Collaborative Testing Services, Inc.

Paper & Paperboard Testing Program

Summary Report #2992 G - April 2019

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The CTS Paper & Paperboard Interlaboratory Program

In 1969, the National Bureau of Standards (now designated the National Institute for Standards and Technology) and the Technical Association of the Pulp and Paper Industry (TAPPI) developed an interlaboratory program for paper and paperboard testing. Since 1971, Collaborative Testing Services has operated the Collaborative Reference Program for Paper and Paperboard. With hundreds of organizations from around the world participating in these tests, this program has become one of the largest of its kind. The program allows laboratories to compare the performance of their testing with that of other participating laboratories, and provides a realistic picture of the state of paper testing.

About CTS

Founded in 1971, Collaborative Testing Services, Inc. (CTS) is a privately - owned company that specializes in interlaboratory tests for a variety of industrial sectors: rubber, plastics, fasteners and metals, CKPG, 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 assurance objectives. Labs from the U.S., as well as more than 80 countries, currently participate in CTS programs.

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

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Key for Web Summary Reports (Page 1 of 2)

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

Lab Mean — The average of the values obtained for each sample 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.

ΔE — The calculated total color difference between the two samples. For the Hunter L,a,b analyses it is calculated in Hunter units (ΔE). For the L*,a*,b* analyses it is calculated in CIELAB units (ΔE*).

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), if instruments are tracked.

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.

Graph - 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 on the previous page.

Common Problems Highlighted in Footnotes

1. ***Extreme data*** - The laboratory's results for one or both samples are so inconsistent with those of the other participants that the lab mean(s) fall outside the plot. The participant is advised to immediately review his data and/or testing procedure.

2. ***Systematic bias*** - The laboratory's results are either consistently high or low for both samples when compared to the other participants (the plotted point falls near the top or bottom of the ellipse). This indicates that the participant is performing the test with a constant bias. Causes of systematic errors include improper calibration, the particular make/model of equipment or a modification to the testing procedure.

3. ***Inconsistency in testing between samples/sample sets*** - The laboratory's results indicate that there are differences in the way the two samples tested (the plotted point falls to the side of the ellipse). This type of error may be attributed to the analyst deviating from the procedure when testing one of the samples or a material interaction occurrence with the instrument or room conditions. The inconsistency is reflected in the CPVs for the two samples, such as a +1.5 CPV for sample A and a -2.2 CPV for sample B. CTS also will specify if the laboratory's data for one sample are high/low compared to the other participants. If this inconsistency is slight, the lab's plotted point will be an * that falls on the edge of the ellipse.

4. ***Inconsistency in testing within a sample*** - The laboratory's within-lab standard deviation for a specified sample is high when compared to the other participants, often causing the lab's plotted point to fall outside of the ellipse.

Labs flagged with an * are not typically included in the footnotes of a data table. These labs may locate their position in the control ellipse and use the definitions above to help identify the type of testing error. An * should serve as a caution flag, a "yellow light", to a lab. If this error is repeated in future rounds, a lab may need to stop and review its testing procedures. The initial data flag is not cause for alarm. Interlaboratory tests conducted at regular intervals permit a lab to recognize trends in testing.

Paper & Paperboard Interlaboratory Testing Program

Analysis 350

Color & Color Difference - Near White Papers - C/2deg obs

Hunter L,a,b - Illuminant C - 2 Degree Observer

Web Code	Data Flag	Samples	Hunter L, a, b Color Values L	a	b	Color Difference Values ΔL	Δa	Δb	ΔE	Instr Code
26QRM4		GA65	87.84	-0.68	2.40	2.42	0.21	-0.24	2.45	LA
		GA66	90.26	-0.47	2.16					
3KECXV		GA65	90.43	-0.74	2.39	1.90	0.25	-0.27	1.93	TC
		GA66	92.33	-0.49	2.12					
6NTMXK		GA65	87.14	-0.20	2.03	1.67	0.40	-0.59	1.81	TS
		GA66	88.81	0.20	1.44					
7THEYY		GA65	90.34	-0.82	2.42	1.95	0.26	-0.21	1.98	LS
		GA66	92.29	-0.56	2.21					
7VLH9N		GA65	87.49	-0.91	2.31	1.98	0.27	-0.38	2.03	XX
		GA66	89.46	-0.63	1.93					
AUHTUU		GA65	88.77	-0.95	2.43	2.61	0.25	-0.27	2.63	HE
		GA66	91.37	-0.70	2.16					
DHU2LA		GA65	90.36	-0.70	2.68	0.02	-0.02	0.00	0.03 X	LS
		GA66	90.38	-0.72	2.68					
ELRWXU		GA65	88.81	-0.66	1.96	2.20	0.27	-0.40	2.25	XS
		GA66	91.01	-0.39	1.57					
EYJMGD		GA65	86.58	-0.37	2.33	2.05	0.19	-0.37	2.09	TS
		GA66	88.63	-0.18	1.97					
FGGX72		GA65	87.87	-0.74	2.40	2.41	0.29	-0.24	2.44	TC
		GA66	90.28	-0.45	2.15					
FJZCA2	X	GA65	89.78	-1.48	1.58	1.13	0.25	-0.48	1.25	HG
		GA66	90.91	-1.23	1.10					
FT4FG8		GA65	90.37	-0.73	2.50	1.96	-0.01	-0.06	1.96	EH
		GA66	92.33	-0.74	2.44					
JCQZZ9		GA65	89.60	-0.42	3.37	2.57	0.15	-0.50	2.62	VM
		GA66	92.17	-0.27	2.87					
MB23XJ		GA65	86.88	-0.28	2.50	2.59	0.12	-0.71	2.69	TS
		GA66	89.47	-0.17	1.79					
RLRBTG		GA65	86.67	-0.86	1.38	0.61	0.17	-0.29	0.69	LA
		GA66	87.28	-0.69	1.09					
T7TQMD		GA65	90.86	-1.03	2.65	1.77	0.38	-0.45	1.87	NE
		GA66	92.63	-0.65	2.20					

Paper & Paperboard Interlaboratory Testing Program

Analysis 350

Color & Color Difference - Near White Papers - C/2deg obs

Hunter L,a,b - Illuminant C - 2 Degree Observer

Web Code	Data Flag	Samples	Hunter L, a, b Color Values L	a	b	Color Difference Values ΔL	Δa	Δb	ΔE	Instr Code
T8MFQ8		GA65	88.86	-0.75	1.52	2.31	0.17	-0.42	2.36	HE
		GA66	91.18	-0.58	1.10					
TZKAB4		GA65	86.96	-0.24	2.09	2.23	0.08	-0.16	2.24	TS
		GA66	89.19	-0.15	1.94					
UA7VU8		GA65	87.44	-0.33	2.26	2.08	0.21	-0.32	2.11	TS
		GA66	89.52	-0.11	1.94					
VUPAUE	X	GA65	87.03	0.03	1.98	2.07	0.17	-0.35	2.11	TS
		GA66	89.10	0.20	1.64					
ZWYXCZ		GA65	88.43	-0.73	1.85	2.45	0.11	-0.25	2.46	HE
		GA66	90.88	-0.62	1.59					

Summary Statistics

Grand Means							
GA65	88.500	-0.639	2.240	1.988	0.198	-0.323	2.034
GA66	90.451	-0.441	1.909				
Stnd Dev Btwn Labs							
GA65	1.446	0.255	0.445	0.658	0.112	0.171	0.656
GA66	1.460	0.260	0.485				

Statistics based on 19 of 21 reporting participants

Comments on Assigned Data Flags for Test #350

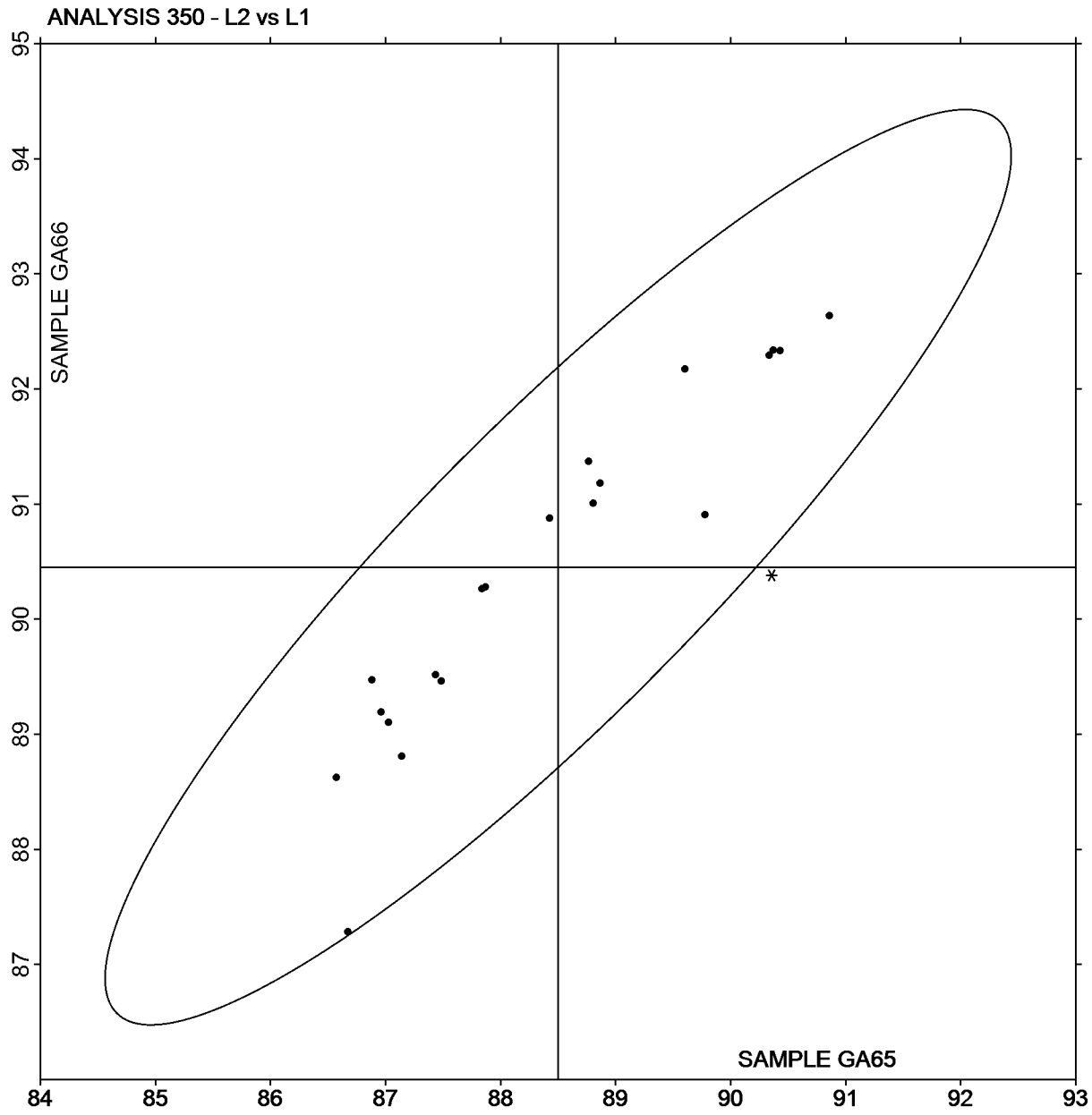
VUPAUE (X) - High "a" values for GA65.

FJZCA2 (X) - Low "a" values for both samples.

Key to Instrument Codes Reported by Participants

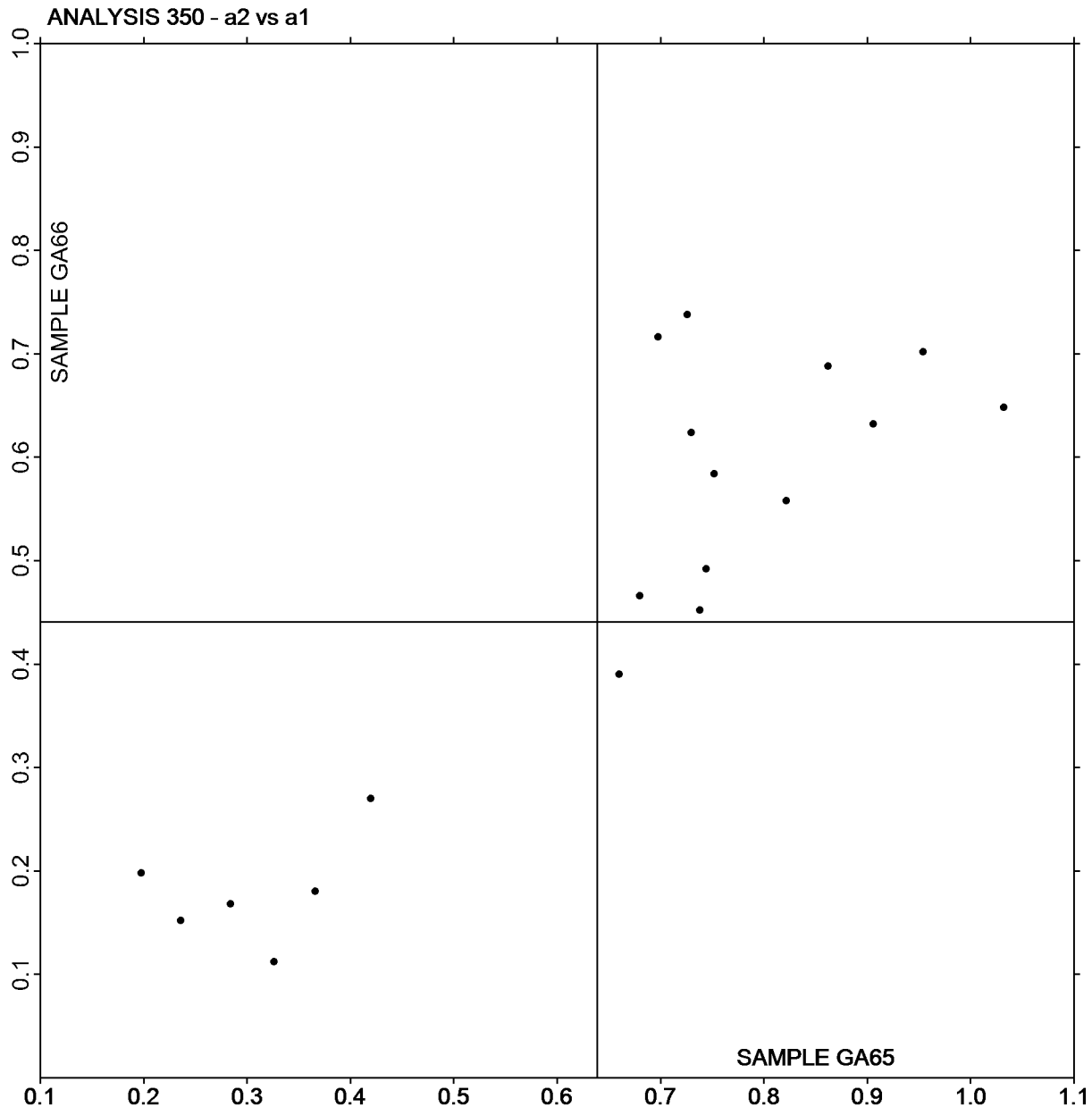
EH	Datacolor Elrepho SF450	HE	Hunter LabScan
HG	Hunter ColorQUEST	LA	L & W Elrepho AL300
LS	L & W Elrepho SE 070	NE	Minolta CM-3500d Spectrophotometer
TC	Technidyne Color Touch Series	TS	Technidyne Brightimeter Micro S-5
VM	Valmet PaperLab (was Kajaani/Robotest)	XS	X-Rite 938 Spectrodensitometer
XX	Instrument make/model not specified by lab		

Plot of L values GA66 v L values GA65



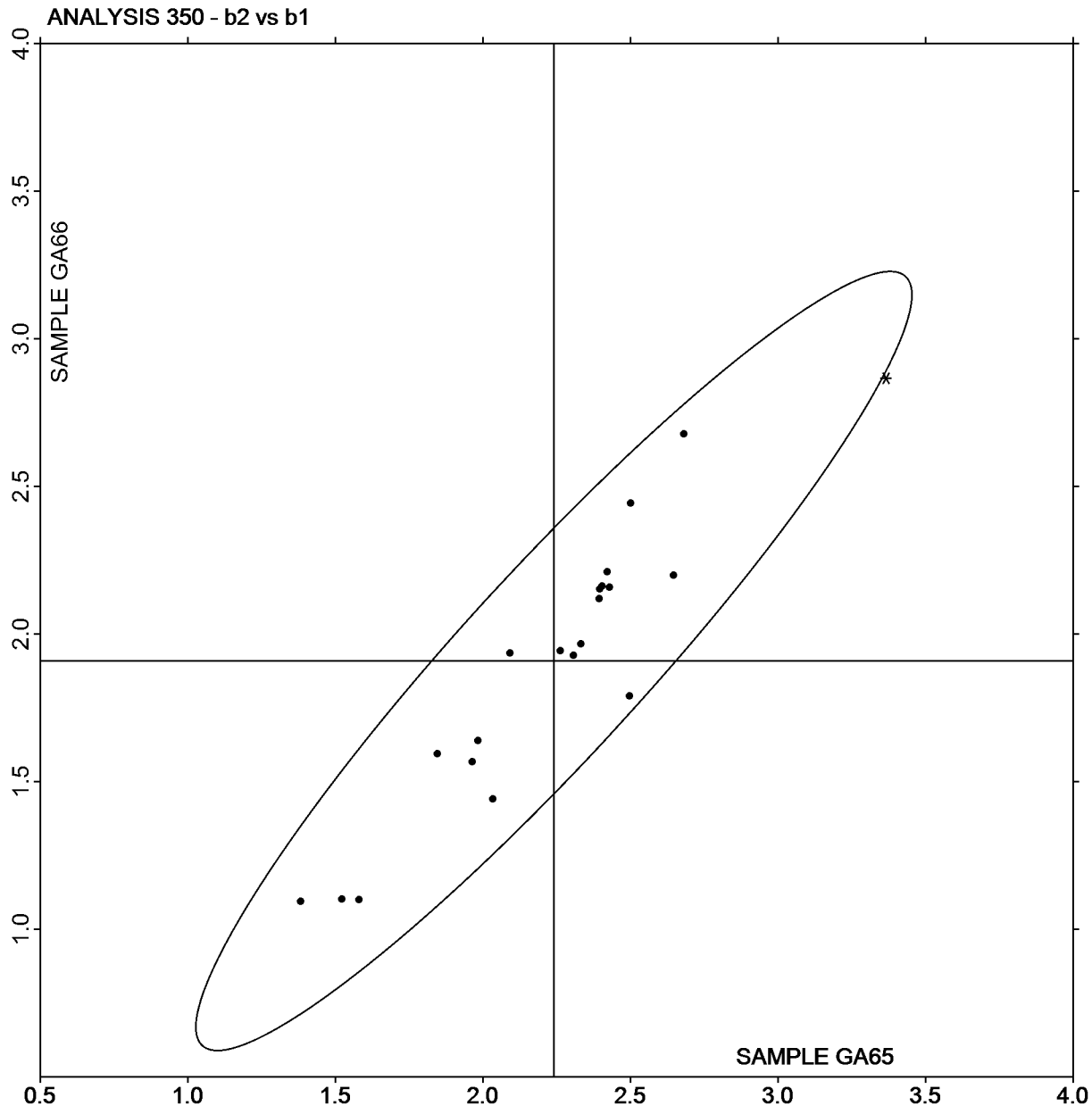
If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.

Plot of a values GA66 v a values GA65



If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.

Plot of b values GA66 v b values GA65



If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.

