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(HPWLI 12171-02C)

Haebichim
202 B East Giant Plaza1
1120-3 Buogok-dong Gung-si
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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 modified provisions of NIJ-STD-0108.01, BALLISTIC RESISTANT PROTECTIVE MATERIALS, dated September 1985, Level IIIA using caliber .44 Magnum, 240 grain, SWCGC ammunition. The test sample was rigidly fixtured on an indoor range 16.5 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-3	12.70	0.701	0	.44 Magnum	4	1418	1352	0
(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 : 0.701, 0.698, 0.702, 0.702 in.
Avg. Thick : 0.701 in.
Description : LAMINATED TRANSPARENCY

Sample No. : HPW-3 (NIJ IIIA)
Weight : 12.70 lbs.
Hardness : NA
Plies/Laminates : NA

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

SET-UP

Shot Spacing : 4 ON 125MM SQUARE
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 : 16.5 ft.
Target to Wit. : 6.0 in.

Range No. : 6
Temp. : 69 F
BP : 29.83 in. Hg
RH : 72%
Barrel No./Gun : R6 44 MAG
Gunner : BLACK
Recorder : BLACK

AMMUNITION

(1) : 44 MAG SWCGC, 240 gr.
(2) :
(3) :
(4) :

Lot No. : PMC B44243
Lot No. :
Lot No. :
Lot No. :

APPLICABLE STANDARDS OR PROCEDURES

(1) : NIJ-STD-0108.01 LEVEL IIIA (MODIFIED)
(2) : REQUIRED VELOCITY: 1350-1450 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	2183	1374	2183	1374	1374	None	
2	1	2112	1420	2120	1415	1418	None	
3	1	2123	1413	2126	1411	1412	None	
4	1	2218	1353	2220	1351	1352	None	

REMARKS :

FOOTNOTES :