

TEST RESULTS and REPORT

for

**Importadores y Exportadores Solmaq
SAS**

Hawk

by



COLTS | Laboratories™

Precision Testing. Definitive Results.

COLTS Laboratories maintains A2LA accreditation to ISO/IEC 17025 for the tests listed on Certificate # 1612.01. Any tests not included on this certificate have been identified on the appropriate test result page.

Also Certified for testing by the Safety Equipment Institute

Z-ESO081617-01

- Results in this report only relate to the samples analyzed.
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- Unless otherwise requested, test samples will be discarded 21 days from the report date.

COLTS Laboratories

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**PRODUCT
 RESULTS
 SUMMARY**

A2LA Accredited Certificate # 1612.01

**Importadores y Exportadores Solmaq SAS
 Z-ESO081617-01**

Project ID	Test/Models(s)	Results Pass / Fail	Reason	Page
Z-ESO081617-01-01	ANSI Z87.1-2015 High Impact Spectacles - Base Model Hawk Clear Lens, Black Frame with Interchangeable Temples and Head Strap (U6)	Pass		1
Z-ESO081617-01-02	ANSI Z87.1-2015 Optional Transmittance Attributes (U) Hawk Clear Lens, Black Frame with Interchangeable Temples and Head Strap (U6)	Pass		7
Z-ESO081617-01-03	ANSI Z87.1-2015 High Impact Spectacles - Tint Variant Hawk Smoke Lens, Black Frame with Interchangeable Temples and Head Strap (U6L3)	Pass		9
Z-ESO081617-01-04	ANSI Z87.1-2015 Optional Transmittance Attributes (U,L) Hawk Smoke Lens, Black Frame with Interchangeable Temples and Head Strap (U6L3)	Pass		12
Z-ESO081617-01-05	ANSI Z87.1-2015 High Impact Spectacles - Tint Variant Hawk Indoor/Outdoor, Black Frame with Interchangeable Temples and Head Strap (U6L2)	Pass		19
Z-ESO081617-01-06	ANSI Z87.1-2015 Optional Transmittance Attributes (U,L) Hawk Indoor/Outdoor, Black Frame with Interchangeable Temples and Head Strap (U6L2)	Pass		22

Report Date: 9/15/2017

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**Report
Summary**

A2LA Accredited Certificate # 1612.01

Report To:

Importadores y Exportadores Solmaq
SAS
Carrera 30, número 15-30
Bogotá,

Project

of Model(s): Hawk
Report of: ANSI Z87.1-2015 High Impact Spectacles - Base
Model
Project ID(s): Z-ESO081617-01-01



Attn: Paulo Barriga

Date: September 15, 2017

Product Description: Clear Lens, Black Frame with Interchangeable Temples and Head Strap (U6)

On August 16, 2017, COLTS Laboratories received Spectacles: Hawk from Importadores y Exportadores Solmaq SAS. From August 30, 2017 through September 15, 2017 COLTS Laboratories tested these Spectacles in accordance with ANSI Z87.1-2015.

Final Conclusion:

The Spectacles: Hawk (Clear Lens, Black Frame with Interchangeable Temples and Head Strap (U6)) do comply with ANSI Z87.1-2015 for the test(s) performed for ANSI Z87.1-2015 High Impact Spectacles - Base Model.

Please contact us should you have any questions concerning this report.

Respectfully submitted,
COLTS Laboratories

Daryl Neely
Vice-President & COO

Dale Payne
Technical Services Manager

Report To: Importadores y Exportadores Solmaq SAS
 Project No: Z-ESO081617-01-01



Sample ID:
 Hawk
 Clear Lens, Black Frame with Interchangeable Temples and
 Head Strap (U6)

A2LA Accredited Certificate # 1612.01

Report Date: 9/15/2017

Lab Temp (C): 23
 Lab Rh: 49

Report of: ANSI Z87.1-2015 High Impact Spectacles - Base Model

Test/Property	Paragraph	Requirement	Test Results	Acceptance
Optical Quality	5.1.1	Protector lenses shall be free of: striae, bubbles, waves and other visible defects which would impair the wearer's vision.	Acceptable	Pass
Luminous Transmittance	5.1.2	Clear lenses shall have a luminous transmittance of not less than 85%. Luminous Transmittance	Acceptable	Pass
		Left Eye	92.3%	Pass
		Right Eye	92.1%	Pass
Haze - Clear Lenses Only	5.1.3	Clear plano lenses shall not exhibit more than 3% haze. Haze	Acceptable	Pass
		Left Eye	0.43%	Pass
		Right Eye	0.50%	Pass
Spectacle Refractive Power, Astigmatism, Resolving Power, Prism and Prism Imbalance for Plano Protectors	5.1.4	The tolerance on refractive power, astigmatism and resolving power shall be as indicated below. The tolerance on prism and prism imbalance shall be as indicated below. Filter lenses of shade 9 or higher are exempt from this section.		
		Refractive Power (± 0.06)	Acceptable	Pass
		Left Eye	+0.035	Pass
		Right Eye	+0.02	Pass
		Astigmatism (0.06 Max)	Acceptable	Pass
		Left Eye	0.04	Pass
		Right Eye	0.03	Pass
		Resolving Power (20 Min)	Acceptable	Pass
		Left Eye	Acceptable	Pass
		Right Eye	Acceptable	Pass
		Complete Prism (0.50 Max)	Acceptable	Pass
		Left Eye	0.071	Pass
		Right Eye	0.158	Pass
		Prismatic Imbalance	Acceptable	Pass
		Vertical (0.25 Max)	0.00	Pass
		Horizontal Base In/Out (In 0.25 Max; Out 0.50 Max)	0.20 out	Pass

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Report To: Importadores y Exportadores Solmaq SAS
 Project No: Z-ESO081617-01-01



Sample ID:
 Hawk
 Clear Lens, Black Frame with Interchangeable Temples and
 Head Strap (U6)

A2LA Accredited Certificate # 1612.01

Report Date: 9/15/2017

Lab Temp (C): 23
 Lab Rh: 49

Report of: ANSI Z87.1-2015 High Impact Spectacles - Base Model

Test/Property	Paragraph	Requirement	Test Results	Acceptance
Physical Requirements	5.2	Protectors shall be free from: projections, sharp edges or other defects which are likely to cause discomfort or injury during use.	Acceptable	Pass
Ignition (Spectacle)	5.2.2	Protectors shall not ignite or continue to glow once the rod is removed. Each externally exposed material (exclusive of textiles or elastic bands) shall be tested.		
		Lens	Acceptable	Pass
		Front	Acceptable	Pass
		Temple	Acceptable	Pass
		Sideshield	N/A	N/A
		Other	Acceptable	Pass
				Padded insert
Corrosion Resistance of Metal Components	5.2.3	Metal components used in protectors shall be corrosion resistant to the degree that the function of the protector shall not be impaired by the corrosion and the protector can be worn as intended. Lenses and electrical components are excluded from these requirements. Corrosion Resistant	Acceptable	Pass
Minimum Coverage Area	5.2.4	The frames, lens housings or carriers and lens(es) shall cover an area of not less than 40 mm (34 mm for small head sizes) in width and 33 mm (28 mm for small head sizes) in height (elliptical) in front of each eye, centered on the geometrical center of the lens. Minimum Coverage Area	Acceptable	Pass
Required Protector Markings (Spectacles)	5.3	All protectors shall bear the permanent and legible markings in specified locations. Protector markings shall be placed in relatable proximity to each other on the product.		
		Manufacturer's marks or logos are exempt from the proximity requirement if they are clearly present elsewhere on the product.		
		Markings permanent, legible and in relatable proximity	Not Assessed	Not Assessed
		Markings representative of other standards shall not interfere with or be intermixed with the markings required by this standard.	Not Assessed	Not Assessed
			Not assessed per customer request	Not Assessed
			Not assessed per customer request	Not Assessed

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Report To: Importadores y Exportadores Solmaq SAS

Project No: Z-ESO081617-01-01



Sample ID:

Hawk

Clear Lens, Black Frame with Interchangeable Temples and Head Strap (U6)