Paper & Paperboard Interlaboratory Testing Program

Analysis 351

Color & Color Difference - Near White Papers - D65/10deg obs

Hunter L,a,b - Illuminant D65 - 10 Degree Observer

Web Code	Data Flag	Samples	CIE L* a* b* Color Values L*	a*	b*	Color Difference Values ΔL*	Δa*	Δb*	ΔE*	InstrCode
2AJWG8		**GA65**	90.76	-1.09	2.64	1.82	0.63	-0.87	2.11	HE
		GA66	92.57	-0.47	1.77					
4RUC2L		**GA65**	88.58	-0.28	2.43	2.48	0.11	-0.30	2.50	HE
		GA66	91.06	-0.17	2.13					
63LEJL		**GA65**	90.62	-1.16	2.95	1.96	0.45	-0.39	2.04	NG
		GA66	92.58	-0.71	2.56					
74CZPG		**GA65**	90.43	-1.21	2.69	2.01	0.46	-0.39	2.10	HT
		GA66	92.44	-0.75	2.30					
AUHTUU		**GA65**	88.88	-0.95	2.41	2.53	0.21	-0.26	2.55	HE
		GA66	91.41	-0.74	2.16					
D8E7HF		**GA65**	90.40	-1.38	2.74	2.00	0.54	-0.44	2.12	EF
		GA66	92.40	-0.84	2.30					
DHU2LA		**GA65**	90.35	-1.21	2.89	1.98	0.40	-0.39	2.06	LS
		GA66	92.33	-0.81	2.50					
GQZRXN		**GA65**	88.32	-1.11	2.33	2.23	0.38	-0.40	2.29	XA
		GA66	90.55	-0.73	1.93					
J9V4JU		**GA65**	87.89	-1.05	2.49	2.34	0.37	-0.34	2.40	TC
		GA66	90.24	-0.68	2.15					
MHK4JM		**GA65**	90.43	-1.18	2.71	1.95	0.44	-0.35	2.03	LS
		GA66	92.38	-0.74	2.36					
NFCLK6		**GA65**	91.54	-0.30	2.00	1.68	0.19	-0.18	1.70	XP
		GA66	93.22	-0.11	1.83					
NJCGNR		**GA65**	90.28	-1.27	2.50	1.63	0.46	-0.50	1.77	XC
		GA66	91.91	-0.81	2.00					
PVLL78		**GA65**	90.80	-0.91	2.89	1.97	0.38	-0.48	2.06	XX
		GA66	92.76	-0.52	2.41					
VWTVNT		**GA65**	90.89	-0.93	2.44	2.02	0.30	-0.38	2.08	HV
		GA66	92.91	-0.62	2.06					
W4TTL9		**GA65**	90.64	-1.20	2.66	1.96	0.47	-0.35	2.04	HT
		GA66	92.60	-0.74	2.32					
Y42TJ2		**GA65**	90.99	-0.98	3.19	1.72	0.67	-1.12	2.16	TC
		GA66	92.71	-0.31	2.07					

ZCBCUX	**GA65**	90.15	-1.20	2.89	1.92	0.41	-0.39	2.01	EH
	GA66	92.07	-0.79	2.50					

Summary Statistics

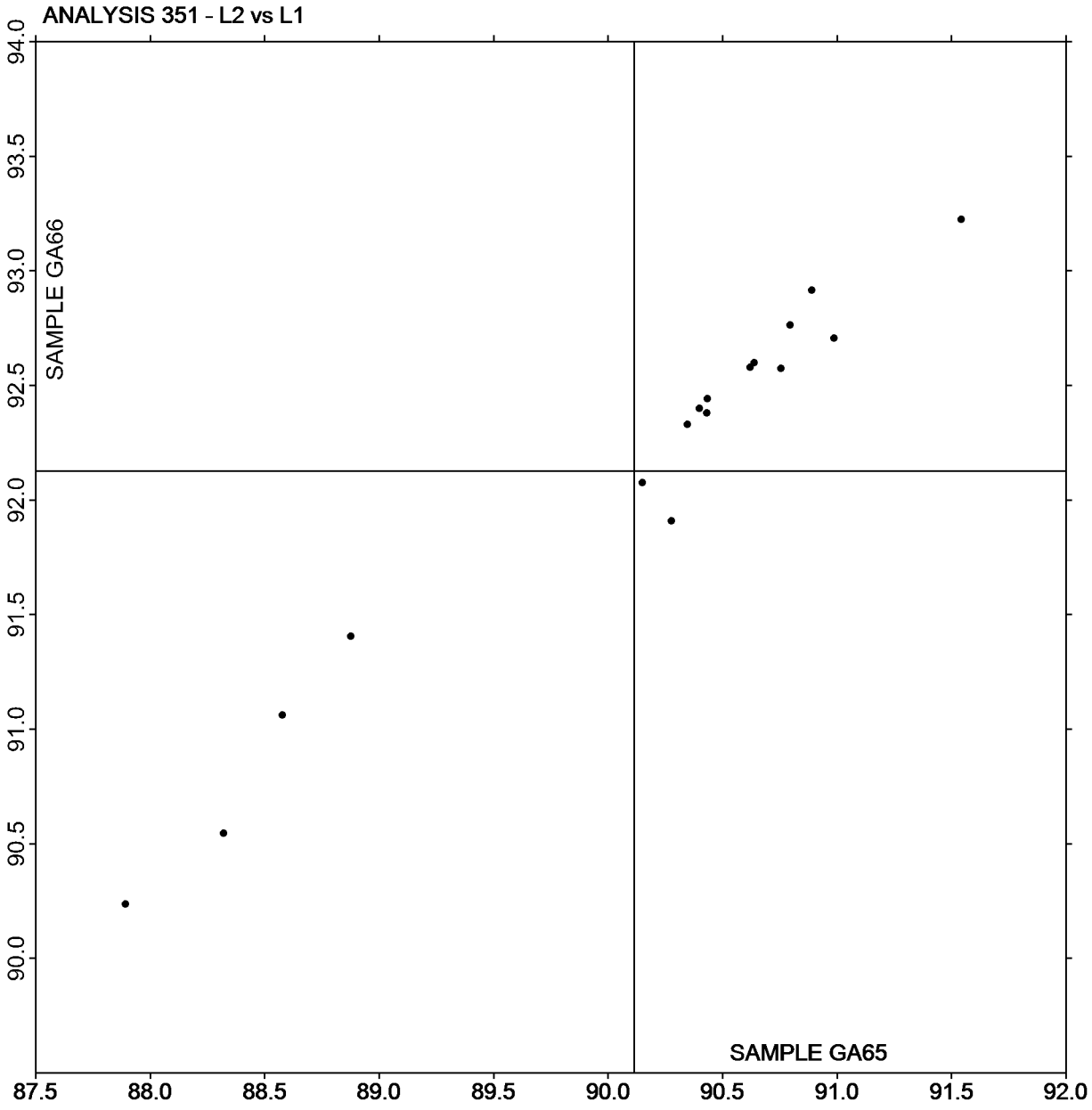
Grand Means							
GA65	90.114	-1.025	2.639	2.012	0.404	-0.443	2.119
GA66	92.126	-0.620	2.196				
Stnd Dev Btwn Labs							
GA65	1.038	0.305	0.283	0.255	0.144	0.226	0.221
GA66	0.838	0.228	0.236				

Statistics based on 17 of 17 reporting participants

Key to Instrument Codes Reported by Participants

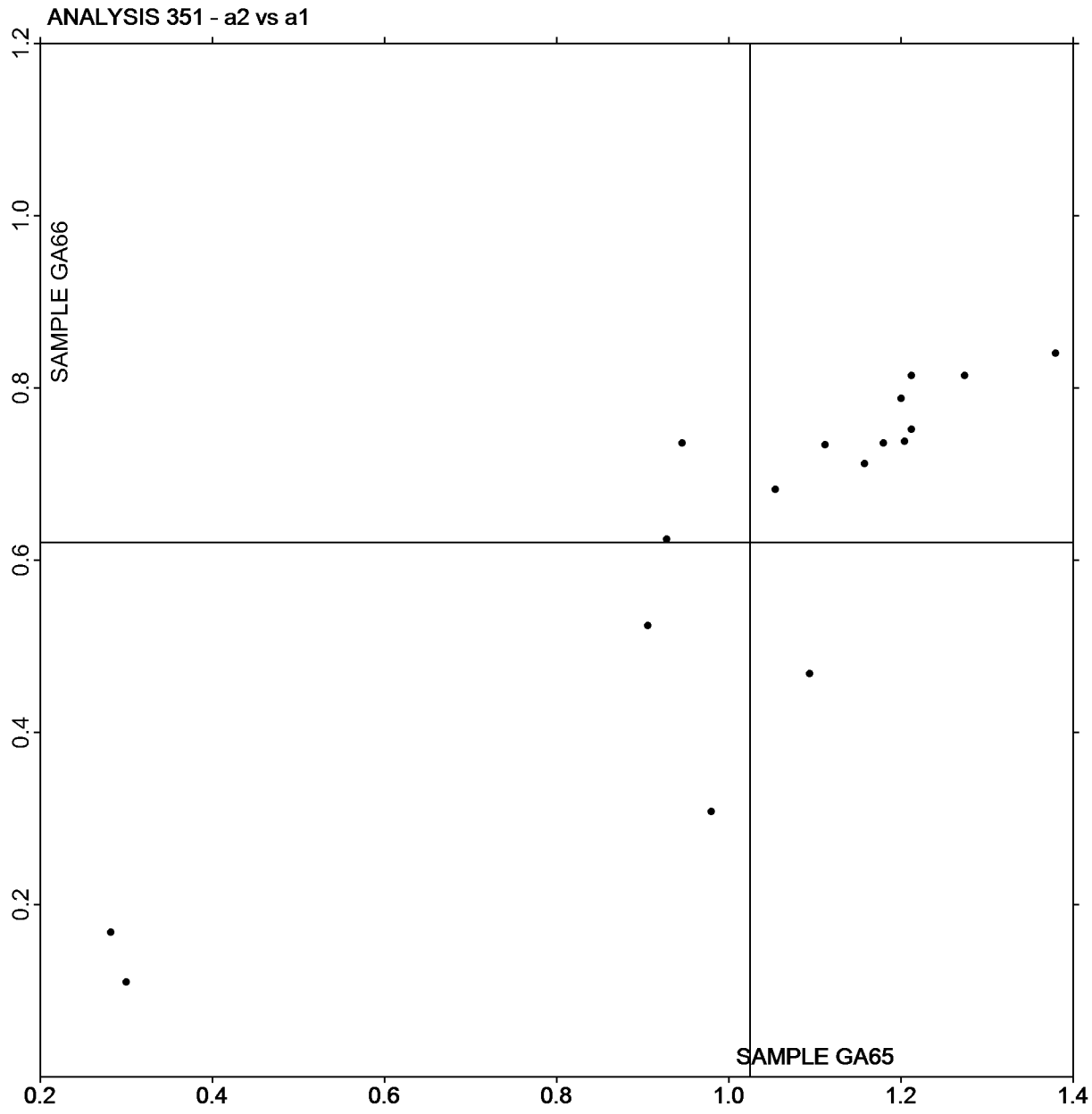
EF	Datacolor Elrepho 3000	EH	Datacolor Elrepho SF450
HE	Hunter LabScan	HT	Hunter UltraScan Vis
HV	Hunter Ultrascan XE	LS	L & W Elrepho SE 070
NG	Minolta CM-3700d Spectrophotometer	TC	Technidyne Color Touch Series
XA	X-Rite (model not specified)	XC	X-Rite eXact Series
XP	X-Rite Spectrophotometer DTP	XX	Instrument make/model not specified by lab

Plot of L values GA66 v L values GA65



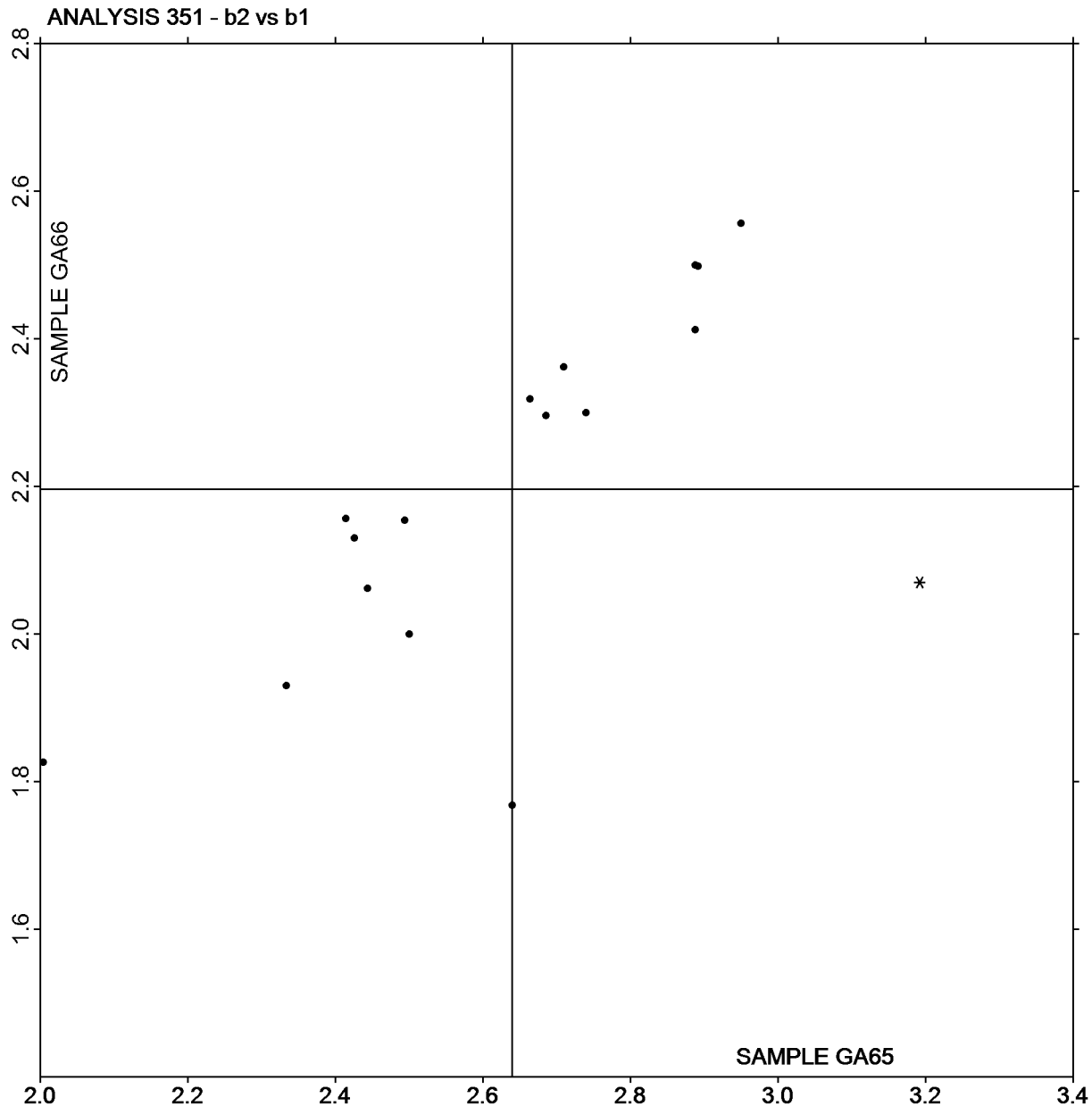
If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.

Plot of a values GA66 v a values GA65



If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.

Plot of b values GA66 v b values GA65



If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.

Paper & Paperboard Interlaboratory Testing Program

Analysis 360
Thickness (Caliper), Printing papers
TAPPI Official Test Method T411

WebCode	Data Flag	Sample GV65 Lab Mean	Sample GV65 Diff from Grand Mean	Sample GV65 CPV	Sample GV66 Lab Mean	Sample GV66 Diff from Grand Mean	Sample GV66 CPV	Instr Code
26QRM4		4.981	0.042	0.48	5.019	0.050	0.58	EM
2AJWG8		5.026	0.087	0.98	5.126	0.158	1.83	TM
2CMKZ4		5.015	0.077	0.87	5.040	0.071	0.82	LW
3KECXV		4.928	-0.011	-0.12	4.980	0.011	0.13	LA
4JYFXA		4.912	-0.027	-0.30	4.973	0.004	0.05	EM
4MHFB4		4.931	-0.008	-0.09	4.983	0.015	0.17	LW
4MHHW3		4.949	0.010	0.11	4.957	-0.012	-0.14	XX
63LEJL		4.851	-0.088	-1.00	4.890	-0.079	-0.92	PP
67UMY7		4.913	-0.025	-0.29	4.943	-0.026	-0.31	LW
74CZPG		4.831	-0.108	-1.22	4.828	-0.141	-1.64	EM
7THEYY		5.025	0.086	0.98	5.043	0.074	0.86	LW
7VLH9N	X	4.550	-0.389	-4.41	4.540	-0.429	-4.98	XX
8GLR4N		4.962	0.023	0.26	5.001	0.032	0.37	PP
8LD2DL		4.780	-0.159	-1.80	4.788	-0.181	-2.10	PP
8ZZ4XY		4.929	-0.010	-0.11	4.947	-0.022	-0.25	PP
9DJ9J2		5.025	0.086	0.98	5.070	0.101	1.17	TM
AWNBRP		5.038	0.099	1.13	5.007	0.038	0.44	LA
BL62RP		5.013	0.074	0.84	4.987	0.018	0.21	XX
BUEGU6		4.902	-0.037	-0.42	5.031	0.063	0.73	LW
CCEVLH		4.924	-0.015	-0.17	4.998	0.029	0.34	TA
CR7ZFK		4.904	-0.035	-0.39	4.906	-0.063	-0.73	EM
D6PWBZ		4.840	-0.099	-1.12	4.940	-0.029	-0.33	TM
DBF6VU		5.055	0.116	1.32	5.030	0.061	0.71	LW
DVKPTF		4.852	-0.087	-0.98	4.878	-0.091	-1.06	TM
ELRWXU		4.900	-0.039	-0.44	4.910	-0.059	-0.68	TM
EYJMGD		5.019	0.080	0.91	5.020	0.051	0.59	EM
FNBDMT		5.016	0.077	0.87	5.047	0.078	0.91	LW
FT4FG8		4.996	0.057	0.65	4.962	-0.007	-0.08	EM
GQZRXN		4.944	0.005	0.06	4.964	-0.005	-0.06	LW
GUU2EF		4.875	-0.064	-0.73	4.849	-0.120	-1.39	FR
HPZBXW		5.111	0.173	1.96	5.123	0.154	1.79	LW
J9V4JU		4.931	-0.008	-0.09	4.989	0.020	0.23	PP
JGPC4L		4.895	-0.044	-0.50	4.904	-0.065	-0.75	PP
L7TFTU		4.966	0.028	0.31	5.041	0.073	0.84	LW
LHMJ2G		4.810	-0.129	-1.46	4.810	-0.159	-1.84	TA
LMWZB7	*	4.712	-0.227	-2.57	4.839	-0.130	-1.51	MT
MB23XJ		4.812	-0.127	-1.44	4.834	-0.135	-1.56	TM
NFCLK6		4.805	-0.134	-1.52	4.870	-0.099	-1.15	TM
NJCGNR		4.933	-0.006	-0.06	4.909	-0.059	-0.69	LW
NKLVMK		5.041	0.103	1.16	5.138	0.169	1.97	LW
PVLL78		5.070	0.132	1.49	5.109	0.141	1.63	TM

Paper & Paperboard Interlaboratory Testing Program

Analysis 360

Thickness (Caliper), Printing papers

TAPPI Official Test Method T411

WebCode	Data Flag	Sample GV65 Lab Mean	Sample GV65 Diff from Grand Mean	Sample GV65 CPV	Sample GV66 Lab Mean	Sample GV66 Diff from Grand Mean	Sample GV66 CPV	Instr Code
R3WH8J		4.965	0.026	0.30	4.976	0.007	0.08	EM
RFLJGY		5.020	0.081	0.92	4.950	-0.019	-0.22	TA
TZKAB4		4.829	-0.110	-1.24	4.856	-0.113	-1.31	TM
UA7VU8		4.839	-0.100	-1.13	4.853	-0.116	-1.35	LA
URQGGJ		4.930	-0.009	-0.10	4.944	-0.025	-0.29	TM
VR4AUX		4.906	-0.033	-0.37	4.909	-0.060	-0.69	TM
VWTVNT		5.058	0.119	1.35	5.047	0.078	0.91	EM
W4TTL9		4.875	-0.064	-0.72	5.009	0.040	0.47	EM
Y42TJ2		5.079	0.140	1.59	5.079	0.110	1.28	PP
Y4L93X		5.069	0.131	1.48	5.070	0.101	1.18	LW
Z6AZMU	X	4.664	-0.275	-3.12	4.651	-0.318	-3.69	TA
Z6QDQX		4.904	-0.035	-0.39	5.002	0.033	0.39	EM
Z9RGHK	X	4.652	-0.287	-3.25	4.544	-0.425	-4.93	PP
ZRL9VC		4.920	-0.018	-0.21	5.000	0.031	0.36	PP

Summary Statistics	Sample GV65	Sample GV66
Grand Means	4.94 mils	4.97 mils
Stnd Dev Btwn Labs	0.09 mils	0.09 mils

Statistics based on 52 of 55 reporting participants.

Comments on Assigned Data Flags for Test #360

Z9RGHK (X) - Data for both samples are low. Possible Systematic Error.

Z6AZMU (X) - Data for both samples are low. Possible Systematic Error.

7VLH9N (X) - Data for both samples are low. Possible Systematic Error.

Analysis Notes:

DVKPTF - One determination removed from the Lab Mean of Sample GV66 per Grubb's Test at 1% risk (TAPPI 1205).

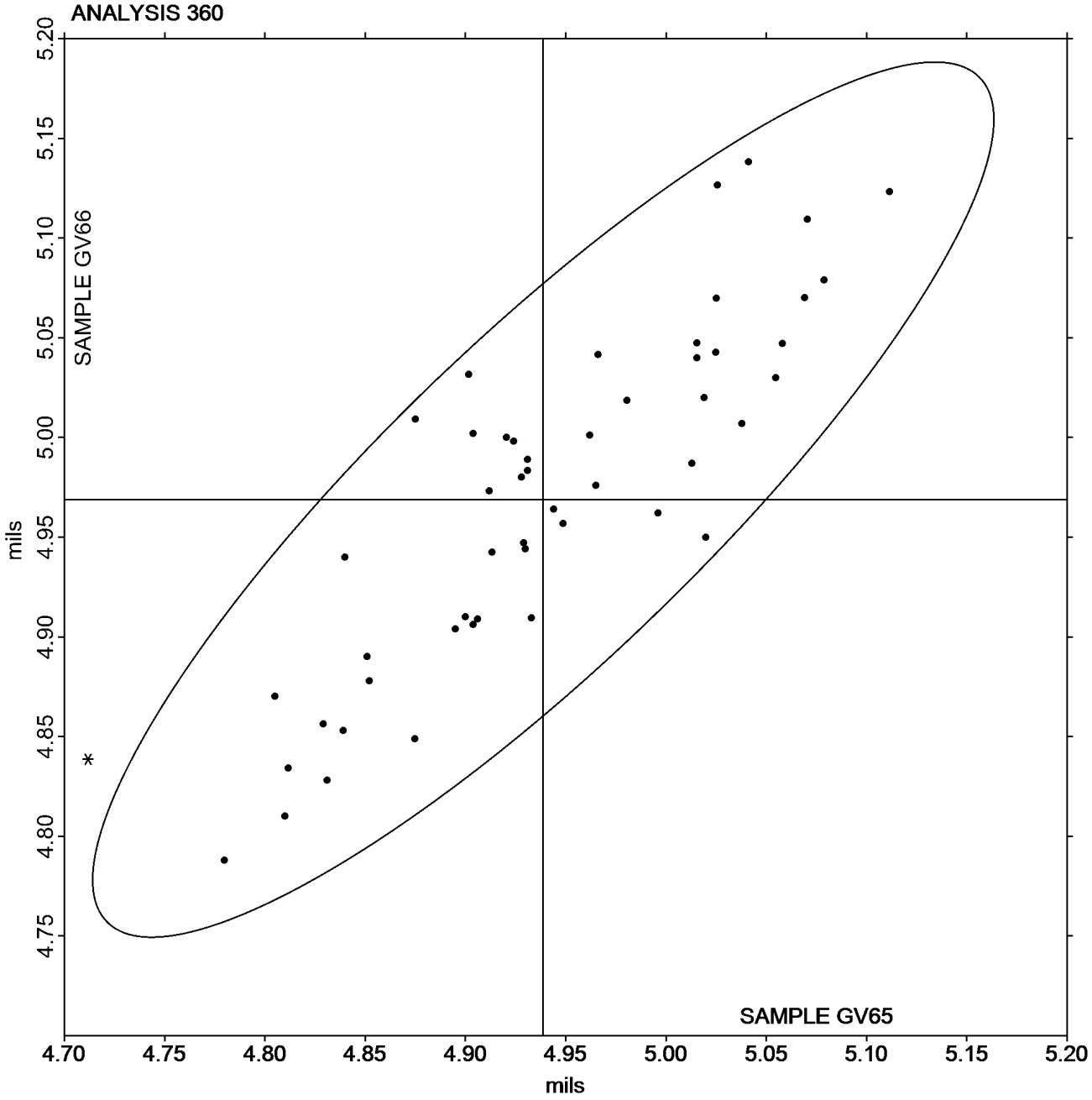
NFCLK6 - Data appear to be reported as mils, not inches as indicated on datasheet. CTS will not correct the Units going forward.

