

NATIONAL TECHNICAL SYSTEMS

V50 BALLISTIC LIMIT TEST

Date Received: 10/15/18
 Via: USPS
 Returned Via: UPS

Record No.: HHV18001-1
 Test Date: 10/16/18
 Customer: Hard Head Veterans

Sample Tested

Manufacturer: Hard Head Veterans
 Type: HHV ATE BALLISTIC
 Color / Size: Tan / L / XL
 Sample No.: Helmet #1
 Weight (lbs.): 2.523
 Style: High Cut
 DoM: N/A
 Conditioning: Ambient

Threat

Projectile: 17gr FSP
 Weight: 17 gr.
 Powder: Bullseye
 Barrel: 24"
 Obliquity: 0°
 Yaw: ≤ 5°

Test Specification

LW-ACH
 AR/PD 10-02 Rev. A with Change 6
 16 December 2013,
 IAW TOP 10-2-217
 21 March 2016

Range 2

Muzzle to Screen 1: 4.48 ft.
 Screen 1 - 4: 5.00 ft.
 Screen 2 - 3: 4.08 ft.
 Screen 4 - Target: 4.04 ft.
 Target to Witness: 0.25 ft.
 *Midpoint to Target: 6.54 ft.
 Witness Panel: 2024-T3 Aluminum
 Temperature: 72.6 °F
 Humidity: 45 %

Shot No.	Powder Charge (gr.)	CHRONOGRAPHS 1 - 4		CHRONOGRAPHS 2 - 3		AVERAGE VELOCITY ft/s	LOSS VELOCITY ft/s	STRIKING VELOCITY ft/s	IMPACT LOCATION	TEST RESULTS	
		TIME sx-5	VELOCITY ft/s	TIME sx-5	VELOCITY ft/s					Shot Included	Complete - C Partial - P
1	4.9	211.1	2369	172.2	2372	2370	79	2291	Crown	Y	C
2	4.7	219.0	2283	178.3	2291	2287	76	2211	Front	N	P
3	4.8	218.5	2288	178.1	2294	2291	77	2214	Right	Y	C
4	4.7	212.0	2358	172.9	2363	2361	79	2282	Back	Y	C
5	4.6	219.4	2279	178.8	2285	2282	76	2206	Left	Y	C
6	4.5	217.9	2295	177.6	2300	2297	77	2221	Crown	Y	P
7	4.6	218.4	2289	178.2	2292	2291	77	2214	Front	N	P
8	4.7	217.6	2298	177.3	2304	2301	77	2224	Right	Y	P
9	4.8	214.4	2332	174.7	2338	2335	78	2257	Back	Y	P
10	4.9	209.6	2385	170.8	2392	2389	80	2309	Left	Y	P

This test was performed in accordance with the specification requirements and the results properly reflect the ballistic performance of the listed sample. REMARKS/NOTES *Muzzle to target measured for each shot to calculate loss **Helmet tested as a finished helmet shell with pads, accessory rail connectors, 3-hole NVG shroud and retention/suspension system with chinstrap all removed.	V50 VELOCITY	HIGH PARTIAL	LOW COMPLETE	RANGE OF RESULTS	RANGE OF MIXED RESULTS
	2250	2309	2206	103	103
	*MINIMUM REQUIRED V50		TEST RESULTS		
	2200	PASS			
		*IAW Section 3.9.1, Table II			

V50 Impact Locations/Calculation:

- Customer requested a starting velocity of 2300 ft/s
- Customer requested a maximum of (10) shots per shell
- V50 based on (10) fair impacts using (4) partial and (4) complete penetrations with a range of results ≤ 150 ft/s

Wilson / Nold