

**ATTAR TEST REPORT NO: 10/4302**

26 August 2010

Total Pages: 2

SLIP RESISTANCE

Job No: M10/4302

Subject:**SLIP RESISTANCE TESTING OF ENDURO-MESH PANEL****Introduction:**

You supplied us with two (2) samples of Enduro-Mesh Panel (Colour: Blue) with the request to conduct the following tests.

- Wet Pendulum Test to AS/NZS 4586:2004 Appendix A
- Dry Floor Friction Test to AS/NZS 4586:2004 Appendix B
- Wet/Barefoot Ramp Test to AS/NZS 4586:2004 Appendix C
- Oil-Wet Ramp Test to AS/NZS 4586:2004 Appendix D

Results:

The Wet Pendulum, Dry Floor Friction and Oil Wet ramp slip resistance testing was carried out in accordance with our NATA accreditation and the full reports are attached as Appendix 1. The results are summarised on the following page.

The Wet/Barefoot ramp testing was conducted by CSIRO and the full report is attached as Appendix 3. A summary of the test results is tabulated on the following page for your information.

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Sample	Test	Results	
		Value	Classification
Panel	Wet Pendulum (Slider 96)	42 BPN	X
	Wet Pendulum (Slider 55)	54 BPN	V
	Dry Floor Friction	0.65	F
	Oil Wet Ramp	18.5°	R10
	Wet/Barefoot Ramp	30°	C

NOTE: Any specimens supplied will be disposed of in two (2) months time, unless otherwise instructed.

ATTAR


Steven Potts
 Slip & Engineering Technician

References:

1. Australian and New Zealand Standard AS/NZS 4586: 2004 Slip Resistance Classification of New Pedestrian Surface Materials, Standards Australia, Sydney, NSW.

APPENDIX 1

**ATTAR TEST REPORT NUMBER: 10/4302.1**

This document is issued in accordance with NATA's accreditation requirements. The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. Accredited for compliance with ISO/IEC 17025. Accreditation Number: 2735

26 August 2010

Total Pages: 2**DRY SLIP RESISTANCE**

Job No: M10/4302

Test Site:	ATTAR, Unit 27, 134 Springvale Road, Springvale.		
Test Date:	26 August 2010		
Test Specimens, Size and Quantity:	Enduro-Mesh Panel, 1200x400 mm, 2 off supplied.		
Sampling and Direction of Test:	Sampling conducted by client. Test direction as shown in Figure 1.		
Test Personnel:	Steven Potts		
Preparation:	As received.		
Fixed/Unfixed:	Unfixed.		
Air Temperature:	21°C		
Test Equipment:	Tortus Floor Friction Tester; Tortus Model Mk 3 (with integral printer), Serial No: 318.		
Test Standard:	AS/NZS 4586: 2004 Slip resistance classification of new pedestrian surface materials – Appendix B.		
Slider Rubber:	Slider 96 (Four S) Batch No. 32		
Classification Criteria:	Refer Appendix 2 – Classification Criteria, attached.		
Dynamic Coefficient of Friction	Run 1	Run 2	Mean
	0.68	0.63	Rounded to 0.05 0.65
Classification:	F		

These results apply only to the specimens tested and it is recommended that before selection of flooring or paving materials the effect of service conditions, including maintenance procedures and wear on their slip-resistance be checked.

NOTE: Any specimens supplied will be disposed of in two (2) months time, unless otherwise instructed.

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Slip & Engineering Technician
Approved Signatory

