

# **DEA Ballistic Shield Testing Protocol v2.0**

**October 2, 2013**

Edited 10-02-2013

## **Requirements**

This ballistic shield testing protocol conducted by the Drug Enforcement Administration (DEA) Office of Training (TR) Firearms Training Unit (TRDF) supersedes all previous DEA Ballistic Shield Testing Protocols (BSTP). This test protocol is for National Institute of Justice (NIJ) certified Level III ballistic shields.

This testing protocol is open to all ballistic shield manufacturers who offer NIJ Level III ballistic shields. Ballistic shield manufacturers who wish to have their particular ballistic shield products considered for purchase by DEA should first coordinate testing with an approved NIJ certified testing laboratory and the Special Agent assigned to TRDF who is responsible for the DEA Ballistic Shield program at that time. This contact can be made through the DEA TRDF Unit Chief at 703-632-5000 or at the following address: Office of Training, DEA Academy, Unit Chief, TRDF, P.O. Box 1475, Quantico, Virginia 22134-1475.

As of October 2, 2013, all ballistic shield purchases by DEA shall be required to meet DEA Ballistic Shield Testing Protocol v1.0.

Manufacturers who wish to have their ballistic shield products considered for purchase by DEA should ensure the test results are in accordance with this protocol and forwarded to the DEA TRDF by the authorized laboratory. Results submitted to the DEA TRDF directly from the ballistic shield manufacturer will not be accepted.

All ballistic shields being submitted to the DEA for testing shall be identical to the samples tested by the authorized laboratory in both configuration and materials. These shields must have at a minimum:

1. Carrying handle
2. Viewport
3. Light system

The ballistic shield must be production ready.

It should be noted that passing this protocol is not the only factor considered in the evaluation process for the approval of a ballistic shield for field use by DEA personnel.

Upon receipt of the contract, the ballistic shield will not require retesting for up to five (5) years as long as no changes or modifications that affect the ballistics of the shield are made. At the completion of five (5) years, the ballistic shield will be retested to the DEA protocol only, as long as the shield still meets the most current NIJ ballistic standard.

Any change to a ballistic shield requires resubmission for NIJ certification and will also require retesting to DEA protocol. All NIJ certification letters and DEA protocol testing results will again be forwarded to the TRDF in the aforementioned manner.

The DEA BSTP is not intended to replace the NIJ standard but is instead an addition to the NIJ standard for DEA personnel. All models must be in compliance with and certified to the current NIJ standard as well as meet all requirements outlined by this protocol prior to being approved for purchase by the DEA.

## **Testing**

### **Armor Components Required**

**Two (2) – BALLISTIC SHIELDS (21”x 36” nominally) “FIELD READY” to include all carrying handles, lights systems, and viewport.**

## **TEST PROTOCOL**

**Range Setup:** The range setup for the DEA BSTP shall be in accordance to and in compliance with NIJ Standard – 0108.01 Ballistic Resistance of Ballistic Shield.

### **Test Rounds:**

**TR01:** 5.56 X 45mm. Federal, 62 grain Tactical Bonded, and impact velocity @ 2,800 +/- 75 fps.

(Product Code XM556FBIT3)

**TRO2:** 5.56 x 45mm M855 (Green Tip), 62 grain, impact velocity @ 3,050 +/- 75 fps.

**TR03:** 7.62 x 39mm Mild Steel Core, 123 grain, impact velocity @ 2,400 +/- 75 fps.

**TR04:** 7.62 x 51mm M80 Ball, 149 grain, impact velocity @ 2,750 +/- 75 fps.

**Sample Dimensions:** Ballistic shield dimensions shall be 21” x 36” nominally, (21” +/- ½ inch in width, and 36” +/- ½ inch in height).

**Test:** Each ballistic shield will endure a minimum of 20 shots. Each ballistic shield will be shot with five rounds from each of the four types of test rounds. Each shot will be numbered 1 through 20. All testing shall be conducted at zero (0) degrees obliquity. No impact shall be closer than 2” from any subsequent impact.

**Measurement of Shot:** Each shot will be measured facing the front of the shield. The shield may not suffer a penetration on any of the 20 test shots. A penetration is any shot that is not captured in the ballistic material. Each test round impact can have a margin of error +/- ¼ inch from the clearly measured mark.

**Data Recording:** Following each shot, the impact shall be marked and noted as “Valid-Stopped,” “Valid-Penetration,” “Not Valid-Stopped,” or “Not Valid-Penetration.” Every shot will be documented. Any valid shot penetration shall constitute a failure and both of the manufacturer’s submissions will be eliminated from further consideration. For example, if “Manufacturer X” submits for this competition and their shield sample “A”

