Ballistic Resistance – Test Report

Client:	**Caliber Armor** 1421 Selinda Ave Louisville, KY 40213
Report date:	**8 November 2019**
Job number:	000009750A
Test procedure and supporting documentation:	Per Customer Instructions NIJ-STD-0101.06, Level III (Modified)
Sample receipt, identification information, and disposition:	The sample(s) were received on **4 November 2019**. Sample item identification and description details are provided on the attached data record(s). The test sample(s) were inspected prior to testing and no anomalies were discovered. Sample(s) will be returned or discarded per customer instructions. H.P. White will only hold sample(s) as required by specific test protocols.
Test date(s) and location:	Testing commenced on **7 November 2019**, at the H.P. White Laboratory, Inc. facilities located at 3114 Scarboro Road, Street, Maryland. Testing concluded on **7 November 2019**.
Report prepared by:	Colleen McElroy, Customer Operations Associate
Report reviewed by:	Chris D'Amario, Engineer
Revision number and date:	Revision 1, 25 November 2019
Supplement to report:	000009750A, 8 November 2019
Test data transmittal method and storage location:	This test report and test data were transmitted via email in a manner compliant with ISO 17025 requirements. Permanent electronic and hardcopy files are maintained in accordance with HPWLI data storage policy on data storage systems, filed by job number.
Disclaimer:	Testing was performed on sample(s) provided by the client. H.P. White Laboratory, Inc. holds no responsibility for sample selection methods. This report is based on data obtained from testing only the sample(s) submitted and should NOT be interpreted as an endorsement by H.P. White Laboratory, Inc. of the continuing quality or performance of any other items of the same, or similar, design. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government. This testing was performed by H.P. White Laboratory, Inc. to client specification, and the test results are the property of the client, who holds all rights of reproduction or publication of this report and related test data.
Destination control statement:	This document may contain items controlled by the U.S. government and authorized for export only to the country of ultimate destination for use by the ultimate consignee or end-user(s) herein identified. They may not be resold, transferred, or otherwise disposed of, to any other country or to any person other than the authorized ultimate consignee or end-user(s), either in their original form or after being incorporated into other items, without first obtaining approval from the U.S. government or as otherwise authorized by U.S. law and regulations.

ISO-5.10-FR15.09

Test Procedures

Ballistic Resistance Testing: All testing was conducted on an indoor range at ambient conditions, in accordance with your instructions and the modified provisions of NIJ-STD-0101.06, Level III. Testing was conducted using caliber 7.62 x 51mm, M80 Ball, 149 grain ammunition. The test sample(s) were positioned 25.00 feet from the muzzle of the barrel to produce zero (0°) degree obliquity impacts. Photoelectric infrared screens were located at 10.20 feet and 15.53 feet which, in conjunction with electronic chronographs, were used to compute bullet velocities at 12.86 feet forward of the muzzle. The striking velocity was computed using standard drag formulas. Penetrations were determined by visual examination of the 5.5-inch-thick clay backing material witness plate. Table I provides a summary of information on the attached data record(s).

Table I: Ballistic Resistance, Summary of Results

Sample No.	Thickness (in)	Weight (lbs.)	Conditioning	Caliber	Obliquity (degrees°)	Shots	Velocity (fps)		Penetrations	Deformations (mm)	
							Max	Min		Max	Min
14646-00000059	NA	8.80	AMBIENT	7.62 x 51mm, M80	0	6	2772	2751	0	24.87	12.72
(a) See individual data record(s) for specific footnotes/remarks											

Report prepared by:

Colleen McElroy
Customer Operations Associate

Report reviewed by:

Chris D'Amario
Engineer

HP WHITE LABORATORY, INC.

An Intertek Company

Protection, Resistance to Penetration, V_0 RTP

Client: 7434: Caliber Armor

Job No: 9750 **Test Date: 11/7/2019**

SAMPLE INFO

Manufacturer: Caliber Armor
Size: 10 x 12 in.
Protection Level: RF2
Description: 1 - AR550
Model: 19-AR550-1012-SPC, Lot Number: N14646

Serial Number: 14646-00000059
Weight: 8.8 lbs.
Condition: Ambient

Date Rec'd: 11/4/2019

SET-UP

Shot Spacing: NIJ-STD-0101.06
Witness Panel: N/A
Obliquity: 0˚
Backing Material: 5.5" Clay/Plywood

Muzzle to Screen 1 (ft.): 10.20
Distance 1-4 (ft.): 5.33
Distance 2-3 (ft.): 4.64
Screen 4 to Target (ft.): 9.47
Muzzle to Target (ft.): 25.00
Target to Witness ():
Velocity Midpoint: 12.86 ft. From Muzzle

Range No: 1
Temp (°F): 67
BP (in. Hg): 30.26
RH%: 47
Barrel No/Gun: .308 / R1
Gunner: Ches/Chronister
Recorder: Skrocki

AMMUNITION

Projectile: 7.62x51mm M80 Ball
Powder: N140

Nominal Grain Weight: 149 gr.
Projectile Lot No: HPW-M80SJ-01

CLAY

Block No: R1 B1
Temp (°F): 103.8

Time of Drops

APPLICABLE STANDARDS OR PROCEDURES

(1): NIJ-STD-0101.06 (MODIFIED)
(2):
(3):

Clay Drops (mm.)

1	26.92
2	25.38
3	24.22

Remarks

1: All Yaw measured less than 5 degrees

Footnotes

V_0 Summary:

Intended Velocity (ft/s): **2780**
No. of Shots: **6**

Shot No:	(µsec)		Velocity Measurements						Shot Angle	Results	BFD (mm)	Yaw	Footnotes
	Time 1	Time 2	V_I 1		V_I 2		AVG V_I						
			ft/s	m/s	ft/s	m/s	ft/s	m/s					
1	1932	1686	2759	840.9	2752	838.8	2755	839.9	0˚	PP	12.72	Good	
2	1920	1676	2776	846.1	2768	843.8	2772	845.0	0˚	PP	20.15	Good	
3	1935	1689	2755	839.6	2747	837.3	2751	838.5	0˚	PP	24.87	Good	
4	1924	1680	2770	844.4	2762	841.8	2766	843.1	0˚	PP	23.22	Good	
5	1921	1676	2775	845.7	2768	843.8	2772	844.8	0˚	PP		Good	
6	1922	1678	2773	845.3	2765	842.8	2769	844.0	0˚	PP		Good	