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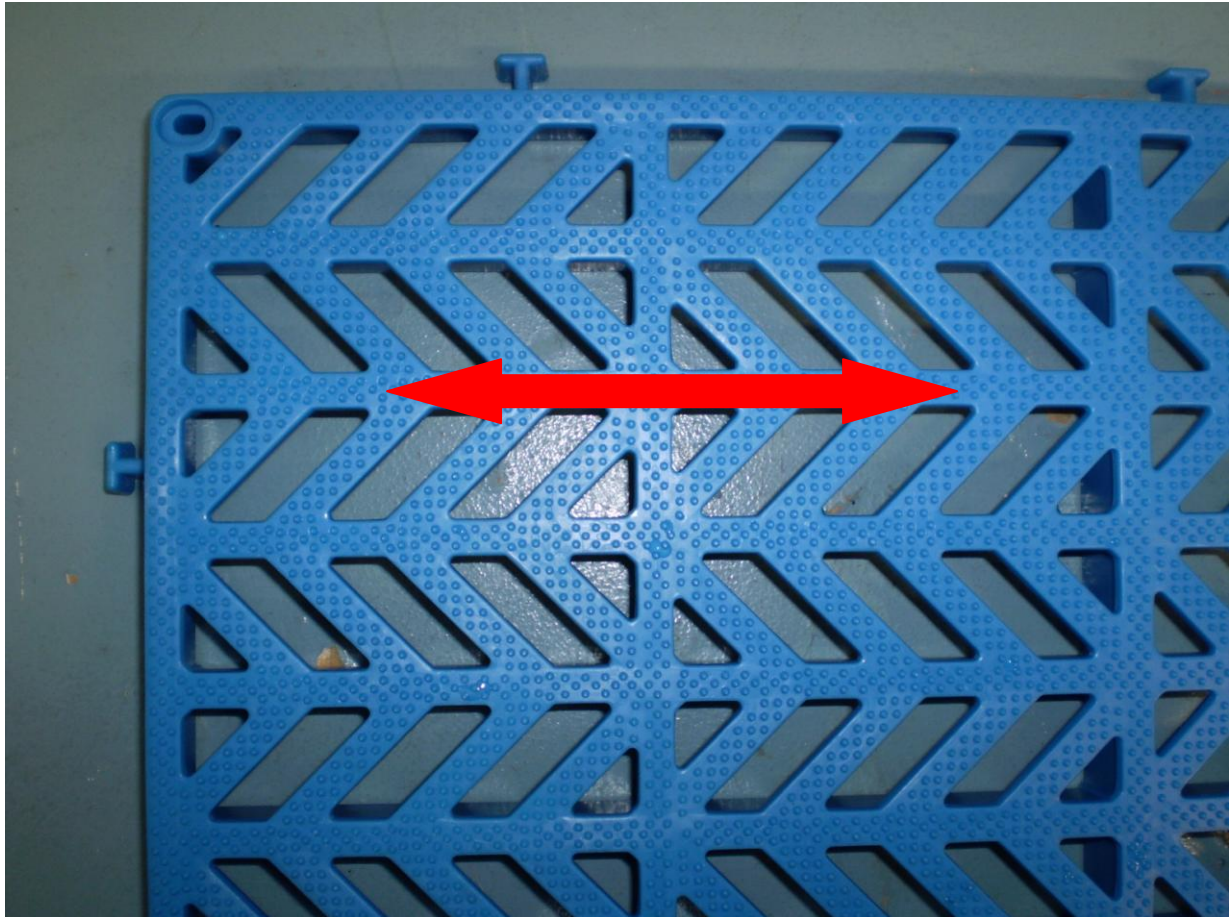


Figure 1. Arrow indicates direction of Dry Floor Friction Test on Panel.

**ATTAR TEST REPORT NUMBER: 10/4302.2**

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26 August 2010

Total Pages: 2**WET SLIP RESISTANCE**

Job No: M10/4302

Test Site:	ATTAR, Unit 27, 134 Springvale Road, Springvale.											
Test Date:	26 August 2010											
Test Specimens, Size & Quantity:	Panel, 1200x400 mm, 2 off supplied.											
Sampling & Direction of Testing:	Sampling conducted by client. Test direction as shown in Figure 1.											
Test Personnel:	Steven Potts											
Preparation:	As received.											
Fixed/Unfixed:	Unfixed											
Air Temperature:	21°C											
Test Equipment:	Stanley Skid Resistance Tester (Pendulum) Serial Number 0320, Calibrated 11/08/2010.											
Test Standard:	AS/NZS 4586: 2004 Slip resistance classification of new pedestrian surface materials – Appendix A.											
Slider Rubber:	Slider 96 (Four S) Batch No. 32											
Classification Criteria:	Refer Appendix 2 – Classification Criteria, attached.											
British Pendulum Number	Specimen Number											
	<table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>Mean</td> </tr> <tr> <td>40</td> <td>42</td> <td>45</td> <td>40</td> <td>44</td> <td>42</td> </tr> </table>	1	2	3	4	5	Mean	40	42	45	40	44
1	2	3	4	5	Mean							
40	42	45	40	44	42							
Classification:	X											

These results apply only to the specimens tested and it is recommended that before selection of flooring or paving materials the effect of service conditions, including maintenance procedures and wear on their slip-resistance be checked.