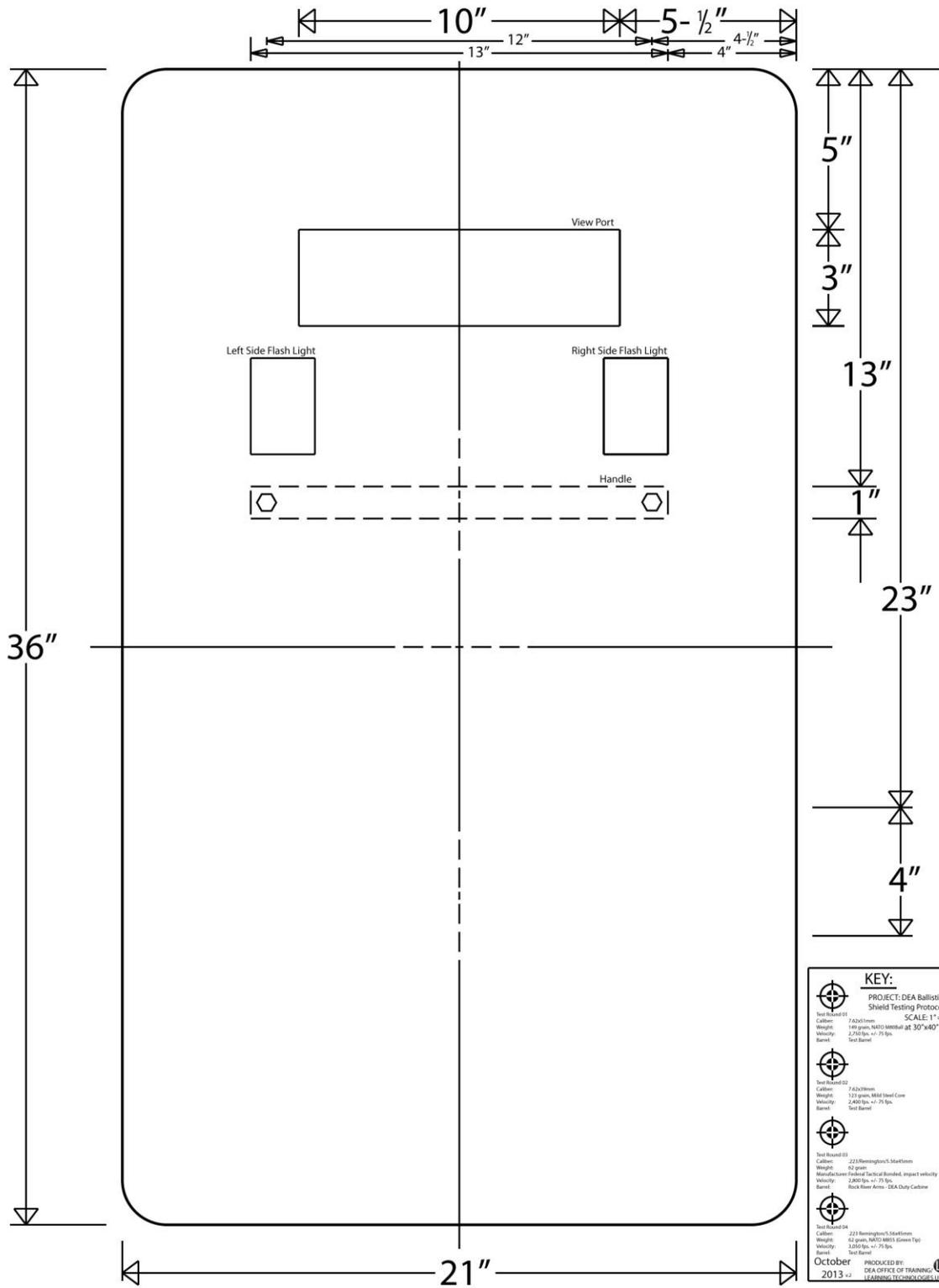
passes but their shield sample “B” suffers a penetration, this manufacturer is eliminated from further consideration.

NOTE: Any impact not in accordance with this test protocol will be deemed “Not Valid” and repeated if (1) any velocity is lower or higher\* than the velocity range, or specified, (2) any point of impact of a subsequent round is further or closer\* than allowable as specified. However, if a test shot lower than the velocity specified in this protocol but still penetrates the armor in an allowable point of impact that shot will be considered a “valid” shot. A penetrating shot under that circumstance will result in a manufacturer’s submission being eliminated from further consideration.

A test shot will not be repeated if:

1. The velocity is in excess of the specified velocity range and the point of impact is valid and the shot fails to penetrate **or**,
2. Where the velocity is within the specified velocity range; however, the impact is closer than specified and the shot fails to penetrate **or**,
3. Where the velocity is in excess of the specified velocity range and the point of impact is closer than allowable as specified, but where the shots fail to penetrate.

Although these test shots are considered not valid if a penetration occurs, in relation to the test protocol, they will not be repeated if there is no penetration, as they indicate performance of the shield armor in excess of the requirements of the protocol, and will be considered “Valid.”



**KEY:**

PROJECT: DEA Ballistic Shield Testing Protocol  
SCALE: 1" = 1"

|  |   |
|--|---|
|  | Test Round 01   |
|  | Caliber: 12.7x50mm  |
|  | Weight: 149 grains, NATO M80 Ball at 30"x40"              |
|  | Velocity: 2,760 ft/s, ± 75 ft/s                           |
|  | Barrel: Test Barrel                                       |
|  | Test Round 02   |
|  | Caliber: 7.62x39mm  |
|  | Weight: 123 grains, M44 Steel Core                        |
|  | Velocity: 2,800 ft/s, ± 75 ft/s                           |
|  | Barrel: Test Barrel                                       |
|  | Test Round 03   |
|  | Caliber: .22 Remington-UMC 5.56x45mm                      |
|  | Weight: 62 grains   |
|  | Manufacturer: Federal Tactical of Bambed, impact velocity |
|  | Velocity: 2,800 ft/s, ± 75 ft/s                           |
|  | Barrel: Rock River Arms - DEA Duty Carbine                |
|  | Test Round 04   |
|  | Caliber: .22 Remington-UMC 5.56x45mm                      |
|  | Weight: 62 grains, NATO M83 (Green Tip)                   |
|  | Velocity: 2,800 ft/s, ± 75 ft/s                           |
|  | Barrel: Test Barrel                                       |

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Test Round 01

Caliber: 7.62 x 51mm  
Weight: 149 grain, NATO M80 Ball  
Velocity: 2,750 fps. +/- 75 fps. Barrel: Test Barrel

Round #1 Middle Top Shot above viewport  
Shot placement measurement, 10½ inches from left side 4 inches from the top.