A2LA Accredited Certificate # 1612.01

Report Date: 9/15/2017

Lab Temp (C): 23

Lab Rh: 49

Report of: ANSI Z87.1-2015 High Impact Spectacles - Base Model

Test/Property	Paragraph	Requirement	Test Results	Acceptance
Required Protector Markings (Spectacles)	5.3	All protectors shall bear the permanent and legible markings in specified locations. Protector markings shall be placed in relatable proximity to each other on the product.		
		Manufacturer's marks or logos are exempt from the proximity requirement if they are clearly present elsewhere on the product.		
		Complete Device Markings	Not Assessed	Not Assessed
		In relatable proximity	Not Assessed	Not Assessed
		Manufacturer's Mark or Logo	Not Assessed	Not Assessed
		Z87 Mark	Not Assessed	Not Assessed
		+ Mark	Not Assessed	Not Assessed
		H Mark (Coverage - small head sizes)	Not Assessed	Not Assessed
		Lens Type (multiple claim sequence W,U,L,R,V,S)	Not Assessed	Not Assessed
Use (multiple claim sequence D3,D4,D5)	Not Assessed	Not Assessed		
Not assessed per customer request				
Aftermarket Components and Accessories	5.6	All original equipment manufacturers (OEM) and non-OEM aftermarket components not sold with the original device shall be tested.		
		Aftermarket Components and Accessories	Manufacturer requirement	Not testable
Protectors Marked for Impact Protection	6.1.1	Protectors and replaceable components marked for impact protection in accordance with Table 3 shall meet applicable requirements of Section 6.		
		Impact requirements	Acceptable	Pass
		Marking requirements	Not Assessed	Not Assessed
Not assessed per customer request				
Frames and Shells	6.1.2	Frames and shells shall meet the requirements for high mass impact and high velocity impact in order to be impact-rated. These components shall be tested as a complete device. For frames and shells to be used with prescription lenses, they shall be fitted with representative test lenses having a nominal plano power and the minimum lens thickness to be used by the manufacturer, in no case less than 2.0 mm (0.079 in.). Frames and shells are exempt from the penetration requirement		
		Frames and Shells	Acceptable	Pass

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Report To: Importadores y Exportadores Solmaq SAS
 Project No: Z-ESO081617-01-01



Sample ID: Hawk
 Clear Lens, Black Frame with Interchangeable Temples and Head Strap (U6)

A2LA Accredited Certificate # 1612.01

Report Date: 9/15/2017

Lab Temp (C): 23
 Lab Rh: 49

Report of: ANSI Z87.1-2015 High Impact Spectacles - Base Model

Test/Property	Paragraph	Requirement	Test Results	Acceptance
Lateral (Side) Coverage	6.1.3	Impact rated protectors shall provide continuous lateral coverage (i.e. no openings greater than 1.5mm in diameter) from the vertical plane of the lenses tangential to a point not less than 10 mm posterior to the corneal plane and not less than 10 mm in height (or 8 mm for the smaller headform) above and not less than 10 mm in height (or 8 mm for the smaller headform) below the horizontal plane centered on the eyes of the headform. Lateral (Side) Coverage	Acceptable	Pass
High Mass Impact	6.2.2	The complete device shall meet the protector acceptance criteria when impacted by a pointed projectile weighing a minimum of 500 g (17.6 oz) dropped from a height of at least 127 cm (50.0 in.). Left Eye Sample 1 Left Eye Sample 2 Right Eye Sample 3 Right Eye Sample 4	Acceptable Acceptable Acceptable Acceptable	Pass Pass Pass Pass
High Velocity Impact (Spectacles)	6.2.3	The complete device shall meet the protector acceptance criteria when impacted by a 6.35 mm (0.25 in) diameter steel ball traveling at 150 feet per second. Left Eye Center Left Eye 30° Right Eye Center Right Eye 30° One Side 90° at 10mm Above (H - 8mm) Opposite Side 90° at 10mm Below (H - 8mm)	153 fps 152 fps 152 fps 151 fps 151 fps 151 fps	Pass Pass Pass Pass Pass Pass
Penetration Test (lenses only)	6.2.4	Lenses for all complete devices shall meet the protector acceptance criteria when penetrated by a weighted needle with a minimum total weight of 44.2 g (1.56 oz) dropped from a height of at least 127 cm (50.0 in.). Left Eye Sample 1 Left Eye Sample 2 Right Eye Sample 3 Right Eye Sample 4	Acceptable Acceptable Acceptable Acceptable	Pass Pass Pass Pass

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Report To: Importadores y Exportadores Solmaq SAS
Project No: Z-ESO081617-01-01



Sample ID:
Hawk
Clear Lens, Black Frame with Interchangeable Temples and
Head Strap (U6)

A2LA Accredited Certificate # 1612.01

Report Date: 9/15/2017

Lab Temp (C): 23
Lab Rh: 49

Report of: ANSI Z87.1-2015 High Impact Spectacles - Base Model

Test/Property	Paragraph	Requirement	Test Results	Acceptance
Protectors with Clear Lenses	7.1	Clear plano, reader, magnifier and prescription lenses shall have a luminous transmission of not less than 85%. Representative test lenses of plano power may be substituted for prescription, reader or magnifier lenses in this test.		
		Transmittance	Acceptable	Pass

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**Report
Summary**

A2LA Accredited Certificate # 1612.01

Report To:

Importadores y Exportadores Solmaq
SAS
Carrera 30, número 15-30
Bogotá,

Project

of Model(s): Hawk
Report of: ANSI Z87.1-2015 Optional Transmittance
Attributes (U)
Project ID(s): Z-ESO081617-01-02



Attn: Paulo Barriga

Date: September 15, 2017

Product Description: Clear Lens, Black Frame with Interchangeable Temples and Head Strap (U6)

On August 16, 2017, COLTS Laboratories received Spectacles: Hawk from Importadores y Exportadores Solmaq SAS. From August 30, 2017 through September 15, 2017 COLTS Laboratories tested these Spectacles in accordance with ANSI Z87.1-2015.

Final Conclusion:

The Spectacles: Hawk (Clear Lens, Black Frame with Interchangeable Temples and Head Strap (U6)) do comply with ANSI Z87.1-2015 for the test(s) performed for ANSI Z87.1-2015 Optional Transmittance Attributes (U).

Please contact us should you have any questions concerning this report.

Respectfully submitted,
COLTS Laboratories

Daryl Neely
Vice-President & COO

Dale Payne
Technical Services Manager

Report To: Importadores y Exportadores Solmaq SAS
 Project No: Z-ESO081617-01-02



Sample ID:
 Hawk
 Clear Lens, Black Frame with Interchangeable Temples and
 Head Strap (U6)

A2LA Accredited Certificate # 1612.01

Report Date: 9/15/2017

Lab Temp (C): 23
 Lab Rh: 50

Report of: ANSI Z87.1-2015 Optional Transmittance Attributes (U)

Test/Property	Paragraph	Requirement	Test Results	Acceptance
Optical Radiation Protector Requirements	7	Optional transmittance characteristics of a protector are represented by a scale/shade number indicating its ability to filter optical radiation. They shall meet the requirements, including markings, of Tables 6, 7, 8 and 9, if claims of compliance are made. Special purpose filters shall meet the requirements of Table 10.		
		Transmittance	Acceptable	Pass
		Markings	Not Assessed	Not Assessed
Not assessed per customer request				
Protectors with Clear Lenses	7.1	Clear plano, reader, magnifier and prescription lenses shall have a luminous transmission of not less than 85%. Representative test lenses of plano power may be substituted for prescription, reader or magnifier lenses in this test.		
		Transmittance	Acceptable	Pass
Ultraviolet Filter Lenses - Transmission Requirements	7.2.1.1	When tested in accordance with Section 9.2, plano, reader, magnifier and prescription lenses that are marked as ultraviolet filter lenses shall comply with requirements of Table 7. Representative test lenses of plano power may be substituted for prescription, reader or magnifier lenses in this test.		
		U.V. Far	Acceptable	Pass
		Left Eye	0.000%	Pass
		Right Eye	0.000%	Pass
		U.V. Near	Acceptable	Pass
		Right Eye	0.005%	Pass

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**Report
Summary**

A2LA Accredited Certificate # 1612.01

Report To:

Importadores y Exportadores Solmaq
SAS
Carrera 30, número 15-30
Bogotá,

Project

of Model(s): Hawk
Report of: ANSI Z87.1-2015 High Impact Spectacles - Tint
Variant
Project ID(s): Z-ESO081617-01-03



Attn: Paulo Barriga

Date: September 15, 2017

Product Description: Smoke Lens, Black Frame with Interchangeable Temples and Head Strap (U6L3)

On August 16, 2017, COLTS Laboratories received Spectacles: Hawk from Importadores y Exportadores Solmaq SAS. From August 30, 2017 through September 15, 2017 COLTS Laboratories tested these Spectacles in accordance with ANSI Z87.1-2015.

Final Conclusion:

The Spectacles: Hawk (Smoke Lens, Black Frame with Interchangeable Temples and Head Strap (U6L3)) do comply with ANSI Z87.1-2015 for the test(s) performed for ANSI Z87.1-2015 High Impact Spectacles - Tint Variant.

Please contact us should you have any questions concerning this report.