Key to Instrument Codes Reported by Participants

EM	Emveco	FR	Frank Instruments
LA	L & W Autoline	LW	L & W
MT	Mitutoyo	PP	Technidyne Profile/Plus
TA	Thwing-Albert	TM	TMI
XX	Instrument make/model not specified by lab		

Grand Mean Sample GV65 = 4.9388 mils

Grand Mean Sample GV66 = 4.9688 mils



Paper & Paperboard Interlaboratory Testing Program

Analysis 361
Thickness (Caliper), Packaging papers
TAPPI Official Test Method T411

WebCode	Data Flag	Sample GY65 Lab Mean	Sample GY65 Diff from Grand Mean	Sample GY65 CPV	Sample GY66 Lab Mean	Sample GY66 Diff from Grand Mean	Sample GY66 CPV	Instr Code
26QRM4		9.675	0.070	0.57	14.27	0.12	0.59	EM
29NA44	*	9.596	-0.008	-0.06	14.45	0.30	1.43	LW
3WTHW6		9.602	-0.002	-0.02	14.03	-0.12	-0.58	TM
4MHFB4		9.730	0.125	1.01	14.27	0.12	0.57	LW
4RUC2L		9.605	0.001	0.01	14.21	0.07	0.31	EM
63C63U		9.440	-0.164	-1.33	13.88	-0.27	-1.28	LA
9J74FY		9.450	-0.154	-1.25	13.99	-0.16	-0.78	TA
AUHTUU		9.514	-0.090	-0.73	13.94	-0.21	-0.99	EM
D6PWBZ		9.380	-0.224	-1.81	13.73	-0.42	-1.99	TM
DHU2LA		9.535	-0.069	-0.56	13.89	-0.26	-1.23	TM
G6VH8Q		9.460	-0.144	-1.17	13.96	-0.19	-0.89	TA
GDDRZU		9.534	-0.070	-0.57	14.09	-0.05	-0.26	LA
JCQZZ9		9.538	-0.066	-0.54	14.04	-0.11	-0.51	VP
JTZQ3D		9.520	-0.084	-0.68	14.09	-0.06	-0.28	TM
L3EK76		9.772	0.168	1.36	14.37	0.22	1.04	LW
LHMJ2G		9.514	-0.090	-0.73	14.10	-0.05	-0.22	TA
LZQBYP	X	9.042	-0.562	-4.55	13.45	-0.70	-3.31	TM
MHK4JM		9.567	-0.037	-0.30	14.08	-0.07	-0.32	LW
MV7NN4		9.573	-0.032	-0.26	13.87	-0.28	-1.32	LW
MXFTBD		9.706	0.102	0.82	14.30	0.15	0.73	TM
N34UU4		9.685	0.080	0.65	14.27	0.12	0.57	LW
NBZPUM		9.580	-0.024	-0.20	14.02	-0.13	-0.61	TA
P3MX4P		9.623	0.019	0.15	14.28	0.13	0.63	TM
RFLJGY		9.630	0.026	0.21	14.28	0.13	0.63	TA
RFWK4X		9.894	0.289	2.34	14.47	0.32	1.52	TM
RHJ9MY		9.750	0.146	1.18	14.22	0.07	0.34	TM
RLRBTG	X	9.569	-0.035	-0.29	11.06	-3.09	-14.69	LA
T8MFQ8		9.721	0.117	0.94	14.49	0.34	1.61	EM
U83YB6		9.726	0.122	0.98	14.36	0.21	1.00	LA
YL6CEH		9.703	0.099	0.80	14.41	0.26	1.23	LA
Z6AZMU		9.330	-0.274	-2.22	13.73	-0.42	-1.98	TA
ZCBCUX		9.697	0.093	0.75	14.33	0.18	0.86	EM
ZRL9VC		9.728	0.124	1.00	14.30	0.15	0.70	LW
ZWYXCZ		9.560	-0.044	-0.36	14.04	-0.11	-0.53	EM

Summary Statistics	Sample GY65	Sample GY66
Grand Means	9.60 mils	14.15 mils
Stnd Dev Btwn Labs	0.12 mils	0.21 mils

Statistics based on 32 of 34 reporting participants.

Comments on Assigned Data Flags for Test #361

RLRBTG (X) - Extreme Data for Sample GY66.

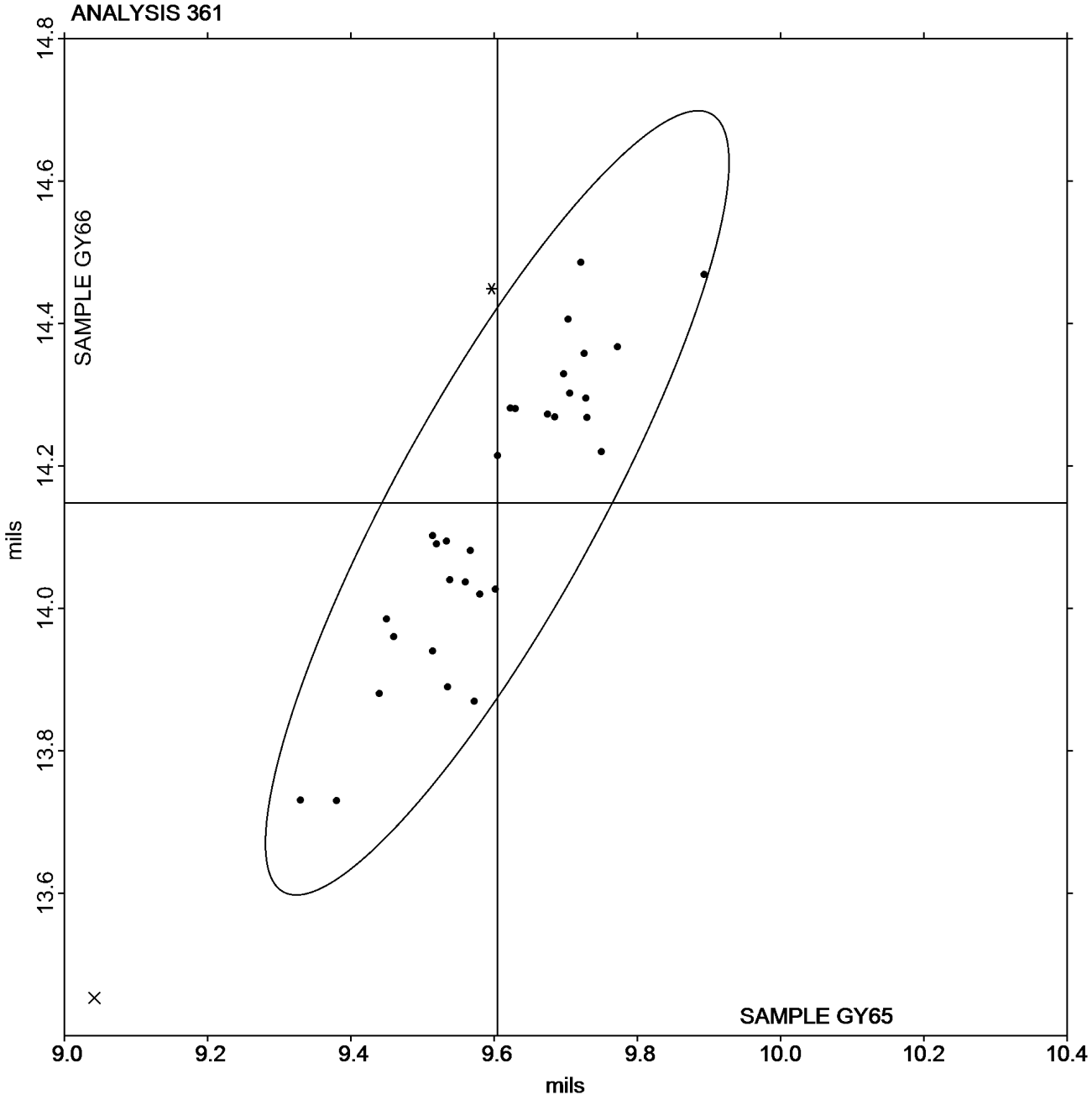
LZQBYP (X) - Data for both samples are low.

Key to Instrument Codes Reported by Participants

EM	Emveco	LA	L & W Autoline
LW	L & W	TA	Thwing-Albert
TM	TMI	VP	Valmet Paper Lab

Grand Mean Sample GY65 = 9.6043 mils

Grand Mean Sample GY66 = 14.148 mils



Paper & Paperboard Interlaboratory Testing Program

Analysis 364

Coefficient of Static Friction - Horizontal Plane Method - Printing Papers

TAPPI Official Test Method T549

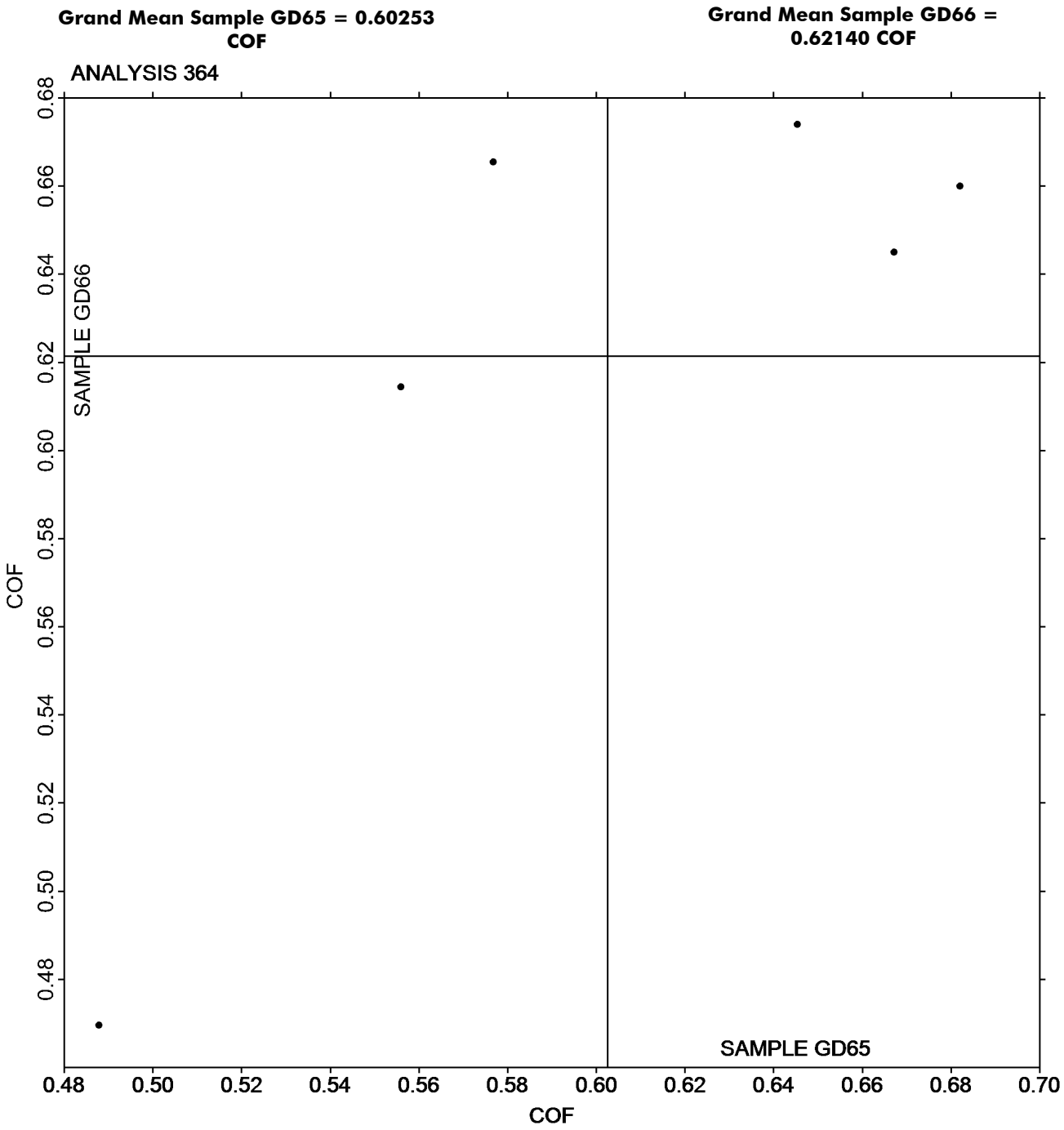
WebCode	Data Flag	Sample GD65 Lab Mean	Sample GD65 Diff from Grand Mean	Sample GD65 CPV	Sample GD66 Lab Mean	Sample GD66 Diff from Grand Mean	Sample GD66 CPV	Instr Code
EYJMGD		0.6672	0.0647	0.86	0.6450	0.0236	0.31	TA
L3EK76		0.5560	-0.0465	-0.62	0.6144	-0.0070	-0.09	TL
LKXLYM		0.6454	0.0429	0.57	0.6740	0.0526	0.68	TA
M8J2YQ		0.5768	-0.0257	-0.34	0.6654	0.0440	0.57	IT
R3WH8J		0.6820	0.0795	1.06	0.6600	0.0386	0.50	TA
VWTVNT		0.4878	-0.1147	-1.52	0.4696	-0.1518	-1.96	TA

Summary Statistics	Sample GD65	Sample GD66
Grand Means	0.60 COF	0.62 COF
Stnd Dev Btwn Labs	0.08 COF	0.08 COF

Statistics based on 6 of 6 reporting participants.

Key to Instrument Codes Reported by Participants

IT	IMASS SP-2100	TA	Thwing-Albert Friction Tester
TL	TMI 32-90 Lab Master/Slip and Friction		



If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.

Paper & Paperboard Interlaboratory Testing Program

Analysis 365

Coefficient of Kinetic Friction - Horizontal Plane Method - Printing Papers

TAPPI Official Test Method T549

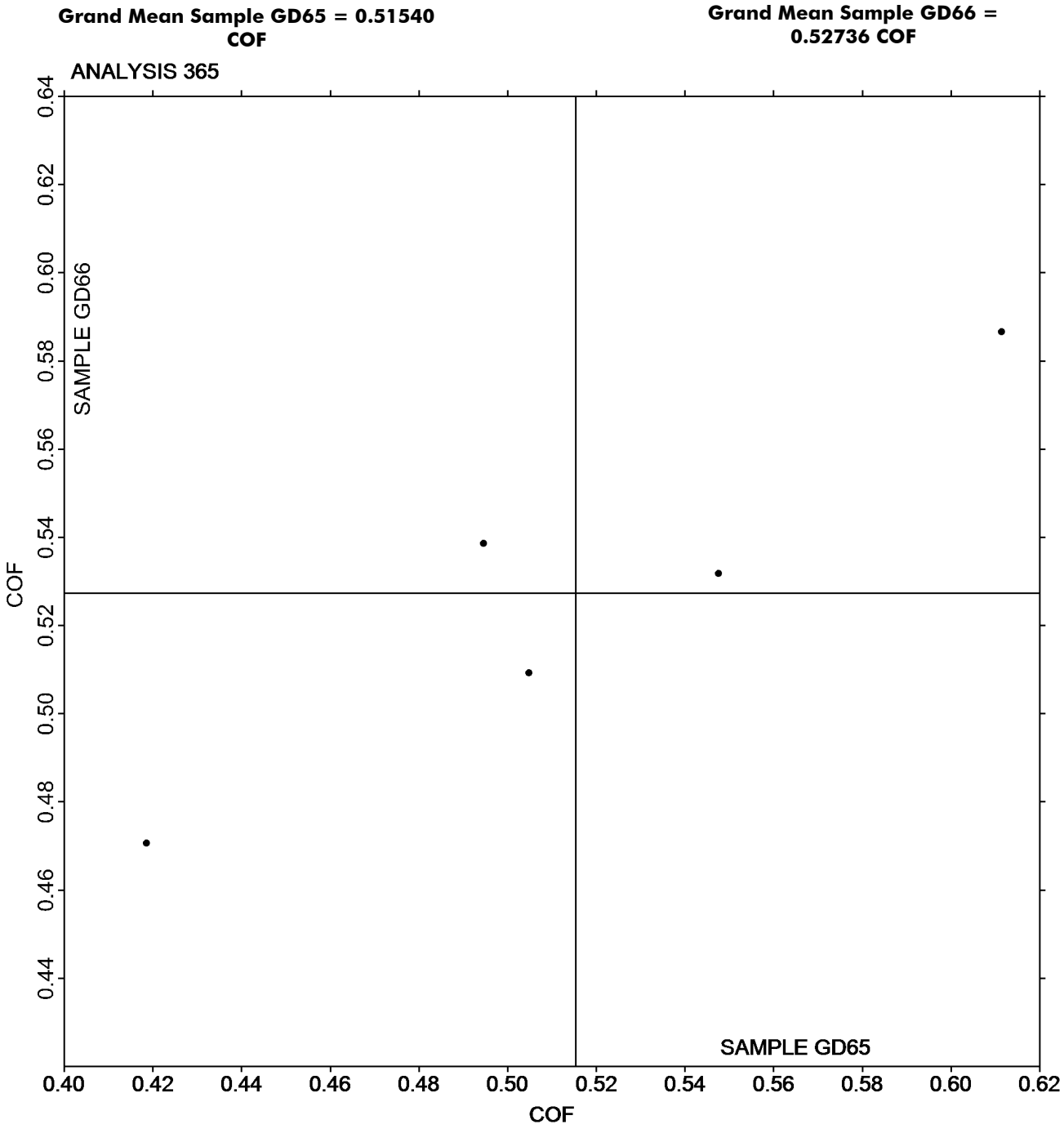
WebCode	Data Flag	Sample GD65 Lab Mean	Sample GD65 Diff from Grand Mean	Sample GD65 CPV	Sample GD66 Lab Mean	Sample GD66 Diff from Grand Mean	Sample GD66 CPV	Instr Code
4JYFXA		0.5048	-0.0106	-0.15	0.5092	-0.0182	-0.43	TA
JGPC4L		0.5476	0.0322	0.45	0.5318	0.0044	0.10	TA
LKXLYM		0.4946	-0.0208	-0.29	0.5386	0.0112	0.26	TA
M8J2YQ		0.4186	-0.0968	-1.36	0.4706	-0.0568	-1.34	IR
VUPAUE		0.6114	0.0960	1.35	0.5866	0.0592	1.40	TA

Summary Statistics	Sample GD65	Sample GD66
Grand Means	0.52 COF	0.53 COF
Stnd Dev Btwn Labs	0.07 COF	0.04 COF

Statistics based on 5 of 5 reporting participants.

Key to Instrument Codes Reported by Participants

IR	IMASS SP-2000	TA	Thwing-Albert Friction Tester



If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.

