

Element U.S. Space & Defense Test Report for Ballistic Resistance and Ballistic Limit, V₅₀ BL(P) Testing

Project No.: PH00011512 **Tested:** 29 May 2024 **PO No.:** LOI OH19135

Prepared For

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Further dissemination only as directed by Delta Defense Technology Inc., 10 June 2024.

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Revision History

Rev.	Description	Issue Date
0	Initial Release	10 June 2024

BALLISTIC RESISTANCE TEST

Element U.S. Space & Defense

 4603B Compass Point Road
 Belcamp, MD 21017

Client: Delta Defense Technology Inc

Project No.: PH00011512-1

Test Date: 05/29/2024

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Test Panel Description: Ballistic helmet with pads and retention system.
Manufacturer: Delta Defense Technology Inc**Sample No.:** (9mm, V0) Sample 1
 Size: Large
 Avg. Thickness: 0.311 in
 Thicknesses: 0.308 in, 0.304 in,
 0.319 in, 0.314 in

 Weight: 3.020 lbs
 Plies/Laminates: N/A

 Date Received: 05/06/2024
 Received Via: UPS Ground
 Returned Via: UPS Ground

Setup

 Shot Spacing: NIJ-STD-0106.01
 Witness Panel: Clay
 Backing Material: Clay-filled NIJ-
 0106.01 head form
 Condition: Ambient

 Primary Vel. Screens (ft): 6.500, 9.500
 Primary Vel. Location (ft): 8.000
 Range to Target (ft): 16.400
 Target to Witness (in): 0.000

 Range No.: Range 3
 Temp: 64.6 °F
 BP: 30 inHg
 RH: 46 %
 Barrel/Gun: WC020651
 Gunner: Timothy Mackie
 Recorder: Keivin Guzman

Ammunition

Projectile	Lot No.	Manufacturer	Powder
(1) 9-mm, 124-grain FMJ	23558	Remington	Accurate No. 2

Applicable Standards or Procedures

 Clay Drop 1-Drop Time: 11:35 AM; Block No. WC074957; Temp: 97.1 °F, 96.5 °F; Drop Depths: 24.2 mm, 25.9 mm, 25.5 mm
 (1) NIJ-STD-0106.01 (Modified)
 (2) Customer Request

Shot No.	Ammo	Powder/ Seating	Weight (gr)	Time 1 (µs)	Vel. 1 (ft/s)	Time 2 (µs)	Vel.2 (ft/s)	Avg. Vel. (ft/s)	Penetration	Deformation (mm)	Obliq. (°)	Footnotes
1	1	5.5	124.0	2189	1370	2186	1372	1371	None	14.8	0.0	(a)
2	1	5.5	124.0	2174	1380	2172	1381	1381	None	10.9	0.0	(b)
3	1	5.5	124.0	2176	1379	2172	1381	1380	None	6.1	0.0	(c)
4	1	5.5	124.0	2198	1365	2198	1365	1365	None	3.7	0.0	(d)

Remarks:

Required Velocity: 1350 - 1450 ft/s.

Projectile Yaw Check: 0° Yaw on all Impacts.

Head form: HB1-1, Temp: 96.4 °F.

Footnotes:

- (a) Front
- (b) Back
- (c) Right
- (d) Left

PROTECTION BALLISTIC LIMIT TEST, V ₅₀ BL(P)													
Element U.S. Space & Defense 4603B Compass Point Road Belcamp, MD 21017								Client: Delta Defense Technology Inc Project No.: PH00011512-A Test Date: 05/29/2024 Page 1 of 2					
Test Panel		Description: Ballistic helmet without pads and retention system.											
Manufacturer: Delta Defense Technology Inc						Sample No.: (17gr., V50) Sample 2							
Size: Large Avg. Thickness: 0.316 in Thicknesses: 0.318 in, 0.308 in, 0.318 in, 0.319 in				Weight: 2.700 lbs Plies/Laminates: N/A Required BL(P): 2200 ft/s				Date Received: 05/06/2024 Received Via: UPS Ground Returned Via: UPS Ground					
Setup													
Shot Spacing: STANAG 2920 Ed 3 AEP 2920 Edition A, Version 2 Witness Panel: 0.02 in 2024-T3 Aluminum Backing Material: N/A Condition: Ambient				Primary Vel. Screens (ft): 5.000, 5.333, 9.666, 10.000 Primary Vel. Location (ft): 7.500 Range to Target (ft): 15.000 Target to Witness (in): 3.000				Range No.: Range 3 Temp: 64.6 °F BP: 30 inHg RH: 42 % Barrel/Gun: WC020651 Gunner: Timothy Mackie Recorder: Keivin Guzman					
Ammunition													
Projectile				Lot No.		Manufacturer				Powder			
(1) .22-cal., 17-grain FSP				17062223		Contra Threat Sciences				Bullseye			
Applicable Standards or Procedures													
(1) STANAG 2920 Ed 3 AEP 2920 Edition A, Version 2 dated September 2016 (2) Customer Request													
Shot No.	Ammo	Powder/ Seating	Weight (gr)	Time 1 (µs)	Vel. 1 (ft/s)	Time 2 (µs)	Vel.2 (ft/s)	Avg. Vel. (ft/s)	Striking Vel. (ft/s)	Result	Include in V ₅₀	Obliq. (°)	Footnotes
1	1	9.6	17.0	2047	2443	1774	2443	2443	2338	C	No	0.0	(a)
2	1	9.0	17.0	2106	2374	1827	2372	2373	2271	P	Yes	0.0	(b)
3	1	9.3	17.0	2074	2411	1798	2410	2410	2307	C	No	0.0	(c)
4	1	9.1	17.0	2093	2389	1815	2387	2388	2286	C	No	0.0	(d)
5	1	8.8	17.0	2140	2336	1857	2333	2335	2235	C	Yes	0.0	(e)
6	1	8.5	17.0	2186	2287	1896	2285	2286	2189	P	Yes	0.0	(a)
7	1	8.8	17.0	2140	2336	1854	2337	2337	2237	C	Yes	0.0	(b)
8	1	8.5	17.0	2220	2252	1923	2253	2253	2156	P	Yes	0.0	(c)
9	1	8.8	17.0	2203	2270	1910	2269	2269	2172	C	Yes	0.0	(d)
Remarks: Requested starting Velocity: 2300 ft/s. Projectile Yaw Check: 0° Yaw on all Impacts.									V ₅₀ Summary: No. of Points: 3 and 3 V ₅₀ : 2210 ft/s High Partial: 2271 ft/s Low Complete: 2172 ft/s Range of Results (ROR): 115 ft/s Range of Mix Results (RMR): 99 ft/s Gap: N/A				
Footnotes: (a) Crown (b) Front (c) Left (d) Back (e) Right													

PROTECTION BALLISTIC LIMIT TEST, V₅₀ BL(P)