Respectfully submitted,
COLTS Laboratories

Daryl Neely
Vice-President & COO

Dale Payne
Technical Services Manager

Report To: Importadores y Exportadores Solmaq SAS
 Project No: Z-ESO081617-01-03



Sample ID:
 Hawk
 Smoke Lens, Black Frame with Interchangeable Temples and
 Head Strap (U6L3)

A2LA Accredited Certificate # 1612.01

Report Date: 9/15/2017

Lab Temp (C): 23
 Lab Rh: 49

Report of: ANSI Z87.1-2015 High Impact Spectacles - Tint Variant

Test/Property	Paragraph	Requirement	Test Results	Acceptance
High Mass Impact	6.2.2	The complete device shall meet the protector acceptance criteria when impacted by a pointed projectile weighing a minimum of 500 g (17.6 oz) dropped from a height of at least 127 cm (50.0 in.).		
		Left Eye Sample 2	Acceptable	Pass
		Right Eye Sample 3	Acceptable	Pass
		Right Eye Sample 4	Acceptable	Pass
High Velocity Impact (Spectacles)	6.2.3	The complete device shall meet the protector acceptance criteria when impacted by a 6.35 mm (0.25 in) diameter steel ball traveling at 150 feet per second.		
		Left Eye Center	153 fps	Pass
		Left Eye 30°	152 fps	Pass
		Right Eye Center	152 fps	Pass
		Right Eye 30°	152 fps	Pass
		One Side 90° at 10mm Above (H - 8mm)	149 fps	Pass
		Opposite Side 90° at 10mm Below (H - 8mm)	153 fps	Pass
Special Purpose Filter Lenses - Transmission Requirements	7.2.1.1	When tested in accordance with Section 9.2, plano, reader, magnifier and prescription lenses that are marked as special purpose filters shall meet the requirements of Table 10. Representative test lenses of plano power may be substituted for prescription, reader or magnifier lenses in this test.		
		Tinted Lenses (8% - 85%)	Acceptable	Pass
		Left Eye	14.7%	Pass
		Right Eye	14.7%	Pass
		Ratio (0.90 - 1.10)	1.000	Pass

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Summary**

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Report To:

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SAS
Carrera 30, número 15-30
Bogotá,

Project

of Model(s): Hawk
Report of: ANSI Z87.1-2015 Optional Transmittance
Attributes (U,L)
Project ID(s): Z-ESO081617-01-04



Attn: Paulo Barriga

Date: September 15, 2017

Product Description: Smoke Lens, Black Frame with Interchangeable Temples and Head Strap (U6L3)

On August 16, 2017, COLTS Laboratories received Spectacles: Hawk from Importadores y Exportadores Solmaq SAS. From August 30, 2017 through September 15, 2017 COLTS Laboratories tested these Spectacles in accordance with ANSI Z87.1-2015.

Final Conclusion:

The Spectacles: Hawk (Smoke Lens, Black Frame with Interchangeable Temples and Head Strap (U6L3)) do comply with ANSI Z87.1-2015 for the test(s) performed for ANSI Z87.1-2015 Optional Transmittance Attributes (U,L).

Please contact us should you have any questions concerning this report.

Respectfully submitted,
COLTS Laboratories

Daryl Neely
Vice-President & COO

Dale Payne
Technical Services Manager

Report To: Importadores y Exportadores Solmaq SAS

Project No: Z-ESO081617-01-04



Sample ID:

Hawk

Smoke Lens, Black Frame with Interchangeable Temples and Head Strap (U6L3)

A2LA Accredited Certificate # 1612.01

Report Date: 9/15/2017

Lab Temp (C): 23

Lab Rh: 50

Report of: ANSI Z87.1-2015 Optional Transmittance Attributes (U,L)

Test/Property	Paragraph	Requirement	Test Results	Acceptance
Optical Radiation Protector Requirements	7	Optional transmittance characteristics of a protector are represented by a scale/shade number indicating its ability to filter optical radiation. They shall meet the requirements, including markings, of Tables 6, 7, 8 and 9, if claims of compliance are made. Special purpose filters shall meet the requirements of Table 10.		
		Transmittance	Acceptable	Pass
		Markings	Not Assessed	Not Assessed
Not assessed per customer request				
Ultraviolet Filter Lenses - Transmission Requirements	7.2.1.1	When tested in accordance with Section 9.2, plano, reader, magnifier and prescription lenses that are marked as ultraviolet filter lenses shall comply with requirements of Table 7. Representative test lenses of plano power may be substituted for prescription, reader or magnifier lenses in this test.		
		U.V. Far	Acceptable	Pass
		Left Eye	0.000%	Pass
		Right Eye	0.000%	Pass
		U.V. Near	Acceptable	Pass
		Right Eye	0.000%	Pass
Visible Light Filter Lenses - Transmission Requirements	7.2.1.1	When tested in accordance with Section 9.2, plano, reader, magnifier and prescription lenses that are marked as visible light filter lenses shall comply with requirements of Table 9. Representative test lenses of plano power may be substituted for prescription, reader or magnifier lenses in this test.		
		Visible Light	Acceptable	Pass
		Right Eye	14.271%	Pass
Visible Light Filters	7.2.1.2	Visible light filters in the range of L1.3 through L3 shall also meet the transmittance requirements of Table 4 of ANSI Z80.3-2010, including traffic signal recognition and UV transmittance (high and prolonged exposure). Visible light filters in the range of L4 through L10 are too dark to be used for driving, but shall meet the UV transmittance (high and prolonged exposure) requirements of Table 4 of ANSI Z80.3-2010.		
		Traffic Signal Recognition - Color Limits and Chromaticity Coordinates	Acceptable	Pass
		Right Eye	See charts	Pass

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Report To: Importadores y Exportadores Solmaq SAS
 Project No: Z-ESO081617-01-04



Sample ID: Hawk
 Smoke Lens, Black Frame with Interchangeable Temples and Head Strap (U6L3)

A2LA Accredited Certificate # 1612.01

Report Date: 9/15/2017

Lab Temp (C): 23
 Lab Rh: 50

Report of: ANSI Z87.1-2015 Optional Transmittance Attributes (U,L)

Test/Property	Paragraph	Requirement	Test Results	Acceptance
Visible Light Filters	7.2.1.2	Visible light filters in the range of L1.3 through L3 shall also meet the transmittance requirements of Table 4 of ANSI Z80.3-2010, including traffic signal recognition and UV transmittance (high and prolonged exposure). Visible light filters in the range of L4 through L10 are too dark to be used for driving, but shall meet the UV transmittance (high and prolonged exposure) requirements of Table 4 of ANSI Z80.3-2010.		
		Traffic Signal Recognition - Red Signal 8% Minimum	Acceptable	Pass
		Left Eye	19.0561%	Pass
		Right Eye	18.2293%	Pass
		Traffic Signal Recognition - Yellow Signal 6% Minimum	Acceptable	Pass
		Left Eye	15.2750%	Pass
		Right Eye	14.5080%	Pass
		Traffic Signal Recognition - Green Signal 6% Minimum	Acceptable	Pass
		Left Eye	14.8463%	Pass
		Right Eye	14.0644%	Pass
		Mean UVB 1% Maximum	Acceptable	Pass
		Left Eye	0.000%	Pass
		Right Eye	0.000%	Pass
		Mean UVA 0.5% Luminous Transmittance Maximum	Acceptable	Pass
		Left Eye	0.000%	Pass
		Right Eye	0.000%	Pass

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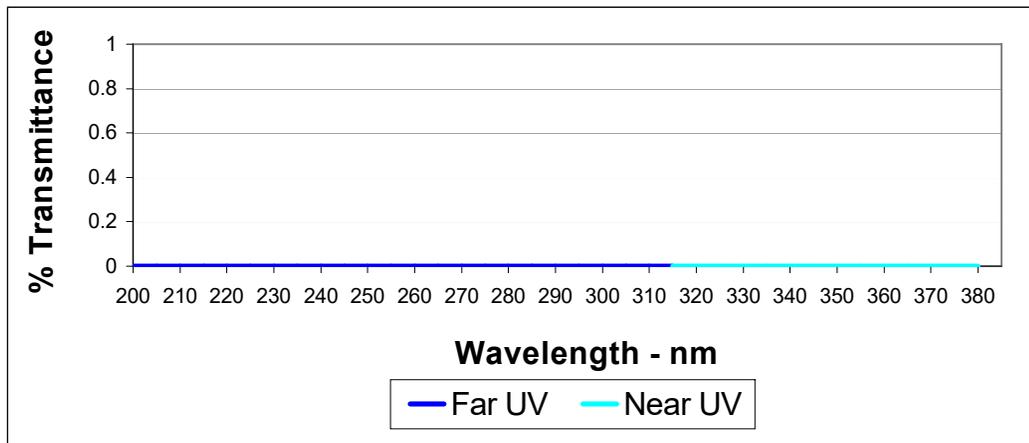
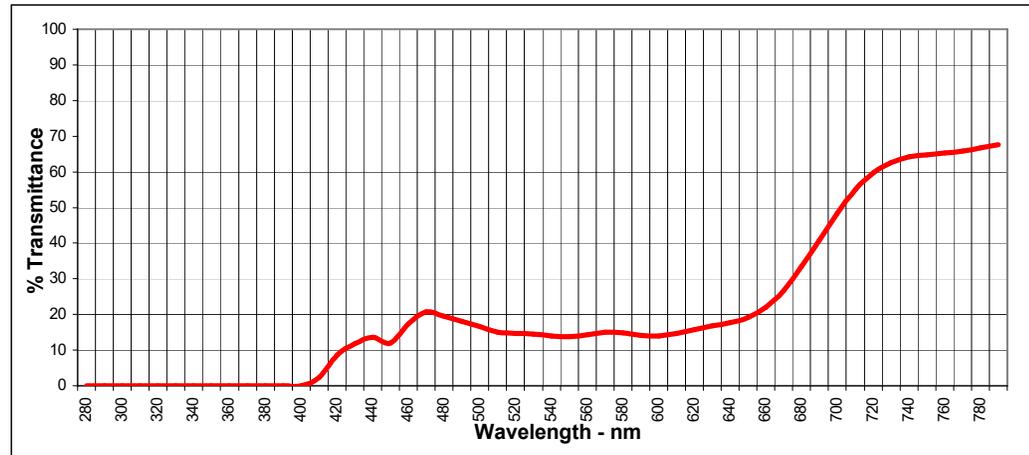
Spectral Analysis

				Claim:	ANSI Z80.3	Spectrophotometer: Shimadzu				Scale:	GENERAL Spectacle U 6 @ 23°C	Table 7
TRANS	x	y		L 3		Red	Yellow	Green	D65			
Illuminate C Photopic	15.049%	0.3137	0.3158	Pass		19.0561%	15.2750%	14.8463%	15.0154%			
Illuminate D65	15.015%			Max%								
Illuminate A	15.165%			Min%								
Illuminate C Scotopic	15.916%				TRANS	Pass	Pass	Pass				
Average Blue Light	11.044%				TEST							
Short Wavelength	0.000%				X	14.98	1.66	15.29				
UVA	0.000%	Pass			Y	2.07	10.44	3.21	15.87			
UVB	0.000%	Pass			Z		0.03	3.42	17.22			
Spectral Transmittance		Pass			x		0.5886	0.2002	0.3161			
					y		0.4103	0.3877	0.3280			
					Chromaticity		Pass	Pass	Pass			

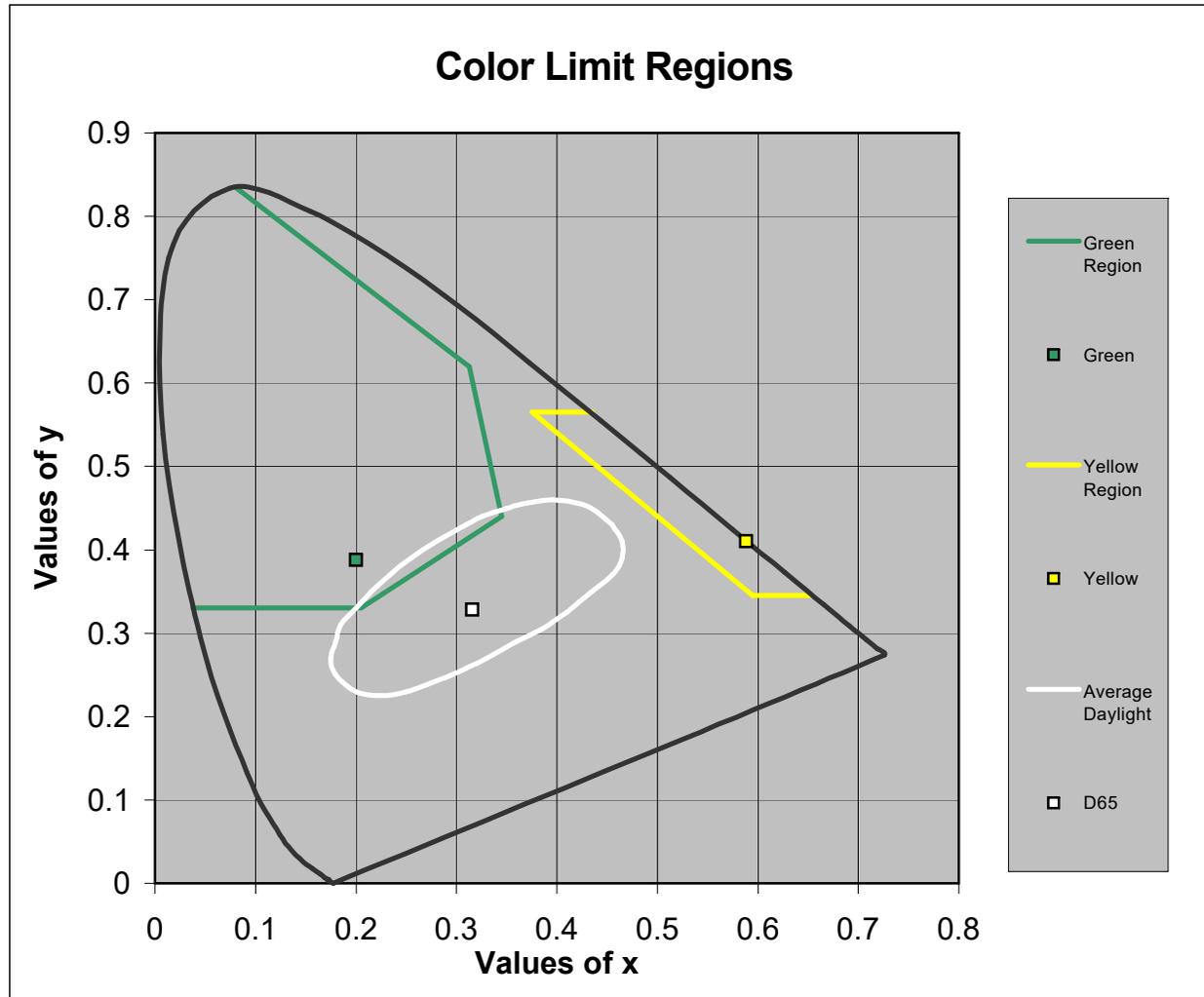
				ANSI Z80.3	Spectrophotometer: Shimadzu				Scale:	GENERAL Spectacle U 6 @ 23°C	Table 7
TRANS	Max%	Min%	Lum Trans:		Red	Yellow	Green	D65			
	18.0000	8.5000	15.049%		19.0561%	15.2750%	14.8463%	15.0154%			

				RESULTS
Near UV	[T(NUV)] =	0.000	Pass	Max 0.1
Far UV	[T(EUV)] =	0.000	Pass	0.010

nm	%T	nm	%T
200	0.00	460	17.36
205	0.00	470	20.71
210	0.00	480	19.52
215	0.00	490	18.14
220	0.00	500	16.64
225	0.00	510	15.09
230	0.00	520	14.59
235	0.00	530	14.46
240	0.00	540	14.00
245	0.00	550	13.76
250	0.00	560	14.31
255	0.00	570	14.99
260	0.00	580	14.87
265	0.00	590	14.21
270	0.00	600	14.03
275	0.00	610	14.72
280	0.00	620	15.82
290	0.00	630	16.78
300	0.00	640	17.64
310	0.00	650	19.17
320	0.00	660	22.00
330	0.00	670	26.59
340	0.00	680	33.37
350	0.00	690	40.82
360	0.00	700	48.27
370	0.00	710	55.09
380	0.00	720	59.80
390	0.00	730	62.66
400	0.01	740	64.14
410	2.34	750	64.75
420	8.64	760	65.26
430	11.77	770	65.91
440	13.68	780	66.78
450	12.06	790	67.70



Left
 Z-ESO081617-01-04



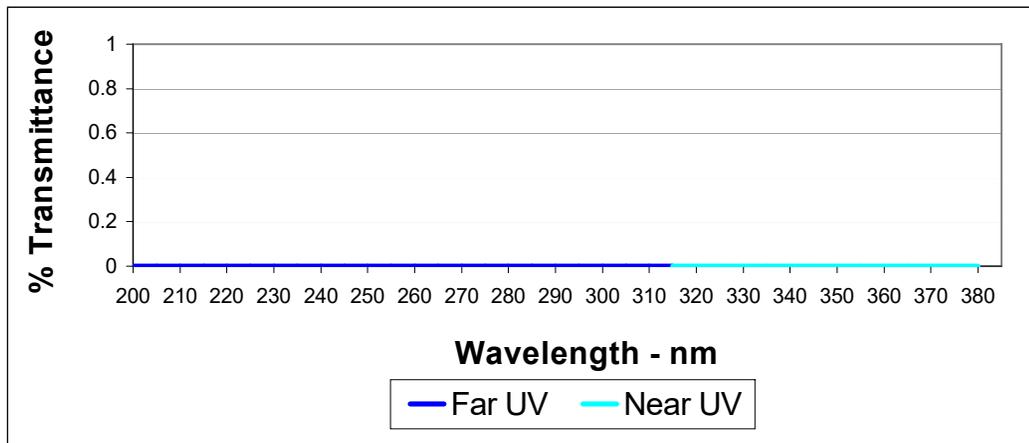
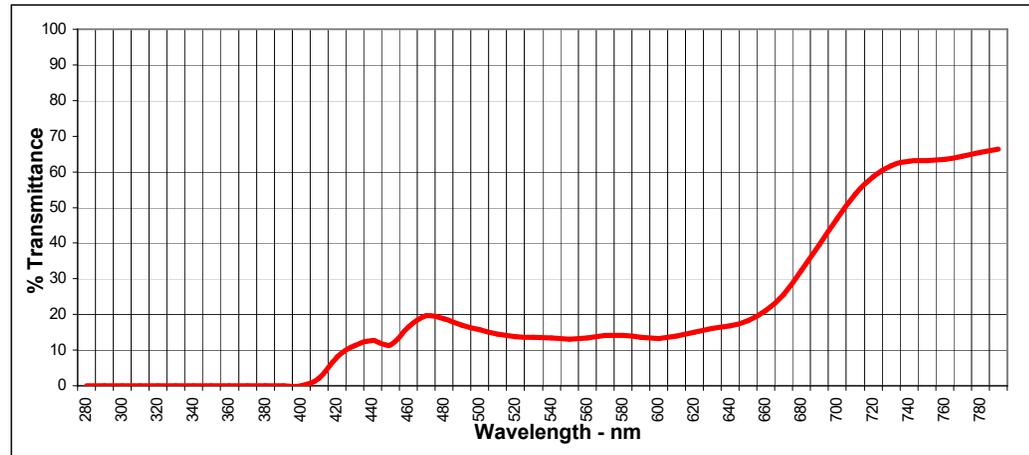
Left
Z-ESO081617-01-04



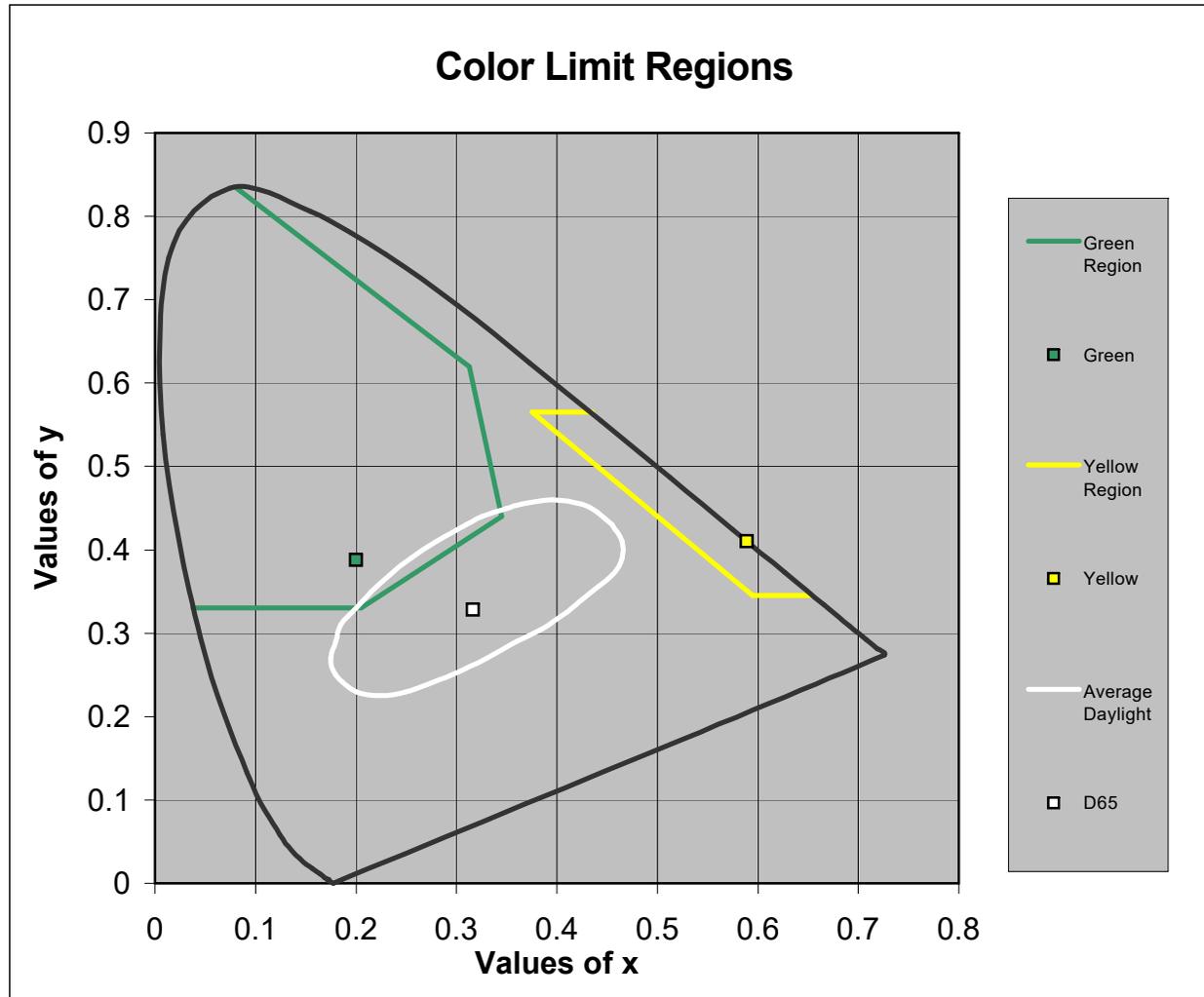
Spectral Analysis

				Claim:	ANSI Z80.3	Spectrophotometer: Shimadzu				Scale:	GENERAL Spectacle U 6 @ 23°C	Table 7	
TRANS	x	y		L 3		Red	Yellow	Green	D65				
Illuminate C Photopic	14.271%	0.3142	0.3160	Pass		18.2293%	14.5080%	14.0644%	14.2380%				
Illuminate D65	14.238%			Max% Min%	18.0000 8.5000								
Illuminate A	14.391%					TEST	Pass	Pass	Pass				
Illuminate C Scotopic	15.082%					X	14.25	1.57	14.51				
Average Blue Light	10.428%			Lum Trans:	14.271%	Y	1.98	9.91	3.05	15.05			
Short Wavelength	0.000%					Z		0.03	3.24	16.28			
UVA	0.000%	Pass				x		0.5890	0.2002	0.3166			
UVB	0.000%	Pass				y		0.4099	0.3878	0.3283			
Spectral Transmittance		Pass				Chromaticity	Pass	Pass	Pass				
											RESULTS		
											Near UV [T(NUV)] = 0.000	Result Pass	Max 0.1
											Far UV [T(EUV)] = 0.000	Pass	0.010

nm	%T	nm	%T
200	0.00	460	16.40
205	0.00	470	19.59
210	0.00	480	18.82
215	0.00	490	16.97
220	0.00	500	15.78
225	0.00	510	14.53
230	0.00	520	13.69
235	0.00	530	13.53
240	0.00	540	13.40
245	0.00	550	13.13
250	0.00	560	13.42
255	0.00	570	14.13
260	0.00	580	14.20
265	0.00	590	13.56
270	0.00	600	13.24
275	0.00	610	13.89
280	0.00	620	15.05
290	0.00	630	16.05
300	0.00	640	16.82
310	0.00	650	18.26
320	0.00	660	21.09
330	0.00	670	25.67
340	0.00	680	32.35
350	0.00	690	39.54
360	0.00	700	46.86
370	0.00	710	53.84
380	0.00	720	58.74
390	0.00	730	61.70
400	0.00	740	62.89
410	2.15	750	63.20
420	7.97	760	63.57
430	11.22	770	64.48
440	12.72	780	65.55
450	11.47	790	66.42



Right
Z-ESO081617-01-04



Right
Z-ESO081617-01-04

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**Report
Summary**

A2LA Accredited Certificate # 1612.01

Report To:

Importadores y Exportadores Solmaq
SAS
Carrera 30, número 15-30
Bogotá,

Project

of Model(s): Hawk
Report of: ANSI Z87.1-2015 High Impact Spectacles - Tint
Variant
Project ID(s): Z-ESO081617-01-05



Attn: Paulo Barriga

Date: September 15, 2017

Product Description: Indoor/Outdoor, Black Frame with Interchangeable Temples and Head Strap (U6L2)

On August 16, 2017, COLTS Laboratories received Spectacles: Hawk from Importadores y Exportadores Solmaq SAS. From August 30, 2017 through September 15, 2017 COLTS Laboratories tested these Spectacles in accordance with ANSI Z87.1-2015.

Final Conclusion:

The Spectacles: Hawk (Indoor/Outdoor, Black Frame with Interchangeable Temples and Head Strap (U6L2)) do comply with ANSI Z87.1-2015 for the test(s) performed for ANSI Z87.1-2015 High Impact Spectacles - Tint Variant.

Please contact us should you have any questions concerning this report.

Respectfully submitted,
COLTS Laboratories

Daryl Neely
Vice-President & COO

Dale Payne
Technical Services Manager

Report To: Importadores y Exportadores Solmaq SAS
 Project No: Z-ESO081617-01-05



Sample ID: Hawk
 Indoor/Outdoor, Black Frame with Interchangeable Temples and Head Strap (U6L2)

A2LA Accredited Certificate # 1612.01

Report Date: 9/15/2017

Lab Temp (C): 23
 Lab Rh: 49

Report of: ANSI Z87.1-2015 High Impact Spectacles - Tint Variant

Test/Property	Paragraph	Requirement	Test Results	Acceptance
High Mass Impact	6.2.2	The complete device shall meet the protector acceptance criteria when impacted by a pointed projectile weighing a minimum of 500 g (17.6 oz) dropped from a height of at least 127 cm (50.0 in.).		
		Left Eye Sample 2	Acceptable	Pass
		Right Eye Sample 3	Acceptable	Pass
		Right Eye Sample 4	Acceptable	Pass
High Velocity Impact (Spectacles)	6.2.3	The complete device shall meet the protector acceptance criteria when impacted by a 6.35 mm (0.25 in) diameter steel ball traveling at 150 feet per second.		
		Left Eye Center	150 fps	Pass
		Left Eye 30°	149 fps	Pass
		Right Eye Center	152 fps	Pass
		Right Eye 30°	150 fps	Pass
		One Side 90° at 10mm Above (H - 8mm)	151 fps	Pass
		Opposite Side 90° at 10mm Below (H - 8mm)	151 fps	Pass
Special Purpose Filter Lenses - Transmission Requirements	7.2.1.1	When tested in accordance with Section 9.2, plano, reader, magnifier and prescription lenses that are marked as special purpose filters shall meet the requirements of Table 10. Representative test lenses of plano power may be substituted for prescription, reader or magnifier lenses in this test.		
		Tinted Lenses (8% - 85%)	Acceptable	Pass
		Left Eye	38.9%	Pass
		Right Eye	38.8%	Pass
		Ratio (0.90 - 1.10)	1.003	Pass

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**Report
Summary**

A2LA Accredited Certificate # 1612.01

Report To:

Importadores y Exportadores Solmaq
SAS
Carrera 30, número 15-30
Bogotá,

Project

of Model(s): Hawk
Report of: ANSI Z87.1-2015 Optional Transmittance
Attributes (U,L)
Project ID(s): Z-ESO081617-01-06



Attn: Paulo Barriga

Date: September 15, 2017

Product Description: Indoor/Outdoor, Black Frame with Interchangeable Temples and Head Strap (U6L2)

On August 16, 2017, COLTS Laboratories received Spectacles: Hawk from Importadores y Exportadores Solmaq SAS. From August 30, 2017 through September 15, 2017 COLTS Laboratories tested these Spectacles in accordance with ANSI Z87.1-2015.

Final Conclusion:

The Spectacles: Hawk (Indoor/Outdoor, Black Frame with Interchangeable Temples and Head Strap (U6L2)) do comply with ANSI Z87.1-2015 for the test(s) performed for ANSI Z87.1-2015 Optional Transmittance Attributes (U,L).

Please contact us should you have any questions concerning this report.

Respectfully submitted,
COLTS Laboratories

Daryl Neely
Vice-President & COO

Dale Payne
Technical Services Manager

Report To: Importadores y Exportadores Solmaq SAS

Project No: Z-ESO081617-01-06



Sample ID:

Hawk

Indoor/Outdoor, Black Frame with Interchangeable Temples and Head Strap (U6L2)

A2LA Accredited Certificate # 1612.01

Report Date: 9/15/2017

Lab Temp (C): 23

Lab Rh: 47

Report of: ANSI Z87.1-2015 Optional Transmittance Attributes (U,L)

Test/Property	Paragraph	Requirement	Test Results	Acceptance
Optical Radiation Protector Requirements	7	Optional transmittance characteristics of a protector are represented by a scale/shade number indicating its ability to filter optical radiation. They shall meet the requirements, including markings, of Tables 6, 7, 8 and 9, if claims of compliance are made. Special purpose filters shall meet the requirements of Table 10.		
		Transmittance	Acceptable	Pass
		Markings	Not Assessed	Not Assessed
Not assessed per customer request				
Ultraviolet Filter Lenses - Transmission Requirements	7.2.1.1	When tested in accordance with Section 9.2, plano, reader, magnifier and prescription lenses that are marked as ultraviolet filter lenses shall comply with requirements of Table 7. Representative test lenses of plano power may be substituted for prescription, reader or magnifier lenses in this test.		
		U.V. Far	Acceptable	Pass
		Left Eye	0.000%	Pass
		Right Eye	0.000%	Pass
		U.V. Near	Acceptable	Pass
		Right Eye	0.000%	Pass
Visible Light Filter Lenses - Transmission Requirements	7.2.1.1	When tested in accordance with Section 9.2, plano, reader, magnifier and prescription lenses that are marked as visible light filter lenses shall comply with requirements of Table 9. Representative test lenses of plano power may be substituted for prescription, reader or magnifier lenses in this test.		
		Visible Light	Acceptable	Pass
		Right Eye	37.104%	Pass
Visible Light Filters	7.2.1.2	Visible light filters in the range of L1.3 through L3 shall also meet the transmittance requirements of Table 4 of ANSI Z80.3-2010, including traffic signal recognition and UV transmittance (high and prolonged exposure). Visible light filters in the range of L4 through L10 are too dark to be used for driving, but shall meet the UV transmittance (high and prolonged exposure) requirements of Table 4 of ANSI Z80.3-2010.		
		Traffic Signal Recognition - Color Limits and Chromaticity Coordinates	Acceptable	Pass
		Right Eye	See charts	Pass

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Report To: Importadores y Exportadores Solmaq SAS
 Project No: Z-ESO081617-01-06



Sample ID: Hawk
 Indoor/Outdoor, Black Frame with Interchangeable Temples and Head Strap (U6L2)

A2LA Accredited Certificate # 1612.01

Report Date: 9/15/2017

Lab Temp (C): 23
 Lab Rh: 47

Report of: ANSI Z87.1-2015 Optional Transmittance Attributes (U,L)

