

ICS[®]
INC. LABORATORIES

Client: JT USA
515 Main Street
Chula Vista CA, 91911
USA

Date: 21 August 2003
Report: J1883
Issue: 1
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Objective:

Contract testing to ASTM F1776 – 01; "Standard Specification for Eye Protective Devices for Paintball Sports." and applicable references thereof.

Samples:

1. Sixteen (16) Paint Ball Protective Mask
Model No./Name: Axiom FX-10
Physical Description: Grey/Black Frame, Clear lens
ICS Sample ID: I-X

Date(s) Submitted by Client: 18 August 2003

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. Testing procedures as specified within ASTM F1776-99a were followed.

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

CSA adult male headform was used for impact tests.

ANSI Headform (Alderson 50th percentile) was used for optical tests.

Replacement lenses were installed by ICS prior to testing.

The following requirements were assessed and reported in ICS Test Report J1774:

- 4.1 Optical Requirements
8. General Requirements
9. Product Marking



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Assessment Summary:

Date(s) of test(s): 19 & 20 August 2003, 12 & 13 May 2003

ASTM F1776 Clause	Compliant	Non-Compliant
4. Performance Requirements		
4.1 Optical Requirements		
4.1.1 Field of view	X	
4.1.2 Refractive Tolerances	X	
4.1.3 Astigmatism	X	
4.1.4 Power Imbalance	X	
4.1.5 Prism	X	
4.1.6 Prism Imbalance	X	
4.1.7 Luminous Transmittance	X	
4.1.8 Haze	X	
4.1.9 Optical Quality	X	
4.1.10 Physical Lens Defects	X	
4.2 Mechanical Requirements		
4.2.a High Velocity Impact	X	
4.2.b Lens Retention	X	
4.2.c Shell Fragment	X	
4.2.d EPD System Retention	X	
8. General Requirements		
8.1 Materials of Construction		Not Assessed
8.2 Openings	X	
9. Product Marking		
9.1 Permanent Product Marking	X	
9.2 Label or Tag Marking	X	

Samples as assessed meet the requirement of ASTM F1776-01.

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Results:

4.1.1 Field of View

Sample ID	Location	Measured Value	Specification	Pass	Fail
1-2	Temporal Field	>90°	≥50°	X	
	Nasal Field	>30°	≥30°	X	
	Superior Field	30°	≥30°	X	
	Inferior Field	50°	≥30°	X	

4.1.2 Refractive Tolerances

Sample ID	Location	Measured Value		Specification	Pass	Fail
		Horizontal	Vertical			
1-lr	Left Ocular	-0.02D	-0.14D	≥ -0.37 D & ≤ +0.06 D	X	
	Right Ocular	-0.02D	-0.24D		X	

4.1.3 Astigmatism

Sample ID	Location	Measured Value	Specification	Pass	Fail
1-lr	Left Ocular	0.12 D	≤ 0.25D	X	
	Right Ocular	0.22 D		X	

4.1.4 Power Imbalance

Sample ID	Direction	Calculated Value	Specification	Pass	Fail
1-lr	Meridian 1	0.00 D	≤ 0.18 D	X	
	Meridian 2	0.10 D		X	

4.1.5 Prism

Sample ID	Location	Measured Value	Specification	Pass	Fail
1-lr	Left Ocular	0.10 Δ	≤ 0.5 Δ	X	
	Right Ocular	0.11 Δ		X	

4.1.6 Prism Imbalance

Sample ID	Direction	Measured Value	Specification	Pass	Fail
1-lr	Vertical	0.02 Δ	≤ 0.5Δ	X	
	Horizontal	0.84 Δ Base Out	≤ 0.25Δ Base In OR ≤ 1.0Δ Base Out	X	

4.1.7 Luminous Transmittance

Sample ID	Location	Measured Value	Specification	Pass	Fail
1-2r	Right Ocular	91 %	≥60% for clear lenses ≥20% for tinted and shall be labeled Not for use in low light conditions.	X	

4.1.8 Haze

Sample ID	Location	Measured Value	Specification	Pass	Fail
1-2r	Right Ocular	0.5 %	≤ 3%	X	



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4.1.9 Optical Quality; Result: Pass

Samples as assessed are free of striae warpage, surface ripples, or lenticulations that would impair the function of the lenses.

