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TEST REPORT:

Report of Testing of Spectacle
Model WORKSafe AIRSPEX with Two Lens Types

REPORT TO:

PDS International Pte Ltd
10 Pandan Crescent, #05-03/04(LL2)
UE Techpark, Singapore 128466

ATTENTION:

Mr. Stuart Seah

REPORT DATE:

December 7, 2012

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REPORT TO:	PDS International Pte Ltd 10 Pandan Crescent, #05-03/04(LL2) UE Techpark, Singapore 128466	**PROJECT:**	Report of Testing of Spectacle Model WORKSafe AIRSPEX with Two Lens Types
ATTENTION:	Mr. Stuart Seah	**PSI PROJECT NO.:**	0823112
DATE:	December 7, 2012	**PSI LAB NO.:**	SPT-20126

Professional Service Industries, Inc. (PSI) has performed testing on the referenced project. The results of our tests are presented in the accompanying report.

On December 5, 2012, Professional Service Industries, Inc. (PSI) received thirty-three (33) spectacles identified as Model WORKSafe AIRSPEX. On December 7, 2012, PSI tested these spectacles in general accordance with the ANSI Z87.1-2010 standard.

Spectacle Description: The Model WORKSafe AIRSPEX Spectacle is an impact-rated spectacle with non-removable plano lenses and hinged temples. Two (2) lens types were submitted, a clear lens with UV filter and a smoke lens with UV and Visible filters.

Our services for this project were performed in accordance with PSI Proposal No. 823-2044 dated January 10, 2012. The proposal included a proposed scope of services, estimated costs, unit rates, and PSI's General Conditions. Authorization to perform this project was in the form of signed acceptance of the aforementioned proposal, acknowledged January 3, 2013.

The results contained in this report are related only to the item(s) tested. The pages of this report (including attachments) shall not be reproduced, except in full, without written approval of PSI. All testing was conducted by and under the continuous, direct supervision of Professional Service Industries, Inc.

Final Conclusion: The PDS International Pte Ltd Model WORKSafe AIRSPEX **Complies** with the ANSI Z87.1-2010 standard for the parameters tested and contained in this report, for both lens types.

Respectfully submitted,
Professional Service Industries, Inc.

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REPORT OF SPECTACLE TESTING - GENERAL REQUIREMENTS

Test/Property	ANSI Z87.1 Paragraph	Location	ANSI Z87.1-2010 Requirement	Test Results	Acceptance
Clear and Optical Quality	5.1.1/9.1.2		Free of visible defects	Acceptable	Pass
Transmittance, Luminous	5.1.2/9.2.2		85%	93.8%	Pass
Haze	5.1.3/9.3.2		3% max.	1.50%	Pass
Refractive Power	5.1.4/9.4.3		± 0.06D	0.058 D	Pass
Astigmatism	5.1.4/9.4.3		≤0.06D max.	0.050 D	Pass
Resolving Power	5.1.4/9.4.3		Pattern 20 min.	Pattern 24	Pass
Prismatic Power	5.1.4/9.5.3		≤0.50 Δ	0.125 Δ	Pass
Vertical Prism Imbalance	5.1.4/9.5.3		≤0.25 Δ	0.063 Δ	Pass
Horizontal Prism Imbalance	5.1.4/9.5.3		≤0.25 Δ Base In ≤0.50 Δ Base Out	0.063 Δ Base In	Pass
Drop ball impact	5.2.1/9.6.2		No fracture	Acceptable	Pass
Ignition	5.2.3/9.7.3		Shall not ignite or continue to glow	Acceptable	Pass
Corrosion resistance	5.2.4/9.8.3		Function not impaired	Acceptable	Pass
Minimum Coverage Area	5.2.5	Left, Right	40 mm min. width, 33 mm min. height	Acceptable	Pass
Minimum lens thickness	5.3		No minimum requirement for impact rated spectacles	---	---
Marking	5.4/Table 4A	Frame Front = W Z87+ Temple = W Z87+ Left Lens = W +U6 Right Lens = W +U6	Manufacturer and specification compliance	Acceptable	Pass

REPORT OF SPECTACLE TESTING
IMPACT PROTECTOR REQUIREMENTS

Test/Property	ANSI Z87.1 Paragraph	Location	ANSI Z87.1-2010 Requirement	Test Results	Acceptance
Lateral Coverage	6.1.3/9.10.3		Continuous lateral coverage from the vertical plane/10 mm posterior/high/low	Acceptable	Pass
High mass impact	6.2.2/9.11.3	Left 1	No piece fully detached from inner surface, no penetration of rear surface, lens retained.	Acceptable	Pass
		Left 2		Acceptable	Pass
		Right 1		Acceptable	Pass
		Right 2		Acceptable	Pass
High velocity impact	6.2.3/9.12.3	Left 90°	No piece fully detached from inner surface, no penetration of rear surface, lens retained. No contact paste on projectile or device.	Acceptable	Pass
		30°		Acceptable	Pass
		90° 10 mm high		Acceptable	Pass
		Right 90°		Acceptable	Pass
		30°		Acceptable	Pass
		90° 10 mm low		Acceptable	Pass
Penetration	6.2.4/9.13.3		No fracture, no penetration of rear surface, lens retained	Acceptable	Pass