Paper & Paperboard Interlaboratory Testing Program

Analysis 370

Air Resistance - Gurley Oil Type

TAPPI Official Test Method T460

WebCode	Data Flag	Sample GE65 Lab Mean	Sample GE65 Diff from Grand Mean	Sample GE65 CPV	Sample GE66 Lab Mean	Sample GE66 Diff from Grand Mean	Sample GE66 CPV	Instr Code
2CMKZ4		29.65	0.20	0.14	28.52	-0.95	-0.67	LP
4RUC2L		28.72	-0.72	-0.50	28.88	-0.59	-0.42	PP
63C63U		31.30	1.85	1.29	31.50	2.03	1.43	LA
74CZPG		31.86	2.41	1.68	32.01	2.54	1.79	HG
74LP8A		29.32	-0.13	-0.09	29.69	0.22	0.16	GA
7THEYY		27.53	-1.92	-1.34	28.05	-1.42	-1.00	LP
7VLH9N		27.24	-2.21	-1.54	27.85	-1.62	-1.14	XX
8LD2DL		31.06	1.61	1.13	31.05	1.58	1.12	PP
8ZZ4XY		30.08	0.63	0.44	30.41	0.95	0.67	PP
94AYV9		30.08	0.63	0.44	29.45	-0.02	-0.01	LA
9VGHND		30.56	1.11	0.78	30.84	1.37	0.97	XX
AWNBRP		32.12	2.67	1.86	32.13	2.67	1.88	LA
CKBLBZ		28.85	-0.60	-0.42	30.48	1.01	0.71	LP
D8E7HF		31.61	2.16	1.51	30.88	1.41	1.00	LP
E9ZFTF		28.76	-0.69	-0.48	27.60	-1.86	-1.31	PP
ELRWXU		29.70	0.25	0.18	29.60	0.13	0.09	GS
FT4FG8		27.92	-1.52	-1.06	27.71	-1.76	-1.24	PP
GQZRXN		29.63	0.18	0.12	29.79	0.32	0.23	XX
J9V4JU		28.80	-0.64	-0.45	29.55	0.08	0.06	PP
JCQZZ9		32.86	3.41	2.38	32.95	3.48	2.45	VM
JTZQ3D		28.89	-0.56	-0.39	29.47	0.00	0.00	TL
LHMJ2G		30.31	0.86	0.60	29.86	0.39	0.28	PP
LKXLYM		29.41	-0.04	-0.03	30.18	0.71	0.50	WG
MB23XJ		29.02	-0.43	-0.30	29.29	-0.18	-0.12	LW
MV7NN4		29.11	-0.33	-0.23	29.12	-0.35	-0.24	TL
N34UU4		30.20	0.75	0.53	29.57	0.10	0.07	LW
NJCGNR		29.40	-0.05	-0.03	27.70	-1.77	-1.24	LW
PVLL78		31.24	1.79	1.25	30.37	0.90	0.64	PR
QU3CDH		29.82	0.37	0.26	30.00	0.53	0.38	XX
R3WH8J		29.45	0.01	0.00	29.43	-0.04	-0.03	PP
RFLJGY		29.30	-0.15	-0.10	27.60	-1.87	-1.31	GA
TZKAB4		29.64	0.19	0.14	29.81	0.34	0.24	LP
UA7VU8		30.13	0.68	0.48	29.48	0.01	0.01	LA
URQGGJ		29.17	-0.28	-0.19	29.00	-0.47	-0.33	HG
VPYZJF		28.65	-0.80	-0.55	29.86	0.39	0.28	GL
VWTVNT	*	25.62	-3.83	-2.67	26.38	-3.08	-2.17	PP
W4TTL9		29.10	-0.35	-0.24	29.73	0.26	0.18	PP
Y42TJ2		28.04	-1.41	-0.98	29.26	-0.21	-0.15	PP
Y4L93X		28.25	-1.20	-0.83	27.64	-1.83	-1.29	LP
YUFJ9Z		26.65	-2.80	-1.95	26.82	-2.65	-1.86	LP
YUY9JU		29.91	0.47	0.33	31.02	1.56	1.10	PP

Paper & Paperboard Interlaboratory Testing Program

Analysis 370

Air Resistance - Gurley Oil Type

TAPPI Official Test Method T460

WebCode	Data Flag	Sample GE65 Lab Mean	Sample GE65 Diff from Grand Mean	Sample GE65 CPV	Sample GE66 Lab Mean	Sample GE66 Diff from Grand Mean	Sample GE66 CPV	Instr Code
Z6QDQX		27.31	-2.14	-1.49	27.69	-1.78	-1.25	PP
Z9RGHK		30.35	0.90	0.63	29.89	0.42	0.30	HG
ZRL9VC		29.02	-0.43	-0.30	28.42	-1.05	-0.74	PP

Summary Statistics	Sample GE65	Sample GE66
Grand Means	29.45 sec/100 cc	29.47 sec/100 cc
Stnd Dev Btwn Labs	1.43 sec/100 cc	1.42 sec/100 cc

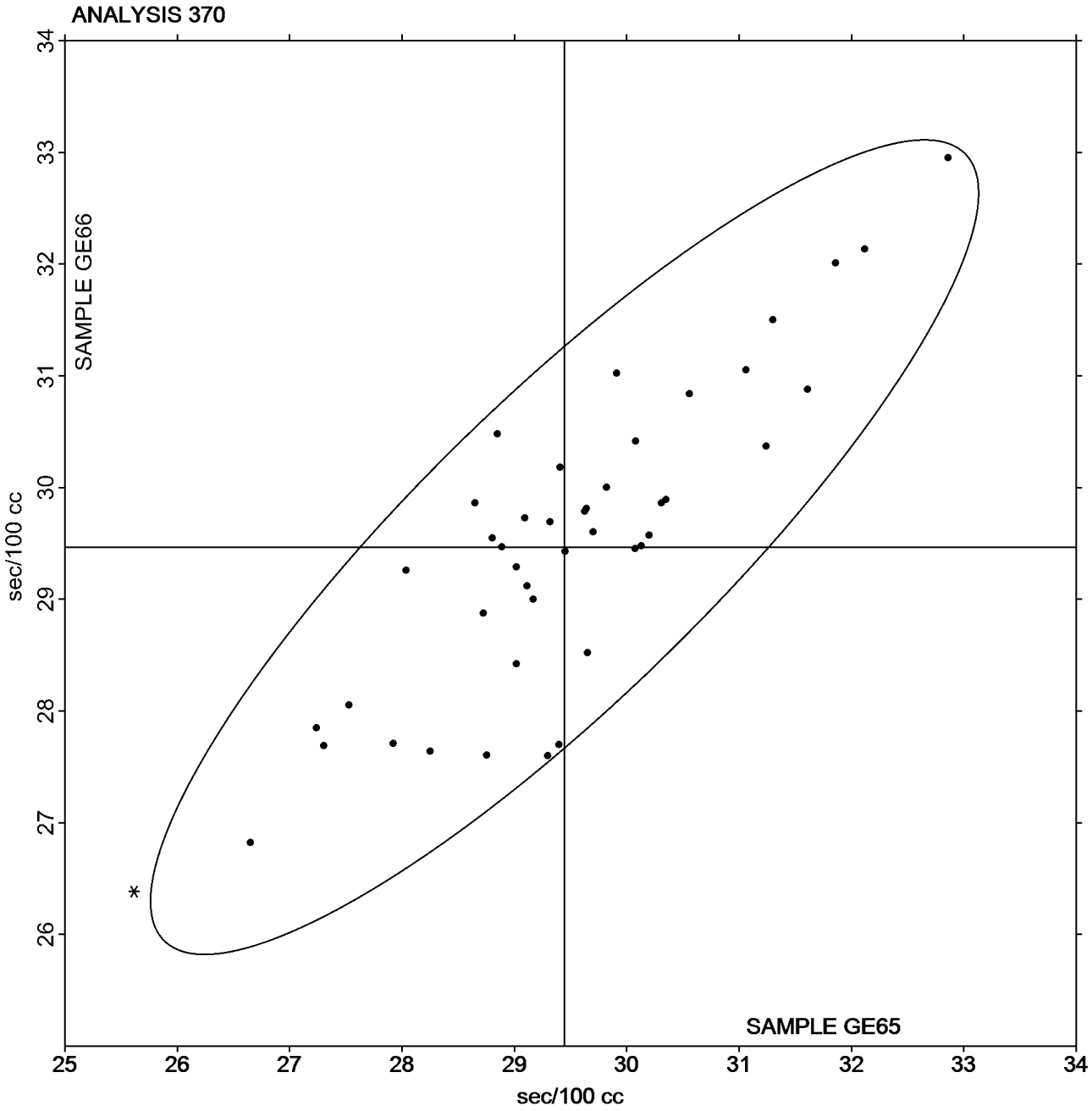
Statistics based on 44 of 44 reporting participants.

Key to Instrument Codes Reported by Participants

GA	Gurley Precision #4340 Automatic Densometer	GL	Gurley #4110
GS	Gurley-Hill S-P-S Tester #4190	HG	Technidyne - Hagerty Model #1
LA	L & W Autoline	LP	L & W Densometer, Air Permeance
LW	L & W Type Gurley Densometer, Oil Flotation	PP	Technidyne Profile/Plus
PR	Parker Print-Surf (PPS) Model M590	TL	Gurley Densometer #4110, Oil Flotation
VM	Valmet PaperLab (was Kajaani/Robotest)	WG	W & LE Gurley Tester
XX	Instrument make/model not specified by lab		

Grand Mean Sample GE65 = 29.446 sec/100 cc

Grand Mean Sample GE66 = 29.466 sec/100 cc



Paper & Paperboard Interlaboratory Testing Program

Analysis 372

Porosity - Sheffield Type - Sheffield Units for 3/4 inch Diameter Orifice

TAPPI Official Test Method T547

WebCode	Data Flag	Sample GE65 Lab Mean	Sample GE65 Diff from Grand Mean	Sample GE65 CPV	Sample GE66 Lab Mean	Sample GE66 Diff from Grand Mean	Sample GE66 CPV	Instr Code
36MMP7		97.70	1.15	0.14	103.90	5.73	0.70	HM
3VVVNU		100.66	4.11	0.49	104.48	6.31	0.77	PP
6NTMXK		77.80	-18.75	-2.22	78.50	-19.67	-2.41	SH
9DJ9J2		102.00	5.45	0.64	102.00	3.83	0.47	TT
CCEVLH		104.40	7.85	0.93	100.70	2.53	0.31	HM
ELRWXU		104.30	7.75	0.92	105.60	7.43	0.91	SH
J9V4JU		96.63	0.08	0.01	97.42	-0.75	-0.09	PP
JCQZZ9		98.60	2.05	0.24	99.50	1.33	0.16	PP
KFNYUX	X	49.40	-47.15	-5.58	51.60	-46.57	-5.72	TT
KM76TP		83.15	-13.40	-1.58	87.67	-10.50	-1.29	GA
NFCLK6		97.10	0.55	0.07	98.00	-0.17	-0.02	TT
RFLJGY		99.70	3.15	0.37	102.10	3.93	0.48	GA

Summary Statistics	Sample GE65	Sample GE66
Grand Means	96.55 Sheffield Units	98.17 Sheffield Units
Stnd Dev Btwn Labs	8.46 Sheffield Units	8.15 Sheffield Units

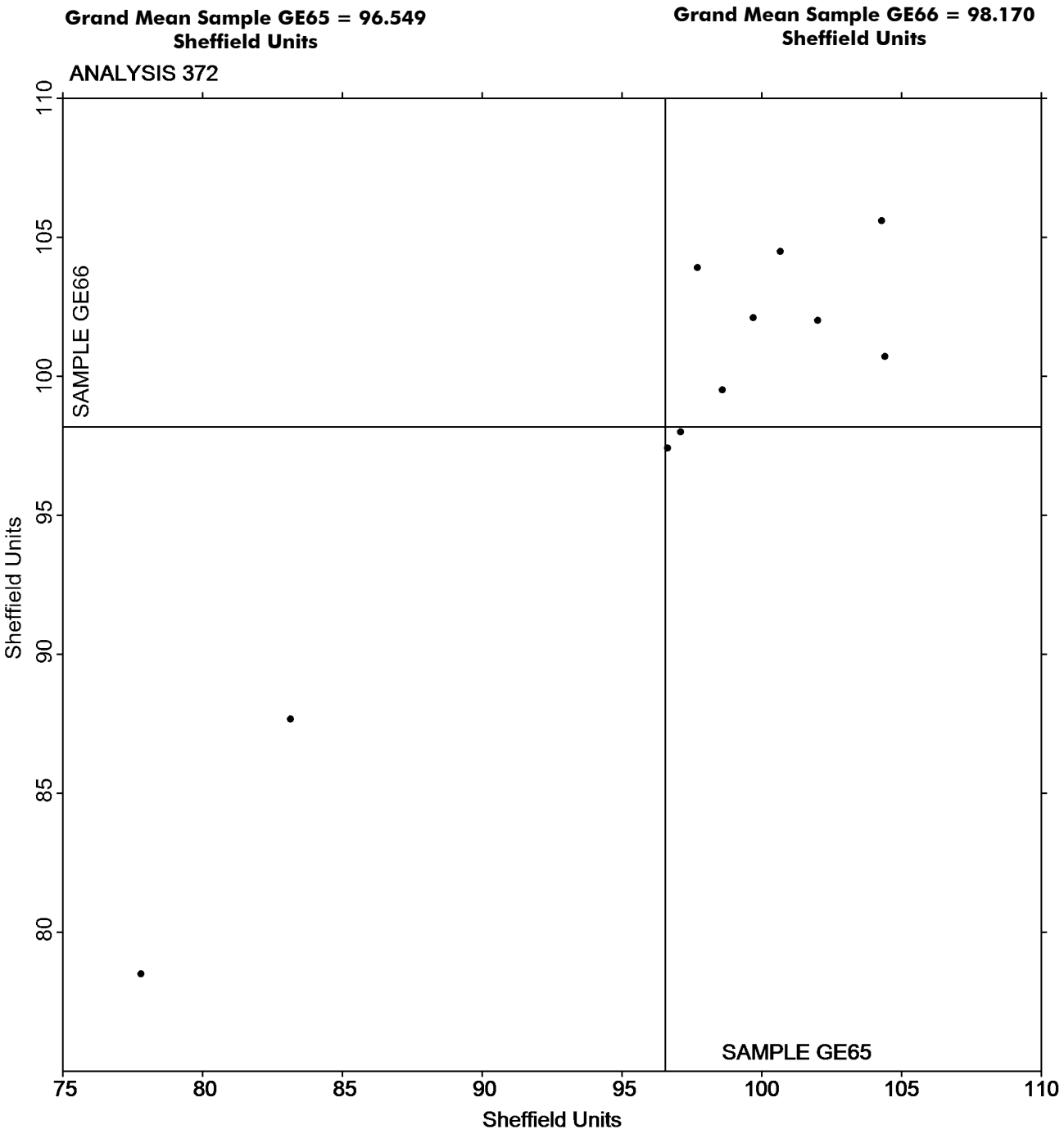
Statistics based on 11 of 12 reporting participants.

Comments on Assigned Data Flags for Test #372

KFNYUX (X) - Data for both samples are low. Possible Systematic Error.

Key to Instrument Codes Reported by Participants

GA	Gurley Precision #4340 Automatic Densometer	HM	Technidyne - Hagerty Model #538
PP	Technidyne Profile/Plus	SH	Sheffield
TT	TMI Monitor/Smoothness II, Model 58-24		



If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.

Paper & Paperboard Interlaboratory Testing Program

Analysis 376

Roughness - Print Surf Method - 0.5 to 4.0 Microns

TAPPI Official Test Method T555

WebCode	Data Flag	Sample GJ65 Lab Mean	Sample GJ65 Diff from Grand Mean	Sample GJ65 CPV	Sample GJ66 Lab Mean	Sample GJ66 Diff from Grand Mean	Sample GJ66 CPV	Instr Code
36MMP7		0.5830	-0.1111	-1.55	0.3650	-0.1675	-2.46	ZZ
3KECXV		0.6960	0.0019	0.03	0.5630	0.0305	0.45	ZZ
4MHFB4		0.7790	0.0849	1.18	0.5710	0.0385	0.57	ZZ
8GLR4N		0.7100	0.0159	0.22	0.6850	0.1525	2.24	ZZ
8J9EMP	X	2.2120	1.5179	21.17	0.8955	0.3630	5.34	ZZ
AUHTUU		0.6450	-0.0491	-0.68	0.5360	0.0035	0.05	ZZ
BR7GFC	X	1.0070	0.3129	4.36	0.9960	0.4635	6.81	ZZ
CR7ZFK		0.7440	0.0499	0.70	0.5410	0.0085	0.12	ZZ
DBF6VU		0.7420	0.0479	0.67	0.5480	0.0155	0.23	ZZ
DHU2LA		0.7269	0.0328	0.46	0.5930	0.0605	0.89	ZZ
FGGX72		0.6200	-0.0741	-1.03	0.5240	-0.0085	-0.12	ZZ
FT4FG8		0.8220	0.1279	1.78	0.5430	0.0105	0.15	ZZ
GDDRZU		0.8070	0.1129	1.58	0.5250	-0.0075	-0.11	ZZ
J9V4JU		0.6443	-0.0498	-0.69	0.5200	-0.0125	-0.18	ZZ
JCQZZ9	X	1.5290	0.8349	11.65	1.1040	0.5715	8.40	ZZ
KDEVYL		0.8200	0.1259	1.76	0.5100	-0.0225	-0.33	ZZ
KGW2MB		0.6470	-0.0471	-0.66	0.6050	0.0725	1.07	ZZ
L7TFTU		0.6910	-0.0031	-0.04	0.4850	-0.0475	-0.70	ZZ
LHMJ2G		0.6100	-0.0841	-1.17	0.4710	-0.0615	-0.90	ZZ
LKXLYM		0.6580	-0.0361	-0.50	0.5410	0.0085	0.12	ZZ
MHK4JM		0.8500	0.1559	2.17	0.6950	0.1625	2.39	ZZ
NFCLK6		0.7460	0.0519	0.72	0.5970	0.0645	0.95	ZZ
RLRBTG	X	1.4000	0.7059	9.85	1.1300	0.5975	8.78	ZZ
RZNHQ7	X	0.3000	-0.3941	-5.50	0.4210	-0.1115	-1.64	ZZ
T8MFQ8		0.6330	-0.0611	-0.85	0.4750	-0.0575	-0.85	ZZ
TZKAB4		0.7240	0.0299	0.42	0.5580	0.0255	0.37	ZZ
U83YB6		0.6620	-0.0321	-0.45	0.4500	-0.0825	-1.21	ZZ
VUPAUE		0.6320	-0.0621	-0.87	0.4610	-0.0715	-1.05	ZZ
VWTVNT		0.6610	-0.0331	-0.46	0.5100	-0.0225	-0.33	ZZ
Z6QDQX		0.6440	-0.0501	-0.70	0.4910	-0.0415	-0.61	ZZ
Z9RGHK		0.6440	-0.0501	-0.70	0.5750	0.0425	0.62	ZZ
ZCBCUX		0.6460	-0.0481	-0.67	0.4760	-0.0565	-0.83	ZZ
ZWYXCZ		0.6470	-0.0471	-0.66	0.4960	-0.0365	-0.54	ZZ

Summary Statistics	Sample GJ65	Sample GJ66
Grand Means	0.69 Microns	0.53 Microns
Stnd Dev Btwn Labs	0.07 Microns	0.07 Microns

Statistics based on 28 of 33 reporting participants.

Comments on Assigned Data Flags for Test #376

RLRBTG (X) - Extreme Data.

JCQZZ9 (X) - Extreme Data.

BR7GFC (X) - Extreme Data.

8J9EMP (X) - Extreme Data.

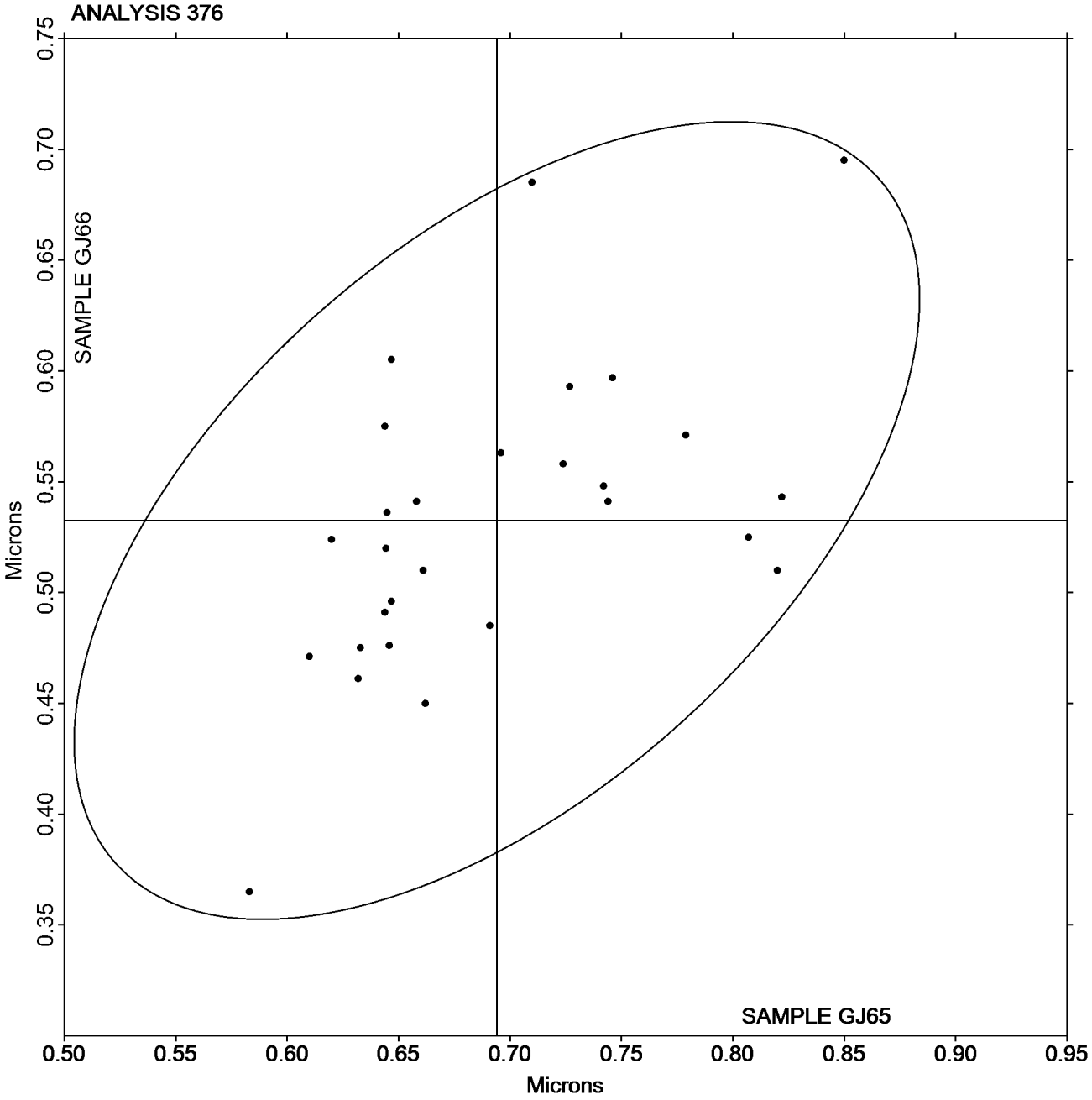
RZNHQ7 (X) - Data for sample GJ65 are low.

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked

Grand Mean Sample GJ65 = 0.69408 Microns

Grand Mean Sample GJ66 = 0.53250 Microns



Paper & Paperboard Interlaboratory Testing Program

Analysis 377

Roughness - Print Surf Method - 2.5 to 6.0 Microns

TAPPI Official Test Method T555

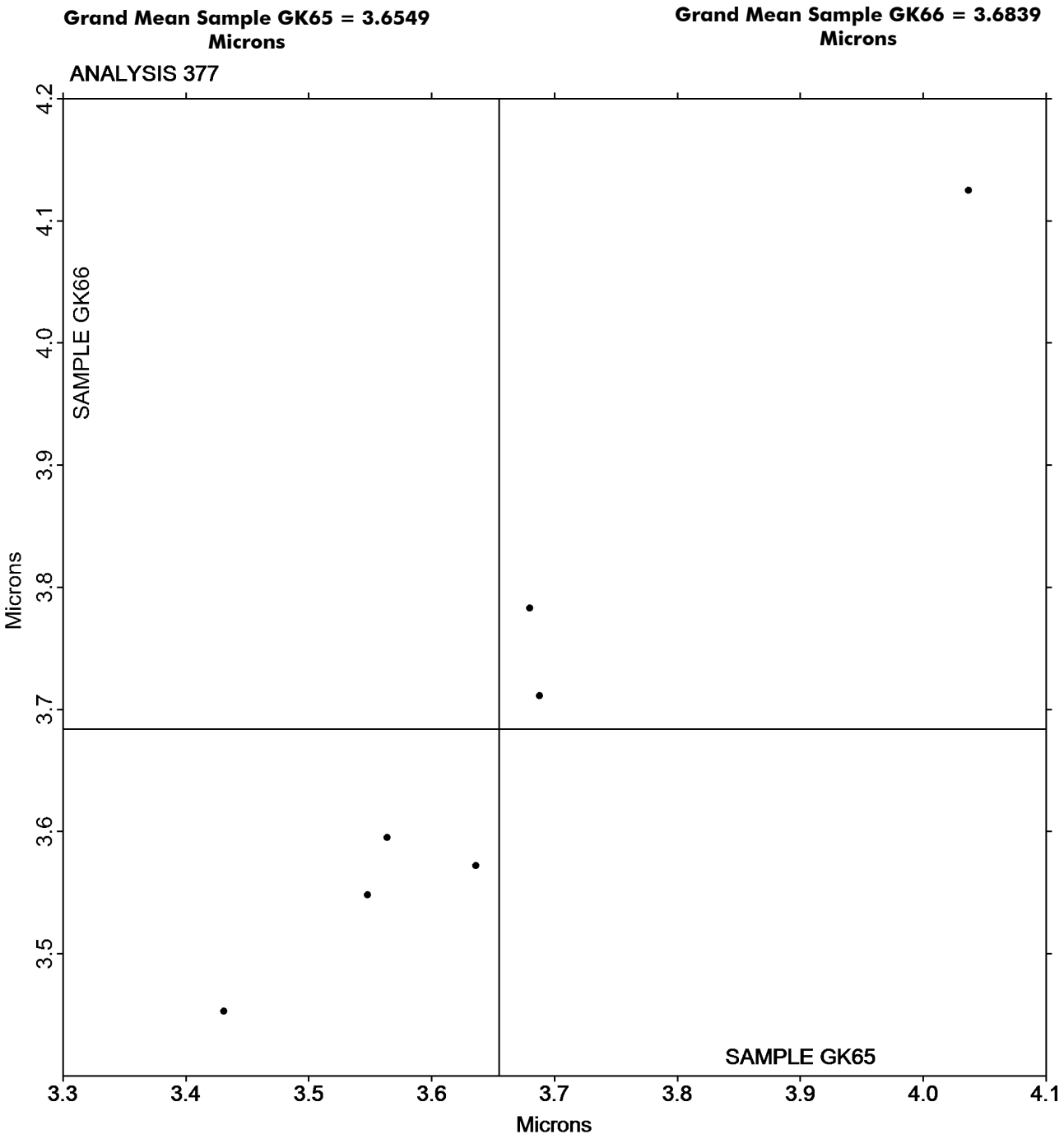
WebCode	Data Flag	Sample GK65 Lab Mean	Sample GK65 Diff from Grand Mean	Sample GK65 CPV	Sample GK66 Lab Mean	Sample GK66 Diff from Grand Mean	Sample GK66 CPV	Instr Code
4RUC2L		4.037	0.382	2.01	4.125	0.441	1.98	ZZ
EYJMGD		3.564	-0.091	-0.48	3.595	-0.089	-0.40	ZZ
L3EK76		3.680	0.025	0.13	3.783	0.099	0.45	ZZ
LKXLYM		3.548	-0.107	-0.56	3.548	-0.136	-0.61	ZZ
R3WH8J		3.688	0.033	0.17	3.711	0.027	0.12	ZZ
UA7VU8		3.431	-0.224	-1.17	3.453	-0.231	-1.04	ZZ
ZRL9VC		3.636	-0.019	-0.10	3.572	-0.112	-0.50	ZZ

Summary Statistics	Sample GK65	Sample GK66
Grand Means	3.65 Microns	3.68 Microns
Stnd Dev Btwn Labs	0.19 Microns	0.22 Microns

Statistics based on 7 of 7 reporting participants.

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked



If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.

Paper & Paperboard Interlaboratory Testing Program

Analysis 378

Roughness - Sheffield Type

TAPPI Official Test Method T538

WebCode	Data Flag	Sample GL65 Lab Mean	Sample GL65 Diff from Grand Mean	Sample GL65 CPV	Sample GL66 Lab Mean	Sample GL66 Diff from Grand Mean	Sample GL66 CPV	Instr Code
3VVVNU		119.8	0.7	0.07	124.2	6.1	0.63	PP
4RUC2L		124.0	4.8	0.55	123.9	5.7	0.60	LW
63LEJL		112.1	-7.1	-0.80	109.4	-8.7	-0.91	PP
74CZPG		108.3	-10.9	-1.22	112.7	-5.5	-0.57	HM
7VLH9N		116.4	-2.8	-0.31	118.0	-0.2	-0.02	XX
8LD2DL		125.5	6.3	0.72	123.1	5.0	0.52	PP
8ZZ4XY		116.9	-2.3	-0.26	113.0	-5.2	-0.54	PP
9DJ9J2		133.0	13.8	1.56	125.5	7.3	0.77	TT
9J74FY		108.1	-11.1	-1.25	107.1	-11.1	-1.16	PP
9Q7H67		107.3	-11.8	-1.34	101.0	-17.2	-1.79	MP
AUHTUU		117.3	-1.9	-0.21	114.7	-3.4	-0.36	PP
AWNBRP		106.5	-12.6	-1.43	102.9	-15.2	-1.59	LA
BL62RP		119.1	-0.1	-0.01	116.8	-1.4	-0.14	XX
BR7GFC		102.8	-16.4	-1.84	101.8	-16.4	-1.71	LW
D6PWBZ	*	144.5	25.3	2.86	145.0	26.8	2.80	GL
D8E7HF		107.1	-12.1	-1.36	107.6	-10.6	-1.10	LW
DHU2LA		135.7	16.5	1.87	136.9	18.7	1.96	TT
E9ZFTF		117.6	-1.6	-0.18	112.8	-5.3	-0.56	PP
ELRWXU		139.0	19.8	2.24	141.4	23.2	2.42	XX
EYJMGD		116.7	-2.5	-0.28	113.6	-4.6	-0.48	PP
G6VH8Q		113.8	-5.3	-0.60	109.5	-8.6	-0.90	PP
GDDRZU		116.8	-2.4	-0.27	119.7	1.5	0.16	LA
GQZRXN		108.6	-10.5	-1.19	103.0	-15.2	-1.58	PP
J9V4JU		110.2	-9.0	-1.01	114.0	-4.2	-0.43	PP
JCQZZ9	X	108.7	-10.5	-1.18	127.1	8.9	0.93	VM
KM76TP		128.4	9.2	1.04	125.0	6.8	0.71	GA
LKXLYM		133.2	14.0	1.58	132.2	14.0	1.46	XX
MB23XJ		124.8	5.6	0.64	127.2	9.0	0.94	SH
MHK4JM		118.6	-0.5	-0.06	126.7	8.5	0.89	PP
MUXC73	*	123.6	4.4	0.50	133.9	15.7	1.64	TT
MXFTBD	X	146.4	27.2	3.07	135.9	17.8	1.86	GA
NFCLK6		117.8	-1.4	-0.15	112.6	-5.6	-0.58	TT
NJCGNR		121.4	2.2	0.25	123.1	4.9	0.52	TS
R3WH8J		113.8	-5.3	-0.60	116.0	-2.2	-0.23	PP
RFLJGY		106.1	-13.1	-1.47	110.0	-8.2	-0.85	PP
RLRBTG		130.9	11.7	1.33	131.1	12.9	1.35	LA
T8MFQ8		121.7	2.5	0.29	120.3	2.2	0.23	PP
TZKAB4		125.4	6.2	0.70	120.2	2.0	0.21	TS
U83YB6		116.6	-2.6	-0.29	120.3	2.1	0.22	LA
UA7VU8		125.6	6.4	0.73	120.3	2.1	0.22	LA
URQGGJ		122.6	3.4	0.39	120.6	2.4	0.25	TS

Paper & Paperboard Interlaboratory Testing Program

Analysis 378
Roughness - Sheffield Type
TAPPI Official Test Method T538

WebCode	Data Flag	Sample GL65 Lab Mean	Sample GL65 Diff from Grand Mean	Sample GL65 CPV	Sample GL66 Lab Mean	Sample GL66 Diff from Grand Mean	Sample GL66 CPV	Instr Code
UYAMFB		121.0	1.8	0.21	118.4	0.2	0.02	GA
VUPAUE		124.7	5.5	0.63	119.0	0.8	0.09	HM
VWTVNT		115.0	-4.1	-0.46	116.7	-1.4	-0.15	PP
W4TTL9		106.5	-12.7	-1.43	107.0	-11.2	-1.17	SH
Y42TJ2		114.6	-4.6	-0.52	117.8	-0.4	-0.04	PP
YLLDFY		122.2	3.0	0.34	118.0	-0.2	-0.02	LA
YUY9JU		118.4	-0.8	-0.09	113.0	-5.2	-0.54	PP
Z6QDQX		113.5	-5.6	-0.64	110.9	-7.3	-0.76	PP
Z9RGHK		115.4	-3.8	-0.42	109.0	-9.2	-0.96	HM
ZCBCUX		122.1	2.9	0.33	117.1	-1.1	-0.11	LW
ZRL9VC		122.3	3.1	0.36	119.6	1.4	0.15	PP
ZWYXCZ		123.6	4.5	0.51	122.8	4.6	0.48	PP

Summary Statistics	Sample GL65	Sample GL66
Grand Means	119.15 Sheffield	118.16 Sheffield
Stnd Dev Btwn Labs	8.87 Sheffield	9.58 Sheffield

Statistics based on 51 of 53 reporting participants.

Comments on Assigned Data Flags for Test #378

JCQZZ9 (X) - Inconsistent in testing between samples.

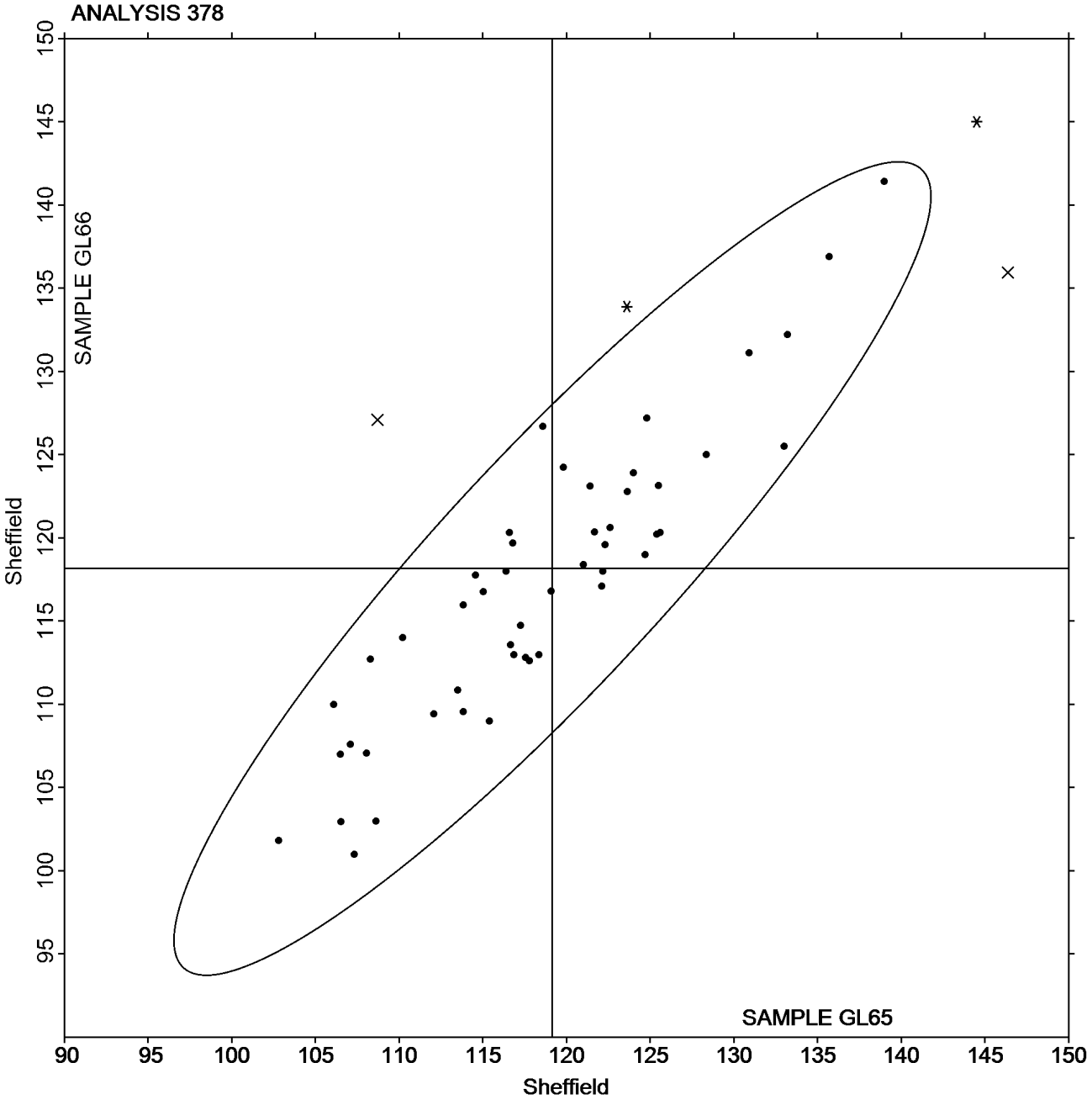
MXFTBD (X) - Data for sample GL65 are high.

Key to Instrument Codes Reported by Participants

GA	Gurley Precision #4340 Automatic Densometer	GL	Giddings and Lewis Sheffield
HM	Technidyne - Hagerty Model #538	LA	L & W Roughness Sheffield - Autoline
LW	L & W Roughness Tester	MP	Metso Paperlab
PP	Technidyne Profile/Plus	SH	Sheffield (Bendix Precisionaire)
TS	TMI Monitor/Smoothness, Model 58-02	TT	TMI Monitor/Smoothness II, Model 58-24
VM	Valmet PaperLab (was Kajaani\Robotest)	XX	Instrument make/model not specified by lab

Grand Mean Sample GL65 = 119.15
Sheffield

Grand Mean Sample GL66 = 118.16
Sheffield



Paper & Paperboard Interlaboratory Testing Program

Analysis 382
Moisture in Paper
TAPPI Official Test Method T412

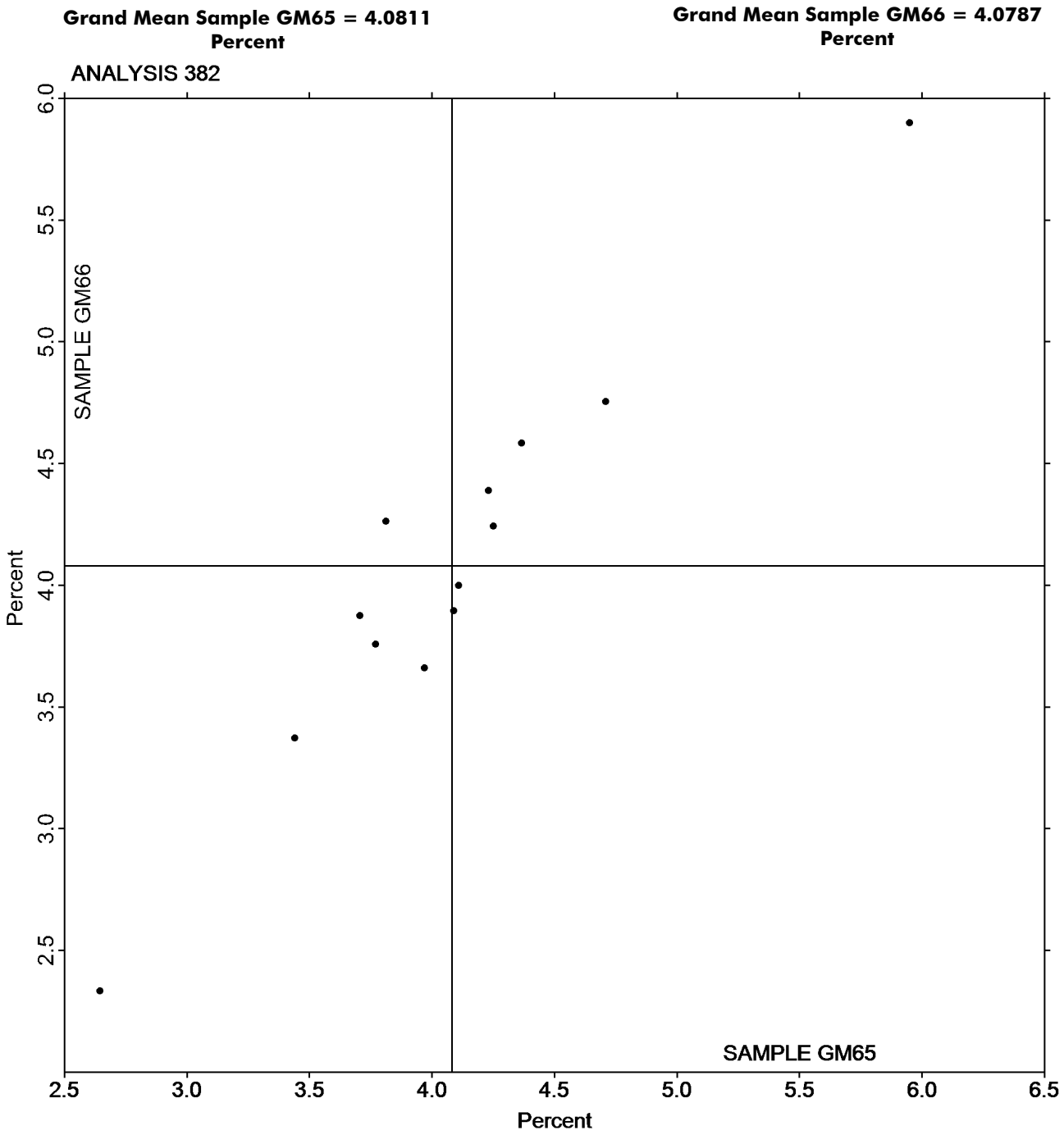
WebCode	Data Flag	Sample GM65 Lab Mean	Sample GM65 Diff from Grand Mean	Sample GM65 CPV	Sample GM66 Lab Mean	Sample GM66 Diff from Grand Mean	Sample GM66 CPV	Instr Code
3ZE37F		2.646	-1.435	-1.90	2.333	-1.746	-2.13	ZZ
4MHHW3		4.232	0.151	0.20	4.390	0.311	0.38	ZZ
7THEYY		3.441	-0.640	-0.85	3.372	-0.707	-0.86	ZZ
8URTQR		3.813	-0.268	-0.36	4.262	0.183	0.22	ZZ
DBF6VU		3.771	-0.310	-0.41	3.758	-0.321	-0.39	ZZ
DHU2LA		5.950	1.869	2.48	5.900	1.821	2.22	ZZ
L6HNHF		4.251	0.170	0.23	4.242	0.163	0.20	ZZ
M8JQA2		4.366	0.285	0.38	4.583	0.504	0.61	ZZ
P3MX4P		3.705	-0.376	-0.50	3.875	-0.204	-0.25	ZZ
QGUJPD		4.110	0.029	0.04	4.000	-0.079	-0.10	ZZ
R3WH8J		4.710	0.629	0.83	4.754	0.675	0.82	ZZ
RB9RDE		4.089	0.008	0.01	3.895	-0.183	-0.22	ZZ
T7TQMD		3.970	-0.111	-0.15	3.660	-0.419	-0.51	ZZ

Summary Statistics	Sample GM65	Sample GM66
Grand Means	4.08 Percent	4.08 Percent
Stnd Dev Btwn Labs	0.75 Percent	0.82 Percent

Statistics based on 13 of 13 reporting participants.

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked



If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.