NOTE: Any specimens supplied will be disposed of in two (2) months time, unless otherwise instructed.

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Slip & Engineering Technician
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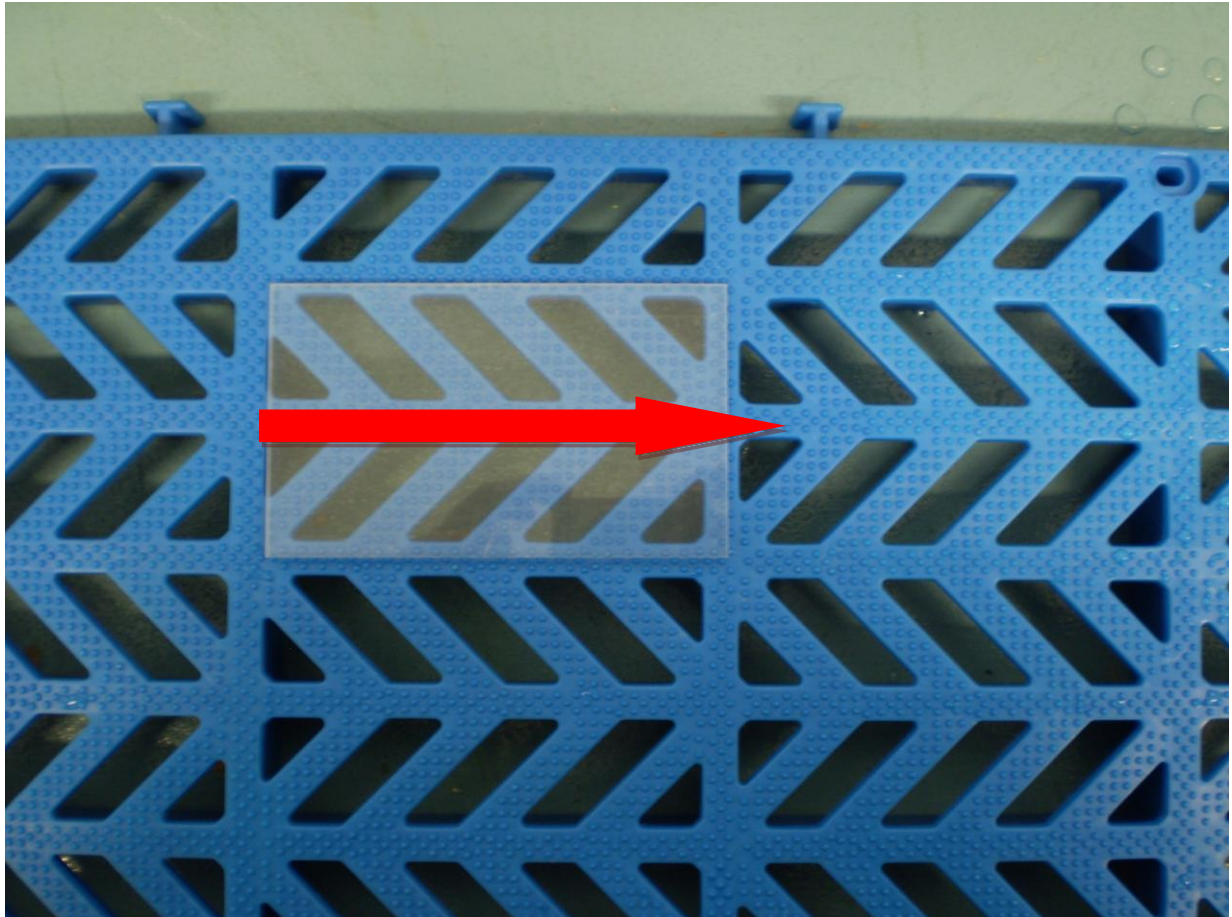


Figure 1. Test area and direction of testing for Panel.

