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BRITISH BOARD OF AGRÉMENT TEST REPORT T164523 Issue2

OSCAR ACOUSTICS – ISO MOUNT ACOUSTIC HANGERS

Oscars Note: This report is property of Oscar Acoustics and must be read in its entirety. It only applies to the products tested and named in this report.

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Approved By:

Paul Rooney
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Date: 31 August 2021

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Date: 31 August 2021

On behalf of the British Board of Agrément

Client:	Oscar Engineering Ltd t/a Oscar Acoustics Unit 4 Crowhurst Barn Crowhurst Lane West Kingsdown Sevenoaks Kent TN15 6JE
Requested by:	John Hancock
Job No:	T1 64523
Work Period:	April 2021

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i Note on Issue 2
Issue 2 supersedes Issue 1 and differs from the original issue of this report by:
In the title, the amendment of the company name.
In section 2.3 *Results*, the addition of extra detail to the tabulated lot descriptions at the request of the client.

REPORT CONDITIONS

1.1 This Report:

- relates only to the product/system and sample/specimen thereof named and described herein
- relates only to the specified tests and test conditions described herein
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Unless otherwise stated, samples were provided by the client, and results apply to the samples as received

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TENSILE LOADING

2.1 Method

Tested in accordance with a BBA in house bond strength method, using the Instron tensile testing apparatus.
All hangers were secured to timber substrates, using the fixings provided by the client. Each hanger was inserted into a length of the client's railing which was bonded to a metal pull-off plate.
The substrate was then clamped to the base of the Instron apparatus, the pull-off plate attached to pulling apparatus and a load applied vertically at a speed of 10 $mm \cdot min^{-1}$ to destruction.

2.2 Samples

For traceability data and further pertinent data relating to samples, please see Appendix A *Sample details.*

BBA Ref/Lot	Quantity	Description
T1/64523/1	8	Oscar Type1 Iso-Mount acoustic hangers with associated fixings
T1/64523/2	8	Oscar Type2 Iso-Mount acoustic hangers with associated fixings
T1/64523/3	8	Oscar Type3 Iso-Mount acoustic hangers with associated fixings
T1/64523/4	24	Gypliner 1 steel 'C' channel, 160 mm lengths of

2.3 **Results**

Table 1: Load to failure

Lot	Specimen	Maximum load (N)	Maximum equivalent mass (kg)	Deflection at maximum load (mm)	Mode of[(1)] failure
1 (Type1)	1	1431.7	145.99	33.72	B
	2	1508.5	153.82	44.76	A
	3	1294.5	132.00	30.68	B
	Mean	**1411.6**	**143.94**	**36.26**	
2 (Type 2)	1	981.1	100.05	17.13	A
	2	910.0	92.79	17.44	A
	3	1104.7	112.65	17.18	A
	Mean	**998.6**	**101.83**	**17.25**	
3 (Type 3)	1	414.3	42.24	11.66	B
	2	774.2	78.95	20.98	A
	3	1375.5	140.26	41.31	B
	Mean	**854.6**	**87.14**	**24.65**	

(1) Mode of failure key:
A = The Saddle and rubber isolating block assembly was wrenched free of the bracket, following distortion of the bracket under load.
B = Galvanised surface of railing detached and came away with bonding adhesive.
This failure mode represents a failure of the test set-up and not of the hanger assembly. The figure obtained in these cases should, therefore, be viewed as a minimum i.e. legitimate product failure would have occurred at a force equal to or greater than that achieved in this test.

N.B. At no point did the rubber isolating block compress enough to allow the metal components to meet.

2.3 Results continued

Table 2: Deflection at specified loads

		Deflection at specified load (mm)				
Lot	**Specimen**	**10.0 kg**	**12.0 kg**	**13.5 kg**	**15.0 kg**	**18.0 kg**
1 (Type1)	1	4.35	NA	NA	4.96	5.30
	2	4.57			5.17	5.49
	3	4.48			5.16	5.51
	Mean	**4.47**			**5.10**	**5.44**
2 (Type 2)	1	4.92	NA	NA	5.49	5.80
	2	4.33			4.90	5.21
	3	4.79			5.40	5.73
	Mean	**4.68**			**5.26**	**5.58**
3 (Type 3)	1	5.88	6.27	6.54	NA	NA
	2	6.19	6.56	6.83		
	3	6.14	6.53	6.82		
	Mean	**6.07**	**6.45**	**6.73**		

N.B. For deflection and equivalent loading mass at failure, see Table 1.

Table 3: Point of plasticity(2)

Lot	Specimen	Displacement at point of plasticity (mm)	Force at point of plasticity (N)	Equivalent mass at point of plasticity (kg)
1 (Type1)	1	7.06	331.78	33.83
	2	7.43	350.80	35.77
	3	6.23	237.98	24.26
	Mean	**6.91**	**306.85**	**31.29**
2 (Type 2)	1	7.08	311.65	31.78
	2	7.31	398.28	40.61
	3	8.11	415.50	42.37
	Mean	**7.50**	**375.14**	**38.25**
3 (Type 3)	1	9.61	297.84	30.37
	2	9.69	286.86	29.25
	3	9.09	257.60	26.27
	Mean	**9.47**	**280.77**	**28.63**

(2)- Point of plasticity, here, indicates the point at which elastic behaviour ceases and, therefore, permanent deformation of the bracket begins.

APPENDIX A - SAMPLE DETAILS

A table showing data pertaining to the samples and additional to the sample table in section 2.2

Hanger type	BBA ref/lot	Traceability data	Notes
 **Type1**	T1/64523/1	L Bracket: Batch No.317012 Saddle: Batch No.332707 Rubber block: Batch No. 36364/115765	Provided fully assembled by client. Affixed to timber base and C channel/pull-off plate by BBA operative.
 **Type2**	T1/64523/2	C Bracket: Batch No.332813 Saddle: Batch No.332707 Rubber block: Batch No. 36364/115765	Provided fully assembled by client. Affixed to timber base and C channel/pull-off plate by BBA operative.
 **Type3**	T1/64523/3	L Bracket: Batch No.317012 Saddle: Batch No.332707 Rubber block: Batch No. 36364/115765	Provided fully assembled by client. Affixed to timber base and C channel/pull-off plate by BBA operative. The height of theType3 hanger is adjustable. For this test, the lowest setting was selected by the client, representing the weakest position. The bracket can be set to the desired height using self-tapping screws or rivets. For this test, the client chose 4 mm steel pop rivets.