Velocity\_\_\_\_\_ Valid / Not Valid Penetration / Stopped

Round #2 Viewport Left Shot  
Shot placement measurement, viewport 3 inches from left edge 1 inch from top of viewport.

Velocity\_\_\_\_\_ Fair / Unfair Penetration / Stopped

Round #3 Light Shot Left  
Shot placement measurement, shot directly into the left side center of flashlight lense.

Velocity\_\_\_\_\_ Fair / Unfair Penetration / Stopped

Round #4 Handle Bolt Shot  
Shot placement measurement, shot directly into the left side handle bolt exposed or not.

Velocity\_\_\_\_\_ Fair / Unfair Penetration / Stopped

Round #5 Edge Shot  
Shot placement measurement, shot 1¼ inches from left edge 16 inches from top.

Velocity\_\_\_\_\_ Fair / Unfair Penetration / Stopped

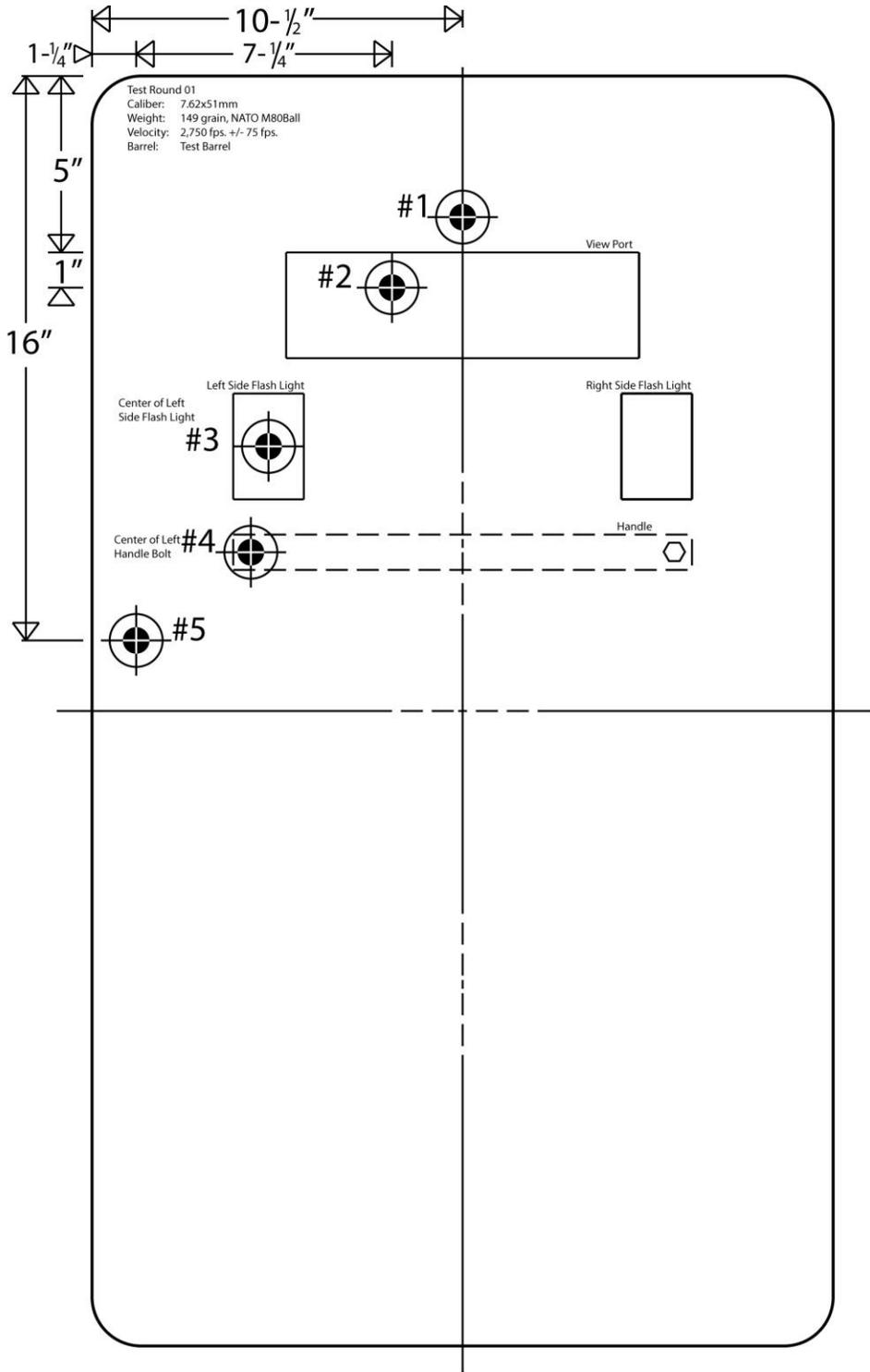
Remarks:

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Test Round 02

Caliber: 7.62x39mm  
Weight: 123 grain, Mild Steel Core  
Velocity: 2,400 fps. +/- 75 fps. Barrel: Test Barrel

Round #6 Bottom Left Edge Shot (Horizontal Line Shot #1)  
Shot placement measurement, shot 1½ inches from left side 26 inches from the top.

Velocity\_\_\_\_\_ Fair / Unfair Penetration / Stopped

Round #7 Bottom Left Shot (Horizontal Line Shot #2)  
Shot placement measurement, shot 4 inches from left edge, 26 inches from the top.

Velocity\_\_\_\_\_ Fair / Unfair Penetration / Stopped

Round #8 Bottom Left Shot (Horizontal Line Shot #3)  
Shot placement measurement, shot 8 inches from left edge 26 inches from the top.

