

Luminance Reflectance Value (LRV) Testing Report

for

Yellow all grip



Black all grip



Saturn Anodise



prepared for

ALLTAC



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Testing Methodologies

1.1 Luminance Reflectance Value (LRV) Testing

LRV testing by Equal Access is performed in line with the testing procedures as specified in Australian Standard AS 1428.1-2009 Design for access and mobility – General requirements for access – New building work – Appendix B3 & B5. Testing also compliant with AS/NZS 1428.4.1-2009.

For the purposes of determining the most accurate LRVs, Equal Access performs the following testing methodologies in laboratory tests:

- Tristimulus Colorimeter (d/0) Testing – This testing methodology is conducted under D65 lighting delivered via the equipment and remains constant across all tests.

Please note that Equal Access uses the only compliant equipment (Konica Minolta CR400). This test is specular inclusive. Specular inclusive is the measurement of the LRV from the colour of the sample, and is not influenced by its surface finish.

1.2 Site Specific Information / Conditions

N/A – Testing conducted under laboratory conditions.

1.3 LRV Testing Set Up

Konica Minolta CR400 – Tristimulus Colorimeter d/0

Measuring head is placed flush on surface being tested and held steady until measurement is taken.

1.4 Measurements

Konica Minolta CR400 – Tristimulus Colorimeter d/0

Ten (10) measurements are taken across the surface of each product sample, recorded in Y_x (whereby $Y = \text{LRV}$), and averaged to determine the LRV.

1.5 Equipment Specifications

Konica Minolta CR400 – Tristimulus Colorimeter d/0

Name	Chroma Meter Measuring Head
Model	CR-400 Head
Illuminating/viewing system	d/0 (Diffuse illumination/0° viewing angle) (Specular component included)
Detector	Silicone photo cells (6)
Display range	Y: 0.01 to 160.00% (reflectance)
Light source	Pulsed xenon lamp
Measurement time	1 second
Minimum measurement interval	3 seconds
Battery performance	Approx. 800 measurements (when using batteries under Alltac testing conditions)
Measurement/illumination area	φ8/φ11
Repeatability	Within ΔE*ab0.07 standard deviation (when the white calibration plate is measured 30 times at intervals of 10 seconds)
Inter instrument agreement	ΔE*ab0.07 Average of 12 BCRA series 11 colors
Observer	2° closely matches CE 1931 Standard Observers: ($\bar{x}2\lambda$, $\bar{y}\lambda$, $\bar{z}\lambda$)
Illuminant *1	C, D65
Display *1	Chroma values, color difference values, PASS/WARN/FAIL display
Tolerance judgement *1	Color difference tolerance (box tolerance and elliptical tolerance)
Color space/colorimetric data	XYZ, Yxy, L*a*b*, Hunter Lab, L*C*h, Munsell (only illuminant C), CMC(l:c), CIE1994, Lab99, LCh99, CIE2000, CIE WI•Tw (only illuminant D65), WI ASTM E313 (only illuminant C), YI ASTM D1295 (only illuminant C), YI ASTM E313 (only Illuminant C), User index (up to six can be registered from computer)
Languages	Operating keys: English LCD: English (default) (LCD: German, French, Italian, Spanish, Japanese) *1
Storable date sets	1000 (measuring head and data processor save different data)
Color difference target colors	100
Calibration channels *1	20 channels (ch00 : white calibration, ch01 to ch19 : user calibration)
Display	Dot-matrix LCD with backlight (15 chars x 9 lines + 1 line for icon display)
Interface	RS-232C compliant (for data processor/PC) * Baud rate : 4800, 9600, 19200 (bps), set at 9600 bps when shipped from factory
Power source	4 AAA size alkaline or Ni-MH batteries, AC adapter (AC-A17) AC120V ~ 50-60Hz 0.4A (for N.America and Japan) AC230V ~ 50-60Hz 0.4A (for worldwide except N.America)
Size	102(W) x 217(H) x 63(D)mm
Weight	Approx. 550g (including 4 AAA batteries and not including RS-232C cable)
Operating temperature/humidity range	0 to 40°C, relative humidity 85% or less (at 35°C) with no condensation
Storage temperature/ humidity range	-20 to 40°C, relative humidity 85% or less (at 35°C) with no condensation
Other	LCD back light ON/OFF function (when ON, backlight stays ON for 30 seconds after last key or measurement operation)

*1 indicates when connected to the Data Processor or when not using the Data Processor or the optional software, that some of the function are not available when the measuring head is not connected.