**ATTAR TEST REPORT NUMBER: 10/4302.3**

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26 August 2010

Total Pages: 2**WET SLIP RESISTANCE**

Job No: M10/4302

Test Site:	ATTAR, Unit 27, 134 Springvale Road, Springvale.					
Test Date:	26 August 2010					
Test Specimens, Size & Quantity:	Panel, 1200x400 mm, 2 off supplied.					
Sampling & Direction of Testing:	Sampling conducted by client. Test direction as shown in Figure 1.					
Test Personnel:	Steven Potts					
Preparation:	As received.					
Fixed/Unfixed:	Unfixed					
Air Temperature:	21°C					
Test Equipment:	Stanley Skid Resistance Tester (Pendulum) Serial Number 0320, Calibrated 11/08/2010.					
Test Standard:	AS/NZS 4586: 2004 Slip resistance classification of new pedestrian surface materials – Appendix A.					
Slider Rubber:	Slider 55 (TRRL) Batch No. 53					
Classification Criteria:	Refer Appendix 2 – Classification Criteria, attached.					
British Pendulum Number	Specimen Number					Mean
	1	2	3	4	5	
	46	55	61	51	56	54
Classification:	V					

These results apply only to the specimens tested and it is recommended that before selection of flooring or paving materials the effect of service conditions, including maintenance procedures and wear on their slip-resistance be checked.

NOTE: Any specimens supplied will be disposed of in two (2) months time, unless otherwise instructed.

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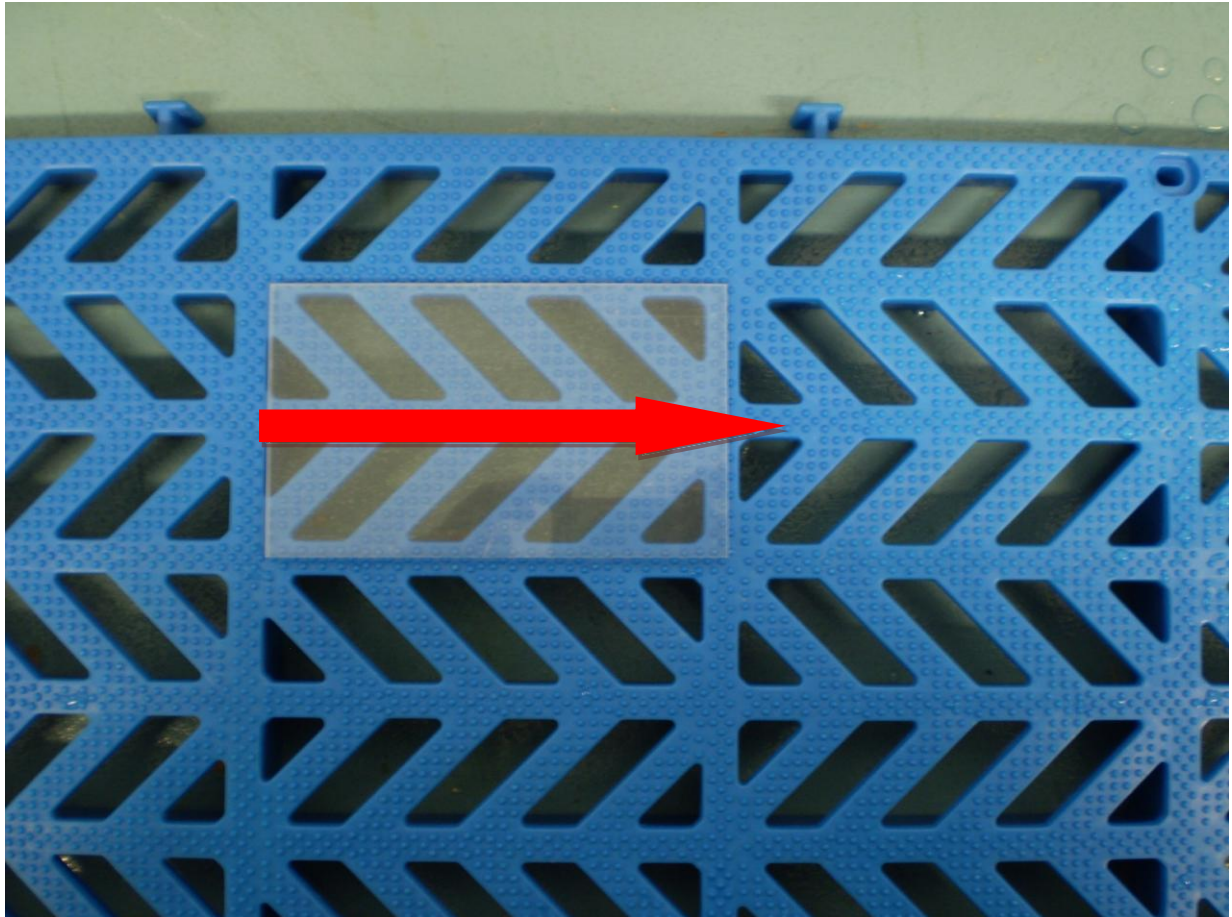