Paper & Paperboard Interlaboratory Testing Program

Analysis 384

Opacity (89% Reflectance Backing) - Fine Papers

TAPPI Official Test Method T425

WebCode	Data Flag	Sample GN65 Lab Mean	Sample GN65 Diff from Grand Mean	Sample GN65 CPV	Sample GN66 Lab Mean	Sample GN66 Diff from Grand Mean	Sample GN66 CPV	Instr Code
2AJWG8		93.10	-0.23	-0.43	93.00	-0.35	-0.60	ZZ
3KECXV		93.27	-0.06	-0.11	93.65	0.30	0.53	ZZ
63LEJL		93.97	0.64	1.16	93.90	0.55	0.95	ZZ
74CZPG		92.92	-0.41	-0.75	93.20	-0.15	-0.25	ZZ
7VLH9N	*	95.12	1.78	3.25	95.13	1.78	3.08	ZZ
8J9EMP		94.06	0.73	1.32	94.02	0.67	1.16	ZZ
8LD2DL		93.05	-0.28	-0.51	93.16	-0.18	-0.32	ZZ
9DJ9J2		93.40	0.07	0.12	93.35	0.00	0.00	ZZ
AWNBRP	X	90.24	-3.09	-5.64	90.20	-3.15	-5.43	ZZ
BL62RP		93.66	0.33	0.59	93.87	0.52	0.90	ZZ
CR7ZFK		93.07	-0.26	-0.48	93.21	-0.14	-0.24	ZZ
D6PWBZ	X	105.79	12.46	22.71	106.10	12.75	22.02	ZZ
ELRWXU		93.14	-0.19	-0.35	93.65	0.30	0.52	ZZ
EYJMGD		93.07	-0.26	-0.48	92.97	-0.37	-0.64	ZZ
FGGX72		93.38	0.05	0.08	93.11	-0.24	-0.42	ZZ
FT4FG8		93.53	0.20	0.36	93.55	0.20	0.35	ZZ
GQZRXN		93.52	0.19	0.34	93.70	0.35	0.61	ZZ
J9V4JU		93.44	0.11	0.19	93.27	-0.08	-0.13	ZZ
LHMJ2G		93.36	0.02	0.04	93.30	-0.04	-0.07	ZZ
NFCLK6		94.14	0.81	1.47	94.36	1.01	1.75	ZZ
NJCGNR		92.81	-0.53	-0.96	92.79	-0.55	-0.96	ZZ
R3WH8J		93.60	0.27	0.49	93.49	0.15	0.25	ZZ
RFLJGY		93.16	-0.17	-0.32	93.13	-0.22	-0.37	ZZ
RFWK4X		93.20	-0.14	-0.25	93.13	-0.22	-0.38	ZZ
RZNHQ7	*	91.95	-1.38	-2.52	91.80	-1.54	-2.67	ZZ
UA7VU8		93.55	0.21	0.39	93.45	0.10	0.18	ZZ
URQGGJ		93.67	0.34	0.61	93.38	0.03	0.06	ZZ
VUPAUE		93.56	0.23	0.41	93.58	0.23	0.40	ZZ
VWTVNT		93.21	-0.13	-0.23	93.62	0.28	0.48	ZZ
W4TTL9		93.34	0.01	0.01	93.02	-0.33	-0.56	ZZ
Y42TJ2		93.22	-0.11	-0.21	93.26	-0.09	-0.15	ZZ
Z9RGHK		93.14	-0.19	-0.35	92.58	-0.77	-1.32	ZZ
ZQWN78		92.66	-0.67	-1.23	92.67	-0.68	-1.17	ZZ
ZRL9VC		92.41	-0.92	-1.68	92.79	-0.56	-0.96	ZZ

Summary Statistics	Sample GN65	Sample GN66
Grand Means	93.33 Percent	93.35 Percent
Stnd Dev Btwn Labs	0.55 Percent	0.58 Percent

Statistics based on 32 of 34 reporting participants.

Comments on Assigned Data Flags for Test #384

AWNBRP (X) - Data for both samples are low. Possible Systematic Error.

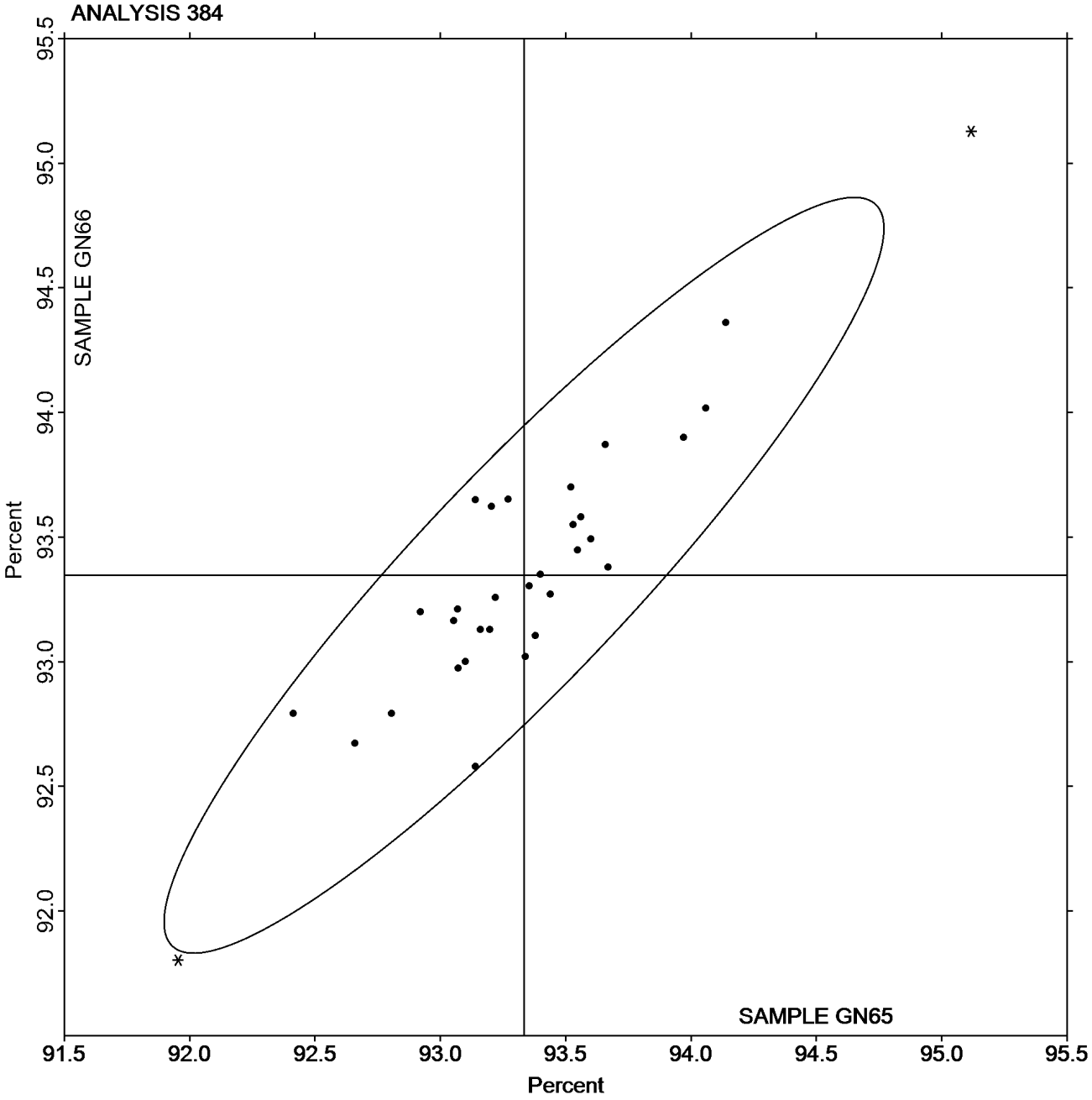
D6PWBZ (X) - Extreme Data.

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked

Grand Mean Sample GN65 = 93.333
Percent

Grand Mean Sample GN66 = 93.347
Percent



Paper & Paperboard Interlaboratory Testing Program

Analysis 386

Opacity (Paper Backing) - Fine Papers and Newsprint

TAPPI Official Test Method T519

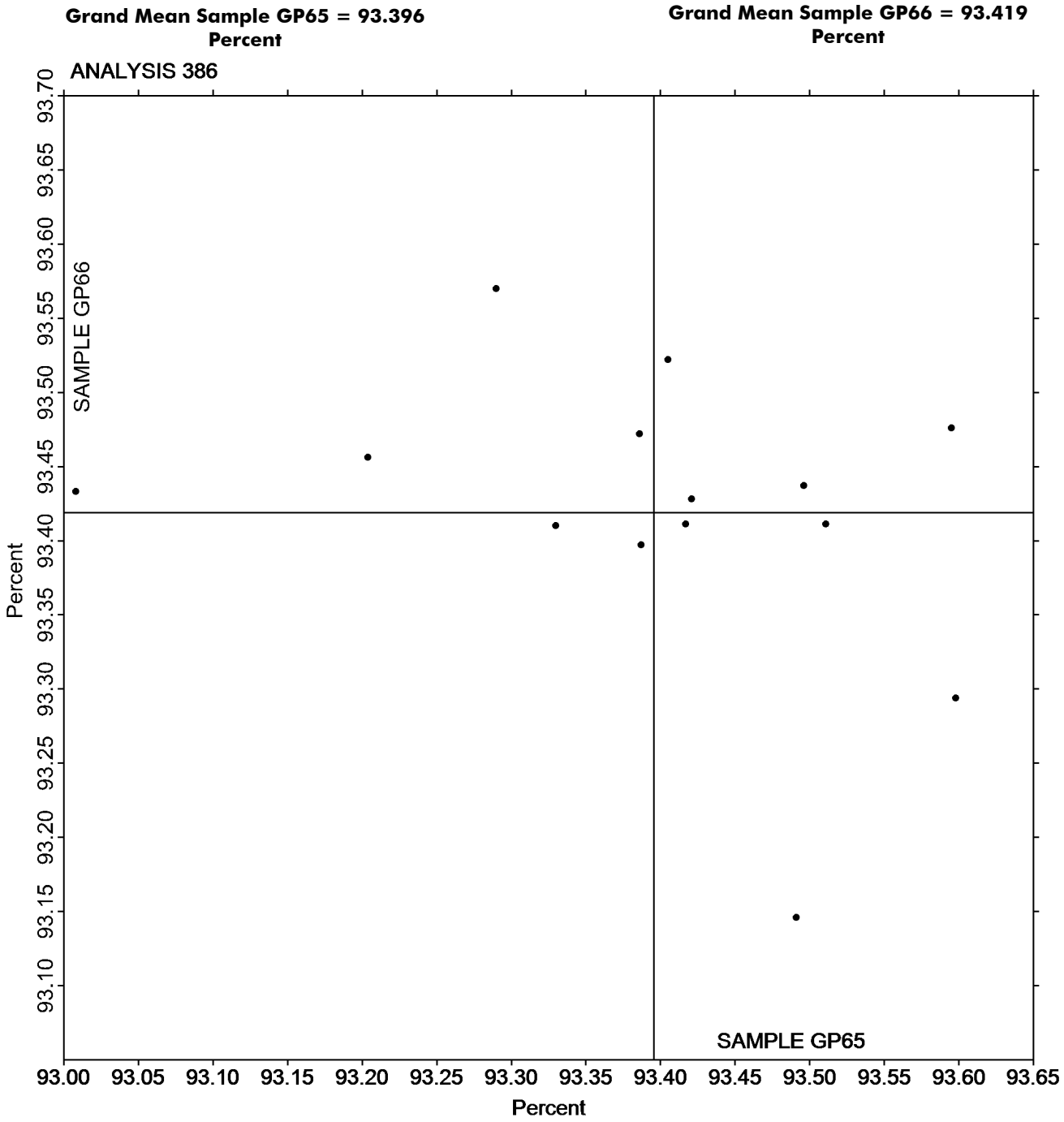
WebCode	Data Flag	Sample GP65 Lab Mean	Sample GP65 Diff from Grand Mean	Sample GP65 CPV	Sample GP66 Lab Mean	Sample GP66 Diff from Grand Mean	Sample GP66 CPV	Instr Code
26QRM4		93.29	-0.11	-0.68	93.57	0.15	1.50	ZZ
4MHFB4		93.41	0.01	0.06	93.52	0.10	1.02	ZZ
4MHHW3		93.42	0.02	0.14	93.41	-0.01	-0.08	ZZ
7THEYY		93.39	-0.01	-0.06	93.47	0.05	0.53	ZZ
8BEAUN		93.50	0.10	0.64	93.44	0.02	0.18	ZZ
9VGHND		93.60	0.20	1.28	93.48	0.06	0.57	ZZ
BUEGU6		93.51	0.12	0.74	93.41	-0.01	-0.08	ZZ
CKBLBZ		93.39	-0.01	-0.06	93.40	-0.02	-0.22	ZZ
DVKPTF		93.42	0.03	0.16	93.43	0.01	0.09	ZZ
HPZBXW		93.01	-0.39	-2.48	93.43	0.01	0.14	ZZ
JTZQ3D		93.33	-0.07	-0.42	93.41	-0.01	-0.09	ZZ
N34UU4		93.60	0.20	1.30	93.29	-0.12	-1.24	ZZ
NKLVMK		93.20	-0.19	-1.23	93.46	0.04	0.37	ZZ
Y4L93X		93.49	0.10	0.61	93.15	-0.27	-2.70	ZZ

Summary Statistics	Sample GP65	Sample GP66
Grand Means	93.40 Percent	93.42 Percent
Stnd Dev Btwn Labs	0.16 Percent	0.10 Percent

Statistics based on 14 of 14 reporting participants.

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked



If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.

Paper & Paperboard Interlaboratory Testing Program

Analysis 390
Directional Brightness
TAPPI Official Test Method T452

WebCode	Data Flag	Sample GR65 Lab Mean	Sample GR65 Diff from Grand Mean	Sample GR65 CPV	Sample GR66 Lab Mean	Sample GR66 Diff from Grand Mean	Sample GR66 CPV	Instr Code
4RUC2L		76.05	0.27	0.15	80.61	0.79	0.44	HG
63LEJL		74.81	-0.97	-0.54	78.66	-1.16	-0.65	XX
7VLH9N		76.28	0.50	0.28	79.78	-0.05	-0.03	XX
8J9EMP		76.50	0.72	0.40	81.27	1.44	0.81	TS
8LD2DL		74.23	-1.55	-0.87	78.09	-1.74	-0.97	TP
9DJ9J2		77.35	1.57	0.88	81.68	1.85	1.03	TS
9J74FY		74.87	-0.91	-0.51	78.68	-1.15	-0.65	TS
AUHTUU		75.41	-0.37	-0.21	80.46	0.64	0.36	TT
BL62RP		75.20	-0.58	-0.33	80.07	0.24	0.13	XX
ELRWXU		77.98	2.20	1.24	82.34	2.51	1.41	PE
FT4FG8		74.71	-1.07	-0.60	78.09	-1.74	-0.97	TT
G6VH8Q		74.50	-1.28	-0.72	78.56	-1.26	-0.71	TS
GQZRXN		75.51	-0.27	-0.15	80.41	0.59	0.33	TT
MHK4JM		74.61	-1.17	-0.65	78.00	-1.83	-1.02	PP
RFLJGY		75.10	-0.68	-0.38	80.26	0.44	0.24	XC
RFWK4X		76.12	0.34	0.19	80.17	0.35	0.19	TS
RLRBTG	X	70.14	-5.64	-3.17	71.34	-8.49	-4.75	EA
RZNHQ7		76.62	0.84	0.47	81.54	1.71	0.96	VM
T8MFQ8	*	81.07	5.29	2.96	83.99	4.16	2.33	HG
UA7VU8		74.90	-0.88	-0.49	78.58	-1.25	-0.70	TS
URQGGJ		75.03	-0.75	-0.42	78.66	-1.16	-0.65	TS
VUPAUE		74.54	-1.24	-0.70	78.63	-1.20	-0.67	TT
VWTVNT		72.85	-2.93	-1.64	76.25	-3.58	-2.00	TT
ZCBCUX		74.89	-0.89	-0.50	78.58	-1.25	-0.70	TT
ZWYXCZ		79.60	3.82	2.14	82.51	2.69	1.50	HG

Summary Statistics	Sample GR65	Sample GR66
Grand Means	75.78 Percent	79.83 Percent
Stnd Dev Btwn Labs	1.78 Percent	1.79 Percent

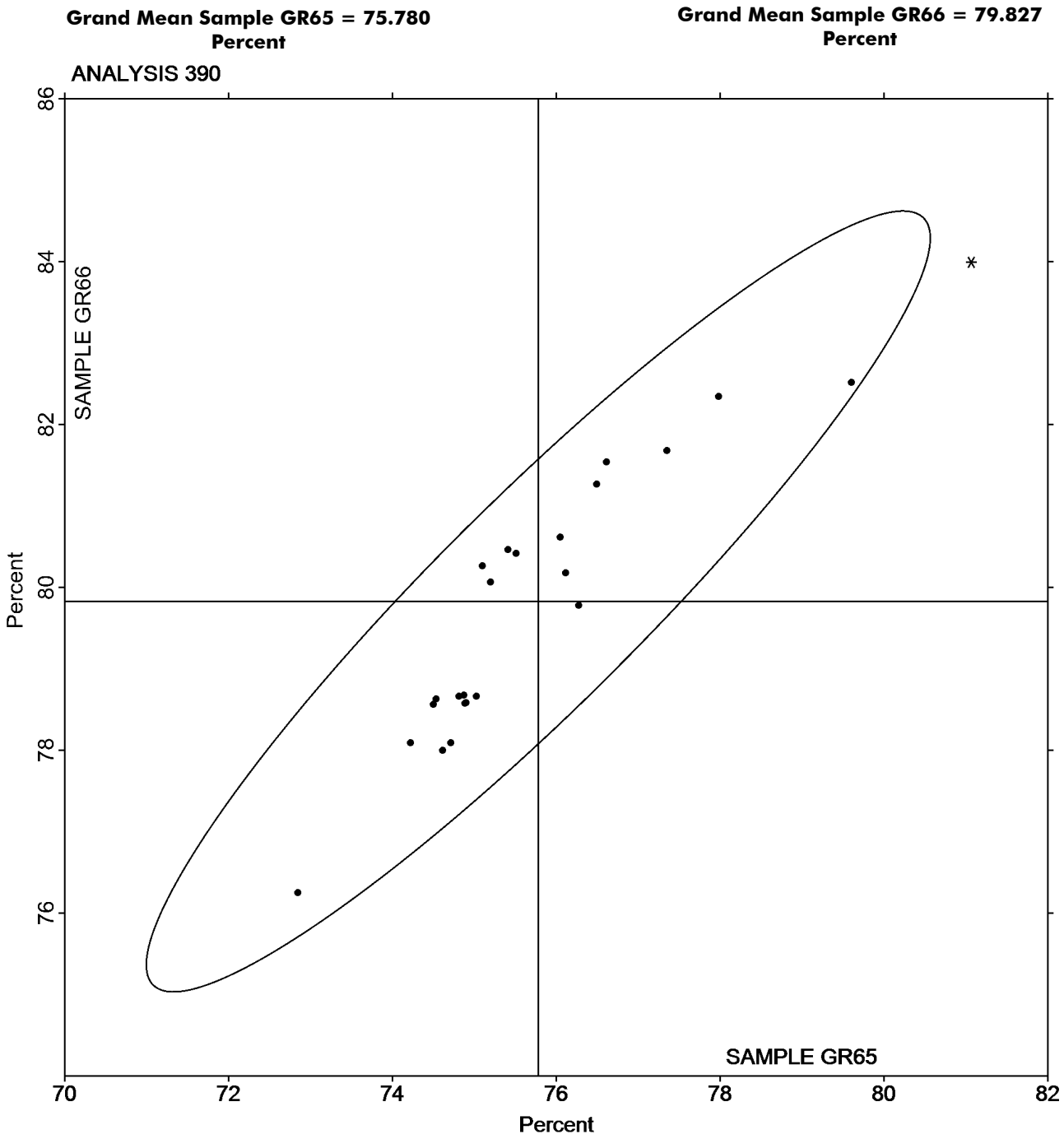
Statistics based on 24 of 25 reporting participants.

Comments on Assigned Data Flags for Test #390

RLRBTG (X) - Data for both samples are low. Possible Systematic Error.