4.1.10 Physical Lens Defects; Result: Pass

Samples as assessed are free of pits, scratches, grayness, bubbles, cracks, water marks or other defects that would impair the function of the lenses.

4.2 Mechanical Requirements - High Velocity Impact

Sample ID	Conditioning	Impact Location	Velocity (ft/sec)	Pass	Fail
1-13	23°C	Left Ocular	412	X	
			410	X	
			405	X	
		Right Ocular	410	X	
			420	X	
			406	X	
		Left Nasal	414	X	
		Right Temporal	385	X	

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4.2 Mechanical Requirements - Lens Retention

Sample ID	Conditioning	Impact Location	Velocity (ft/sec)	Pass	Fail
1-2	23°C (73°F)	Frame Superior	302	X	
			329	X	
		Frame Temporal -Right	290	X	
			316	X	
		Frame Temporal -Left	305	X	
			315	X	
		Frame Inferior	324	X	
			310	X	
1-3	-12.2°C (10°F)	Frame Superior	210	X	
			326	X	
		Frame Temporal -Right	326	X	
			306	X	
		Frame Temporal -Left	319	X	
			324	X	
		Frame Inferior	314	X	
			320	X	
1-4	37.8°C (100°F)	Frame Superior	303	X	
			311	X	
		Frame Temporal -Right	308	X	
			292	X	
		Frame Temporal -Left	314	X	
			327	X	
		Frame Inferior	304	X	
			317	X	

4.2 Mechanical Requirements - Shell Fragment Tests

Sample ID	Conditioning	Impact Location	Velocity (ft/s)	Pass	Fail
1-5	23°C (73°F)	Right Nasal	313	X	
1-6		Left Nasal	312	X	
1-7	-12.2°C (10°F)	Right Nasal	282	X	
1-8		Left Nasal	316	X	
1-9	37.8°C (100°F)	Right Nasal	319	X	
1-10		Left Nasal	313	X	

4.2 Mechanical Requirements - Goggle Retention Test

Sample ID	Conditioning	Impact Location	Velocity (ft/sec)	Pass	Fail
1-11	23°C (73°F)	Right Temporal 110°	315	X	
			306	X	
			298	X	

8.2 Openings; Result: Pass

Openings in the protector such as those for ventilation are designed in such a way to prevent direct ocular impact by paintball fragments.

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9. Product Marking

9.1 Each EPD frame and each lens shall bear the following permanent marking:

Sample ID	Component	Marking	Requirement	Pass	Fail
1-1	Frame	JT	9.1.1	X	
	Lens	JT	Manufacturer's Identity	X	
	Frame	③③	9.1.2	X	
	Lens	01/03	Month and Year of manufacture	X	

9.2 A label or tag bearing the following information shall be attached to, or shall accompany the EPD, at the time it leave the manufacturer; Result: Pass
 All of the following information was observed on either a tag or in the instructions.

- 9.2.1 Warning that failure to follow all these instructions or adhere, or both to all the warnings may result in serious or permanent injury.
- 9.2.2 Warning never remove the EPD while on the playing field.
- 9.2.3 Warning to wear the EPD whenever shooting a paintgun and whenever in or near an area where paintball guns are being shot.
- 9.2.4 Warning that all paintball guns must be chronographed and not to play where paintball velocities exceed 300 fps. Warning to observe at all times the rules of safe play and the rules of safe paintgun handling.
- 9.2.5 Warning to wear ear and face protection if they are not integral parts of the EPD. Warning that the goggle strap is not an ear protector.
- 9.2.6 Warning to check the lens before and after use and to replace the lens immediately if the lens is subjected to a direct impact from a paintball from a distance under 10 ft.
- 9.2.7 Warning to replace the lens after it has been in use for one year.
- 9.2.8 Warning, for an EPD without anti-fog treatment that fogging may occur, and recommend the application of an anti-fog solution
- 9.2.9 Instructions on what anti-fog substances(s) may be used on the lens. Warning not to use other substance(s) on the lens.
- 9.2.10 Instructions on how to remove and install a lens.
- 9.2.11 Warning to use only lenses designed to fit the specific EPD model.
- 9.2.12 Instructions on how to attach accessories, such as facemask, ear protectors, etc.
- 9.2.13 Instructions on how to store the EPD.
- 9.2.14 Instructions on how to fit the EPD on the head properly for various head sizes.
- 9.2.15 Instructions on when and how to clean the EPD.

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Sample Photographs:

