



Test Report No.: <i>Prüfbericht - Nr.:</i>		19400128.001		Page 1 of 11 <i>Seite 1 von 11</i>	
Client: <i>Auftraggeber:</i>		In-ceiling Technologies P/L 52-54 Alexander Ave., Taren Point, NSW 2229.			
Test item: <i>Gegenstand der Prüfung:</i>		IGLOO Downlight Barrier			
Identification: <i>Bezeichnung:</i>		N	Serial No.: <i>Serien-Nr.:</i>		N
Receipt No.: <i>Wareneingangs-Nr.:</i>		1113000676	Date of receipt: <i>Eingangsdatum:</i>		02 August 2010
Testing location: <i>Prüfart:</i>		TÜV Rheinland Australia Pty. Ltd. 4 - 6 Second Street, Bowden, South Australia, 5007, Australia			
Test specification: <i>Prüfgrundlage:</i>		Limited Testing to Recessed luminaire barriers (to be AS/NZS 5110:2010) Draft for Public Comment Australian/New Zealand Standard LIABLE TO ALTERATION—DO NOT USE AS A STANDARD			
Test Result: <i>Prüfergebnis:</i>		The test item passed (except Marking Cl 3.2(a) and (c) and Normal Operation Cl 5.6 Thermal Test)			
Testing Laboratory <i>Prüflaboratorium:</i>		TÜV Rheinland Australia Pty. Ltd. 4 - 6 Second Street, Bowden, South Australia, 5007, Australia			
compiled by/ zusammengestellt:			checked by/ kontrolliert:		
14 October 2010		 R. Mohamed		27 October 2010	
				 P. Sinclair	
Date <i>Datum</i>	Name <i>Name</i>	Signature <i>Unterschrift</i>	Date <i>Datum</i>	Name <i>Name</i>	Signature <i>Unterschrift</i>
Other Aspects/ Sonstiges:					
<p>Abbreviations: ok / P = passed fail / F = failed n.a. / N = not applicable</p> <p>Abkürzungen: ok / P = entspricht Prüfgrundlage fail / F = entspricht nicht Prüfgrundlage n.a. / N = nicht anwendbar</p>					
<p>This test report relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any safety mark on this or similar products.</p> <p><i>Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.</i></p>					

AS/NZS 5110 : 2010 – DRAFT ONLY			
Clause	Requirement + Test	Result - Remark	Verdict
1.1	SCOPE		P
1.2	REFERENCED DOCUMENTS		P
1.3	DEFINITIONS		P
2.1	GENERAL This Section describes the classification of barriers. Barriers are classified according to the —		
	(a) luminaire suitability;		P
	(b) depth of insulation they are designed for;		P
	(c) ventilation;		P
	(d) degree of protection against ingress of dust, solid objects and moisture;		P
	(e) installation; and		P
	(f) impact.		P
	A barrier shall comply with all requirements of this Standard and any relevant additional requirements from other referenced Standards, if classified other than 'normal'.	Note: The verdict P only applies to draft clauses listed in this report – refer cover page	P
2.2	LUMINAIRE SUITABILITY CLASSIFICATION		
2.2.2	Combination Barriers classified as 'combination' are suitable for use with luminaire model numbers they are suitable to be installed with.	Combination	P
2.3	DEPTH CLASSIFICATION		
2.3.1	Normal (depth) This classification ensures all barriers are suitable for installation with insulation up to a depth of 200 mm.		P
2.4	VENTILATION CLASSIFICATION		
2.4.2	Ventilated Barriers classified as 'ventilated' may be 'normal' or 'insect resistant'.	Normal	P
2.5	INGRESS CLASSIFICATION		
2.5.1	Normal (ingress) Barriers classified as 'normal' are of the type that excludes animals, insulation and debris only as determined by the requirements in this Standard.		P

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2.6	INSTALLATION CLASSIFICATION		
2.6.1	Normal (installation) Barriers classified as 'normal' are suitable for attaching only from above the mounting surface.		P
2.7	IMPACT CLASSIFICATION		
2.7.1	Normal (light impact duty) Barriers classified as 'normal (light impact duty)' shall comply with the requirements of this Standard and has an IK rating of IK06.		P
2.8	INSULATION CLASSIFICATION		
	Barriers shall be classified for the suitability of installation with the types of thermal insulation. Barriers may be classified as— (a) suitable for use with segmented thermal insulation only; or		P
3.1	GENERAL		
	The Section specifies the information to be marked on the barriers.		P
3.2	MARKING ON BARRIERS		
	The following information shall be distinctly and durably marked on the barrier or firmly attached to the barrier:		
	(a) Mark of origin.	Not marked	
	(b) Maker's model number or type reference.	IGLOO	P
	(c) Line on the barrier to indicate the depth of insulation that is allowed by its classification. The width of the line shall be no less than 1 mm. Above this line the words to convey the intent of 'NO INSULATION' or 'DO NOT BURY ABOVE LINE' shall be marked in text no less than 5 mm in height. Text is to be legible from above.	DO NOT COVER	P
	Barriers that are only suitable for segmented thermal insulation do not require this line/markings but shall be marked 'DANGER NOT SUITABLE FOR LOOSE FILL INSULATION' in text no less than 10 mm in height. Text is to be legible from above.	Note: Part (c) above does not need to be marked however this warning does have to be marked for segmented insulation	
	Barriers classified as 'Allowed to cover' do not require this line/markings but shall be marked 'May be covered'.		N
	(d) 'Single combination' barriers: the make and model number of the luminaire it is suitable for use with.		N
	(e) 'Combination' barriers: information on where to find the list of make and model numbers of all luminaires it is suitable for use with.		P