Key to Instrument Codes Reported by Participants

EA	L & W Autoline 400	HG	Hunter Labscan / XE
PE	Photovolt 577	PP	Technidyne Profile/Plus
TP	Technidyne Test/Plus	TS	Technidyne Brightimeter Micro S-5
TT	Technidyne Brightimeter Micro S4-M	VM	Valmet PaperLab (was Kajaani/Robotest)
XC	X-Rite Color i5	XX	Instrument make/model not specified by lab



Paper & Paperboard Interlaboratory Testing Program

Analysis 391

Directional Brightness of Fluorescent Samples

TAPPI Official Test Method T452

WebCode	Data Flag	Sample GZ65 Lab Mean	Sample GZ65 Diff from Grand Mean	Sample GZ65 CPV	Sample GZ66 Lab Mean	Sample GZ66 Diff from Grand Mean	Sample GZ66 CPV	Instr Code
3KECXV		98.60	0.36	0.21	95.27	0.14	0.08	TS
74CZPG		97.20	-1.03	-0.60	93.50	-1.63	-0.93	HT
8BEAUN		98.70	0.47	0.27	95.53	0.39	0.22	TS
AWNBRP		98.38	0.15	0.08	95.26	0.13	0.07	TT
BL62RP		98.27	0.04	0.02	96.04	0.91	0.52	XX
CR7ZFK		98.66	0.43	0.25	95.36	0.23	0.13	TT
DHU2LA		101.47	3.24	1.87	98.49	3.36	1.92	LE
FGGX72		98.51	0.28	0.16	95.39	0.25	0.15	PP
LHMJ2G	*	92.54	-5.70	-3.29	89.96	-5.18	-2.96	PP
NFCLK6		99.74	1.51	0.87	97.20	2.07	1.18	TT
NJCGNR		98.36	0.13	0.07	95.30	0.17	0.09	TS
R3WH8J		98.42	0.18	0.11	95.36	0.23	0.13	TS
URQGGJ		98.78	0.55	0.32	95.56	0.42	0.24	TS
W4TTL9		97.48	-0.75	-0.43	93.83	-1.31	-0.75	HT
Y42TJ2		98.60	0.37	0.21	95.78	0.65	0.37	PP
Z9RGHK		98.16	-0.07	-0.04	94.60	-0.53	-0.31	TT
ZRL9VC		98.12	-0.12	-0.07	94.85	-0.28	-0.16	TS

Summary Statistics	Sample GZ65	Sample GZ66
Grand Means	98.23 Percent	95.13 Percent
Stnd Dev Btwn Labs	1.73 Percent	1.75 Percent

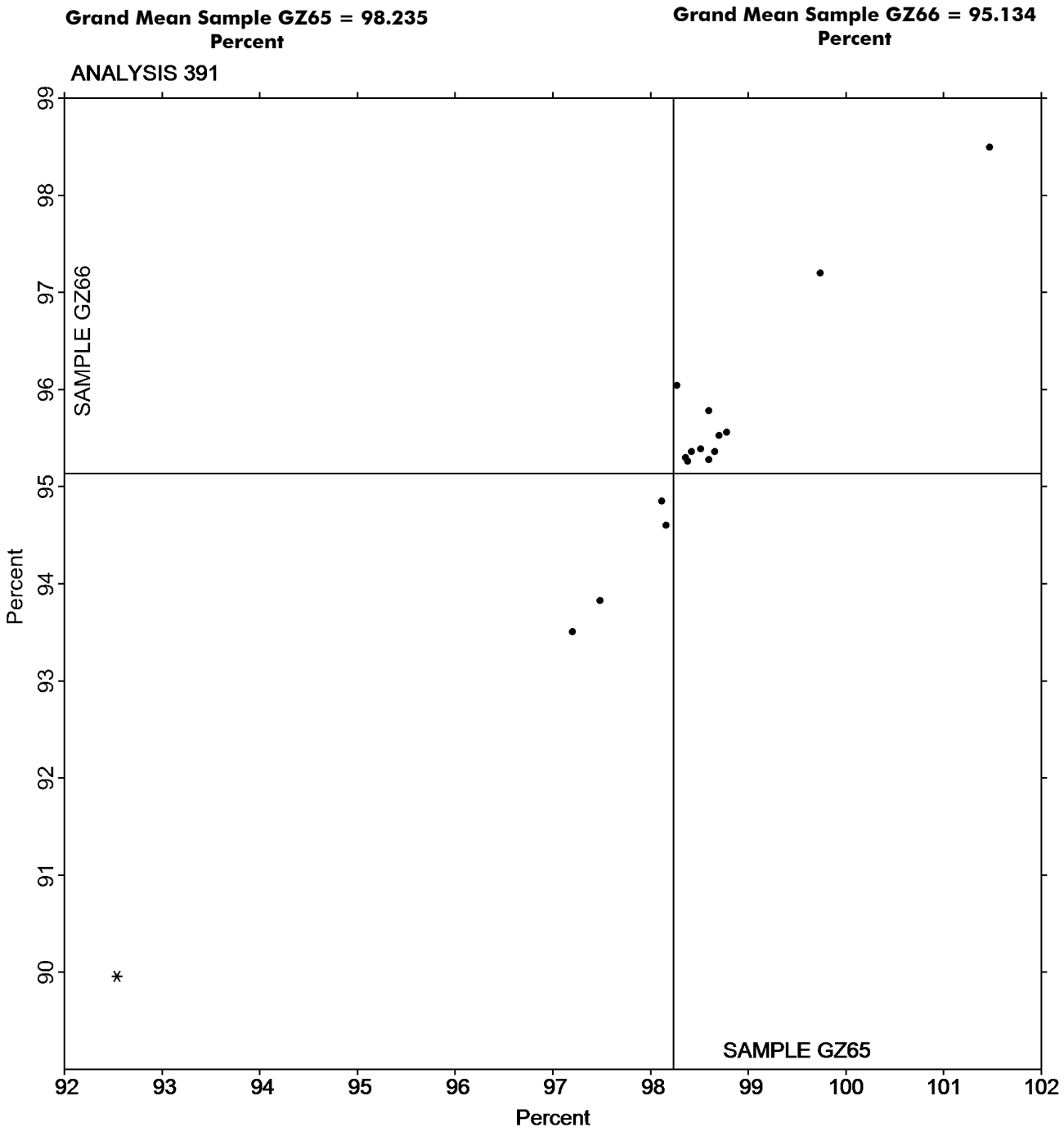
Statistics based on 17 of 17 reporting participants.

Analysis Notes:

BL62RP - One determination removed from the Lab Mean of Sample GZ65 per Grubb's Test at 1% risk (TAPPI 1205).

Key to Instrument Codes Reported by Participants

HT	Hunter UltraScan Vis	LE	L & W Elrepho
PP	Technidyne Profile/Plus	TS	Technidyne Brightimeter Micro S-5
TT	Technidyne Brightimeter Micro S4-M	XX	Instrument make/model not specified by lab



If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.

Paper & Paperboard Interlaboratory Testing Program

Analysis 392
Diffuse Brightness
TAPPI Official Test Method T525

WebCode	Data Flag	Sample GR65 Lab Mean	Sample GR65 Diff from Grand Mean	Sample GR65 CPV	Sample GR66 Lab Mean	Sample GR66 Diff from Grand Mean	Sample GR66 CPV	Instr Code
26QRM4		74.99	0.02	0.07	79.26	-0.02	-0.07	LA
4JYFXA	X	75.19	0.21	0.98	78.66	-0.61	-2.38	TC
4MHFB4		75.06	0.08	0.39	79.18	-0.09	-0.35	AC
4MHHW3		74.98	0.00	0.01	79.17	-0.11	-0.42	EG
4RUC2L		74.80	-0.18	-0.83	79.02	-0.25	-0.97	TC
67UMY7		75.13	0.15	0.71	79.38	0.11	0.41	TC
7THEYY		74.77	-0.20	-0.96	79.15	-0.12	-0.48	LE
8BEAUN		74.95	-0.02	-0.11	79.18	-0.09	-0.35	TC
8GLR4N		75.05	0.07	0.33	79.55	0.27	1.05	TC
AUHTUU	X	77.30	2.32	10.87	81.80	2.53	9.82	TL
CKBLBZ		74.89	-0.09	-0.41	79.11	-0.17	-0.65	TC
CL2W2R		74.99	0.01	0.05	79.39	0.12	0.45	TC
D8E7HF		74.89	-0.09	-0.42	79.11	-0.16	-0.63	EF
DHU2LA	X	74.66	-0.31	-1.47	77.86	-1.41	-5.49	LE
DVKPTF		74.87	-0.11	-0.51	79.13	-0.14	-0.55	TC
E9ZFTF		75.29	0.31	1.45	79.60	0.33	1.27	TC
J9V4JU		75.12	0.14	0.66	79.40	0.13	0.50	TC
JTZQ3D		75.35	0.37	1.75	79.76	0.49	1.90	TM
L7TFTU		75.11	0.13	0.62	79.22	-0.05	-0.20	TC
MHK4JM		74.82	-0.15	-0.72	79.17	-0.11	-0.42	LT
NKLVMK		74.84	-0.14	-0.66	79.31	0.04	0.14	TM
PFRC6M	X	59.44	-15.54	-72.74	58.64	-20.64	-80.25	TZ
UA7VU8		75.00	0.03	0.12	79.23	-0.04	-0.16	TC
VR4AUX		74.94	-0.04	-0.18	79.14	-0.13	-0.52	TC
VUPAUE		75.31	0.33	1.57	79.88	0.60	2.34	LT
ZCBCUX	*	74.35	-0.63	-2.93	78.68	-0.59	-2.30	EG

Summary Statistics	Sample GR65	Sample GR66
Grand Means	74.98 Percent	79.27 Percent
Stnd Dev Btwn Labs	0.21 Percent	0.26 Percent

Statistics based on 22 of 26 reporting participants.

Comments on Assigned Data Flags for Test #392

4JYFXA (X) - Inconsistent in testing between samples. Inconsistent within the determinations of both samples.

PFRC6M (X) - Extreme Data.

AUHTUU (X) - Extreme Data.

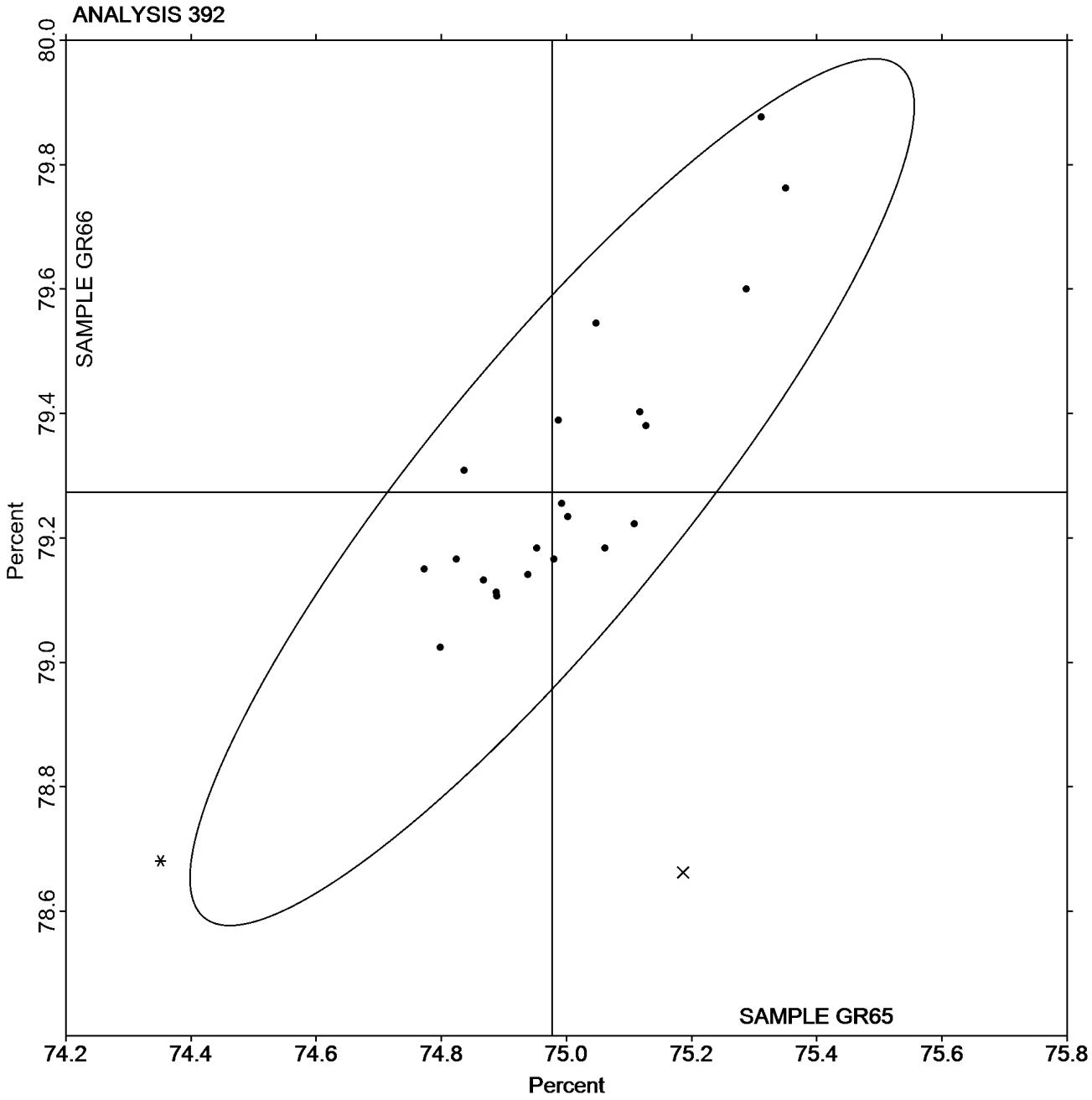
DHU2LA (X) - Data for sample GR66 are low. Inconsistent within the determinations of sample GR66.

Key to Instrument Codes Reported by Participants

AC	ACS Spectro-Sensor II	EF	Datacolor Elrepho 3000
EG	Datacolor Elrepho 450X	LA	L & W Elrepho - Autoline
LE	L & W Elrepho	LT	L & W Elrepho SE 071
TC	Technidyne Color Touch Series	TL	Technidyne Technibrite TB-1
TM	Technidyne Technibrite Micro TB-1C	TZ	Technibrite Model TB-1

Grand Mean Sample GR65 = 74.977 Percent

Grand Mean Sample GR66 = 79.274 Percent



Paper & Paperboard Interlaboratory Testing Program

Analysis 394

Fluorescent Component of Directional Brightness

TAPPI Official Test Method T452

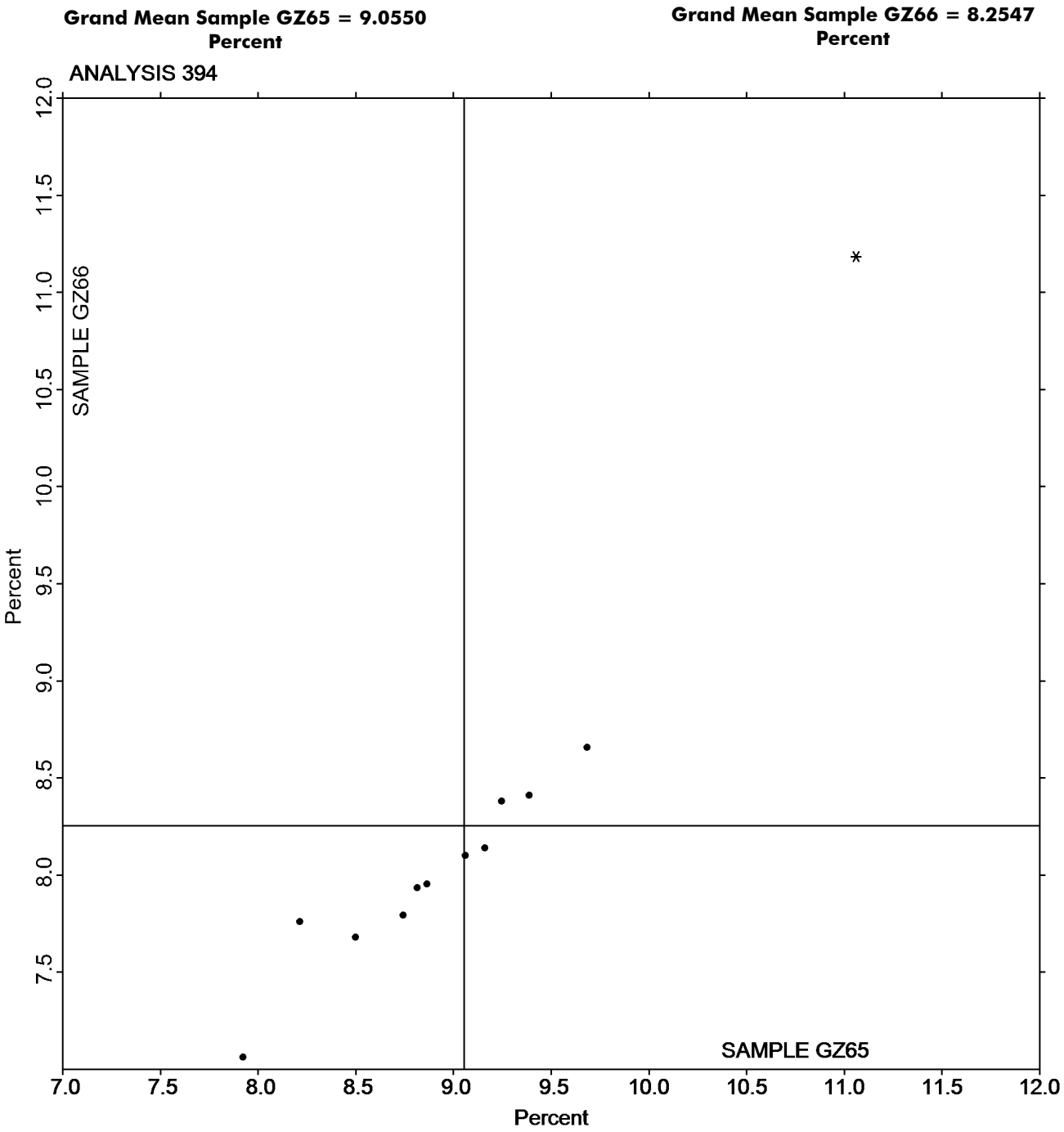
WebCode	Data Flag	Sample GZ65 Lab Mean	Sample GZ65 Diff from Grand Mean	Sample GZ65 CPV	Sample GZ66 Lab Mean	Sample GZ66 Diff from Grand Mean	Sample GZ66 CPV	Instr Code
3KECXV		8.816	-0.239	-0.30	7.934	-0.321	-0.32	TS
8BEAUN		9.388	0.333	0.42	8.410	0.155	0.15	TS
AWNBRP		8.500	-0.555	-0.69	7.680	-0.575	-0.57	TT
BL62RP		8.214	-0.841	-1.05	7.760	-0.495	-0.49	XX
DHU2LA	*	11.060	2.005	2.50	11.184	2.929	2.90	LE
FGGX72		9.248	0.193	0.24	8.380	0.125	0.12	PP
LHMJ2G		7.922	-1.133	-1.41	7.062	-1.193	-1.18	PP
R3WH8J		8.742	-0.313	-0.39	7.794	-0.461	-0.46	TS
URQGGJ		9.684	0.629	0.78	8.658	0.403	0.40	TS
Y42TJ2		9.060	0.005	0.01	8.100	-0.155	-0.15	PP
Z9RGHK		9.160	0.105	0.13	8.140	-0.115	-0.11	TT
ZRL9VC		8.866	-0.189	-0.24	7.954	-0.301	-0.30	TS

Summary Statistics	Sample GZ65	Sample GZ66
Grand Means	9.06 Percent	8.25 Percent
Stnd Dev Btwn Labs	0.80 Percent	1.01 Percent

Statistics based on 12 of 12 reporting participants.

Key to Instrument Codes Reported by Participants

LE	L & W Elrepho	PP	Technidyne Profile/Plus
TS	Technidyne Brightimeter Micro S-5	TT	Technidyne Brightimeter Micro S4-M
XX	Instrument make/model not specified by lab		



If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.

Paper & Paperboard Interlaboratory Testing Program

Report #2992G, April 2019

Analysis 395

Specular Gloss at 75 Degrees - High Range

TAPPI Official Test Method T480

WebCode	Data Flag	Sample GT65 Lab Mean	Sample GT65 Diff from Grand Mean	Sample GT65 CPV	Sample GT66 Lab Mean	Sample GT66 Diff from Grand Mean	Sample GT66 CPV	Instr Code
3KECXV		73.48	-0.31	-0.14	75.62	-0.15	-0.12	LA
4MHFB4		76.50	2.71	1.25	76.54	0.77	0.60	LB
8BEAUN		75.40	1.61	0.74	75.58	-0.19	-0.15	LA
8J9EMP	X	53.07	-20.72	-9.52	53.09	-22.68	-17.64	LA
AUHTUU		68.80	-4.99	-2.29	73.25	-2.52	-1.96	GM
CR7ZFK		72.13	-1.66	-0.76	75.85	0.08	0.06	TG
FGGX72		72.70	-1.09	-0.50	75.31	-0.46	-0.36	PP
FT4FG8		72.84	-0.95	-0.44	73.06	-2.71	-2.11	TH
GDDRZU	X	55.46	-18.33	-8.42	69.95	-5.82	-4.53	LF
JCQZZ9		74.73	0.94	0.43	76.97	1.20	0.93	VM
LHMJ2G		75.47	1.68	0.77	75.63	-0.14	-0.11	PP
MHK4JM		73.50	-0.29	-0.13	76.15	0.38	0.29	GA
RZNHQ7		72.58	-1.21	-0.55	76.23	0.46	0.36	VM
T8MFQ8		72.09	-1.70	-0.78	75.92	0.15	0.12	TH
TZKAB4		71.74	-2.05	-0.94	75.83	0.06	0.05	XX
U83YB6		78.18	4.39	2.02	78.48	2.71	2.11	LA
Z9RGHK		74.38	0.59	0.27	74.57	-1.20	-0.93	PP
ZCBCUX		75.79	2.00	0.92	76.64	0.87	0.68	TH
ZWYXCZ		74.09	0.30	0.14	76.49	0.72	0.56	TH

Summary Statistics	Sample GT65	Sample GT66
Grand Means	73.79 Gloss Units	75.77 Gloss Units
Stnd Dev Btwn Labs	2.18 Gloss Units	1.29 Gloss Units

Statistics based on 17 of 19 reporting participants.

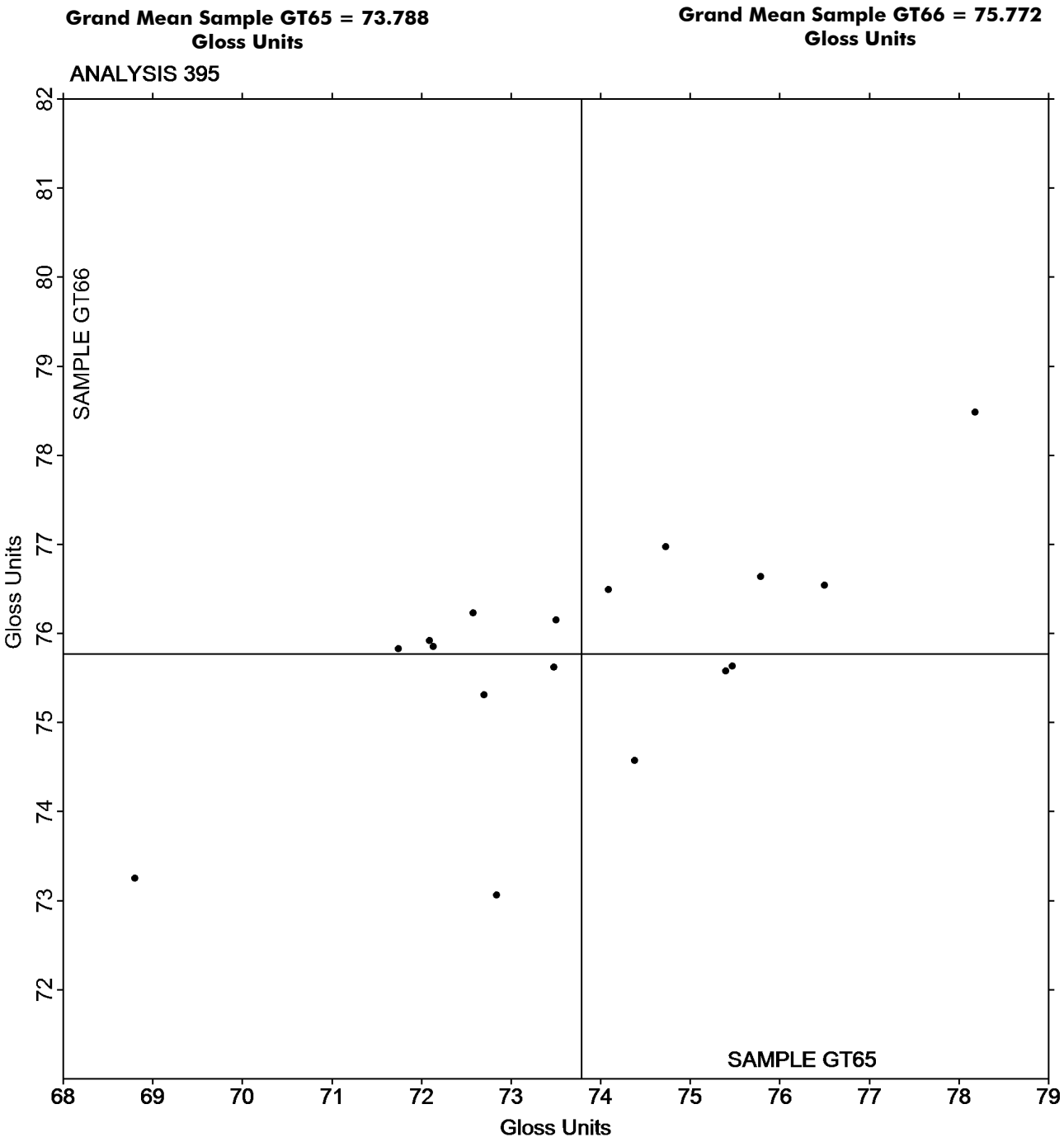
Comments on Assigned Data Flags for Test #395

GDDRZU (X) - Extreme Data.