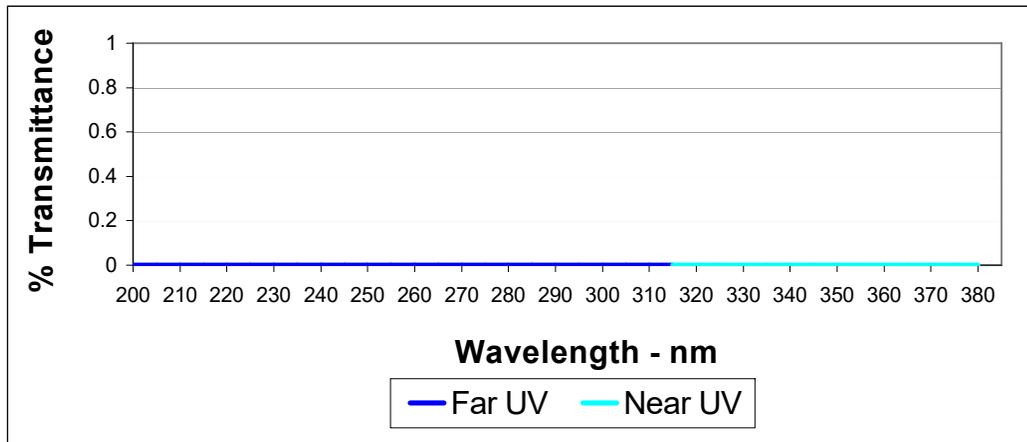
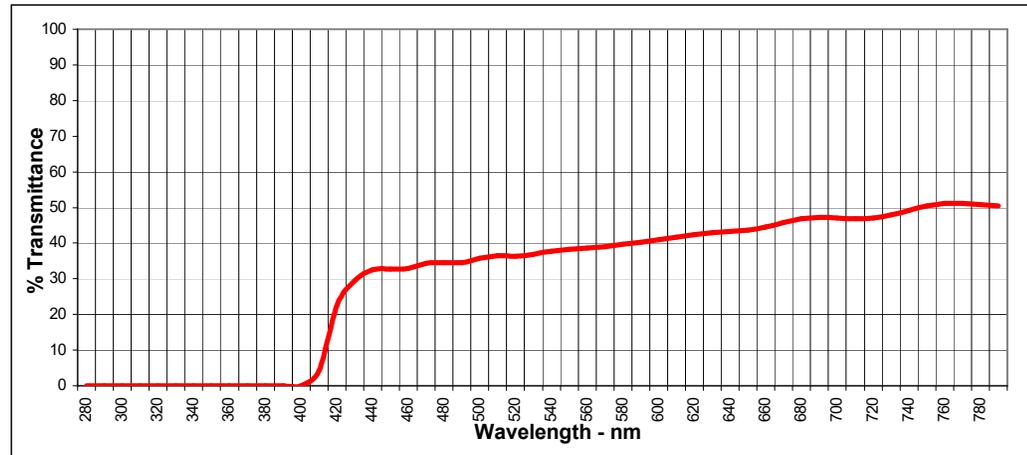
Test/Property	Paragraph	Requirement	Test Results	Acceptance
Visible Light Filters	7.2.1.2	Visible light filters in the range of L1.3 through L3 shall also meet the transmittance requirements of Table 4 of ANSI Z80.3-2010, including traffic signal recognition and UV transmittance (high and prolonged exposure). Visible light filters in the range of L4 through L10 are too dark to be used for driving, but shall meet the UV transmittance (high and prolonged exposure) requirements of Table 4 of ANSI Z80.3-2010.		
		Traffic Signal Recognition - Red Signal 8% Minimum	Acceptable	Pass
		Left Eye	43.4496%	Pass
		Right Eye	42.1170%	Pass
		Traffic Signal Recognition - Yellow Signal 6% Minimum	Acceptable	Pass
		Left Eye	40.4147%	Pass
		Right Eye	38.9627%	Pass
		Traffic Signal Recognition - Green Signal 6% Minimum	Acceptable	Pass
		Left Eye	37.4193%	Pass
		Right Eye	35.9254%	Pass
		Mean UVB 1% Maximum	Acceptable	Pass
		Left Eye	0.000%	Pass
		Right Eye	0.000%	Pass
		Mean UVA 0.5% Luminous Transmittance Maximum	Acceptable	Pass
		Left Eye	0.000%	Pass
		Right Eye	0.000%	Pass

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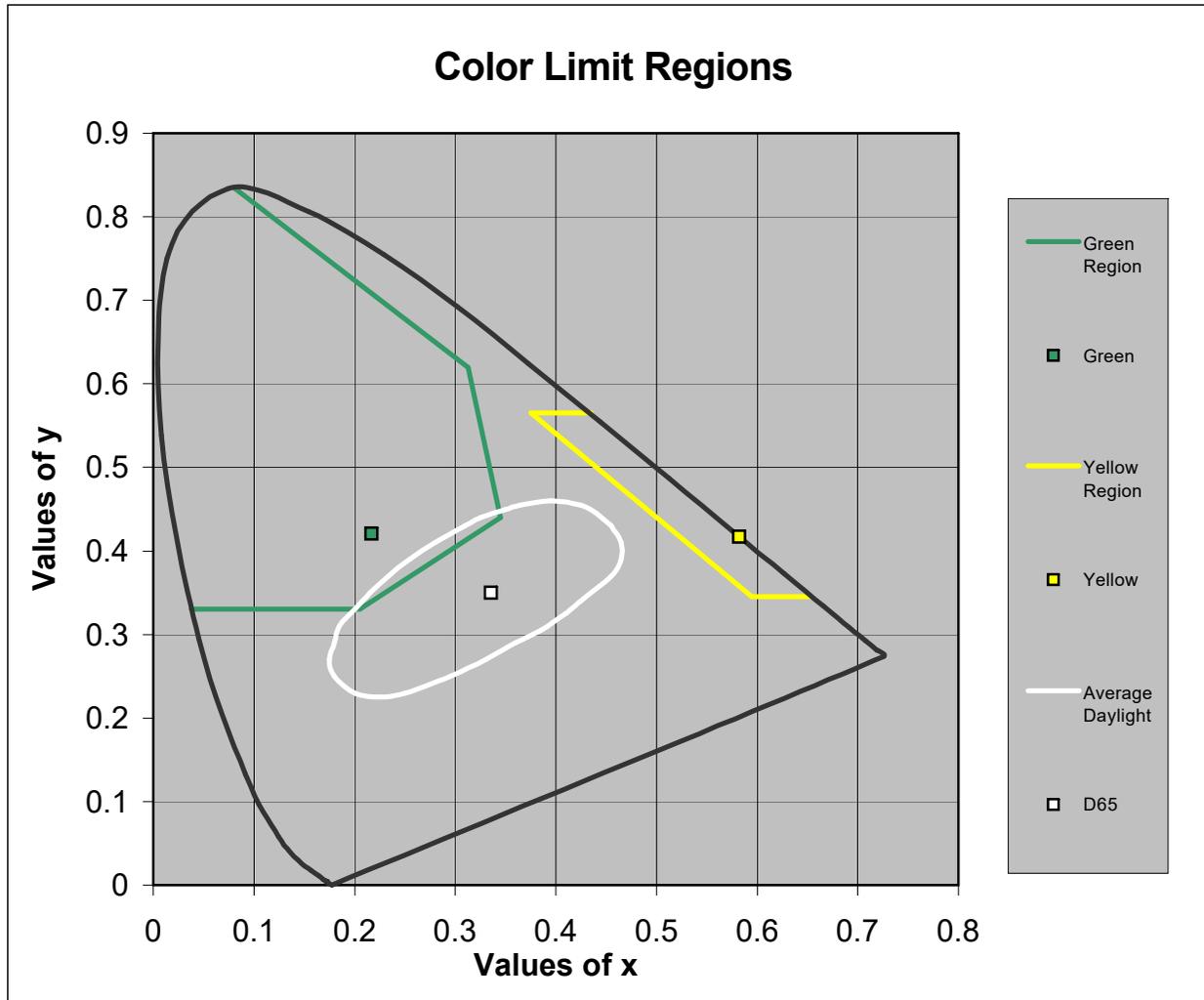
Spectral Analysis

				Claim:	ANSI Z80.3	Spectrophotometer: Shimadzu	Scale:	GENERAL Spectacle U 6 @ 23°C	Table 7
TRAN	x	y		L 2					
Illuminate C Photopic	38.582%	0.3329	0.3375	Pass					
Illuminate D65	38.550%			Max% Min%	43.0000 29.0000	Red Yellow Green D65			
Illuminate A	39.423%					43.4496% 40.4147% 37.4193% 38.5499%			
Illuminate C Scotopic	35.273%					Pass Pass Pass			
Average Blue Light	22.940%			Lum Trans:	38.582%	4.73 27.62 8.10 40.74			
Short Wavelength	0.000%					0.08 7.00 36.60			
UVA	0.000%	Pass				x 0.5821 0.2167 0.3354			
UVB	0.000%	Pass				y 0.4168 0.4203 0.3501			
Spectral Transmittance		Pass				Chromaticity	Pass Pass Pass		
								RESULTS	
								Near UV [T(NUV)] = 0.000	Result <u>Pass</u> Max <u>0.1</u>
								Far UV [T(EUV)] = 0.000	Result <u>Pass</u> Max <u>0.010</u>

nm	%T	nm	%T
200	0.00	460	32.88
205	0.00	470	34.43
210	0.00	480	34.51
215	0.00	490	34.44
220	0.00	500	35.70
225	0.00	510	36.45
230	0.00	520	36.33
235	0.00	530	36.81
240	0.00	540	37.78
245	0.00	550	38.30
250	0.00	560	38.56
255	0.00	570	39.03
260	0.00	580	39.72
265	0.00	590	40.30
270	0.00	600	40.88
275	0.00	610	41.70
280	0.00	620	42.48
290	0.00	630	42.96
300	0.00	640	43.24
310	0.00	650	43.73
320	0.00	660	44.60
330	0.00	670	45.77
340	0.00	680	46.84
350	0.00	690	47.23
360	0.00	700	47.09
370	0.00	710	46.82
380	0.00	720	47.08
390	0.00	730	47.88
400	0.01	740	49.16
410	4.29	750	50.36
420	22.60	760	51.10
430	29.51	770	51.10
440	32.52	780	50.76
450	32.77	790	50.38