Luminance Reflectance Value (LRV) Test Results

Test Conditions

Luminance reflectance value (LRV) testing has been conducted under the following conditions:

- Product sample tested:
 - Yellow all grip
 - Black all grip
 - Saturn Anodise
- Location: Equal Access Office
- Instrumentation: Konica Minolta CR400 (Tristimulus Colorimeter)
- Lighting: D65 for Tristimulus Colorimeter
- Wet measurements: Under simulated conditions
- Required luminance contrast: N/A – Testing report only for LRV

Test Results

Yellow all grip

Client: Alltac	Tested by: Ian Parkinson
	Test date: 22/10/2021
	Conditions: DRY
Product Sample 1: Yellow all grip	

M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	Average
TRISTIMULUS COLORIMETER										
37.83	42.24	38.76	41.31	41.24	41.48	42.18	42.99	42.23	42.00	41.23

Client: Alltac	Tested by: Ian Parkinson
	Test date: 22/10/2021
	Conditions: WET
Product Sample 1: Yellow all grip	

M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	Average
TRISTIMULUS COLORIMETER										
42.73	38.84	37.36	42.26	39.56	41.89	41.81	42.83	39.17	37.08	40.35

Black all grip

Client: Alltac						Tested by: Ian Parkinson			
						Test date: 22/10/2021			
						Conditions: DRY			
Product Sample 2: Black all grip									

M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	
TRISTIMULUS COLORIMETER										Average
6.18	6.31	6.42	6.33	6.12	6.45	6.15	6.65	6.98	6.35	6.39

Client: Alltac						Tested by: Ian Parkinson			
						Test date: 22/10/2021			
						Conditions: WET			
Product Sample 2: Black all grip									

M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	
TRISTIMULUS COLORIMETER										Average
4.77	5.49	4.87	5.11	5.67	5.52	5.56	5.69	5.22	5.69	5.36

Saturn Anodise

Client: Alltac						Tested by: Ian Parkinson			
						Test date: 22/10/2021			
						Conditions: DRY			
Product Sample 3: Saturn Anodise									

M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	
TRISTIMULUS COLORIMETER										Average
7.74	7.41	6.85	7.72	7.76	7.53	7.46	7.53	7.63	7.48	7.51

Client: Alltac						Tested by: Ian Parkinson			
						Test date: 22/10/2021			
						Conditions: WET			
Product Sample 3: Saturn Anodise									

M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	
TRISTIMULUS COLORIMETER										Average
6.63	7.01	7.40	7.20	6.51	6.68	6.96	7.32	7.92	7.10	7.07

Conclusion

Equal Access has performed the luminance reflectance value (LRV) tests as prescribed in the abovementioned methodologies for the provided product sample, and conclude that the results indicate the subject product sample to have the following LRV:

Yellow all grip	41.23	In Dry
	40.35	In Wet
Black all grip	6.39	In Dry
	5.36	In Wet
Saturn Anodise	7.51	In Dry
	7.07	In Wet

Should you require anything further or clarification of anything contained herein please feel free to contact us on 1300 994 890 or 03 9001 5805 or via email on office@equalaccessgroup.com.au.

Yours faithfully,
EQUAL ACCESS



IAN PARKINSON
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BRUCE BROMLEY
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Association of Consultants in Access Australia Inc.
Accredited Membership No. 187

Product Data Test Sheet

Ref: L21028

Client:	Alltac
Product Sample 1:	Yellow all grip
Test Date:	Friday, 22 October 2021
Test Location:	Equal Access Office

The results reported relate only to the product sample tested and the information received. No responsibility is taken for the accuracy of the sampling unless it is done under our supervision. Equal Access cannot accept responsibility for deviations in the manufactured quality and performance of the product. While Equal Access takes extreme care in preparing the reports for clients, it does not warrant that the information in this particular report will be free of errors or omissions or that it will be suitable for the client's purposes. Equal Access will not be responsible for the results or any actions taken by the client or any other person on the basis of the information contained in the report or any opinions expressed in it.

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As requested, Equal Access has carried out luminance reflectance value (LRV) testing on the product sample according to the specifications and testing methodologies of AS 1428.1-2009 Appendix B. The instrumentations used to obtain the LRV were the Konica Minolta CR400 (d/0) .

Testing was carried out in accordance with AS 1428.1-2009 Appendix B. Ten (10) measurements were taken throughout the product sample to ensure a cross-spread of variance is representative and measurements were then averaged.

Results:

Yellow all grip	AVERAGE	
	DRY	WET
TRISTIMULUS COLORIMETER	41.23	40.35

Testing conducted by: IAN PARKINSON
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Product Data Test Sheet

Ref: L21028

Client:	Alltac
Product Sample 2:	Black all grip
Test Date:	Friday, 22 October 2021
Test Location:	Equal Access Office

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As requested, Equal Access has carried out luminance reflectance value (LRV) testing on the product sample according to the specifications and testing methodologies of AS 1428.1-2009 Appendix B. The instrumentations used to obtain the LRV were the Konica Minolta CR400 (d/0) and the X-Rite i1 (45/0).

Testing was carried out in accordance with AS 1428.1-2009 Appendix B. Ten (10) measurements were taken throughout the product sample to ensure a cross-spread of variance is representative and measurements were then averaged.

Results:

Black all grip	AVERAGE	
	DRY	WET
TRISTIMULUS COLORIMETER	6.39	5.36

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Product Data Test Sheet

Ref: L21028

Client:	Alltac
Product Sample 3:	Saturn Anodise
Test Date:	Friday, 22 October 2021
Test Location:	Equal Access Office

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Testing was carried out in accordance with AS 1428.1-2009 Appendix B. Ten (10) measurements were taken throughout the product sample to ensure a cross-spread of variance is representative and measurements were then averaged.

Results:

Saturn Anodise	AVERAGE	
	DRY	WET
TRISTIMULUS COLORIMETER	7.51	7.07

Testing conducted by: IAN PARKINSON
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