Element U.S. Space & Defense
4603B Compass Point Road
Belcamp, MD 21017

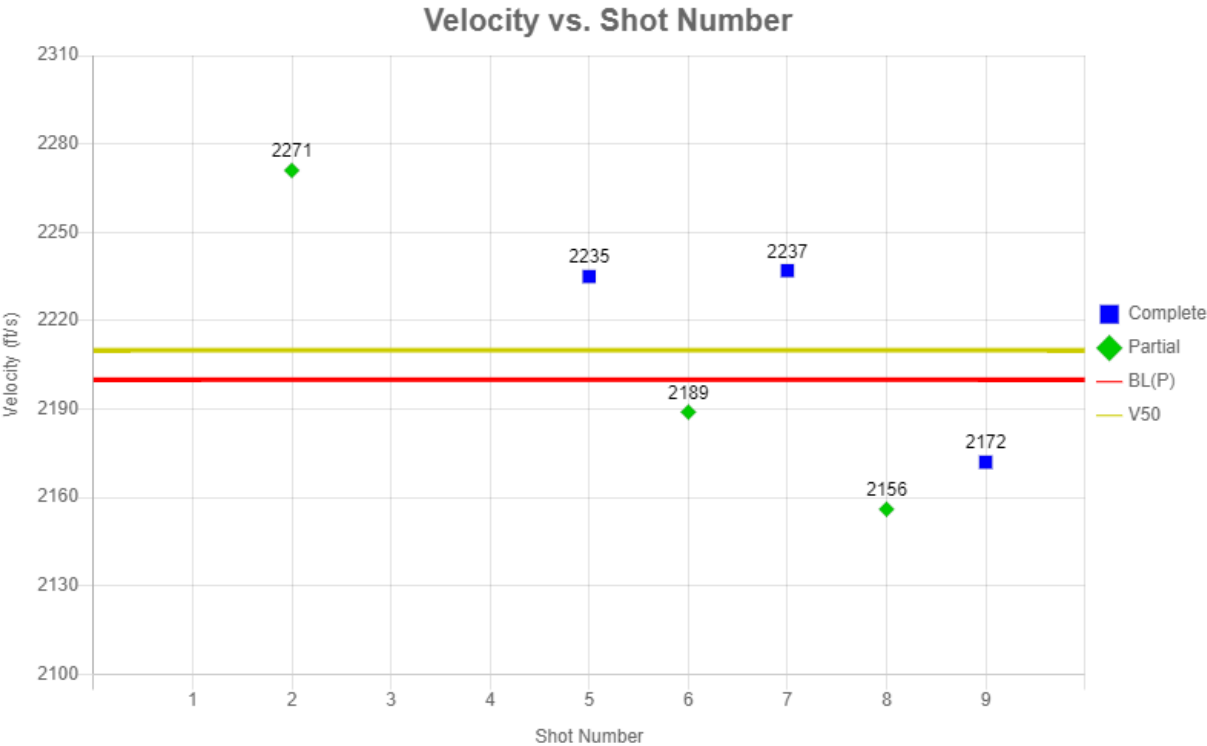
Client: Delta Defense Technology Inc
Project No.: PH00011512-A
Test Date: 05/29/2024
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Manufacturer: Delta Defense Technology Inc

Sample No.: (17gr., V50) Sample 2

V₅₀ Summary:

No. of Points: 3 and 3
V₅₀: 2210 ft/s
High Partial: 2271 ft/s
Low Complete: 2172 ft/s
Range of Results (ROR): 115 ft/s
Range of Mix Results (RMR): 99 ft/s
Gap: N/A



ATTACHMENT A CALIBRATION DATA

NCR = No Calibration Required.

Asset Number	Asset Type	Manufacturer	Model	Calibrated	Due
WC020651	Barrel (gun)	Bill Wiseman & Company	N/A	NCR	NCR
WC060267	Meter (Chronograph)	YIS/Cowden Group, Inc	Chrono-USB	07/20/2023	07/20/2024
WC060370	Scale (Floor)	Sartorius	CISL-1N-U	02/21/2024	02/21/2025
WC060650	Measurement Tools (Angle Gauge)	SPI	91-316-0	11/13/2023	11/13/2025
WC060802	Range (shooting)	N/A	N/A	NCR	NCR
WC064243	Gauge (Depth)	Chesapeake Testing	Bridge Depth Gauge	05/24/2024	08/24/2024
WC067005	Meter (Chronograph)	YIS/Cowden Group, Inc	Chrono USB (17025)	07/20/2023	07/20/2024
WC067389	Monitor (Thermometer/Clock/Humidity)	Control Company	4040	09/08/2023	09/08/2024
WC074957	Block (Clay)	Chesapeake Testing	N/A	01/07/2019	NCR
WC074990	Measurement Tools (Tape Measure)	Dewalt Industrial Tool	DWHT36107	10/12/2023	10/12/2025
EL00004082	Meter (Thermometer)	Control Company	4378, 98768-49	09/21/2023	09/21/2025
WC079246	Scale (Digital)	RCBS	Charge Master 1500	01/03/2024	01/03/2025
WC079401	Gauge (Depth)	Starrett	3753A-6/150	NCR	NCR
WC079403	Gauge (Depth)	Starrett	3753A-6/150	NCR	NCR
EL00004012	Measurement Tools (Tape Measure)	Craftsman	CMHT37565	05/11/2023	05/11/2025
WC075089	Gauge (Depth)	Chesapeake Testing	Local Manufactured Depth Gauge W/ optional NIJ Tip	04/25/2024	07/25/2024

END OF REPORT