8J9EMP (X) - Extreme Data.

Key to Instrument Codes Reported by Participants

GA	BYK-Gardner (model not specified)	GM	BYK-Gardner micro-gloss
LA	L & W Gloss - Autoline 300	LB	L & W Gloss Tester Code 224
LF	L & W Autoline 400	PP	Technidyne Profile/Plus
TG	Technidyne T480	TH	Technidyne T480A
VM	Valmet PaperLab (was Kajaani/Robotest)	XX	Instrument make/model not specified by lab



If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.

Paper & Paperboard Interlaboratory Testing Program

Analysis 396

Specular Gloss at 75 Degrees - Low Range

TAPPI Official Test Method T480

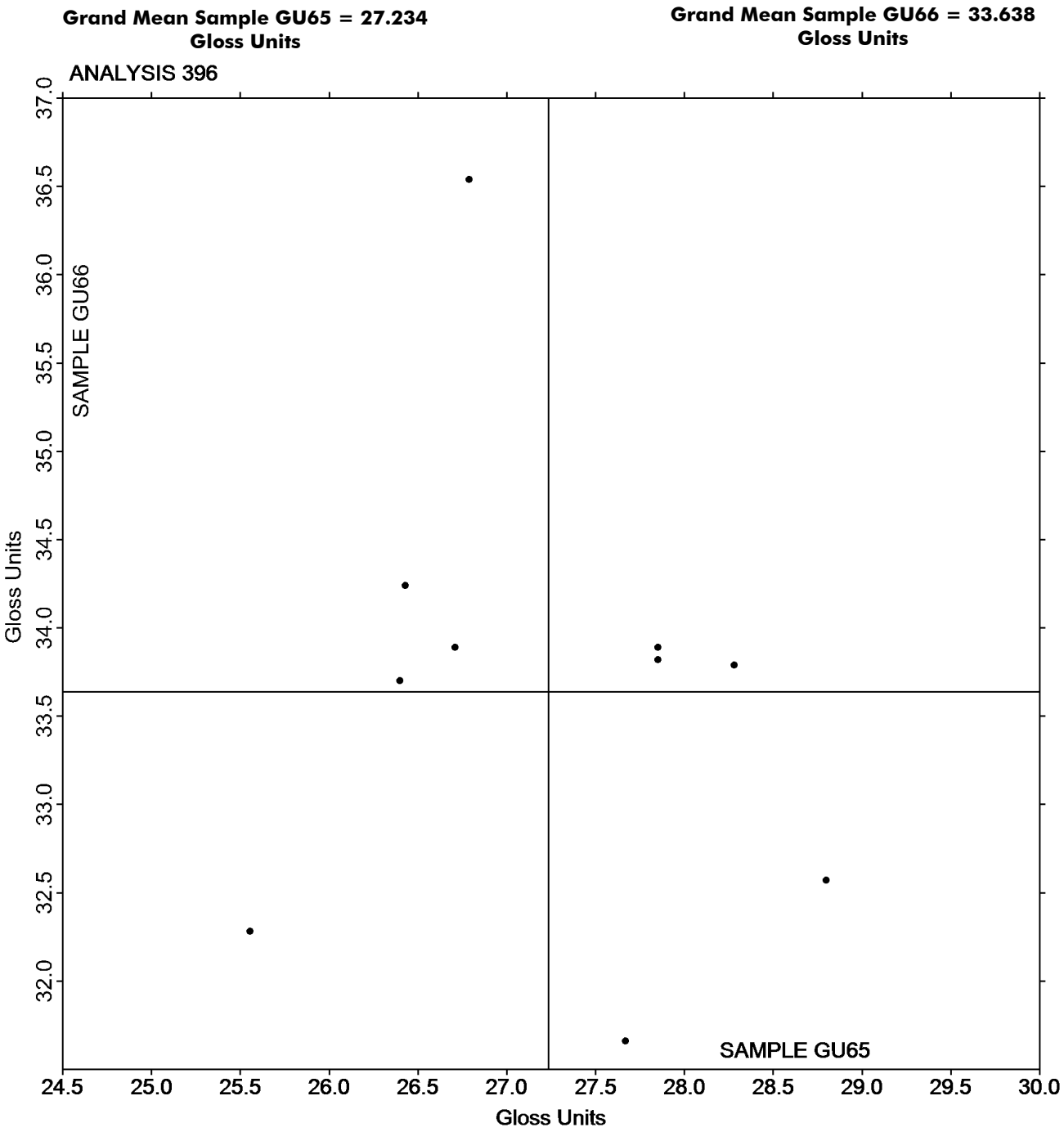
WebCode	Data Flag	Sample GU65 Lab Mean	Sample GU65 Diff from Grand Mean	Sample GU65 CPV	Sample GU66 Lab Mean	Sample GU66 Diff from Grand Mean	Sample GU66 CPV	Instr Code
4MHFB4		27.85	0.62	0.61	33.82	0.18	0.14	LA
4RUC2L		26.43	-0.80	-0.80	34.24	0.60	0.45	PP
8BEAUN		27.67	0.44	0.43	31.66	-1.98	-1.49	LA
DBF6VU		27.85	0.62	0.61	33.89	0.25	0.19	ZT
DHU2LA		26.79	-0.44	-0.44	36.54	2.90	2.19	TH
EYJMGD		28.80	1.57	1.56	32.57	-1.07	-0.80	PP
GQZRXN		25.56	-1.68	-1.67	32.28	-1.36	-1.02	TH
J9V4JU		28.28	1.05	1.04	33.79	0.15	0.11	TH
LHMJ2G		26.71	-0.52	-0.52	33.89	0.25	0.19	PP
RFLJGY		26.40	-0.83	-0.83	33.70	0.06	0.05	TH

Summary Statistics	Sample GU65	Sample GU66
Grand Means	27.23 Gloss Units	33.64 Gloss Units
Stnd Dev Btwn Labs	1.01 Gloss Units	1.33 Gloss Units

Statistics based on 10 of 10 reporting participants.

Key to Instrument Codes Reported by Participants

LA	L & W Gloss - Autoline 300	PP	Technidyne Profile/Plus
TH	Technidyne T480A	ZT	Zehntner ZLR 1020



If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.

Paper & Paperboard Interlaboratory Testing Program

Analysis 398

Grammage (Mass per Unit Area)

TAPPI Official Test Method T410

WebCode	Data Flag	Sample GW65 Lab Mean	Sample GW65 Diff from Grand Mean	Sample GW65 CPV	Sample GW66 Lab Mean	Sample GW66 Diff from Grand Mean	Sample GW66 CPV	Instr Code
29NA44		103.9	0.5	0.73	89.33	0.36	0.61	ZZ
2AJWG8		103.4	0.0	-0.01	88.70	-0.27	-0.45	ZZ
4MHFB4		103.6	0.2	0.29	88.94	-0.03	-0.05	ZZ
4MHHW3		103.1	-0.3	-0.41	89.08	0.11	0.19	ZZ
63LEJL		103.6	0.2	0.26	88.87	-0.10	-0.17	ZZ
74CZPG		102.5	-1.0	-1.36	88.46	-0.51	-0.86	ZZ
7THEYY		104.3	0.9	1.21	89.17	0.20	0.34	ZZ
92KN2V		103.9	0.4	0.60	88.77	-0.20	-0.34	ZZ
DBF6VU		103.0	-0.5	-0.68	89.65	0.69	1.16	ZZ
DHU2LA	*	101.4	-2.0	-2.90	87.30	-1.67	-2.83	ZZ
GQZRXN		103.5	0.1	0.15	89.85	0.88	1.50	ZZ
GUU2EF		103.5	0.0	0.07	88.99	0.02	0.04	ZZ
HPZBXW	X	12.9	-90.5	-128.92	11.11	-77.86	-131.98	ZZ
J9V4JU		104.1	0.6	0.91	88.09	-0.88	-1.49	ZZ
L6HNHF		103.5	0.1	0.15	89.24	0.27	0.46	ZZ
LHMJ2G		103.0	-0.4	-0.61	89.10	0.13	0.22	ZZ
LZQBYP		102.2	-1.2	-1.77	89.04	0.08	0.13	ZZ
M8JQA2		103.8	0.4	0.53	90.22	1.25	2.12	ZZ
N34UU4		104.1	0.6	0.90	89.44	0.47	0.80	ZZ
NJCGNR		103.4	-0.1	-0.08	88.62	-0.35	-0.59	ZZ
P3MX4P		103.3	-0.1	-0.19	88.42	-0.55	-0.93	ZZ
PVLL78		104.3	0.9	1.26	89.58	0.61	1.04	ZZ
RFLJGY		102.7	-0.7	-1.01	89.01	0.04	0.07	ZZ
W4TTL9		104.5	1.1	1.54	88.43	-0.54	-0.91	ZZ
Y3RJUP		103.5	0.1	0.10	89.02	0.05	0.08	ZZ
YL6CEH		103.7	0.2	0.32	88.87	-0.10	-0.17	ZZ

Summary Statistics	Sample GW65	Sample GW66
Grand Means	103.44 g/sq m	88.97 g/sq m
Stnd Dev Btwn Labs	0.70 g/sq m	0.59 g/sq m

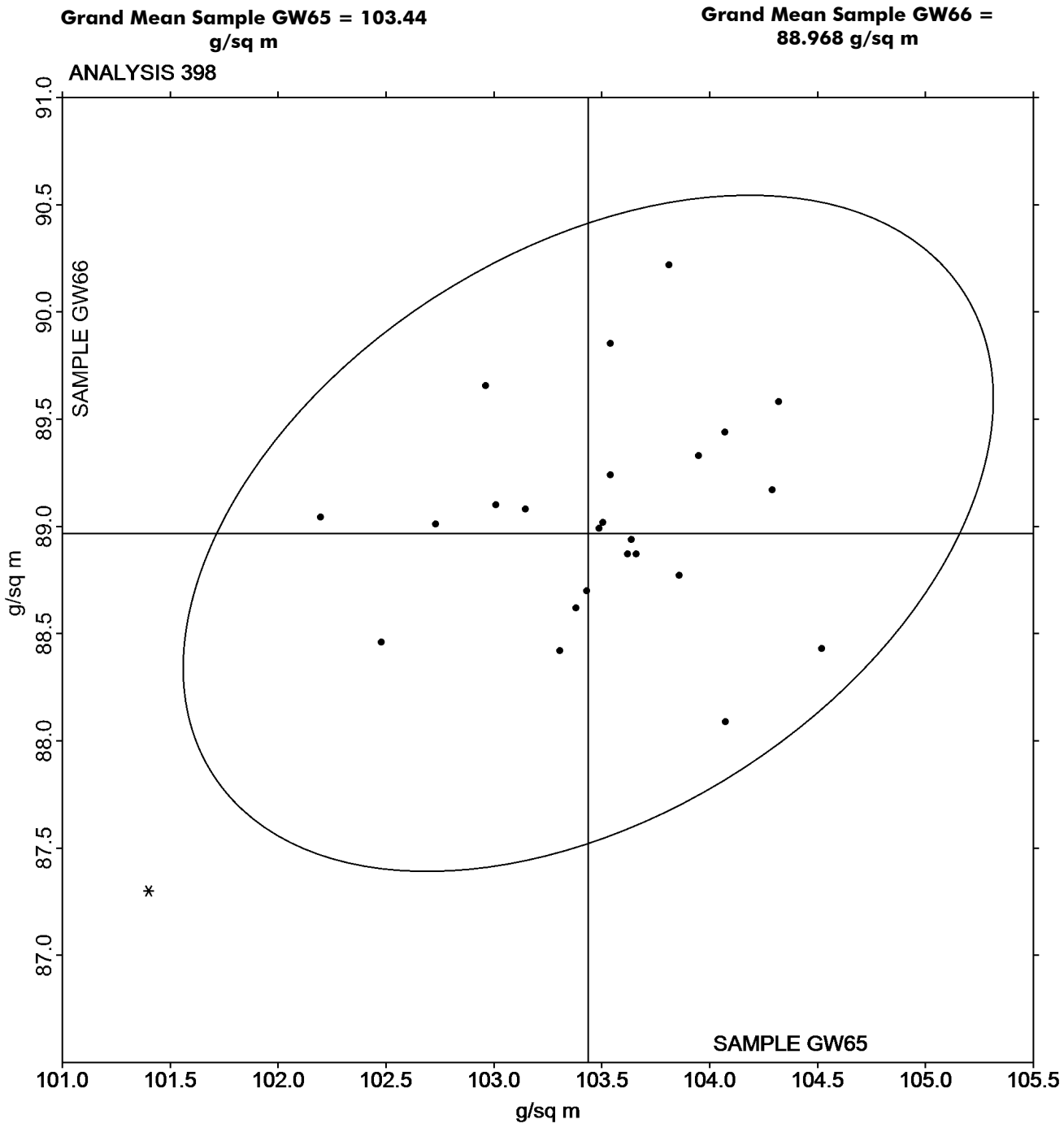
Statistics based on 25 of 26 reporting participants.

Comments on Assigned Data Flags for Test #398

HPZBXW (X) - Extreme Data.

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked



Paper & Paperboard Interlaboratory Testing Program

Analysis 399
Sizing Test (Hercules Type)
TAPPI Official Test Method T530

WebCode	Data Flag	Sample GX65 Lab Mean	Sample GX65 Diff from Grand Mean	Sample GX65 CPV	Sample GX66 Lab Mean	Sample GX66 Diff from Grand Mean	Sample GX66 CPV	Instr Code
3KECXV		11.80	-0.22	-0.07	16.62	1.40	0.33	HE
3VVVNU		10.93	-1.09	-0.32	14.03	-1.19	-0.28	HE
63LEJL	X	32.54	20.52	6.09	45.16	29.94	6.97	XX
6NTMXK		10.83	-1.19	-0.35	15.09	-0.13	-0.03	HE
74LP8A		9.17	-2.85	-0.85	9.59	-5.63	-1.31	HE
7VLH9N		12.50	0.48	0.14	11.96	-3.26	-0.76	XX
8J9EMP		6.92	-5.10	-1.51	9.58	-5.64	-1.31	HE
8LD2DL	*	18.00	5.98	1.77	27.56	12.34	2.87	HE
94AYV9		9.66	-2.36	-0.70	12.91	-2.31	-0.54	HE
9DJ9J2		16.03	4.01	1.19	17.87	2.65	0.62	HE
9J74FY		9.39	-2.63	-0.78	13.51	-1.71	-0.40	HE
D6PWBZ	*	19.08	7.06	2.10	19.06	3.84	0.89	HE
ELRWXU		11.50	-0.52	-0.15	13.70	-1.52	-0.35	HE
EYJMGD		14.37	2.35	0.70	19.20	3.98	0.93	HE
G6VH8Q		10.21	-1.81	-0.54	13.12	-2.10	-0.49	HE
J9V4JU		19.78	7.76	2.30	23.52	8.30	1.93	HE
JCQZZ9		11.61	-0.41	-0.12	14.45	-0.77	-0.18	HE
L3EK76		11.81	-0.21	-0.06	16.59	1.37	0.32	HE
LHMJ2G		7.43	-4.59	-1.36	11.45	-3.77	-0.88	HE
NFCLK6		10.00	-2.02	-0.60	12.61	-2.61	-0.61	HE
NJCGNR		13.60	1.58	0.47	15.20	-0.02	0.00	HE
R3WH8J		10.53	-1.49	-0.44	13.74	-1.48	-0.35	HE
UA7VU8		15.81	3.79	1.12	19.99	4.77	1.11	XX
URQGGJ		12.07	0.05	0.01	15.21	-0.01	0.00	HE
VUPAUE		8.36	-3.66	-1.09	11.09	-4.13	-0.96	HE
VWTVNT		16.86	4.84	1.44	22.61	7.39	1.72	HE
XJFET8		10.66	-1.36	-0.40	13.38	-1.84	-0.43	HE
Y42TJ2		9.20	-2.82	-0.84	9.10	-6.12	-1.43	HE
Z6AZMU		10.33	-1.69	-0.50	13.32	-1.90	-0.44	HE
ZRL9VC		10.20	-1.82	-0.54	15.35	0.13	0.03	HE

Summary Statistics	Sample GX65	Sample GX66
Grand Means	12.02 Seconds	15.22 Seconds
Stnd Dev Btwn Labs	3.37 Seconds	4.29 Seconds

Statistics based on 29 of 30 reporting participants.

Comments on Assigned Data Flags for Test #399

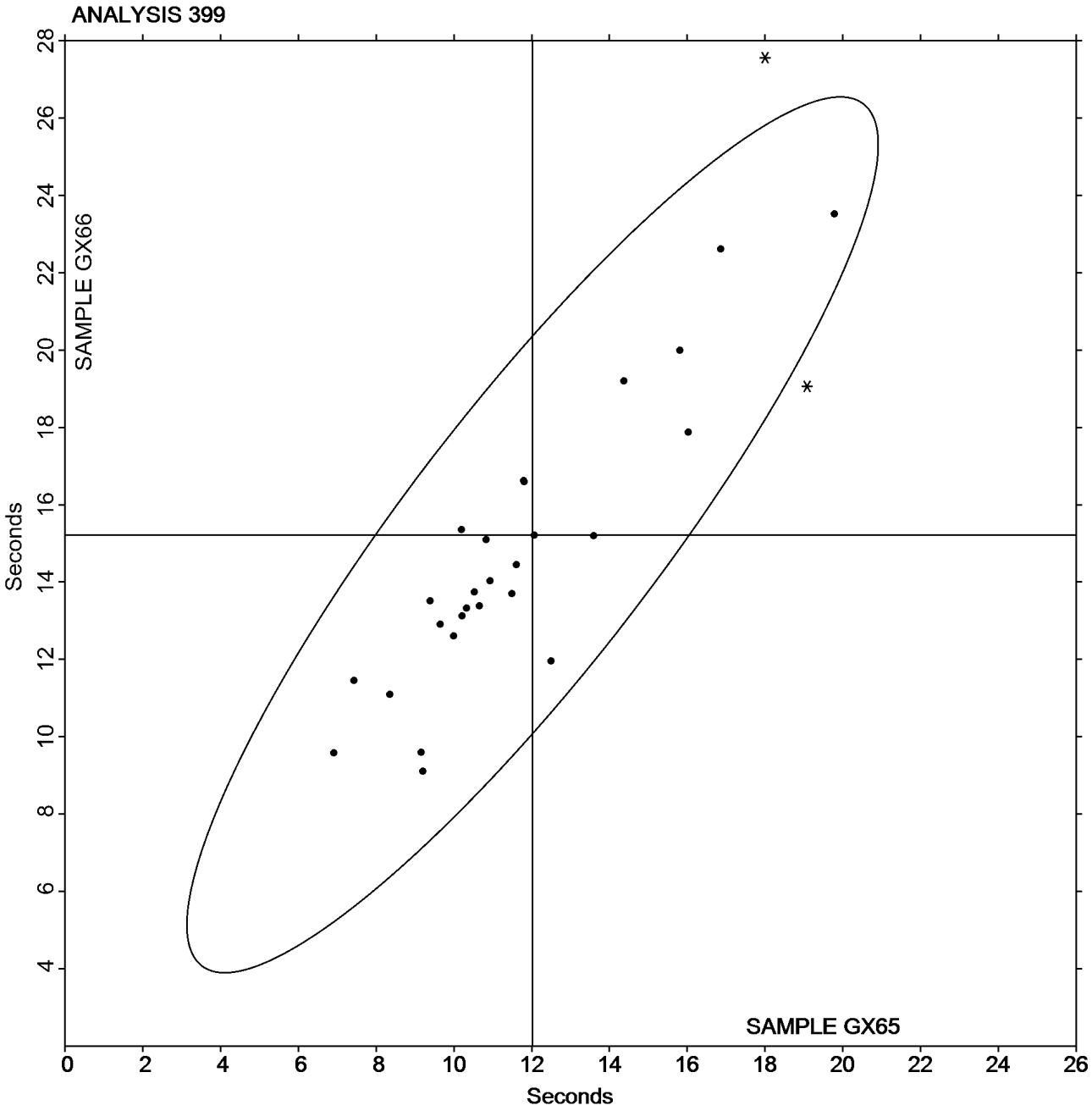
63LEJL (X) - Extreme Data.

Key to Instrument Codes Reported by Participants

HE	Hercules Sizing Tester	XX	Instrument make/model not specified by lab

Grand Mean Sample GX65 = 12.022 Seconds

Grand Mean Sample GX66 = 15.221 Seconds



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