

Element U.S. Space & Defense Test Report for Ballistic Resistance Testing

Project No.: PH00019139C Tested: 18 June 2026 P.O. No.: Signed Quote OH32084

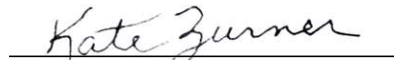
Prepared For

Optima Ballistic Glass Colombia S.A.S | Zona Franca La Cayena Mz K Lote In 45 A. | Barranquilla, Colombia

Attention: Julio Rodriguez

Prepared By

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Further dissemination only as directed by Optima Ballistic Glass Colombia S.A.S, June 2026.

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Revision History

Rev.	Description	Issue Date
0	Initial Release	22 June 2026

BALLISTIC RESISTANCE TEST

Element U.S. Space & Defense

4603B Compass Point Road
Belcamp, MD 21017

Client: Optima Ballistic Glass Colombia
S.A.S.

Project No.: PH00019139-1

Test Date: 06/18/2026

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Test Panel Description: Transparent sample.

Manufacturer: Optima Ballistic Glass Colombia S.A.S.

Sample No.: (M80, V0) 28104-101

Size: 495.30 x 495.30 mm
Avg. Thickness: 41.542 mm
Thicknesses: 41.554 mm, 41.631 mm,
41.554 mm, 41.427 mm

Weight: 22.970 kg
Plies/Laminates: N/A

Date Received: 05/05/2026

Setup

Shot Spacing: 3 shots on 120 mm
triangle
Witness Panel: .001 in Aluminum
foil
Backing Material: N/A
Condition: Ambient

Primary Vel. Screens (m): 6.100, 6.200,
9.040, 9.140
Primary Vel. Location (m): 7.620
Range to Target (m): 9.997
Target to Witness (mm): 499.872

Range No.: Range 1
Temp: 20.3 °C
BP: 30.2 inHg
RH: 46.2 %
Barrel/Gun: WC078567
Gunner: Jacob Arisman
Recorder: Isaiah Lookingbill

Ammunition

Projectile	Lot No.	Manufacturer	Powder
(1) 7.62 x 51-mm, 149-grain M80 FMJ	NA	Military	N133

Applicable Standards or Procedures

- (1) BS EN 1063 Level BR6
(2) Customer Request

Shot No.	Ammo	Powder/ Seating	Weight (gr)	Time 1 (µs)	Vel. 1 (m/s)	Time 2 (µs)	Vel.2 (m/s)	Avg. Vel. (m/s)	Striking Vel. (m/s)	Penetration	Obliq. (°)	Footnotes
1	1	39.0	148.3	3639.0	837.6	3395.0	837.9	837.90	836.07	None	0	
2	1	39.0	148.3	3636.0	838.2	3390.0	839.1	838.81	836.98	None	0	
3	1	39.0	148.0	3653.0	834.2	3409.0	834.5	834.54	832.71	None	0	

Remarks:

Required Velocity: 820.2 - 839.7 m/s.

Projectile Yaw Check: 0° Yaw on All Impacts.

Footnotes:

N/A

BALLISTIC RESISTANCE TEST

Element U.S. Space & Defense

4603B Compass Point Road
Belcamp, MD 21017

Client: Optima Ballistic Glass Colombia
S.A.S.

Project No.: PH00019139-2

Test Date: 06/18/2026

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Test Panel Description: Transparent sample.

Manufacturer: Optima Ballistic Glass Colombia S.A.S.

Sample No.: (M80, V0) 28104-102

Size: 495.30 x 495.30 mm
Avg. Thickness: 41.459 mm
Thicknesses: 41.656 mm, 41.478 mm,
41.300 mm, 41.402 mm

Weight: 22.940 kg
Plies/Laminates: N/A

Date Received: 05/05/2026

Setup

Shot Spacing: 3 shots on 120 mm
triangle
Witness Panel: .001 in Aluminum
foil
Backing Material: N/A
Condition: Ambient

Primary Vel. Screens (m): 6.100, 6.200,
9.040, 9.140
Primary Vel. Location (m): 7.620
Range to Target (m): 9.997
Target to Witness (mm): 499.872

Range No.: Range 1
Temp: 20.4 °C
BP: 30.2 inHg
RH: 46.8 %
Barrel/Gun: WC078567
Gunner: Jacob Arisman
Recorder: Isaiah Lookingbill

Ammunition

Projectile	Lot No.	Manufacturer	Powder
(1) 7.62 x 51-mm, 149-grain M80 FMJ	NA	Military	N133