Velocity\_\_\_\_\_ Fair / Unfair Penetration / Stopped

Round #9 Bottom Middle Shot (Horizontal Line Shot #4)  
Shot placement measurement, shot 12 inches from left edge 26 inches from the top.

Velocity\_\_\_\_\_ Fair / Unfair Penetration / Stopped

Round #10 Bottom Right Shot (Horizontal Line Shot # 5)  
Shot placement measurement, shot 16 inches from left edge 26 inches from the top.

Velocity\_\_\_\_\_ Fair / Unfair Penetration / Stopped

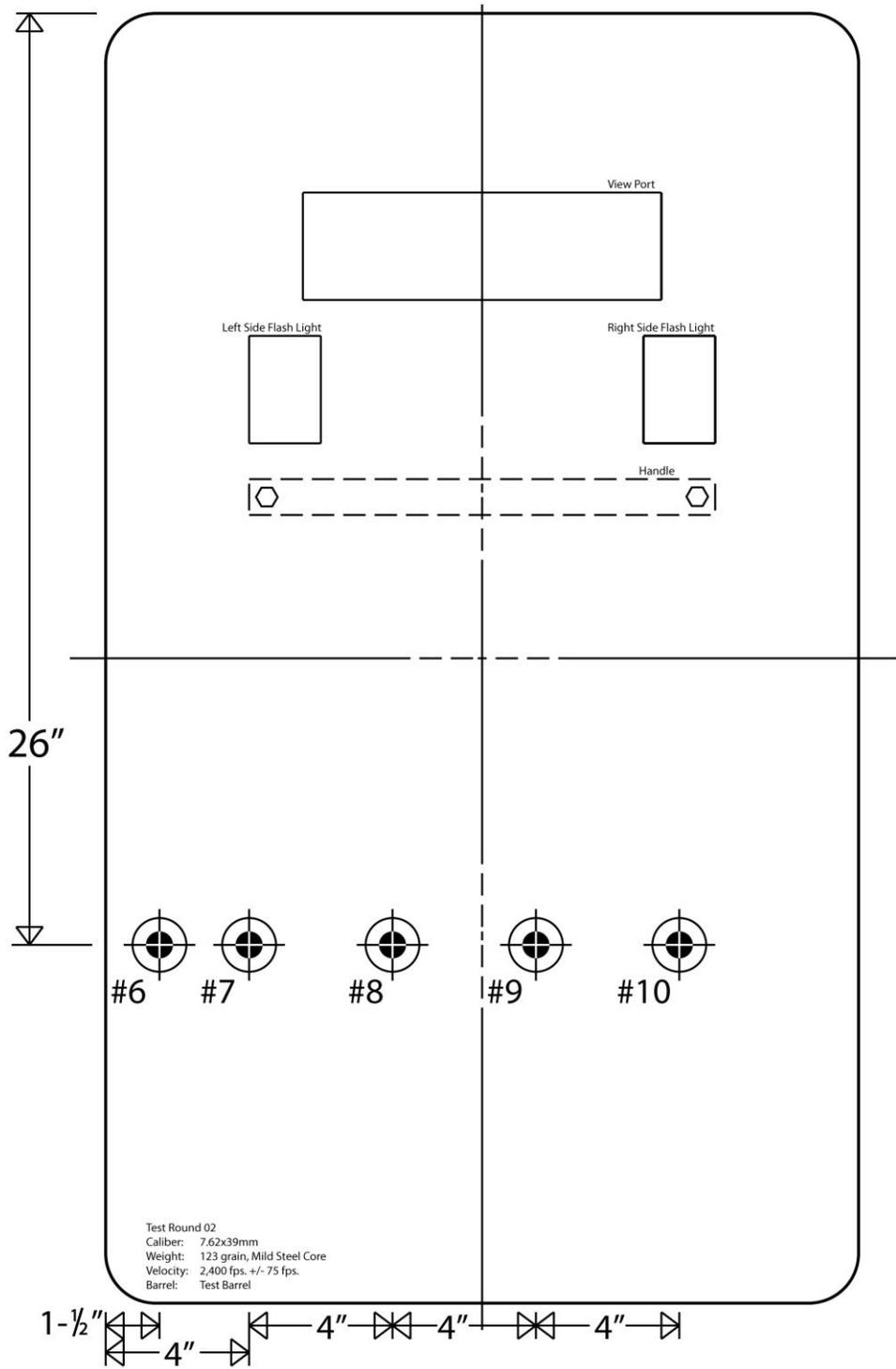
Remarks:

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Test Round 03

Caliber: .223 Remington/5.56 x 45mm                      Weight: 62 grain  
Manufacturer: Federal Tactical Bonded, impact velocity  
Velocity: 2,800 fps. +/- 75 fps. Barrel: Rock River Arms – DEA Duty Carbine

Round #11    Vertical Line Shot #1  
Shot placement measurement, shot 3 inches from right side, 34 inches from the top.

Velocity\_\_\_\_\_                      Fair / Unfair                      Penetration / Stopped

Round #12    Vertical Line Shot #2  
Shot placement measurement, shot 3 inches from right edge 30 from the top.

Velocity\_\_\_\_\_                      Fair / Unfair                      Penetration / Stopped

Round #13    Vertical Line Shot #3  
Shot placement measurement, shot 1 ¼ inches from right edge 25 from the top.

Velocity\_\_\_\_\_                      Fair / Unfair                      Penetration / Stopped

Round #14    Vertical Line Shot #4  
Shot placement measurement, shot 1 ¼ inches from right edge 21 inches from the top.

