




Test Report T10462-01-1 Issue 1
MIL-PRF-32432(GL) (9 January 2013)
3.6.3.1 Ballistic Fragmentation Protection, Class 1(Spectacles)
Bollé Safety
Gunfire Spectacles
19 January 2016




Approved by:



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Prepared by:



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USA

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Objective:

Contract testing to MIL-PRF-32432 (GL) "Performance Specification Military Combat Eye Protection (MCEP) System"; 9 January 2013.

Clause 3.6.3.1 Ballistic Fragmentation Protection, Class 1 (Spectacles)

Samples:

Gunfire Spectacles

Lens Color	Frame Color	Quantity	Sample ID
Clear	Black/Red	43	2A
Smoke	Black/Red	43	2B
CSP	Black/Red	43	2C

Date(s) submitted: 30 December 2015

Summary:

Date(s) tested: 08 January 2016

The samples as assessed meet the Ballistic Fragmentation Protection requirements for Spectacles.

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Equipment:

1. Pneumatic Air Gun.
2. Propellant, Nitrogen.
3. Fragment Simulating Projectiles (FSP), 0.15 caliber, 5.8grain, 4340 steel, Hardness 30 +/- 2 Rockwell C.
4. Oehler Research Precision Ballistic Chronographs, two sets of screens with 1' spacing between start and stop. (Set 1: stop screen ~16.0" from sample, Set 2: stop screen ~ 12.5" from sample)
5. EN Medium Headform with modified eye sockets and two elliptical 0.002 inch witness sheets over each eye socket.

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 mounted on headform and impacted with a 0.15 caliber projectile a velocity of 640 to 660 ft/s. One impact per sample, normal to the front curve, coincident with either the right or left eye. Left and right impact locations were to the visual centers (a point centered on the horizontal center line and 32mm from the vertical center line).

Strike velocities were calculated using ITOP 4-2-805 (20 September 2005) Appendix D-Part 1 and TEDT-AT-FPP (5 October 2009) Equation 5.

$$\Delta V = (X_{pid}^2 G) / W$$

$$V_{strike} = V_{measured} - \Delta V$$

Test considered a failure if one or more of the following occur:

- 1) if the witness sheet is perforated or if there is a complete penetration of the test item,
- 2) if the primary lens is cracked, fractured, or shattered,
- 3) if one or more fragments become dislodged on the inside of the eyewear (to include coatings)
- 4) if an eyewear component needed to retain the eyewear on the head becomes completely separated from the eyewear
- 5) if the primary lens becomes completely separated from the eyewear
- 6) if the eyewear falls off the head form
- 7) if the inside laminate is cracked and results in a loose flap of material larger than the diameter of the projectile (for laminated lens structures only)

A lens crack is defined as a fissure that propagates beyond the impact site from one surface of the lens to the other. Petalling is not considered a crack.

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Results:

Sample ID	Location	Velocity (ft/s)				Pass	Fail
		Measured		Calculated Strike			
		Chrono 1	Chrono 2	Chrono 1	Chrono 2		
Clear							
2A-21	Left	661	661	656	656	X	
2A-22	Left	661	661	656	656	X	
2A-23	Left	659	658	654	654	X	
2A-24	Left	661	660	656	655	X	
2A-25	Left	661	661	656	656	X	
2A-26	Right	662	661	657	656	X	
2A-27	Right	658	658	654	654	X	
2A-28	Right	660	659	655	654	X	
2A-29	Right	661	660	656	655	X	
2A-30	Right	659	658	654	654	X	
Smoke							
2B-18	Left	659	659	654	654	X	
2B-19	Left	661	660	656	655	X	
2B-20	Left	661	660	656	655	X	
2B-21	Left	661	661	656	656	X	
2B-22	Left	663	662	658	657	X	
2B-23	Right	660	660	655	655	X	
2B-24	Right	660	659	655	654	X	
2B-25	Right	661	660	656	655	X	
2B-26	Right	660	660	655	655	X	
2B-27	Right	659	658	654	654	X	
CSP							
2C-18	Left	661	660	656	655	X	
2C-19	Left	661	661	656	656	X	
2C-20	Left	661	661	656	656	X	
2C-21	Left	662	661	657	656	X	
2C-22	Left	663	663	658	658	X	
2C-23	Right	659	660	654	655	X	
2C-24	Right	661	661	656	656	X	
2C-25	Right	659	658	654	654	X	
2C-26	Right	661	660	656	655	X	
2C-27	Right	660	659	655	654	X	

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Sample Photographs:



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