

TEST RESULTS and REPORT

for

**Importadores y Exportadores Solmaq
SAS**

Reaper

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-ESO081617-03

- 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-ESO081617-03**

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

Report Date: 09/15/2017

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



Attn: Paulo Barriga

Date: September 15, 2017

Product Description: Clear Lens, Black Frame and Temples (U6)

On August 16, 2017, COLTS Laboratories received Spectacles: Reaper 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: Reaper (Clear Lens, Black Frame and Temples (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-ESO081617-03-01



Sample ID:
 Reaper
 Clear Lens, Black Frame and Temples (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	91.8%	Pass
		Right Eye	91.8%	Pass
Haze - Clear Lenses Only	5.1.3	Clear plano lenses shall not exhibit more than 3% haze. Haze	Acceptable	Pass
		Left Eye	1.65%	Pass
		Right Eye	1.00%	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	-0.045	Pass
		Astigmatism (0.06 Max)	Acceptable	Pass
		Left Eye	0.025	Pass
		Right Eye	0.025	Pass
		Resolving Power (20 Min)	Acceptable	Pass
		Left Eye	Acceptable	Pass
		Right Eye	Acceptable	Pass
		Complete Prism (0.50 Max)	Acceptable	Pass
		Left Eye	0.112	Pass
		Right Eye	0.112	Pass
		Prismatic Imbalance	Acceptable	Pass
		Vertical (0.25 Max)	0.10	Pass
		Horizontal Base In/Out (In 0.25 Max; Out 0.50 Max)	0.20 out	Pass

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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	N/A	N/A
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	

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



Sample ID:
 Reaper
 Clear Lens, Black Frame and Temples (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
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Sample ID:
 Reaper
 Clear Lens, Black Frame and Temples (U6)

A2LA Accredited Certificate # 1612.01

Report Date: 9/15/2017

Lab Temp (C): 23
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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	Acceptable	Pass
		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	152 fps	Pass
		Left Eye 30°	152 fps	Pass
		Right Eye Center	150 fps	Pass
		Right Eye 30°	150 fps	Pass
		One Side 90° at 10mm Above (H - 8mm)	150 fps	Pass
		Opposite Side 90° at 10mm Below (H - 8mm)	153 fps	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	Acceptable	Pass
		Left Eye Sample 2	Acceptable	Pass
		Right Eye Sample 3	Acceptable	Pass
		Right Eye Sample 4	Acceptable	Pass

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



Sample ID:
Reaper
Clear Lens, Black Frame and Temples (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): Reaper
Report of: ANSI Z87.1-2015 Optional Transmittance
Attributes (U)
Project ID(s): Z-ESO081617-03-02



Attn: Paulo Barriga

Date: September 15, 2017

Product Description: Clear Lens, Black Frame and Temples (U6)

On August 16, 2017, COLTS Laboratories received Spectacles: Reaper 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: Reaper (Clear Lens, Black Frame and Temples (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-ESO081617-03-02



Sample ID:
 Reaper
 Clear Lens, Black Frame and Temples (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 To:

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SAS
Carrera 30, número 15-30
Bogotá,

Project

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



Attn: Paulo Barriga

Date: September 15, 2017

Product Description: Smoke Lens, Black Frame and Temples (U6L3)

On August 16, 2017, COLTS Laboratories received Spectacles: Reaper 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: Reaper (Smoke Lens, Black Frame and Temples (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-ESO081617-03-03



Sample ID:

Reaper

Smoke Lens, Black Frame and Temples (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

Table with 5 columns: Test/Property, Paragraph, Requirement, Test Results, Acceptance. Rows include Optical Quality, Required Protector Markings (Spectacles), and High Mass Impact.

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



Sample ID:
 Reaper
 Smoke Lens, Black Frame and Temples (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	151 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)	150 fps	Pass
		Opposite Side 90° at 10mm Below (H - 8mm)	147 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	12.9%	Pass
		Right Eye	13.0%	Pass
		Ratio (0.90 - 1.10)	0.992	Pass

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SAS
Carrera 30, número 15-30
Bogotá,

Project

of Model(s): Reaper
Report of: ANSI Z87.1-2015 Optional Transmittance
Attributes (U,L)
Project ID(s): Z-ESO081617-03-04



Attn: Paulo Barriga

Date: September 15, 2017

Product Description: Smoke Lens, Black Frame and Temples (U6L3)

On August 16, 2017, COLTS Laboratories received Spectacles: Reaper 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: Reaper (Smoke Lens, Black Frame and Temples (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-ESO081617-03-04



Sample ID:

Reaper

Smoke Lens, Black Frame and Temples (U6L3)

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	12.970%	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-ESO081617-03-04



Sample ID:
 Reaper
 Smoke Lens, Black Frame and Temples (U6L3)

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)