Figure 1. Test area and direction of testing for Panel.

**ATTAR TEST REPORT NUMBER: 10/4302.4**

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26 August 2010

Total Pages: 1**OIL-WET RAMP SLIP RESISTANCE**

Job No: M10/4302

Test Site:	ATTAR, Unit 12, 134 Springvale Road, Springvale.	
Test Date:	26 August 2010	
Test Specimen, Size & Quantity Received:	Panel, 1200x400 mm, 2 off supplied.	
Sampling & Direction of Testing:	Sampling conducted by client. Test conducted along the length of product.	
Test Personnel:	Marcus Braché & Steven Potts	
Preparation:	1 off specimen tested as received.	
Joint Width:	N/A	
Air Temperature:	19°C	
Test Standard:	AS/NZS 4586 - 2004 Slip resistance classification of new pedestrian surface materials – Appendix D.	
Surface Structure :	Structured.	
Classification Criteria: (TABLE D3 in AS/NZS 4586- 2004)	Corrected Mean Overall Acceptance Angle	Slip Resistance Assessment Group
	6° to 10°	R9
	Over 10° to 19°	R10
	Over 19° to 27°	R11
	Over 27° to 35°	R12
	Over 35°	R13
Displacement Space:	Not Measured	
Displacement Space Assessment Group:	N/A	
Mean Overall Acceptance Angle:	18.5°	
Slip Resistance Assessment Group:	R10	

These results apply only to the specimens tested and it is recommended that before selection of flooring or paving materials the effect of service conditions, including maintenance procedures and wear on their slip-resistance be checked.

NOTE: Any specimens supplied will be disposed of in two (2) months time, unless otherwise instructed.

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APPENDIX 2

**CLASSIFICATION CRITERIA – AS/NZS 4586 - 2004****Compliance****TABLE 1
TEST AND CLASSIFICATIONS COMBINATIONS**

Test conditions	Test method	Classification table to be used
Wet pendulum	Appendix A	Table 2
Wet pendulum and dry floor friction	Appendices A and B	Tables 2 and 3
Dry floor friction	Appendix B	Table 3*

*Samples tested under dry conditions only are assumed to have a default wet classification of Z and shall be reported as classification ZF or ZG.

**TABLE 2
CLASSIFICATION OF PEDESTRIAN SURFACE MATERIALS
ACCORDING TO THE WET PENDULUM TEST**

Class	Pendulum* mean BPN	
	Slider 96 (Four S rubber)	Slider 55 (TRL rubber)
V	>54	>44
W	45-54	40-44
X	35-44	-
Y	25-34	-
Z	<25	-

*While either of these test methods may be used, the test report shall specify which method was used.

NOTE: It is expected that these surfaces will have greater slip resistance when dry.