REPORT OF SPECTACLE TESTING
OPTIONAL TRANSMITTANCE ATTRIBUTES

Test/Property	ANSI Z87.1 Paragraph	Location	ANSI Z87.1-2010 Requirement	Test Results	Acceptance
Transmittance, UV Filter					
Far UV (EFUV)	Table 7	Shade = U6	0.01% maximum	0.004%	Pass
Near UV (NUV)	Table 7	Shade = U6	0.1% maximum	0.05%	Pass

REPORT OF SPECTACLE TESTING - GENERAL REQUIREMENTS

Test/Property	ANSI Z87.1 Paragraph	Location	ANSI Z87.1-2010 Requirement	Test Results	Acceptance
Clear and Optical Quality	5.1.1/9.1.2		Free of visible defects	Acceptable	Pass
Transmittance, Luminous	5.1.2/9.2.2		85%	N/A	N/A
Haze	5.1.3/9.3.2		3% max.	N/A	N/A
Refractive Power	5.1.4/9.4.3		± 0.06D	0.059 D	Pass
Astigmatism	5.1.4/9.4.3		≤0.06D max.	0.050 D	Pass
Resolving Power	5.1.4/9.4.3		Pattern 20 min.	Pattern 20	Pass
Prismatic Power	5.1.4/9.5.3		≤0.50 Δ	0.250 Δ	Pass
Vertical Prism Imbalance	5.1.4/9.5.3		≤0.25 Δ	0.125 Δ	Pass
Horizontal Prism Imbalance	5.1.4/9.5.3		≤0.25 Δ Base In ≤0.50 Δ Base Out	0.125 Δ Base In	Pass
Drop ball impact	5.2.1/9.6.2		No fracture	Acceptable	Pass
Ignition	5.2.3/9.7.3		Shall not ignite or continue to glow	Acceptable	Pass
Corrosion resistance	5.2.4/9.8.3		Function not impaired	Acceptable	Pass
Minimum Coverage Area	5.2.5	Left, Right	40 mm min. width, 33 mm min. height	Acceptable	Pass
Minimum lens thickness	5.3		No minimum requirement for impact rated spectacles	---	---
Marking	5.4/Table 4A	Frame Front = W Z87+ Temple = W Z87+ Left Lens = W +U6L3 Right Lens = W +U6L3	Manufacturer and specification compliance	Acceptable	Pass

REPORT OF SPECTACLE TESTING
IMPACT PROTECTOR REQUIREMENTS

Test/Property	ANSI Z87.1 Paragraph	Location	ANSI Z87.1-2010 Requirement	Test Results	Acceptance
Lateral Coverage	6.1.3/9.10.3		Continuous lateral coverage from the vertical plane/10 mm posterior/high/low	Acceptable	Pass
High mass impact	6.2.2/9.11.3	Left 1	No piece fully detached from inner surface, no penetration of rear surface, lens retained.	Acceptable	Pass
		Left 2		Acceptable	Pass
		Right 1		Acceptable	Pass
		Right 2		Acceptable	Pass
High velocity impact	6.2.3/9.12.3	Left 90°	No piece fully detached from inner surface, no penetration of rear surface, lens retained. No contact paste on projectile or device.	Acceptable	Pass
		30°		Acceptable	Pass
		90° 10 mm high		Acceptable	Pass
		Right 90°		Acceptable	Pass
		30°		Acceptable	Pass
		90° 10 mm low		Acceptable	Pass
Penetration	6.2.4/9.13.3		No fracture, no penetration of rear surface, lens retained	Acceptable	Pass

REPORT OF SPECTACLE TESTING
OPTIONAL TRANSMITTANCE ATTRIBUTES

Test/Property	ANSI Z87.1 Paragraph	Location	ANSI Z87.1-2010 Requirement	Test Results	Acceptance
Transmittance, UV Filter					
Far UV (EFUV)	Table 7	Shade = U6	0.01% maximum	0.006%	Pass
Near UV (NUV)	Table 7	Shade = U6	0.1% maximum	0.06%	Pass
Transmittance, Visible Filter	Table 9	Shade = L3	18% ≥ 8.5%	14.2%	Pass


WORKSafe
AIRSPEX