

BALLISTIC RESISTANCE TEST

Element U.S. Space & Defense -Belcamp

4603B Compass Point Road
Belcamp, MD 21017

Client: Ace Link Industrial Inc.

Project No.: PH00011788

Test Date: 06/18/2024

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Test Panel Description: Special Mission Ballistic Helmet

Manufacturer: Ace Link Industrial Inc.

Sample No.: (.44 Mag, V0) Helmet A-1

Size: Large
Avg. Thickness: 0.342 in
Thicknesses: 0.340 in, 0.342 in,
0.342 in, 0.343 in

Weight: 3.390 lbs
Plies/Laminates: N/A

Date Received: 05/31/2024
Received Via: UPS Ground
Returned Via: UPS Ground

Setup

Shot Spacing: NIJ-STD-0106.01
Witness Panel: 0.02 in 2024-T3 Al
Backing Material: N/A
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): 3.000

Range No.: Range 2
Temp: 65.5 °F
BP: 30 inHg
RH: 49 %
Barrel/Gun: EL00000169
Gunner: Adam Beach
Recorder: Jacob Arisman

Ammunition

Projectile	Lot No.	Manufacturer	Powder
(1) .44 Mag, 240-grain SJHP	J28W	Speer	Accurate No. 5

Applicable Standards or Procedures

- (1) NIJ-STD-0106.01 (Modified)
- (2) NIJ-STD-0101.06 Level IIIA (Modified)
- (3) 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	Obliq. (°)	Footnotes
1	1	14.2	239.9	2123	1413	2123	1413	1413	None	0	(a)
2	1	14.2	239.9	2053	1461	2053	1461	1461	None	0	(b)
3	1	14.2	239.9	2131	1408	2136	1404	1406	None	0	(c)
4	1	14.2	240	2127	1410	2131	1408	1409	None	0	(d)

Remarks:

Required Velocity: 1400 - 1460 ft/s
Projectile Yaw Check: 0° Yaw on all Impacts.

Footnotes:

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

PROTECTION BALLISTIC LIMIT TEST, V₅₀ BL(P)

Element U.S. Space & Defense

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 Belcamp, MD 21017

Client: Ace Link Industrial Inc.

Project No.: PH00011788

Test Date: 06/18/2024

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Test Panel Description: Ballistic helmet with no pads or retention system

Manufacturer: Ace Link Industrial Inc.

Sample No.: (17gr., V50) Helmet A-3

 Size: Large
 Avg. Thickness: 0.347 in
 Thicknesses: 0.350 in, 0.353 in,
 0.343 in, 0.343 in

 Weight: 2.519 lbs
 Plies/Laminates: N/A
 Required BL(P): N/A

 Date Received: 05/31/2024
 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 Al
 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 2
 Temp: 66.8 °F
 BP: 30 inHg
 RH: 50 %
 Barrel/Gun: CDS-602
 Gunner: Adam Beach
 Recorder: Jacob Arisman

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

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	8.4	17	2197	2276	1901	2279	2278	2180	P	Yes	0	(a)
2	1	9.8	17	1997	2504	1728	2508	2506	2399	C	No	0	(b)
3	1	9.1	17	2110	2370	1828	2370	2370	2269	P	Yes	0	(c)
4	1	9.5	17	2045	2445	1776	2440	2442	2338	C	No	0	(d)
5	1	9.2	17	2097	2384	1815	2387	2386	2284	P	Yes	0	(e)
6	1	9.5	17	2040	2451	1767	2452	2452	2347	C	No	0	(a)
7	1	9.3	17	2062	2425	1789	2422	2423	2320	C	No	0	(b)
8	1	9.1	17	2088	2395	1810	2394	2394	2292	C	Yes	0	(c)
9	1	8.9	17	2114	2365	1832	2365	2365	2264	C	Yes	0	(d)
10	1	8.8	17	2149	2327	1862	2327	2327	2227	C	Yes	0	(e)

Remarks:

 Requested starting Velocity: 2300 ft/s.
 Projectile Yaw Check: 0° Yaw on all Impacts.

Footnotes:

 (a) Crown
 (b) Front
 (c) Left
 (d) Back
 (e) Right

V₅₀ Summary:

 No. of Points: 3 and 3
 V₅₀: 2253 ft/s
 High Partial: 2284 ft/s
 Low Complete: 2227 ft/s
 Range of Results (ROR): 112 ft/s
 Range of Mix Results (RMR): 57 ft/s
 Gap: N/A

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Test Panel Description: Special Mission Ballistic Helmet

Manufacturer: Ace Link Industrial Inc.

Sample No.: (.357 Sig, V0) Helmet A-2

Size: Large
Avg. Thickness: 0.349 in
Thicknesses: 0.349 in, 0.350 in,
0.349 in, 0.347 in

Weight: 3.410 lbs
Plies/Laminates: N/A

Date Received: 05/31/2024
Received Via: UPS Ground
Returned Via: UPS Ground

Setup

Shot Spacing: NIJ-STD-0106.01
Witness Panel: 0.02 in 2024-T3 Al
Backing Material: N/A
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): 3.000

Range No.: Range 2
Temp: 65.5 °F
BP: 30 inHg
RH: 49 %
Barrel/Gun: WC060383
Gunner: Adam Beach
Recorder: Jacob Arisman

Ammunition

Projectile	Lot No.	Manufacturer	Powder
(1) .357 Sig, 125-grain FMJ FN	M30W	Speer	Accurate No. 2

Applicable Standards or Procedures

- (1) NIJ-STD-0106.01 (Modified)
- (2) NIJ-STD-0101.06 Level IIIA (Modified)
- (3) 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	Obliq. (°)	Footnotes
1	1	7.0	124.5	2040	1471	2045	1467	1469	None	0	(a)
2	1	7.0	124.5	2032	1476	2036	1473	1475	None	0	(b)
3	1	7.0	124.6	2032	1476	2036	1473	1475	None	0	(c)
4	1	7.0	124.6	2045	1467	2045	1467	1467	None	0	(d)

Remarks:

Required Velocity: 1440 - 1500 ft/s
Projectile Yaw Check: 0° Yaw on all Impacts.

Footnotes:

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