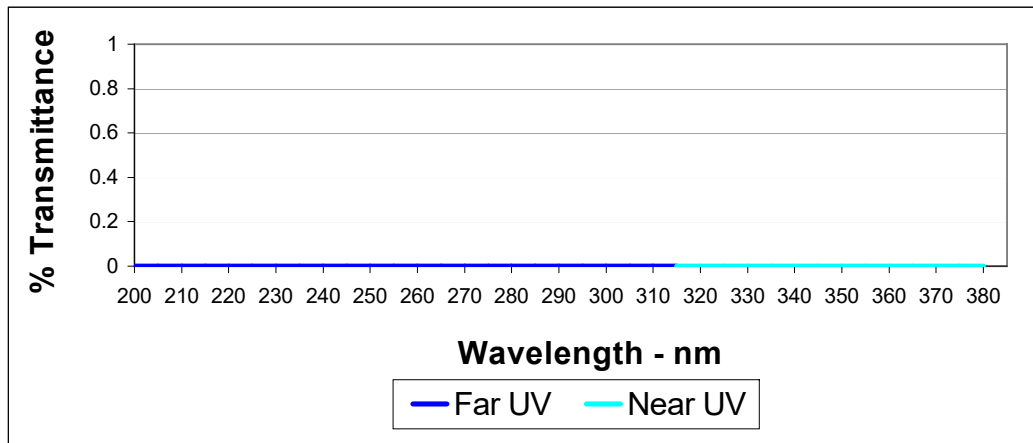
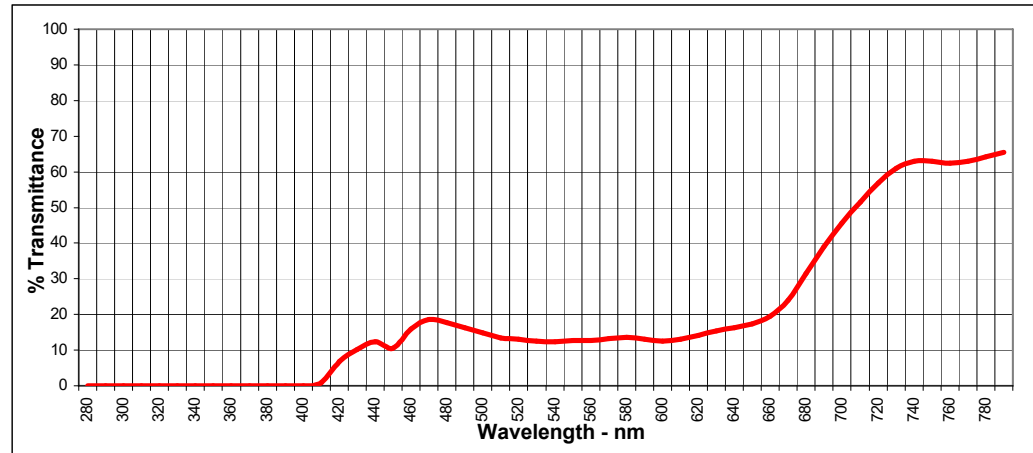
Test/Property	Paragraph	Requirement	Test Results	Acceptance
Visible Light Filters	7.2.1.2	Visible light filters in the range of L1.3 through L3 shall also meet the transmittance requirements of Table 4 of ANSI Z80.3-2010, including traffic signal recognition and UV transmittance (high and prolonged exposure). 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	17.3540%	Pass
		Right Eye	16.7516%	Pass
		Traffic Signal Recognition - Yellow Signal 6% Minimum	Acceptable	Pass
		Left Eye	13.7973%	Pass
		Right Eye	13.2731%	Pass
		Traffic Signal Recognition - Green Signal 6% Minimum	Acceptable	Pass
		Left Eye	13.2608%	Pass
		Right Eye	12.7175%	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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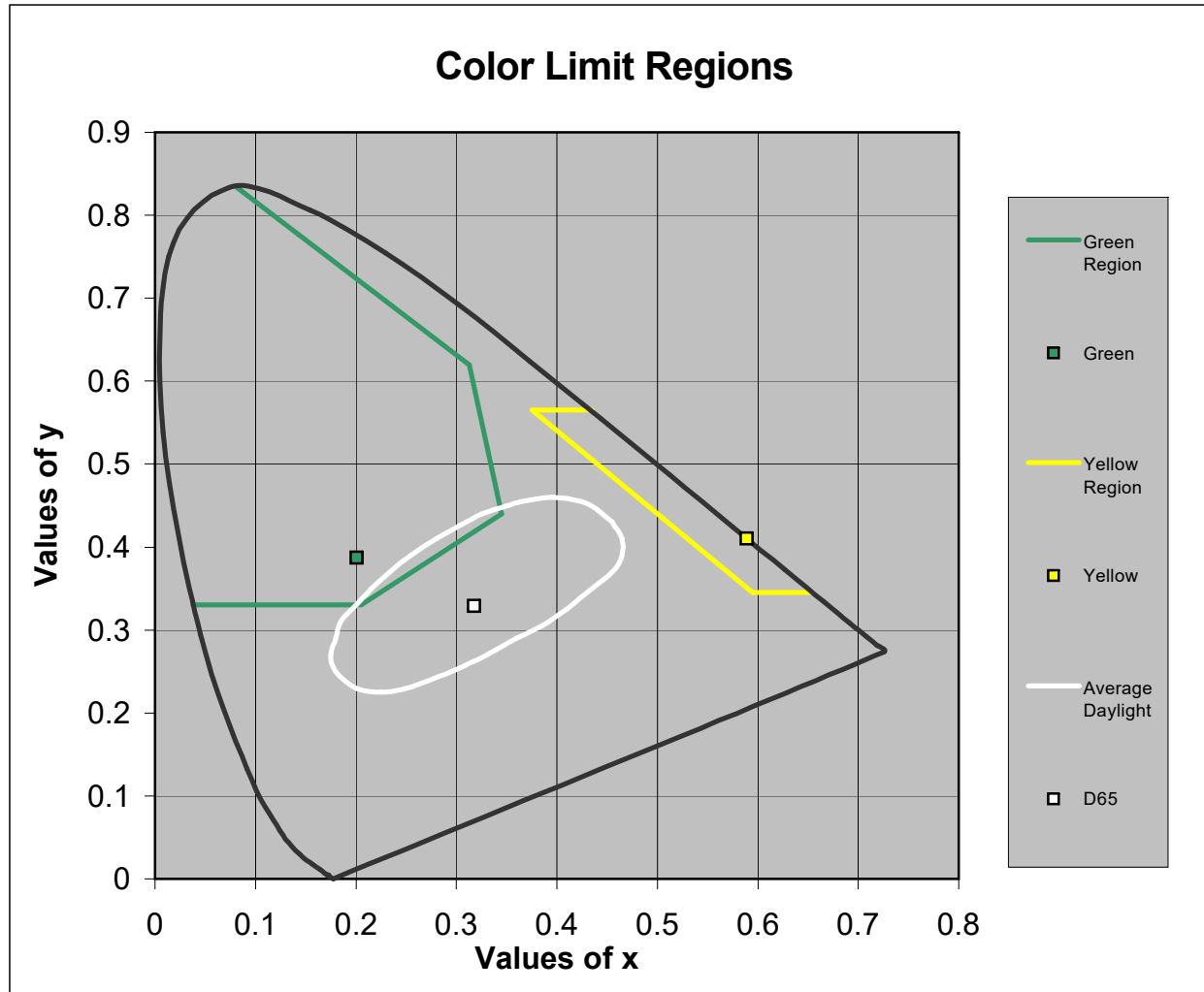
Spectral Analysis

				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	13.506%	0.3152	0.3164	Pass		17.3540%	13.7973%	13.2608%	13.4705%				
Illuminate D65	13.471%			Max% Min%	TRANS	Pass	Pass	Pass					
Illuminate A	13.640%			18.0000 8.5000	TEST								
Illuminate C Scotopic	14.231%				X	13.55	1.49	13.76					
Average Blue Light	9.705%			Lum Trans: 13.506%	Y	1.89	9.43	2.87	14.24				
Short Wavelength	0.000%				Z		0.03	3.06	15.33				
UVA	0.000%	Pass			x		0.5891	0.2007	0.3176				
UVB	0.000%	Pass			y		0.4098	0.3870	0.3285				
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	15.86
205	0.00	470	18.65
210	0.00	480	17.74
215	0.00	490	16.27
220	0.00	500	14.77
225	0.00	510	13.39
230	0.00	520	13.14
235	0.00	530	12.57
240	0.00	540	12.37
245	0.00	550	12.67
250	0.00	560	12.72
255	0.00	570	13.22
260	0.00	580	13.66
265	0.00	590	13.08
270	0.00	600	12.60
275	0.00	610	13.08
280	0.00	620	14.16
290	0.00	630	15.33
300	0.00	640	16.27
310	0.00	650	17.31
320	0.00	660	19.50
330	0.00	670	24.02
340	0.00	680	31.48
350	0.00	690	39.07
360	0.00	700	45.62
370	0.00	710	51.54
380	0.00	720	56.80
390	0.00	730	61.04
400	0.00	740	63.05
410	0.91	750	62.90
420	6.76	760	62.43
430	10.13	770	62.90
440	12.32	780	64.22
450	10.49	790	65.52



Left
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Left
Z-ESO081617-03-04

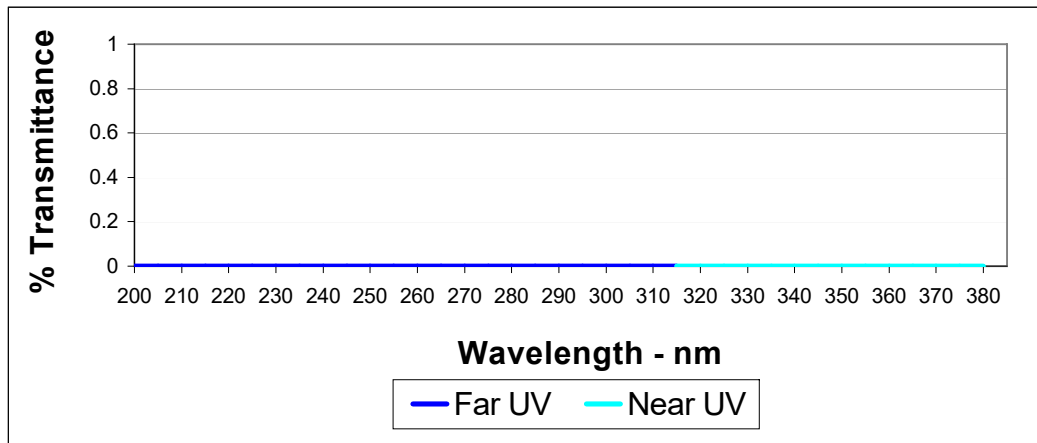
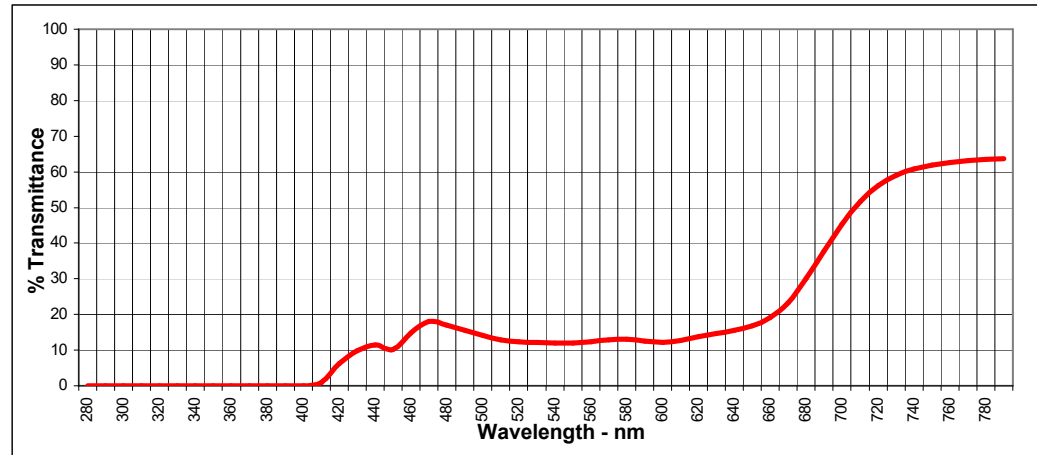