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	(f) 'Generic' barriers: the generic name and maximum wattage of the luminaire the barrier is suitable for use with.		N
	(g) 'Normal (depth)' barriers: 'Suitable for direct abutment to normally flammable building elements or insulation depth of 200 mm'.		P
	(h) 'Cold condition' barriers: 'Suitable for direct abutment to normally flammable building elements or insulation depth' as specified by the manufacturer.		N
	(i) 'Allowed to cover' barriers: 'Suitable for direct abutment and covering with normally flammable building elements or insulation of any depth' and wording about locating the independent lamp control gear clear of the insulation.		N
	(j) Where a product has been tested and is in compliance with this Standard, it shall be marked 'Complies with AS/NZS 5110.'	Client states cover will be marked	P
	Other than the marking heights indicated above, all markings shall be greater than 3 mm in height.		P
3.3	ADDITIONAL INFORMATION		
3.3.1	General		
	In addition to the markings required in Clause 3.2, all details which are necessary to ensure proper installation, use and maintenance shall be given either on the barrier or in the manufacturer's instructions provided with the barrier.		P
3.3.2	Combination barriers		
	'Combination' barriers shall include a list of make and model numbers for all the suitable luminaires in the manufacturer's instructions provided with the barrier.		P
3.3.3	Barriers installable from below		
	Barriers classified as 'installable from below' shall have directions as to how to install through the recessed luminaire hole and attach to luminaire or building elements as required. They shall also contain instructions that the occupant is not allowed to move installation wiring, only SELV and pluggable equipment.		N

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3.3.4	Compliance		
	Compliance with the requirements of Clause 3.2 and 3.3 is checked by inspection.		P
4.1	GENERAL		
	This Section specifies general constructional requirements for barriers.		P
4.2	MEANS OF ATTACHMENT		
	The barrier shall have means by which it can be adequately attached to the building element or the luminaire for which it is designed. Compliance is assessed by inspection and the mechanical strength test of Clause 5.4.		P
4.3	PREVENTION OF INGRESS OF FLAMMABLE MATERIALS		
	The barrier shall have means by which it will prevent the ingress of combustible material inside the barrier that may contact the recessed luminaire.		P
	Compliance is checked by inspection and the test of Clause 5.5.		P
4.4	SCREWS AND CONNECTIONS (MECHANICAL)		
	Screws and mechanical connections, the failure of which might cause the barrier to become unsafe, shall withstand the mechanical stresses occurring in normal use. Screws shall not be made of a material which is soft or liable to creep.		N
4.5	ELECTRICAL CONNECTION/COMPONENTS		
	Barriers with electrical connection/components shall be tested in accordance with AS/NZS 61347.1. This does not include barriers integral with a recessed luminaire which shall comply with the requirements of AS/NZS 60598, Part 1 and 2.2, as applicable.		N
5.1	GENERAL		
	This section specifies pre-conditioning and required tests for barriers. The mechanical test ensures robustness. The ingress test ensures readily flammable material cannot enter the barrier and contact hot parts. The thermal tests ensures adjacent building elements or insulation will not catch alight or cause damage to the luminaire or any auxiliary gear.		P
	The tests of this Section apply to a 'Normal' barrier of any classification.		P
	Barriers other than 'Normal' for any of their classifications shall comply with all 'Normal' requirements plus any additional requirements of this Standard or other applicable Standards.		N

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5.2	MARKING DURABILITY TEST		
	The durability of the marking is tested on Sample 2 by trying to remove it by rubbing lightly for 15 s with a piece of cloth soaked with water and, after drying, for a further 15 s with a piece of cloth soaked with petroleum spirit.		P
	After the test, the marking shall be legible, marking labels shall not be easily removable and they shall show no curling.		P
5.3	PRECONDITIONING		
	The barrier to be tested shall be preconditioned with all parts and any accessories. Two samples shall be preconditioned for no less than 168 h in a vented oven at 90°C.		P
	After preconditioning, the labelling shall show no damage, marking is to be legible and still affixed to the barrier. This requirement is checked by inspection.		P
	Sample 1 shall then be preconditioned for 48 h in a humidity cabinet containing air with a relative humidity maintained between 91% and 95%. The temperature of the air at all places where samples can be located shall be maintained within 1°C of an convenient value 't' between 20°C and 30°C.		P
5.4	MECHANICAL STRENGTH TEST		
5.4.1	General		
	Sample 1 is subject to the mechanical strength test and shall comply with this Clause.		P
5.4.2	Setup of procedure		
	For barriers classified as 'single combination' or 'combination', the luminaire is fixed to a mounting surface comprising a wood or wood-fibre board. The board is made of a 12 mm thick porous wood-fibre board and extends at least 220 mm beyond the normal projection of the smoothed outline of the recessed luminaire barrier. The mounting surface has a hole cut in it to accept the luminaire. Refer to Figure 1.		P
	Barriers classified as a 'single combination' are tested with the specified luminaire and a 240 V thermal reference lamp or 240 V auxiliary equipment with a thermal reference lamp. Refer to Figure 2(b).		N
5.4.3	Test procedure		
	The mechanical strength test is based on the impact test of IEC 62262 and shall be applied.		P
	The conditions are as follows:		P