Velocity\_\_\_\_\_                      Fair / Unfair                      Penetration / Stopped

Round #15    Vertical Line Shot # 5  
Shot placement measurement, shot 3 inches from right edge 18 inches from the top.

Velocity\_\_\_\_\_                      Fair / Unfair                      Penetration / Stopped

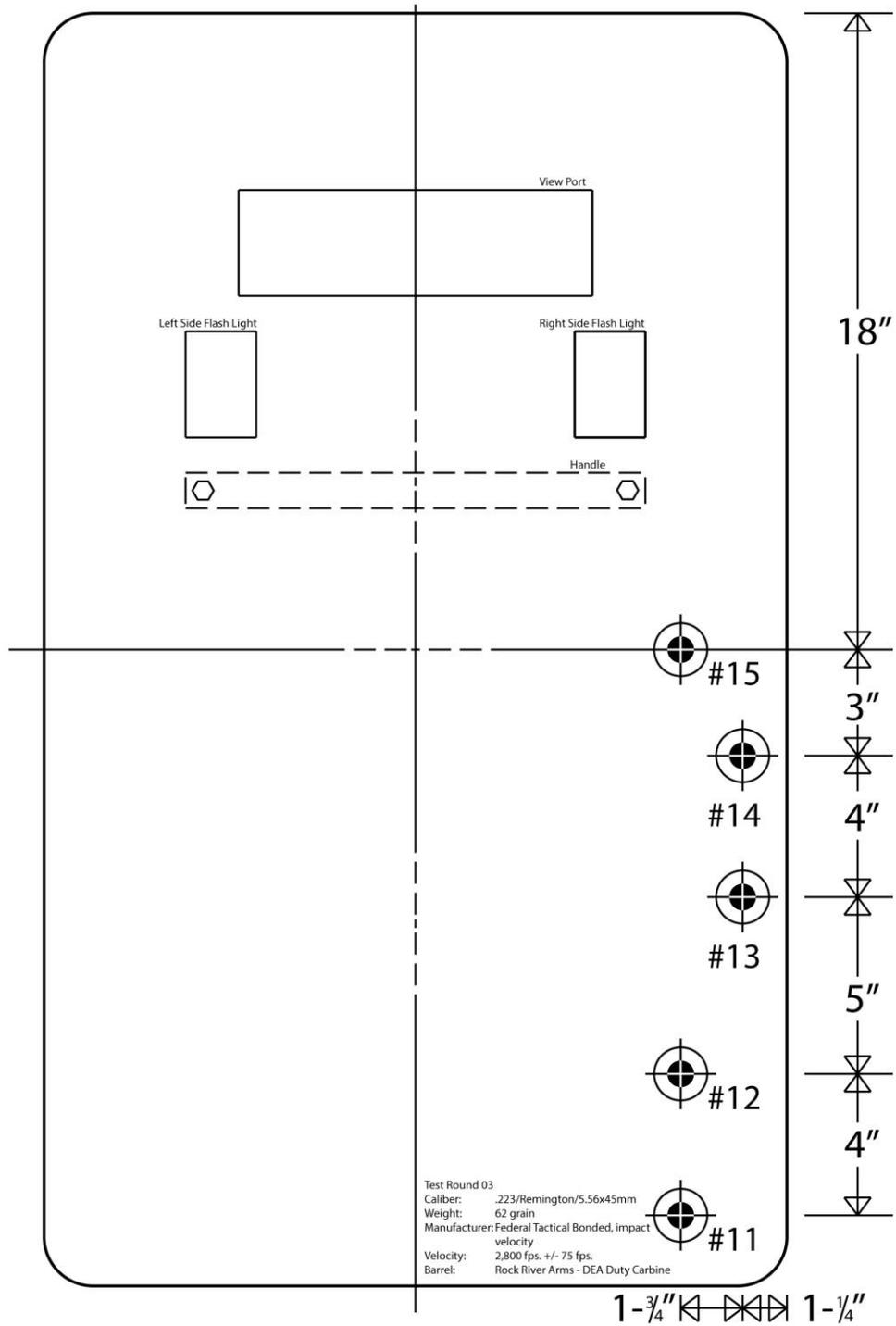
Remarks:

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Test Round 04

Caliber: .223 Remington/5.56 x 45mm  
Weight: 62 grain, NATO M855 (Green Tip)  
Velocity: 3,050 fps. +/- 75 fps. Barrel: Test Barrel

Round #16 Right Edge Shot #1  
Shot placement measurement, shot 3 inches from right side 9 inches from the top.

Velocity\_\_\_\_\_ Fair / Unfair Penetration / Stopped

Round #17 Right Edge Shot #2  
Shot placement measurement, shot 3 inches from right side 3 inches from the top.

Velocity\_\_\_\_\_ Fair / Unfair Penetration / Stopped

Round #18 Right Light Shot  
Shot placement measurement, shot directly into the right side flashlight lense.

Velocity\_\_\_\_\_ Fair / Unfair Penetration / Stopped

Round #19 Right Handle Bolt Shot  
Shot placement measurement, shot directly into the left side handle bolt exposed or not.

Velocity\_\_\_\_\_ Fair / Unfair Penetration / Stopped

Round #20 Viewport Right Shot  
Shot placement measurement, shot on viewport 3 inches from right edge 1 inch from the top.