**TABLE 3
CLASSIFICATION OF PEDESTRIAN SURFACE MATERIALS
ACCORDING TO THE DRY FLOOR FRICTION TEST**

Classification	Floor friction tester mean value
F	≥0.4
G	<0.4

Means of demonstrating compliance

Pedestrian surfaces that are classified in accordance with Table 2 and, where appropriate, Table 3 shall meet the following criteria:

- (a) The mean test results shall be as follows:
 - (i) For the classifications in Table 2, the mean of the test results shall be within the relevant criteria set out in the Table, and each individual result shall be equal to or above the lower limit for the classification or, if below the classification, within the mean of the result minus 20%. If either of these criteria is not met, the lot shall be considered to be a lower classification.
 - (ii) For Classification F in Table 3, the mean of the test results shall be equal to or greater than 0.4 and each individual result shall be equal to or greater than 0.35. If either of these criteria is not met, the lot shall be considered to be Classification G.
- (b) The classification in accordance with Table 2 or Table 3 shall be determined by –
 - (i) selecting and testing at least five specimens at random as defined in Appendices A and B; or
 - (ii) carrying out continuous testing and process control in accordance with AS 3942.
- (c) When testing individual lots, if a particular test fails to produce the expected classification it shall be permissible to:-
 - (i) disregard the first sample, re-sample a minimum of 10 specimens from the whole lot, retest and apply the criteria to the new sample; or
 - (ii) subdivide the lot into smaller lots of different quality, re-sample, retest and reclassify each of the smaller lots.

APPENDIX 3



Industrial Research Services

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Registered Testing Authority - CSIRO

25 August 2010

Our Ref. EN13 / 46 03/0212

TEST REPORT No. 5475s

Requested by: ATTAR
PO Box 286
Springvale
VIC 3171
on (date): 23 August 2010
Manufacturer:
Product Desc.: Panel, Blue

Sampling details:
Where: Delivered
Date: 24 August 2010
By whom: Courier
How (methods): N/A

The results reported relate only to the sample(s) tested and the information received. No responsibility is taken for the accuracy of the sampling unless it is done under our own supervision. CSIRO cannot accept responsibility for deviations in the manufactured quality and performance of the product. While CSIRO takes care in preparing the reports it provides to 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. CSIRO will not be responsible for the results of 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. The reproduction of this test report is only authorised in the form of a complete photographic facsimile. Our written approval is necessary for any partial reproduction.

This test report consists of 3 pages

SUMMARY OF SLIP RESISTANCE TESTS PERFORMED:

		Result	Class
AS/NZS 4586:2004	Slip resistance classification of new pedestrian surface materials		
	Appendix C: WET/BAREFOOT Ramp		
	Mean angle of inclination:	30°	C

* = CSIRO classification

In order to interpret the classifications, please refer to Standards Australia Handbook 197, An Introductory Guide to the Slip Resistance of Pedestrian Surface Materials, which recommends minimum classifications for a wide variety of locations.

It is important to realise that test results obtained on unused factory-fresh samples may not be directly applicable in service, where proprietary surface coatings, contamination, wear and subsequent cleaning all influence the behaviour of the pedestrian surface.



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REPORT NO: 5475s
ISSUE DATE: 25 August 2010
PRODUCT DESC: Panel, Blue

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SLIP RESISTANCE CLASSIFICATION OF NEW PEDESTRIAN SURFACE MATERIALS

WET/BAREFOOT RAMP TEST METHOD

TEST CARRIED OUT IN ACCORDANCE WITH
AS/NZS 4586:2004 (Appendix C)

Test Date: 25 August 2010

Location: Slip Resistance Laboratory

Sample Fixed

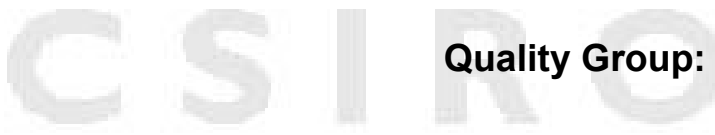
Joint width: 0 mm

Surface structure: Smooth
 Profiled
 Structured

RESULTS

		Actual mean	Reported mean
Mean angle of inclination:	Calibration Board A:	11.86 °	12 °
	Calibration Board B:	18.85 °	19 °
	Calibration Board C:	26.36 °	26 °
Mean angle of inclination of Test Board:		29.88 °	30 °

CLASSIFICATION:



Quality Group:

C



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REPORT NO: 5475s
ISSUE DATE: 25 August 2010
TILE DESC: Panel, Blue

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Date and Place 25 August 2010, Highett, Vic

Name, Title and Digital Signature:

A circular digital signature stamp containing a handwritten signature in black ink over a light blue background with a grid pattern. Below the stamp, the word 'CSIRO' is printed in a light blue, sans-serif font.

CSIRO

DAVID WEEKS
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