Spectral Analysis

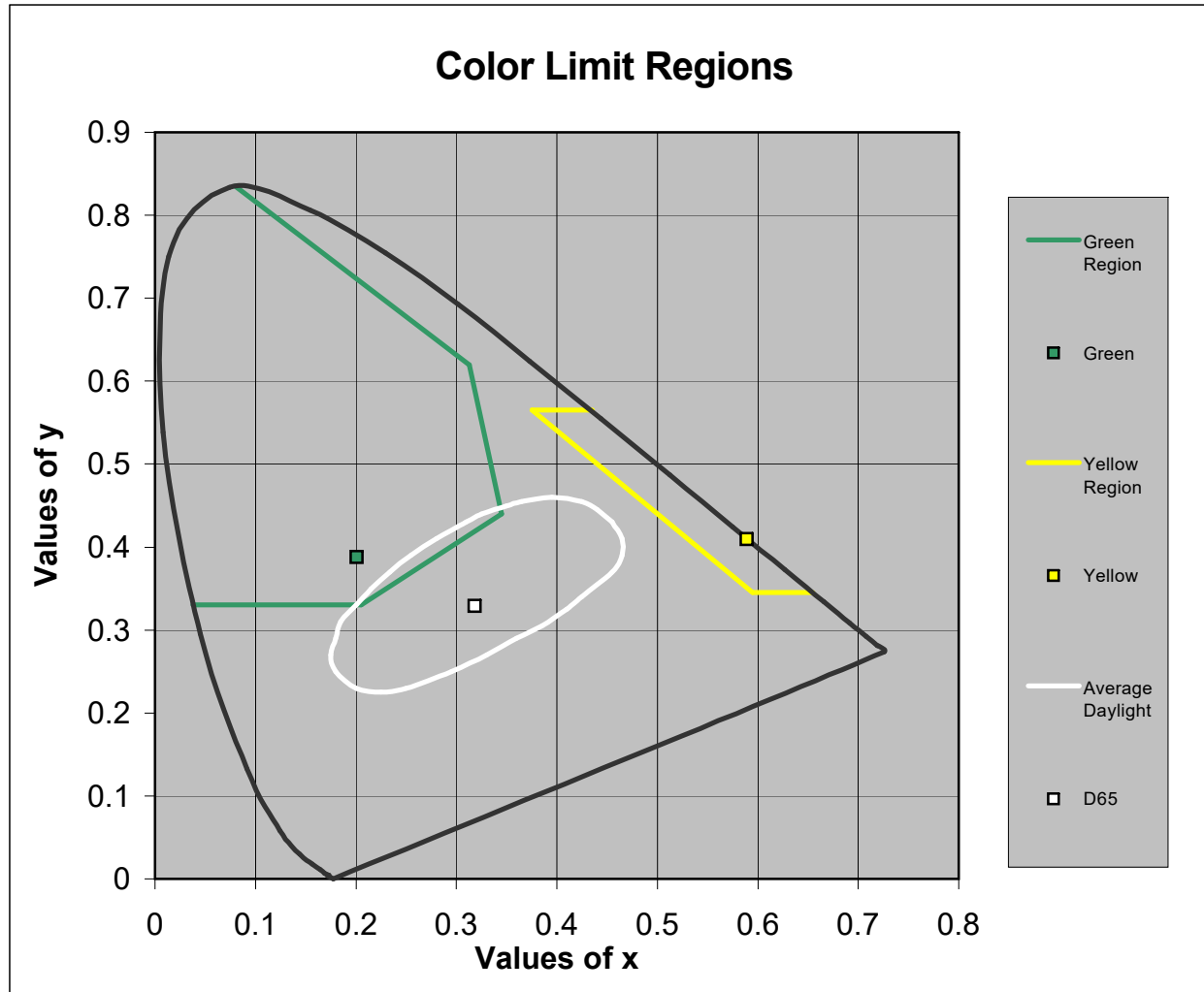
				Claim:	ANSI Z80.3	Spectrophotometer: Shimadzu				Scale:	GENERAL Spectacle U 6 @ 23°C	Table 7
TRANS	x	y		L 3		Red	Yellow	Green	D65			
Illuminate C Photopic	12.970%	0.3160	0.3170	Pass		16.7516%	13.2731%	12.7175%	12.9350%			
Illuminate D65	12.935%			Max% 18.0000	Min% 8.5000							
Illuminate A	13.111%					TEST	Pass	Pass	Pass			
Illuminate C Scotopic	13.633%					X	13.06	1.43	13.22			
Average Blue Light	9.271%			Lum Trans: 12.970%		Y	1.82	9.07	2.75	13.67		
Short Wavelength	0.000%					Z		0.02	2.93	14.64		
UVA	0.000%	Pass				x		0.5894	0.2009	0.3184		
UVB	0.000%	Pass				y		0.4095	0.3874	0.3291		
Spectral Transmittance		Pass				Chromaticity	Pass	Pass	Pass			

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

nm	%T	nm	%T
200	0.00	460	14.89
205	0.00	470	18.11
210	0.00	480	16.99
215	0.00	490	15.54
220	0.00	500	14.21
225	0.00	510	12.88
230	0.00	520	12.41
235	0.00	530	12.14
240	0.00	540	11.96
245	0.00	550	11.96
250	0.00	560	12.29
255	0.00	570	12.84
260	0.00	580	13.04
265	0.00	590	12.50
270	0.00	600	12.12
275	0.00	610	12.67
280	0.00	620	13.71
290	0.00	630	14.64
300	0.00	640	15.52
310	0.00	650	16.88
320	0.00	660	19.21
330	0.00	670	23.32
340	0.00	680	30.04
350	0.00	690	37.75
360	0.00	700	45.30
370	0.00	710	51.72
380	0.00	720	56.10
390	0.00	730	58.99
400	0.00	740	60.77
410	0.84	750	61.81
420	6.24	760	62.60
430	9.89	770	63.13
440	11.43	780	63.42
450	10.23	790	63.60



Right
Z-ESO081617-03-04



Right
Z-ESO081617-03-04

COLTS Laboratories

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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): Reaper
Report of: ANSI Z87.1-2015 High Impact Spectacles - Tint
Variant
Project ID(s): Z-ESO081617-03-05



Attn: Paulo Barriga

Date: September 15, 2017

Product Description: Indoor/Outdoor Lens, Black Frame and Temples (U6L2)

On August 16, 2017, COLTS Laboratories received Spectacles: Reaper 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: Reaper (Indoor/Outdoor Lens, Black Frame and Temples (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-ESO081617-03-05



Sample ID:

Reaper

Indoor/Outdoor Lens, Black Frame and Temples (U6L2)

A2LA Accredited Certificate # 1612.01

Report Date: 9/15/2017

Lab Temp (C): 23

Lab Rh: 47

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

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	
Required Protector Markings (Spectacles)	5.3	All protectors shall bear the permanent and legible markings in specified locations as shown in Table 3. Markings for lens type and use applications shall be required only when claims for protection against the hazard or indicated use are made by the manufacturer.			
		Protector markings shall be placed in relatable proximity to each other on the product in the sequence specified below:			
		- Manufacturer's marks or logos			
		- Designation of standard (Z87 or Z87-2, for prescription devices)			
		- Individual claims of compliance			
		- impact-rated marking (+)			
		- lens type			
		- use applications			
		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
				Not assessed per customer request	
		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	
Complete Device Markings		Not Assessed	Not Assessed		
Sequence Correct		Not Assessed	Not Assessed		
Mfg 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			
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	Acceptable	Pass	

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Report To: Importadores y Exportadores Solmaq SAS
 Project No: Z-ESO081617-03-05



Sample ID:
 Reaper
 Indoor/Outdoor Lens, Black Frame and Temples (U6L2)

A2LA Accredited Certificate # 1612.01

Report Date: 9/15/2017

Lab Temp (C): 23
 Lab Rh: 47

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	151 fps	Pass
		Left Eye 30°	151 fps	Pass
		Right Eye Center	152 fps	Pass
		Right Eye 30°	150 fps	Pass
		One Side 90° at 10mm Above (H - 8mm)	149 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	34.9%	Pass
		Right Eye	35.0%	Pass
		Ratio (0.90 - 1.10)	0.997	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): Reaper
Report of: ANSI Z87.1-2015 Optional Transmittance
Attributes (U,L)
Project ID(s): Z-ESO081617-03-06



Attn: Paulo Barriga

Date: September 15, 2017

Product Description: Indoor/Outdoor Lens, Black Frame and Temples (U6L2)

On August 16, 2017, COLTS Laboratories received Spectacles: Reaper 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: Reaper (Indoor/Outdoor Lens, Black Frame and Temples (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-ESO081617-03-06



Sample ID:

Reaper

Indoor/Outdoor Lens, Black Frame and Temples (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
		Left Eye	0.000%	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
		Left Eye	37.968%	Pass
		Right Eye	35.079%	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
		Left Eye	See charts	Pass
		Right Eye	See charts	Pass

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Report To: Importadores y Exportadores Solmaq SAS
 Project No: Z-ESO081617-03-06



Sample ID:
 Reaper
 Indoor/Outdoor Lens, Black Frame and Temples (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	42.8100%	Pass
		Right Eye	39.9688%	Pass
		Traffic Signal Recognition - Yellow Signal 6% Minimum	Acceptable	Pass
		Left Eye	39.9229%	Pass
		Right Eye	36.9605%	Pass
		Traffic Signal Recognition - Green Signal 6% Minimum	Acceptable	Pass
		Left Eye	36.7320%	Pass
		Right Eye	33.8755%	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

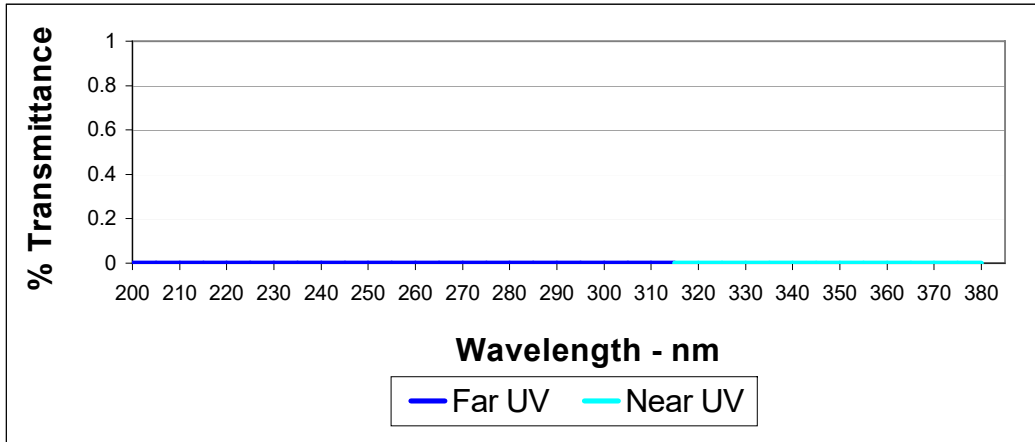
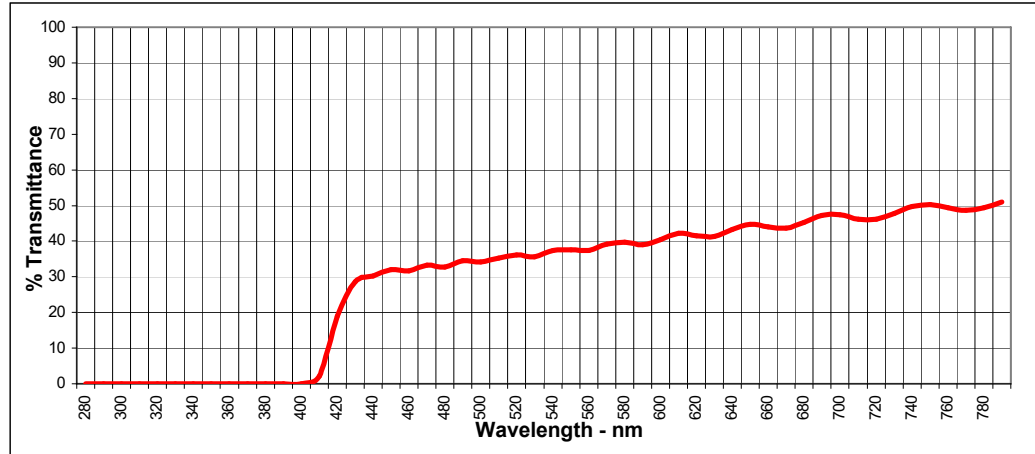
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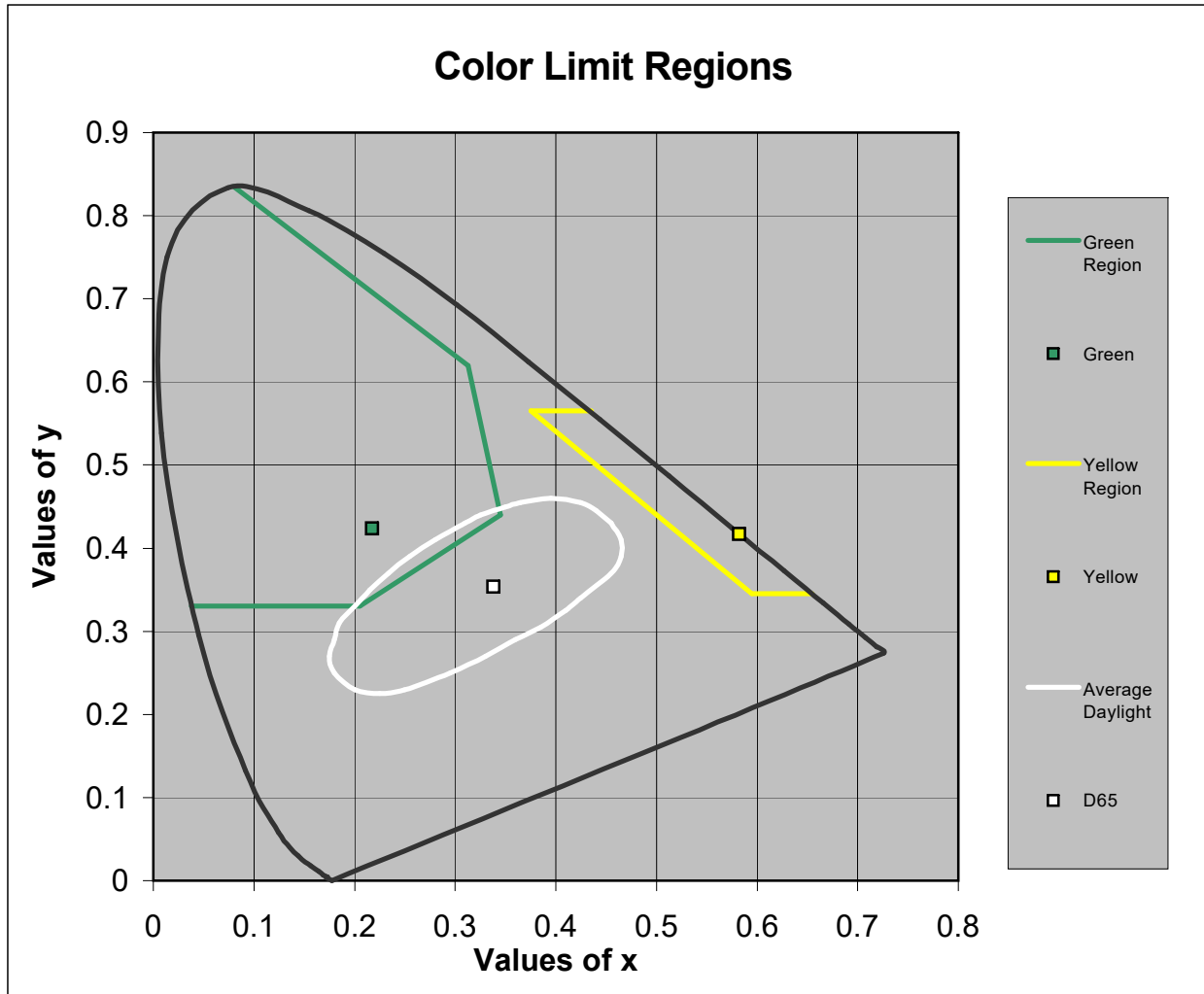