Velocity\_\_\_\_\_ Fair / Unfair Penetration / Stopped

Remarks:

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5-1/2" 3"

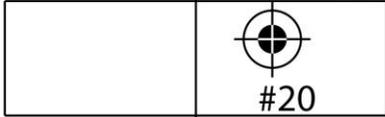
Test Round 04  
Caliber: .223 Remington/5.56x45mm  
Weight: 62 grain, NATO M855 (Green Tip)  
Velocity: 3,050 fps. +/- 75 fps.  
Barrel: Test Barrel

3"  
3"  
9"



#17

View Port



#20

Left Side Flash Light



Right Side Flash Light



#16

Center of Right Side Flash Light

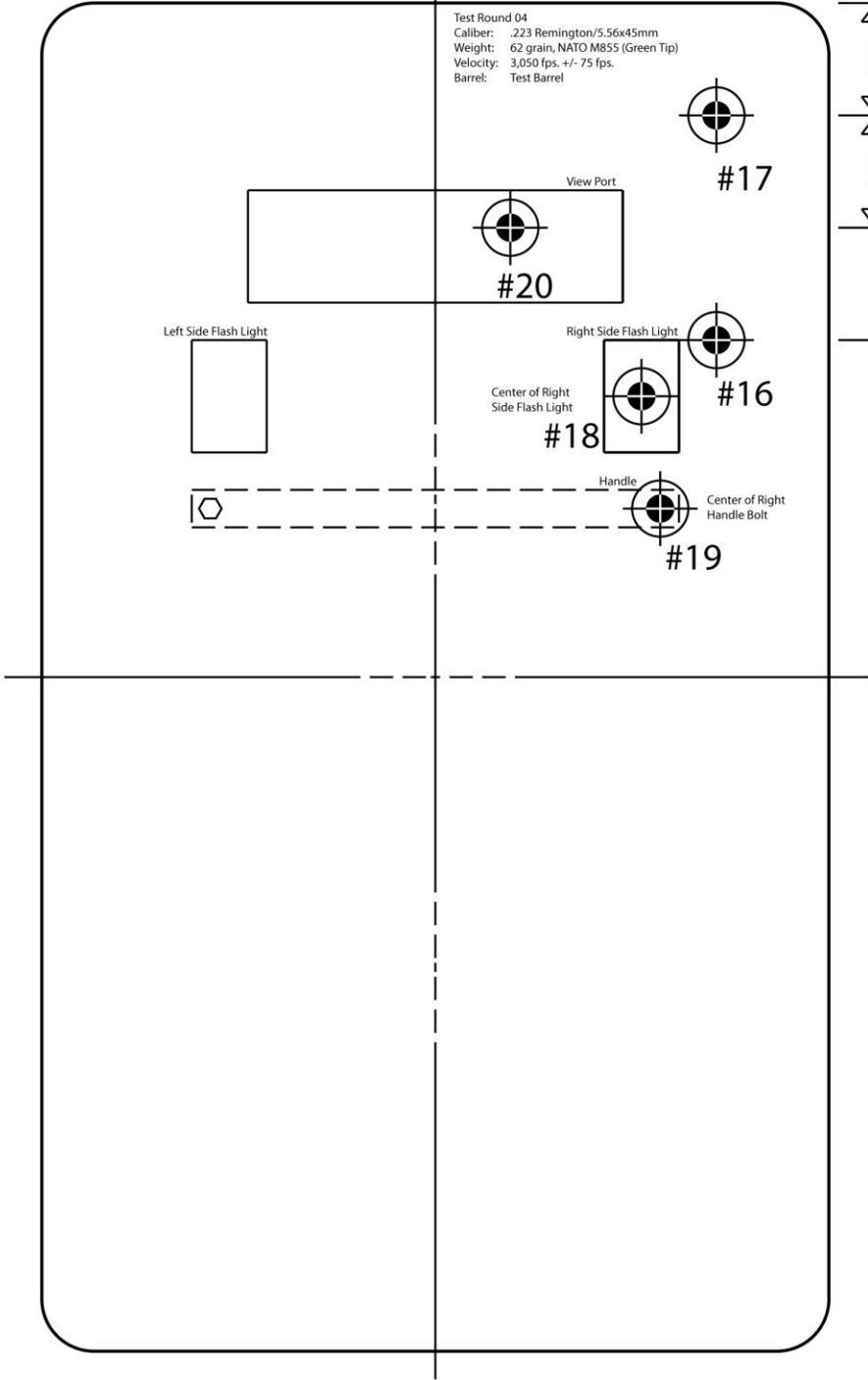
#18

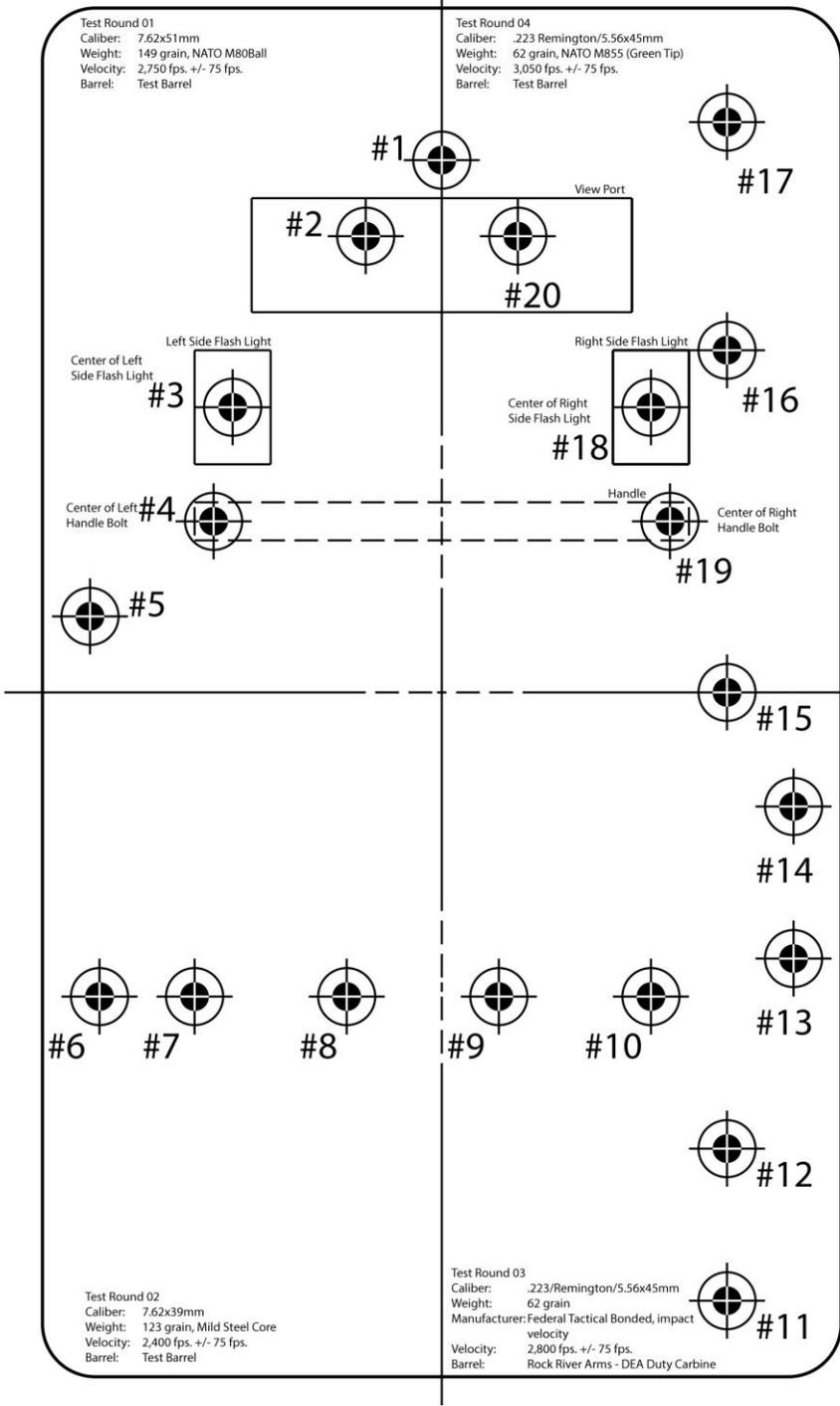
Handle



Center of Right Handle Bolt

#19





Test Round 01  
 Caliber: 7.62x51mm  
 Weight: 149 grain, NATO M80Ball  
 Velocity: 2,750 fps. +/- 75 fps.  
 Barrel: Test Barrel

Test Round 04  
 Caliber: .223 Remington/5.56x45mm  
 Weight: 62 grain, NATO M855 (Green Tip)  
 Velocity: 3,050 fps. +/- 75 fps.  
 Barrel: Test Barrel

Test Round 02  
 Caliber: 7.62x39mm  
 Weight: 123 grain, Mild Steel Core  
 Velocity: 2,400 fps. +/- 75 fps.  
 Barrel: Test Barrel

Test Round 03  
 Caliber: .223/Remington/5.56x45mm  
 Weight: 62 grain  
 Manufacturer: Federal Tactical Bonded, impact velocity  
 velocity  
 2,800 fps. +/- 75 fps.  
 Barrel: Rock River Arms - DEA Duty Carbine

**KEY:**

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 Caliber: 7.62x51mm  
 Weight: 149 grain, NATO M80Ball at 30°x40°  
 Velocity: 2,750 fps. +/- 75 fps.  
 Barrel: Test Barrel

Test Round 02  
 Caliber: 7.62x39mm  
 Weight: 123 grain, Mild Steel Core  
 Velocity: 2,400 fps. +/- 75 fps.  
 Barrel: Test Barrel

Test Round 03  
 Caliber: .223/Remington/5.56x45mm  
 Weight: 62 grain  
 Manufacturer: Federal Tactical Bonded, impact velocity  
 velocity  
 2,800 fps. +/- 75 fps.  
 Barrel: Rock River Arms - DEA Duty Carbine

Test Round 04  
 Caliber: .223 Remington/5.56x45mm  
 Weight: 62 grain, NATO M855 (Green Tip)  
 Velocity: 3,050 fps. +/- 75 fps.  
 Barrel: Test Barrel

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|                 |           |  |
|-----------------|-----------|--|
| DEA Test Report | BSTP v1.0 |  |
| Date:           |           |  |
| Manufacturer:   |           |  |
| Serial number:  |           |  |
| Test personnel: |           |  |

|                    |                              |                             |
|--------------------|------------------------------|-----------------------------|
| <b>Test shot 1</b> |                              |                             |
| Impact velocity:   | FPS                          |                             |
| Valid shot:        | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| Penetration        | Yes <input type="checkbox"/> | No <input type="checkbox"/> |

|                    |                              |                             |
|--------------------|------------------------------|-----------------------------|
| <b>Test shot 2</b> |                              |                             |
| Impact velocity:   | FPS                          |                             |
| Valid shot:        | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| Penetration        | Yes <input type="checkbox"/> | No <input type="checkbox"/> |

|                    |                              |                             |
|--------------------|------------------------------|-----------------------------|
| <b>Test shot 3</b> |                              |                             |
| Impact velocity:   | FPS                          |                             |
| Valid shot:        | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| Penetration        | Yes <input type="checkbox"/> | No <input type="checkbox"/> |

