



Test Report T14788-01-2 Issue 1
ANSI/ISEA Z87.1-2020
Shanghai Langfeng Industrial Co., Ltd.
SG003 Spectacles
30 June 2020



Approved by:

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Room 910, Building 6,
Luxiang Road 111, Shanghai
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Objective:

Contract testing to ANSI/ISEA Z87.1-2020 “American National Standard for Occupational and Educational Personal Eye and Face Protection Devices”.

Clause(s): 5. Fundamental Design Requirements for All Protectors

Samples:

SG003 Spectacles

Lens	Quantity	Sample ID
Clear	6	8A

Date(s) submitted: 26 May 2020

Procedures:

Testing protocols in accord with good laboratory practice were employed for all tests.

All tests were conducted in a standard laboratory atmosphere unless otherwise specified.

Samples were randomly selected from the quantity provided and tested in the as-received condition unless otherwise stated.

Testing procedures as specified within Section 9 of ANSI/ISEA Z87.1-2020 were followed unless noted in results.

When applicable, samples were assessed on medium headform (64mm PD).

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Assessment Summary:

Date(s) tested: 04 through 05 June 2020

ANSI/ISEA Z87.1-2020 Requirements	Compliant	Non-Compliant
5. Fundamental Design Requirements for All Protectors		
5.1 Optical Requirements		
5.1.1 Optical Quality	X	
5.1.2 Luminous Transmission (Clear Lenses)	X	
5.1.3 Haze - Clear Lenses Only	X	
5.1.4 Refractive Power, Astigmatism, Resolving Power, Prism and Prism Imbalance for Plano Protectors	X	
5.1.5 Refractive Power, Astigmatism, Prism and Prism Imbalance for Prescription Protectors and Magnifiers	Not applicable	
5.2 Physical Requirements	X	
5.2.1 Drop Ball Impact Resistance	X	
5.2.2 Ignition	X	
5.2.3 Corrosion Resistance of Metal Components	Not applicable	
5.2.4 Minimum Coverage Area	X	
5.3 Markings		
5.3.1 Required Protector Markings	X	
5.3.2 Placement of Markings		
5.3.3 Prescription Lens Carriers	Not applicable	
5.4 Other Requirements	Not applicable	
5.5 Replaceable Lenses	Not applicable	
5.6 Aftermarket Components and Accessories	Not applicable	

Samples as assessed meet the requirements of ANSI/ISEA Z87.1-2020 for Standard (Non-Impact Rated) Spectacles.

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Results:

5.1.1 Optical Quality; Result: Pass

Lenses are free of striae, bubbles, waves and other visible defects which would impair their optical quality.

5.1.2 Luminous Transmittance (Tv) - ILLA (Clear Lenses)

Sample ID	Left (%)	Right (%)	Left/Right	Pass	Fail
8A-2	89.1	89.0	1.001	X	
Requirement:	$100 \geq T_L \geq 85$		N/A		

5.1.3 Haze - Clear Lens Only

Sample ID	Left (%)	Right (%)	Pass	Fail
8A-2	0.19	0.17	X	
Requirement:	≤ 3			

Measured relative to Illuminate A.

5.1.4 Refractive Power, Astigmatism, Resolving Power, Prism and Prism Imbalance for Plano Protectors

Refractive Power & Astigmatism

Sample ID	Left (m^{-1})		Right (m^{-1})		Pass	Fail
	Refractive Power	Astigmatism	Refractive Power	Astigmatism		
8A-1	-0.01	0.02	-0.01	0.02	X	
Requirement:	+/- 0.06	≤ 0.06	+/- 0.06	≤ 0.06		

Tested in a simulated as worn position using a 19mm aperture.

Resolving Power

Sample ID	Pattern Resolved (Yes/No)		Pass	Fail
	Left	Right		
8A-1	Yes	Yes	X	
Requirement:	Resolve Pattern 20			

Tested in a simulated as worn position using a 19mm aperture.