Spectral Analysis

				Claim:	ANSI Z80.3				Spectrophotometer: Shimadzu	Scale:	GENERAL Spectacle U 6 @ 23°C	Table 7
TRANS	x	y		L 2	Red	Yellow	Green	D65	Spectrophotometer: Shimadzu			
Illuminate C Photopic	37.968%	0.3355	0.3407	Pass	42.8100%	39.9229%	36.7320%	37.9348%	RESULTS Near UV [T(NUV)] = 0.000 Result Pass Max 0.1 Far UV [T(EUV)] = 0.000 Result Pass 0.010			
Illuminate D65	37.935%			Max% Min%	43.0000	29.0000						
Illuminate A	38.865%			TRANS	Pass	Pass	Pass					
Illuminate C Scotopic	34.320%			TEST								
Average Blue Light	21.753%			X	38.13	4.09	38.36					
Short Wavelength	0.000%			Y	4.66	27.28	7.95	40.09				
UVA	0.000%	Pass		Z		0.07	6.73	35.03				
UVB	0.000%	Pass		x		0.5823	0.2179	0.3381				
Spectral Transmittance		Pass		y		0.4166	0.4235	0.3532				
				Chromaticity	Pass	Pass	Pass					

nm	%T	nm	%T
200	0.00	460	31.71
205	0.00	470	33.27
210	0.00	480	32.77
215	0.00	490	34.47
220	0.00	500	34.22
225	0.00	510	35.32
230	0.00	520	36.21
235	0.00	530	35.68
240	0.00	540	37.43
245	0.00	550	37.65
250	0.00	560	37.33
255	0.00	570	39.25
260	0.00	580	39.67
265	0.00	590	39.00
270	0.00	600	40.50
275	0.00	610	42.20
280	0.00	620	41.49
290	0.00	630	41.41
300	0.00	640	43.30
310	0.00	650	44.73
320	0.00	660	43.99
330	0.00	670	43.60
340	0.00	680	45.21
350	0.00	690	47.14
360	0.00	700	47.34
370	0.00	710	46.23
380	0.00	720	46.23
390	0.00	730	47.78
400	0.00	740	49.74
410	2.17	750	50.28
420	18.91	760	49.44
430	28.64	770	48.74
440	30.28	780	49.36
450	32.03	790	51.05





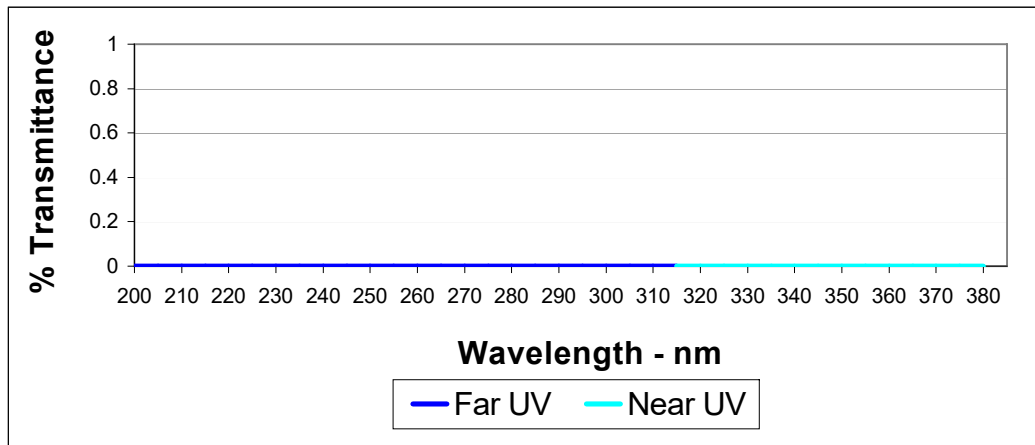
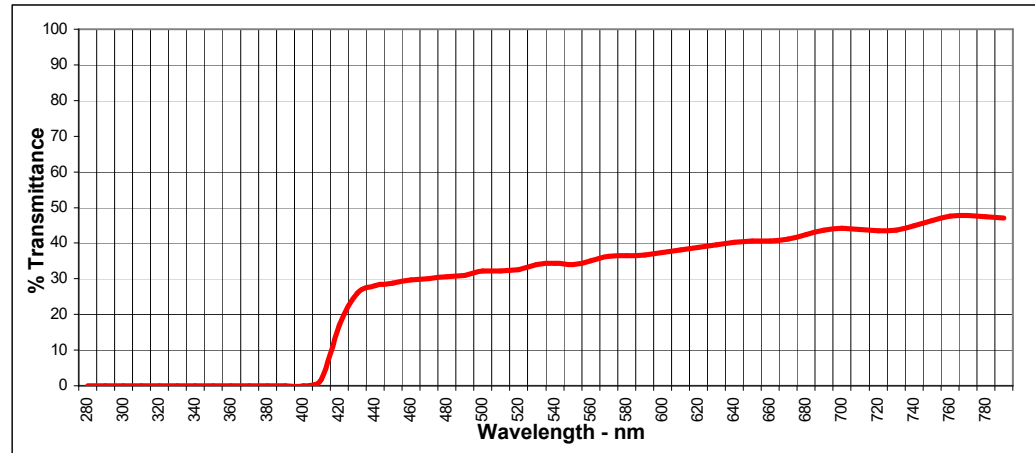
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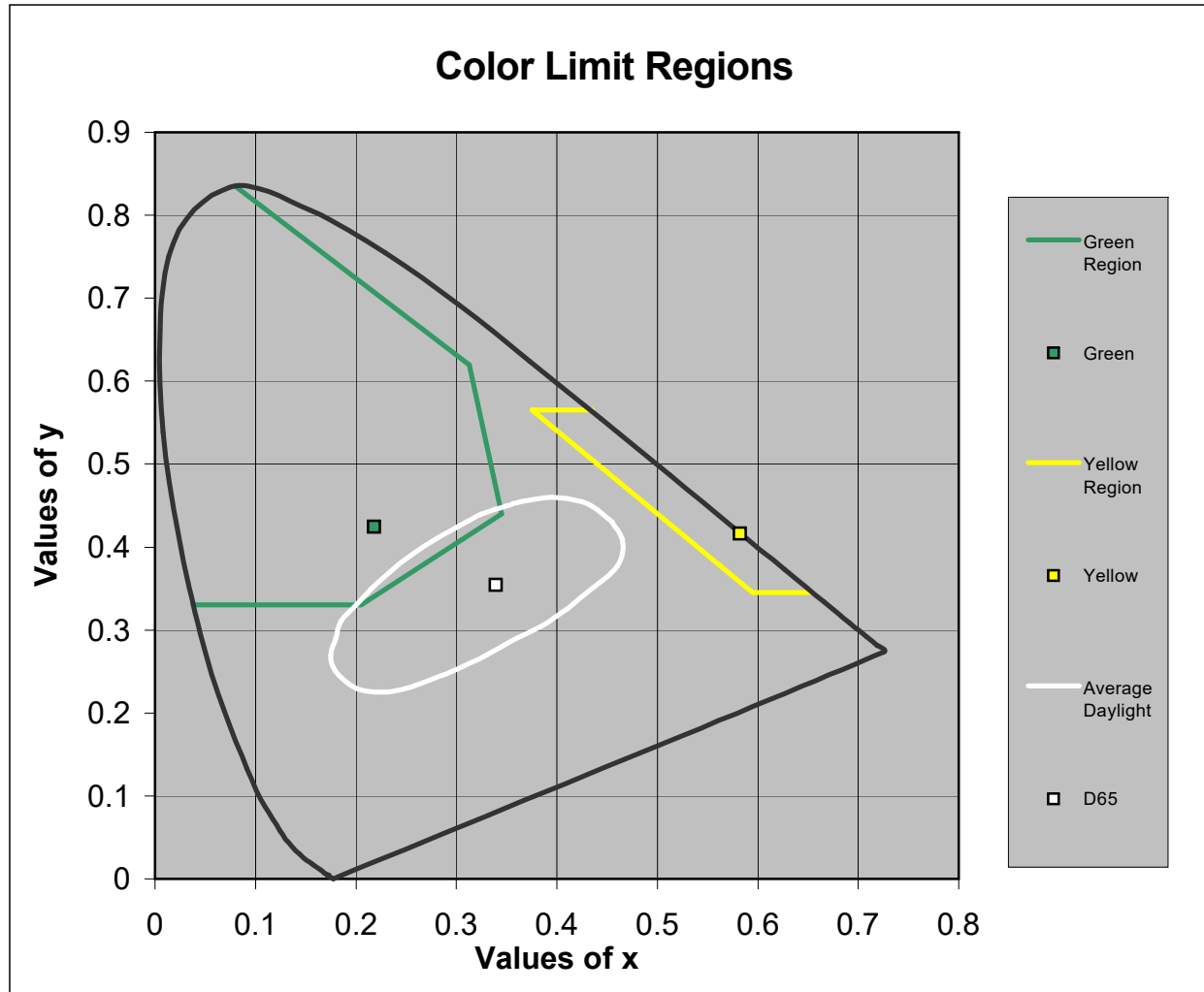