Left
 Z-ESO081617-01-06



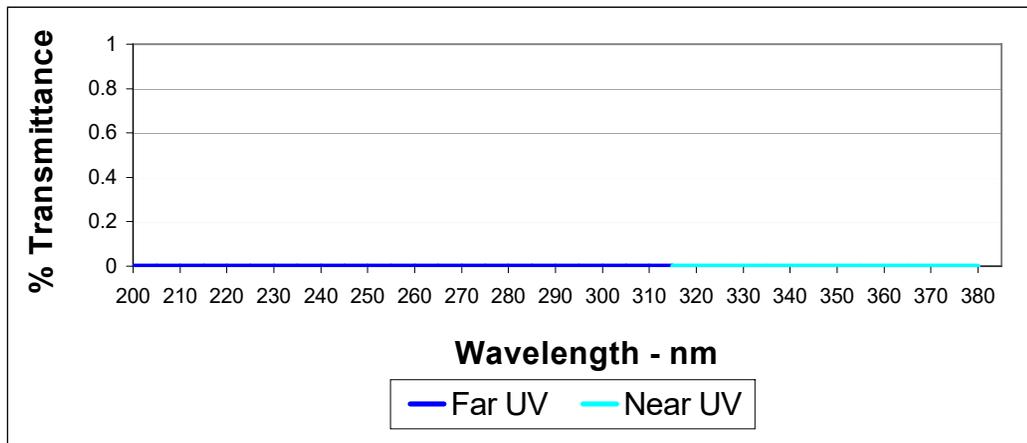
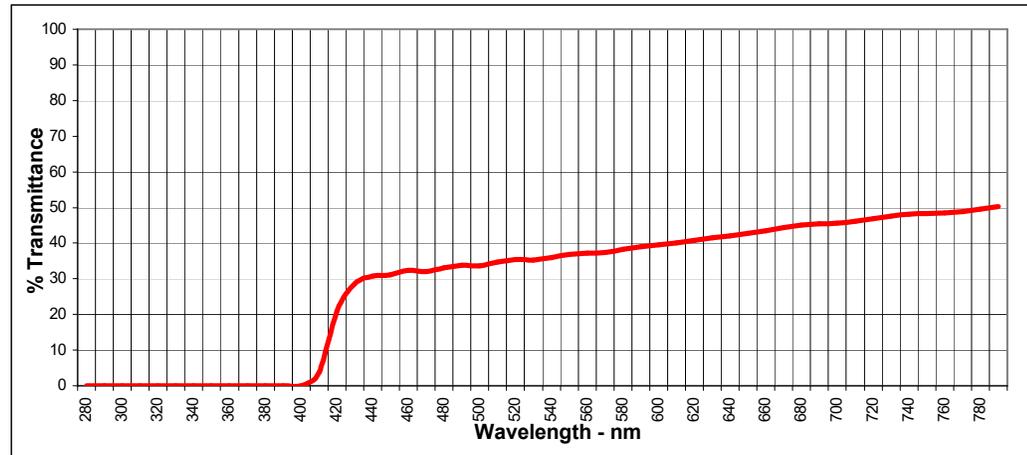
Left
Z-ESO081617-01-06

Spectral Analysis

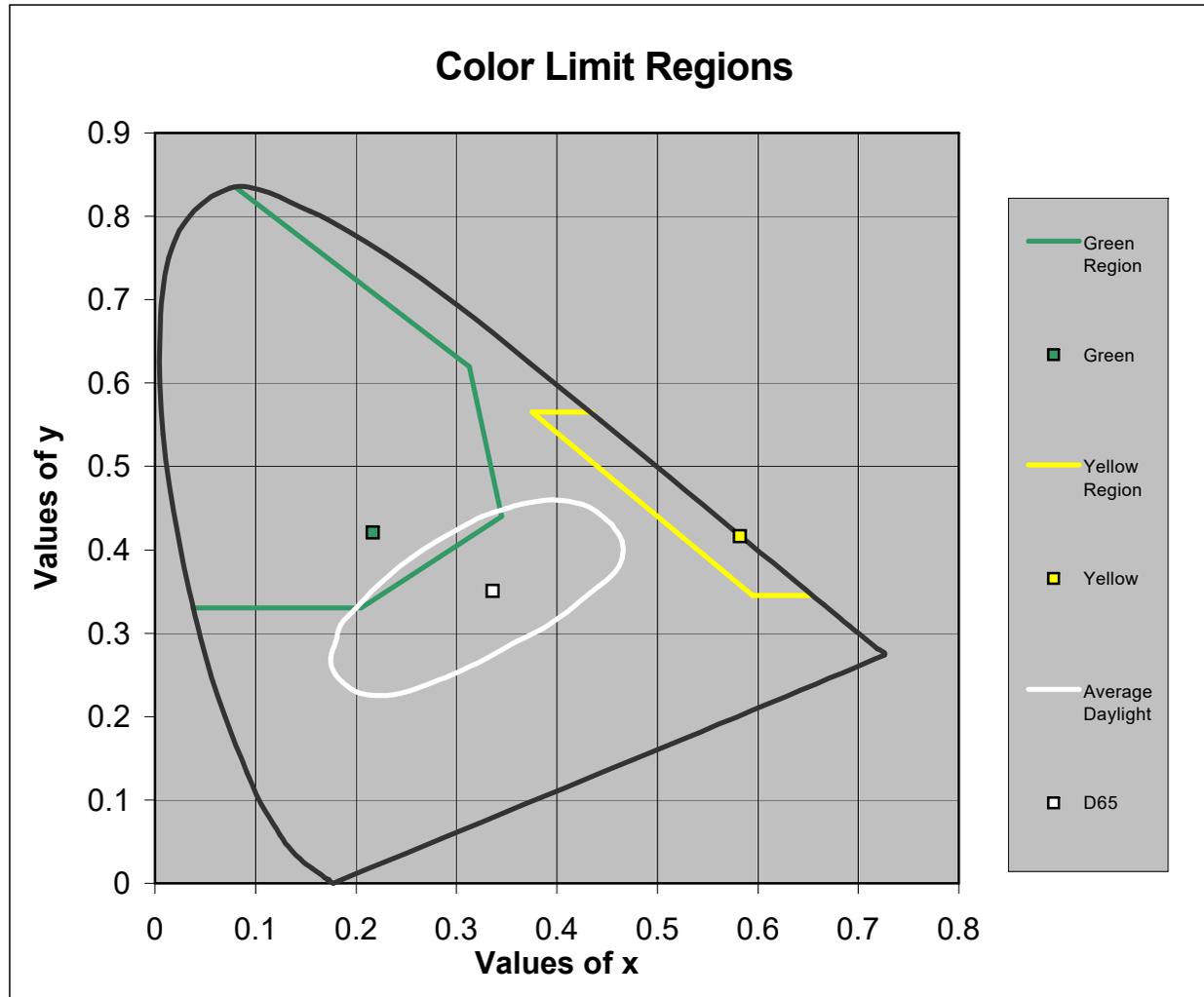
				Claim:	ANSI Z80.3	Spectrophotometer: Shimadzu	Scale:	GENERAL Spectacle U 6 @ 23°C	Table 7	
TRANS	x	y		L 2		Red	Yellow	Green	D65	
Illuminate C Photopic	37.104%	0.3339	0.3381	Pass		42.1170%	38.9627%	35.9254%	37.0706%	
Illuminate D65	37.071%			Max%	Min%	Pass	Pass	Pass		
Illuminate A	37.957%			43.0000	29.0000	TEST				
Illuminate C Scotopic	33.798%					X	37.25	4.01	37.59	
Average Blue Light	21.900%			Lum Trans:	37.104%	Y	4.58	26.63	7.78	39.17
Short Wavelength	0.000%					Z		0.07	6.69	34.97
UVA	0.000%	Pass				x		0.5825	0.2171	0.3364
UVB	0.000%	Pass				y		0.4164	0.4209	0.3506
Spectral Transmittance		Pass				Chromaticity	Pass	Pass	Pass	

				RESULTS			
Near UV	[T(NUV)] =	0.000	Result	Pass	Max	0.1	
Far UV	[T(EUV)] =	0.000	Result	Pass	0.010		

nm	%T	nm	%T
200	0.00	460	32.34
205	0.00	470	32.09
210	0.00	480	33.03
215	0.00	490	33.79
220	0.00	500	33.61
225	0.00	510	34.67
230	0.00	520	35.38
235	0.00	530	35.28
240	0.00	540	35.95
245	0.00	550	36.90
250	0.00	560	37.16
255	0.00	570	37.39
260	0.00	580	38.27
265	0.00	590	39.03
270	0.00	600	39.49
275	0.00	610	40.04
280	0.00	620	40.86
290	0.00	630	41.58
300	0.00	640	42.08
310	0.00	650	42.67
320	0.00	660	43.50
330	0.00	670	44.43
340	0.00	680	45.14
350	0.00	690	45.44
360	0.00	700	45.69
370	0.00	710	46.15
380	0.00	720	46.91
390	0.00	730	47.64
400	0.01	740	48.16
410	3.70	750	48.35
420	20.92	760	48.53
430	28.61	770	48.85
440	30.75	780	49.48
450	31.10	790	50.28



Right
 Z-ESO081617-01-06



Right
Z-ESO081617-01-06