Applicable Standards or Procedures

- (1) BS EN 1063 Level BR6
(2) Customer Request

Shot No.	Ammo	Powder/ Seating	Weight (gr)	Time 1 (µs)	Vel. 1 (m/s)	Time 2 (µs)	Vel.2 (m/s)	Avg. Vel. (m/s)	Striking Vel. (m/s)	Penetration	Obliq. (°)	Footnotes
1	1	39.2	147.8	3631.0	839.4	3387.0	840.0	839.72	837.90	None	0	
2	1	39.2	147.8	3658.0	833.3	3414.0	833.3	833.32	831.49	None	0	
3	1	39.2	147.9	3641.0	837.0	3397.0	837.3	837.29	835.46	None	0	

Remarks:

Required Velocity: 820.2 - 839.7 m/s.

Projectile Yaw Check: 0° Yaw on All Impacts.

Footnotes:

N/A

BALLISTIC RESISTANCE TEST

Element U.S. Space & Defense

4603B Compass Point Road
Belcamp, MD 21017

Client: Optima Ballistic Glass Colombia
S.A.S.

Project No.: PH00019139-3

Test Date: 06/18/2026

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Test Panel

Description: Transparent sample.

Manufacturer: Optima Ballistic Glass Colombia S.A.S.

Sample No.: (M80, V0) 28104-103

Size: 495.30 x 495.30 mm
Avg. Thickness: 41.567 mm
Thicknesses: 41.656 mm, 41.504 mm,
41.478 mm, 41.631 mm

Weight: 23.000 kg
Plies/Laminates: N/A

Date Received: 05/05/2026

Setup

Shot Spacing: 3 shots on 120 mm
triangle
Witness Panel: .001 in Aluminum
foil
Backing Material: N/A
Condition: Ambient

Primary Vel. Screens (m): 6.100, 6.200,
9.040, 9.140
Primary Vel. Location (m): 7.620
Range to Target (m): 9.997
Target to Witness (mm): 499.872

Range No.: Range 1
Temp: 20.5 °C
BP: 30.2 inHg
RH: 47.4 %
Barrel/Gun: WC078567
Gunner: Jacob Arisman
Recorder: Isaiah Lookingbill

Ammunition

Projectile	Lot No.	Manufacturer	Powder
(1) 7.62 x 51-mm, 149-grain M80 FMJ	NA	Military	N133

Applicable Standards or Procedures

- (1) BS EN 1063 Level BR6
(2) Customer Request

Shot No.	Ammo	Powder/ Seating	Weight (gr)	Time 1 (µs)	Vel. 1 (m/s)	Time 2 (µs)	Vel.2 (m/s)	Avg. Vel. (m/s)	Striking Vel. (m/s)	Penetration	Obliq. (°)	Footnotes
1	1	39.2	148.0	3649.0	835.2	3402.0	836.1	835.76	833.93	None	0	
2	1	39.2	148.0	3629.0	840.0	3385.0	840.3	840.03	838.50	None	0	
3	1	39.2	148.1	3651.0	834.8	3407.0	834.8	834.85	833.02	None	0	

Remarks:

Required Velocity: 820.2 - 839.7 m/s.
Projectile Yaw Check: 0° Yaw on All Impacts.

Footnotes:

N/A

ATTACHMENT A CALIBRATION DATA

Asset Number	Asset Type	Manufacturer	Model	Calibrated	Due
WC027072	Measurement Tools (Angle Gauge)	SPI	91-316-0	02/24/2026	02/24/2027
WC027147	Meter (Chronograph)	YIS/Cowden Group, Inc	Chrono USB	09/22/2025	09/22/2026
WC067021	Meter (Chronograph)	YIS/Cowden Group, Inc	Chrono-USB (17025)	09/22/2025	09/22/2026
WC075083	Scale (Digital)	RCBS	Charge Master 1500	11/19/2025	11/19/2026
WC078618	Measurement Tools (Tape Measure)	Craftsman	CMHT37525	09/26/2025	09/26/2026
WC079302	Scale (Floor)	Torbal Scales	BA153C	12/18/2025	12/18/2026
WC079394	Gauge (Depth)	Starrett	3753A-6/150	01/19/2026	01/19/2027
EL00003996	Measurement Tools (Tape Measure)	Craftsman	CMHT37525	12/29/2025	12/29/2026
EL00000256	Sensor (Temperature/Humidity)	Onset	MX1101	09/30/2025	09/30/2026
WC079418	Tower (Drop, Penetration)	Chesapeake Testing	NIJ Drop Sphere	09/04/2025	09/04/2026

END OF REPORT