

# H.P. WHITE LABORATORY, INC.

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(HPWLI 12171-02A)

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1120-3 Buogok-dong Gung-si  
Gyeonggi-do Korea  
435-020

In accordance with your instructions, H.P. White Laboratory, Inc. conducted ballistic resistance testing of one laminated transparent armor sample received 28 September 2012 via DHL.

Testing was conducted in accordance with the provisions of NIJ-STD-0108.01, BALLISTIC RESISTANT PROTECTIVE MATERIALS, dated September 1985, Level IV using caliber .30, 166 grain, AP, M2 ammunition. The test sample was rigidly fixtured on an indoor range 50.0 feet from the muzzle of a test barrel to produce zero degree obliquity impacts. Velocity screens were positioned at 6.5 and 9.5 feet which, in conjunction with elapsed time counters (chronographs), were used to compute projectile velocities 8.0 feet forward of the muzzle. Penetrations were determined by visual examination of a 0.020 inch thickness alloy 2024T3 aluminum witness panel positioned 6.0 inches behind, and parallel to, the test sample. Table I presents a summary of the attached data record.

TABLE I. SUMMARY OF RESULTS

Test Sample				Ballistic Threat				Results
Number	Weight (lb)	Thickness (in) (a)	Obliquity (degrees)	Caliber	Shots	Velocity (fps)		Penetrations
						Max.	Min.	
HPW-1	38.39	1.963	0	.30, AP, M2	1	2812		1
(a) Average of four corner thicknesses.								

This conclusion is based on data obtained from having tested only the sample 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.

The test sample will be returned via DHL. Should you have any questions regarding this matter, or if we may be of any further service, please do not hesitate to contact us.

Very truly yours,

H. P. WHITE LABORATORY, INC

Kevin M. Black

KMB/tc  
Enclosure



### TEST PANEL

Manufacturer : HAEBICHIM Co., Ltd  
Size : 15.75 X 15.75 in.  
Thicknesses : 1.961, 1.962, 1.964, 1.966 in.  
Avg. Thick : 1.963 in.  
Description : LAMINATED TRANSPARENCY

Sample No. : HPW-1 (NIJ IV)  
Weight : 38.39 lbs.  
Hardness : NA  
Plies/Laminates : NA

Date Rec'd. : 09/28/12  
Via : DHL  
Returned : N/A

### SET-UP

Shot Spacing : 1 SHOT IN CENTER  
Witness Panel : 0.020", 2024-T3 ALUMINUM  
Obliquity : 0 deg.  
Backing Material : NA  
Conditioning : AMBIENT

Primary Vel. Screens : 6.5 ft., 9.5 ft.  
Primary Vel. Location : 8.0 ft. From Muzzle  
Residual Vel. Screens : NA  
Residual Vel. Location : NA  
Range to Target : 50.0 ft.  
Target to Wit. : 6.0 in.

Range No. : 6  
Temp. : 70 F  
BP : 29.80 in. Hg  
RH : 65%  
Barrel No./Gun : R6 .308  
Gunner : BLACK  
Recorder : BLACK

### AMMUNITION

(1) : CAL. .30 AP, M2, 166 gr.  
(2) :  
(3) :  
(4) :

Lot No. : UNKNOWN  
Lot No. :  
Lot No. :  
Lot No. :

### APPLICABLE STANDARDS OR PROCEDURES

(1) : NIJ-STD-0108.01 LEVEL IV  
(2) : REQUIRED VELOCITY: 2800-2900 FPS  
(3) :

Shot No.	Ammo.	Time 1 (usec)	Velocity 1 (ft/s)	Time 2 (usec)	Velocity 2 (ft/s)	Avg. Vel. (ft/s)	Penetration	Footnotes
1	1	1067	2812	1067	2812	2812	Bullet/Spall	

### REMARKS :

### FOOTNOTES :