|                    |                              |                             |
|--------------------|------------------------------|-----------------------------|
| <b>Test shot 4</b> |                              |                             |
| Impact velocity:   | FPS                          |                             |
| Valid shot:        | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| Penetration        | Yes <input type="checkbox"/> | No <input type="checkbox"/> |

|                    |                              |                             |
|--------------------|------------------------------|-----------------------------|
| <b>Test shot 5</b> |                              |                             |
| Impact velocity:   | FPS                          |                             |
| Valid shot:        | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| Penetration        | Yes <input type="checkbox"/> | No <input type="checkbox"/> |

|                    |                              |                             |
|--------------------|------------------------------|-----------------------------|
| <b>Test shot 6</b> |                              |                             |
| Impact velocity:   | FPS                          |                             |
| Valid shot:        | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| Penetration        | Yes <input type="checkbox"/> | No <input type="checkbox"/> |

|                    |                              |                             |
|--------------------|------------------------------|-----------------------------|
| <b>Test shot 7</b> |                              |                             |
| Impact velocity:   | FPS                          |                             |
| Valid shot:        | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| Penetration        | Yes <input type="checkbox"/> | No <input type="checkbox"/> |

|                    |                              |                             |
|--------------------|------------------------------|-----------------------------|
| <b>Test shot 8</b> |                              |                             |
| Impact velocity:   | FPS                          |                             |
| Valid shot:        | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| Penetration        | Yes <input type="checkbox"/> | No <input type="checkbox"/> |

|                    |                              |                             |
|--------------------|------------------------------|-----------------------------|
| <b>Test shot 9</b> |                              |                             |
| Impact velocity:   | FPS                          |                             |
| Valid shot:        | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| Penetration        | Yes <input type="checkbox"/> | No <input type="checkbox"/> |

|                     |                              |                             |
|---------------------|------------------------------|-----------------------------|
| <b>Test shot 10</b> |                              |                             |
| Impact velocity:    | FPS                          |                             |
| Valid shot:         | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| Penetration         | Yes <input type="checkbox"/> | No <input type="checkbox"/> |

| Test shot 11     |                              |                             |
|------------------|------------------------------|-----------------------------|
| Impact velocity: | FPS                          |                             |
| Valid shot:      | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| Penetration      | Yes <input type="checkbox"/> | No <input type="checkbox"/> |

| Test shot 12     |                              |                             |
|------------------|------------------------------|-----------------------------|
| Impact velocity: | FPS                          |                             |
| Valid shot:      | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| Penetration      | Yes <input type="checkbox"/> | No <input type="checkbox"/> |

| Test shot 13     |                              |                             |
|------------------|------------------------------|-----------------------------|
| Impact velocity: | FPS                          |                             |
| Valid shot:      | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| Penetration      | Yes <input type="checkbox"/> | No <input type="checkbox"/> |

| Test shot 14     |                              |                             |
|------------------|------------------------------|-----------------------------|
| Impact velocity: | FPS                          |                             |
| Valid shot:      | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| Penetration      | Yes <input type="checkbox"/> | No <input type="checkbox"/> |

| Test shot 15     |                              |                             |
|------------------|------------------------------|-----------------------------|
| Impact velocity: | FPS                          |                             |
| Valid shot:      | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| Penetration      | Yes <input type="checkbox"/> | No <input type="checkbox"/> |

| Test shot 16     |                              |                             |
|------------------|------------------------------|-----------------------------|
| Impact velocity: | FPS                          |                             |
| Valid shot:      | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| Penetration      | Yes <input type="checkbox"/> | No <input type="checkbox"/> |

| Test shot 17     |                              |                             |
|------------------|------------------------------|-----------------------------|
| Impact velocity: | FPS                          |                             |
| Valid shot:      | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| Penetration      | Yes <input type="checkbox"/> | No <input type="checkbox"/> |

| Test shot 18     |                              |                             |
|------------------|------------------------------|-----------------------------|
| Impact velocity: | FPS                          |                             |
| Valid shot:      | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| Penetration      | Yes <input type="checkbox"/> | No <input type="checkbox"/> |

| Test shot 19     |                              |                             |
|------------------|------------------------------|-----------------------------|
| Impact velocity: | FPS                          |                             |
| Valid shot:      | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| Penetration      | Yes <input type="checkbox"/> | No <input type="checkbox"/> |

| Test shot 20     |                              |                             |
|------------------|------------------------------|-----------------------------|
| Impact velocity: | FPS                          |                             |
| Valid shot:      | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| Penetration      | Yes <input type="checkbox"/> | No <input type="checkbox"/> |

| Test shot <u>    </u> Repeat |                              |                             |
|------------------------------|------------------------------|-----------------------------|
| Impact velocity:             | FPS                          |                             |
| Valid shot:                  | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| Penetration                  | Yes <input type="checkbox"/> | No <input type="checkbox"/> |

| <b>Test shot</b> | <b>Repeat</b>  |
|------------------|--|
| Impact velocity: | FPS  |
| Valid shot:      | Yes <input type="checkbox"/> No <input type="checkbox"/> |
| Penetration      | Yes <input type="checkbox"/> No <input type="checkbox"/> |

| <b>Test shot</b> | <b>Repeat</b>  |
|------------------|--|
| Impact velocity: | FPS  |
| Valid shot:      | Yes <input type="checkbox"/> No <input type="checkbox"/> |
| Penetration      | Yes <input type="checkbox"/> No <input type="checkbox"/> |

| <b>Test shot</b> | <b>Repeat</b>  |
|------------------|--|
| Impact velocity: | FPS  |
| Valid shot:      | Yes <input type="checkbox"/> No <input type="checkbox"/> |
| Penetration      | Yes <input type="checkbox"/> No <input type="checkbox"/> |