Prism and Prism Imbalance

Sample ID	Prismatic Power (cm/m)		Vertical Imbalance(cm/m)	Horizontal Imbalance(cm/m)	Pass	Fail
	Left	Right				
8A-1	0.09	0.05	0.05	<0.05 Base Out	X	
Requirement:	≤ 0.50		≤ 0.25	Base Out ≤ 0.50 Base In ≤ 0.25		

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5.2 Physical Requirements; Results: Pass

Protectors are free from projections, sharp edges or other defects which are likely to cause discomfort or injury during use.

5.2.1 Drop Ball Impact Resistance

Sample ID	Location	Pass	Fail
8A-3	Left	X	
8A-4	Right	X	
8A-5	Left	X	
8A-6	Right	X	
Protector shall fail if any of the following occur: <ul style="list-style-type: none"> • lens (lens only) fractures • piece fully detached from the inner surface • projectile penetrates the inner surface • lens not retained 			

5.2.2 Ignition; Results: Pass

Components tested (Lens, Temple (Arm and Pad)) did not ignite or continue to glow once the rod is removed.

5.2.4 Minimum Coverage Area; Result: Pass

The frames, lens housings or carriers and lens(es) cover in plain view an area of not less than 40 mm (1.57 in.) in width and 33 mm (1.30 in.) in height (elliptical) in front of each eye, centered on the geometrical center of the lens.

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5.3.1 Required Protector Markings

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.

The components of frames that are intended for prescription protector use shall be marked for size in accordance with the system described in ANSI/ISO 7998/8624/12870. Fronts shall be marked with the A-dimension (eye size) and DBL (distance between lenses). Temples shall be marked with their overall length.

5.3.1 Required Protector Markings

Component	Marking Present	Requirement	Pass	Fail
Lens	None	Complete Device (no replaceable components) shall have at least one set of markings. The marking may be on the lens or the frames or both the lens and the frame. Requirement:		
L Temple	“SAFEYEAR” “ANSI Z87.1”	Non-Impact Rated “MFGZ87” Lens Type (if applicable): Welding Filter Shade “W#” Ultraviolet Filter Scale “U#” Infrared Filter Scale “R#” Visible Light Filter Scale “L#” Variable Tint “V” Special Purpose Lens “S”	X	
R Temple	None			

5.3.2 Placement of Markings

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)
- Coverage (See 5.2.4)
- Optical level (See 6.1)
- Optional Hazard-Specific Mark, as applicable:
 - impact-rated marking (+) (See 7.1)
 - optical radiation marking (See 7.2)
 - droplet and splash marking (See 7.3)
 - dust marking (See 7.4)
 - fine dust marking (See 7.5)
- Optional Design Marks, as applicable:
 - Anti-fog treatment (See 6.2)

Manufacturer’s marks or logos are exempt from the proximity requirement if they are clearly present elsewhere on the product. Markings representative of other standards shall not interfere with or be intermixed with the markings required by this standard.

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Sample Photograph:



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13. Certain work may be subcontracted to ICS-approved laboratories as required or applicable. Client will be notified of this in advance.
14. Client agrees to pay any and all additional costs associated with unexpected or above-standard communications and/or consultations with Client or third parties as designated by Client.
15. Client agrees to pay any and all additional costs for work additional to the original scope of work as agreed to by Client.
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19. It is agreed that if ICS should be found liable for any losses or damages attributable to the services hereunder in any respect, its liability shall not exceed the amount of the fee paid by Client for services rendered and Client's sole remedy at law or in equity shall be the right to recover that sum.
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21. ICS hereby objects to any conflicting terms contained in any order, acceptance or other subsequent correspondence submitted by Client.
22. In the event that payment is not received within 15 days of invoice date, Client agrees to pay a late payment charge on the unpaid balance equal to 1-1/2% per month or the maximum charge allowed by law, whichever is less, and all costs and expenses, including attorney's fees where recovery of the same is not prohibited by law, incurred by ICS in collecting such invoices.
23. All costs associated with compliance with any subpoena (s) for documents, testimony in a court of law, or for any other purpose relating to work performed by ICS in connection with work performed for that Client, shall be paid by Client. Client shall also pay costs related to deposition and trial testimony.
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