument information as provided by laboratories

<u>Analysis</u>	<u>Analysis Name</u>
440	Gloss 60 Degree (Paint Chips)
Instrument code and descript	
EM	Elcometer 400 Novo-curve
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)
MH	X-Rite/Macbeth Color-Eye XTH
MR	Macbeth Novo-Gloss (20/60/85)
MW	Minolta Multi-Gloss 268
PC	Picogloss 503 Erichson
RA	Rhopoint Novo-Gloss Glossmeter
XX	Instrument make/model not specified by lab
442	Gloss 85 Degree (Paint Chips)
Instrument code and descript	
GL	BYK-Gardner micro-TRI-gloss
GN	BYK-Gardner new micro-TRI-gloss

Instrument Code List - Report# 171

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)  
GB      BYK-Gardner spectro-guide sphere gloss  
GH      BYK-Gardner Color-View  
GQ      Gretag SpectroMat  
HK      Hunter MiniScan XE (45/0)  
HW      Hunter LabScan XE  
HY      Hunter Color Flex 45/0  
MG      Macbeth 1500/PLUS or 2025+ Color Eye  
TO      Topcon SR-3 Spectroradiometer  
XD      X-Rite 500 Series SpectroDensitometer  
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  
XZ      X-Rite

409      Color & Color Difference (Paint Chips) Sphere

Instrument code and descript

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

## Instrument Code List - Report# 171

Instrument information as provided by laboratories

Analysis      Analysis Name

411              Spectrophotometric (Paint Chips) - Sphere

Instrument code and descript

A J	ACS-Datcolor 600
A L	ACS-Datcolor Intl. Dataflash 100
A M	ACS-Datcolor 600 Plus
A O	ACS-Datcolor 650
A Q	ACS-Datcolor 600X
A R	Datcolor 400
C A	Cary 5000
C E	Cary 500
G D	BYK-Gardner spectro-guide sphere
H F	Hunter ColorFlex Diffuse
H G	Hunter ColorQUEST
H P	Hunter UltraScan PRO
H W	Hunter UltraScan XE
M G	Macbeth 2180 Color Eye
M H	Macbeth Color-Eye XTH
M I	Macbeth Color i5
M J	Macbeth Color-Eye 3000 Spectrophotometer
M K	Macbeth Color-Eye 7000 Spectrophotometer
M M	Macbeth Color-Eye 7000a
M U	Minolta
M V	Minolta CM-3000d Series Spectrophotometer
P E	Perkin Elmer Spectrophotometer
X H	X-Rite Color i5
X I	X-Rite Color i7
X O	X-Rite SP64
X X	Instrument make/model not specified by lab