Spectral Analysis

				Claim:		ANSI Z80.3				Spectrophotometer: Shimadzu		Scale: U 6 @ 23°C		GENERAL Spectacle Table 7	
TRANS	x	y		L 2	Pass	Red	Yellow	Green	D65	Spectrophotometer: Shimadzu		RESULTS		Result	Max
Illuminate C Photopic	35.079%	0.3366	0.3415		Pass	39.9688%	36.9605%	33.8755%	35.0472%			Near UV	[T(NUV)] = 0.000	Pass	0.1
Illuminate D65	35.047%			Max%	43.0000	TEST	Pass	Pass	Pass			Far UV	[T(EUV)] = 0.000	Pass	0.010
Illuminate A	35.950%			Min%	29.0000	X	35.35	3.78	35.48						
Illuminate C Scotopic	31.562%			Lum Trans:	35.079%	Y	4.35	25.26	7.33	37.04					
Average Blue Light	19.895%					Z		0.07	6.18	32.11					
Short Wavelength	0.000%					x		0.5826	0.2185	0.3391					
UVA	0.000%	Pass				y		0.4163	0.4242	0.3540					
UVB	0.000%	Pass				Chromaticity	Pass	Pass	Pass						
Spectral Transmittance		Pass													

nm	%T	nm	%T
200	0.00	460	29.70
205	0.00	470	30.08
210	0.00	480	30.54
215	0.00	490	31.03
220	0.00	500	32.18
225	0.00	510	32.19
230	0.00	520	32.54
235	0.00	530	34.02
240	0.00	540	34.35
245	0.00	550	34.07
250	0.00	560	35.01
255	0.00	570	36.29
260	0.00	580	36.54
265	0.00	590	36.69
270	0.00	600	37.35
275	0.00	610	38.16
280	0.00	620	38.81
290	0.00	630	39.54
300	0.00	640	40.25
310	0.00	650	40.56
320	0.00	660	40.62
330	0.00	670	41.09
340	0.00	680	42.31
350	0.00	690	43.61
360	0.00	700	44.22
370	0.00	710	43.89
380	0.00	720	43.52
390	0.00	730	43.73
400	0.00	740	44.84
410	1.71	750	46.32
420	17.08	760	47.53
430	25.99	770	47.82
440	28.03	780	47.45
450	28.86	790	47.01





Right
Z-ESO081617-03-06