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	(a) The impacts shall be applied by the method of vertical hammer to the top and by pendulum hammer to the sides of the barrier.		P
	(b) Only one sample shall be tested.		P
	(c) The equipment shall not be energized.		P
	(d) If the barrier contains any adjustable parts they shall be fixed in the most unfavorable position.		P
	(e) The impact test shall be at a level of IK06 (1 Joule) or greater as per classification.		P
	(f) Three impacts shall be applied at each exposed face or at least 3 vulnerable locations as appropriate		P
5.4.4	Criteria		
	After the test, the sample shall show no damage, in particular:		
	(a) Live parts shall not have become accessible.		P
	(b) The sample shall continue to afford the degree of protection against ingress in accordance with its classification.		P
	(c) The barrier shall not be dislodged from its fixing points.		P
	The barrier is allowed to deform but shall either come back to its original shape or be tested in this deformed shape to the thermal test described in Clause 5.5.		P
5.5	INGRESS TEST		
5.5.1	Test procedure		
	The protection against the ingress of solid foreign objects implies that a 5.6 mm diameter probe shall not fully penetrate the enclosure when applied with a force of 3 Newtons $\pm 10\%$. Alternatively a 5.6 mm diameter steel ball or rod shall not fully penetrate with this force.		P
5.5.2	Criteria		
	It shall not be possible for the small finger probe identified as Test probe 19 of IEC 61032 to enter the barrier from above the mounting surface.		P
5.8	MARKING DURABILITY TEST		
	The durability of the marking is tested on Sample 1 by trying to remove it by rubbing lightly for 15 s with a piece of cloth soaked with water and, after drying, for a further 15 s with a piece of cloth soaked with petroleum spirit.		P
	After the test, the marking shall be legible, marking labels shall not be easily removable and they shall show no curling.		P

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5.9	FLAMMABILITY TEST		
5.9.1	General		
	Following preconditioning, Sample 2 shall immediately be subjected to the two flammability tests in Clause 5.9.2 and 5.9.3.		P
5.9.2	Glow wire test at 960°C		
5.9.2.1	Test procedure		
	The glow wire test as set out in AS/NZS 60695.2.11 shall be applied at 960°C for 30 s.		P
	The glow-wire is applied at a place where the section is thinnest, but not less than 15 mm from an edge of the product.		P
	If there are different layers to the barrier the test shall be applied to the inside surface of the barrier. It may be necessary to cut a section of the barrier for this test.		P
5.9.3	Criteria		
	Any flames produced shall extinguish within 30 s after removal of the glow wire tip and flaming droplets shall not ignite the tissue paper.		P
5.9.4	Needle flame test		
5.9.4.1	Test procedure		
	Another area on the same specimen shall be subjected to the needle flame test as described in AS/NZS 60695.11.5 for a period of 30 s.		P
5.9.5	Criteria		
	Any flames produced shall extinguish within 15 s after removal of the needle flame and flaming droplets shall not ignite the tissue paper.		P
5.10	ACCELERATED AGEING TEST		
	This test is under consideration. It will involve heat, moisture and UV.		N

TABLE: Glow-wire						
How tested	CE					
Glow-wire tip temp (°C)	960					
Time for ignition after application of g.w. tip (s)	1					
Time for flaming/glowing to extinguish after application of g.w. tip (s)	7					
Max. height of flame (mm)	30					
Scorching the particle board/burning of tissue paper	N					
Penetration (mm)	2					
RESULT	P					

TABLE: Needle-flame Test						
Test Conditions	12 mm flame applied 5mm from side					-
Duration of flame application (s)	30s					-
Test temperature (°C)	N/A					-
Specimen under test	Material type	Material ignited, Yes/No	Tissue Paper Ignited, Yes/No	Pine-wood Scorched, Yes/No	Other remarks	
Downlight Cover	-	No	No	No	P	
Supplementary information:						

Legend:

Downlight Cover (Grey)

CE-Complete Equipment; C-Component; ME-manually Extinguished; N None, NI-No Ignition; NA-Not Applicable; P-Pass; F-Fail; NF-Needle Flame Test Required



Marking



In-ceiling Technologies type IGLOO Downlight Barrier



In-ceiling Technologies type IGLOO Downlight Barrier – Test Ballast and downlight
End of the Test report