

**STANDARD PERFORMANCE  
SPECIFICATION FOR  
NEWLY MANUFACTURED  
LACROSSE FACE PROTECTORS**

**NOCSAE DOC (ND) 045 – 09m09**

Prepared By



**NATIONAL OPERATING COMMITTEE  
ON STANDARDS FOR ATHLETIC EQUIPMENT**

Revised December, 2009

## 1. Scope

- 1.1. This standard specification establishes performance requirements for new lacrosse face protectors intended to be mounted onto compatible lacrosse helmets that have been certified to meet the NOCSAE standard as supplied by manufacturers. In addition to meeting the requirements of this standard the entire headgear must be tested to demonstrate that the face protector has not compromised the ability of the helmet to comply with NOCSAE doc 041.
- 1.2. **All testing and requirements of this standard specification must be in accordance with NOCSAE DOC.001, NOCSAE DOC.021 and NOCSAE DOC.041 except where modified herein.**
- 1.3. *This standard does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

## 2. Referenced Documents

- 2.1. STANDARD DROP TEST METHOD AND EQUIPMENT USED IN EVALUATING THE PERFORMANCE CHARACTERISTICS OF PROTECTIVE HEADGEAR, NOCSAE DOC.001
- 2.2. STANDARD PROJECTILE IMPACT TEST METHOD AND EQUIPMENT USED IN EVALUATING THE PERFORMANCE CHARACTERISTICS OF PROTECTIVE HEADGEAR/PROJECTILES, NOCSAE DOC.021
- 2.3. STANDARD PERFORMANCE SPECIFICATION FOR NEWLY MANUFACTURED LACROSSE HELMETS WITH FACEGUARD NOCSAE DOC (ND) 041

## 3. Specific Terminology

- 3.1. See Section 3, NOCSAE DOC.001

## 4. Sample Size

- 4.1. See Section 11, NOCSAE DOC.001
- 4.2. At least five (5) Face Protectors of each model mounted onto helmets that meet the requirements of NOCSAE Doc ND041 and bear the NOCSAE logo, in each critical size must be tested.
- 4.3. Face protectors that must be mounted to helmets of a given model with a size smaller than 6 5/8 *may* not fit the smallest NOCSAE headform. In that event, testing of that size is waived so long as the other sizes of that model have been tested and meet all requirements.

- 4.4. To obtain a reasonable fit (as determined by the test technician) for testing purposes, face protectors that must be mounted to helmets larger than size 7 5/8 *may* require "shim" pads to be inserted between the largest NOCSAE headform and the interior of the helmet, opposite from the impact site.

## 5. Helmet Preparation

- 5.1. See Section 10, NOCSAE DOC.001

## 6. Faceguards Projectile Tests

- 6.1. See Section 5.2, NOCSAE DOC.021.

- 6.2. The lacrosse balls used must be of a model that meets the specifications of the National Collegiate Athletic Association plus have a 25% Compression Deflection reading of 195 lbs  $\pm$  15 lbs (99.45 kg  $\pm$  6.8 kg), when compressed at a rate of 1in per min  $\pm$  3%.

- 6.3. Each faceguard to be tested shall be mounted on a lacrosse helmet according to the manufacturer's instructions. Face protectors shall be impacted at each of these positions:

6.3.1. Directly in front, aimed at the nose, with the headform and helmet in an upright (vertical) position. The barrel (line of ball travel) shall be perpendicular to the Coronal plane.

6.3.2. Directly in front, aimed at one eye, the headform and helmet in an upright (vertical) position and rotated away from the Midsagittal plane at an angle of 45° from the direction of impact that permits the ball to be aimed at the eye.

6.3.3. Random location: The headform may be located in any manner that allows the impact point to be within the "no contact area" as defined in Figure 1, attached. Pointer or other targeting means can be set within, or to any edge of, the "no contact" area. The center of ball contact must be at the edge of, or within the "no contact" area.

- 6.4. Impacts shall be aimed at each of the positions designated in 6.3 above according to the following:

6.4.1. At least one impact shall be at the center of the widest opening in the faceguard.

6.4.2. At least one impact shall be aimed at the material structure of the faceguard.

6.4.3. The random impact shall be selected to investigate any apparent weakness in the faceguard, which may allow contact to the face.

- 6.5. No contact to the ocular area is ever permitted. Limited contact to specific areas of the headform is allowed (limited contact area). Contact occurring to the limited contact area must be restricted to those non-structural components of the headgear that are designed/intended to rest on or come in contact with the wearers face. (See Figure 1 attached).

- 6.6. Verification of ball contact - For verification of ball or protector contact with the face, cover the entire facial area (limited contact/ocular area) from the frontal bone superiorly to the mandible inferiorly with Pressure Indicator paste. Contact of either ball or protector with any part of the face will leave paste at the point of contact and proof of contact on the headform. Inspect thoroughly both the ball and the protector to determine if they contain residue of paste. Also inspect the headform ocular area for evidence of contact.
- 6.7. A different faceguard shall be used for each test position at each temperature (five guards are needed for the complete test series).
- 6.8. The headform will be positioned with its impact site located  $24 \pm 0.25$  inches ( $610 \pm 6$  mm) from the muzzle (or point at which the ball is released).
- 6.9. Each submitted sample shall be impacted with a ball in accordance with Table 1 and depicted in Figure 2.
- 6.10. When tested as described above, all faceguards shall remain intact with no crazing, breaking or cracking, either in the material or at the testing points.
- 6.11. The peak severity index of any impact shall not exceed 1200 SI.

**TABLE 1**

**LOCATION - MILES PER HOUR (m/sec)**  
**(All speeds must be  $\pm 3\%$ )**

	<b>AT THE NOSE</b>	<b>AT AN EYE</b>	<b>RANDOM</b>
<b>Ambient Temperature</b>	70 (32)	70 (32)	70 (32)
<b>Low Temperature</b>	70 (32)	70 (32)	N/A

## **7 Faceguard Penetration Test**

- 7.1 Each faceguard to be tested shall be mounted on a lacrosse helmet according to the manufacturer's instructions. Position the helmet onto the appropriate NOCSAE headform.
- 7.2 Attempt to pass the test blade (see figure 3) through any opening in the face protector towards the ocular area no contact zone defined in figure 1. No contact to the ocular area is permitted.

## 8. Labels and Warnings

- 8.1 See Section 9.1 and 9.4, NOCSAE DOC.001 and Section 9.1 and 9.4, NOCSAE DOC.021.
- 8.2 The phrase, Manufacturer Certifies, "Meets NOCSAE Standard" Shall be permanently affixed. The actual manufacturers name can be used i.e., xyz manufacturing certifies "Meets NOCSAE Standard".
- 8.3 All face protectors shall have instructions provided that inform the consumer of which helmet model(s) and helmet size the face protector is intended to be used with and how the face protector is to be attached to the compatible helmet.
- 8.4 Have permanently affixed to it a clearly legible statement which effectively communicates to the end user the following information, using the same or similar language:

**WARNING: THIS FACEGUARD DOES NOT COMPLY WITH NOCSAE REQUIREMENTS UNLESS IT IS ATTACHED TO A HELMET SPECIFICALLY LISTED BY THE MANUFACTURER AND WHICH BEARS THE NOCSAE LACROSSE LOGO.**

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**LIMITED CONTACT/OCULAR AREA**

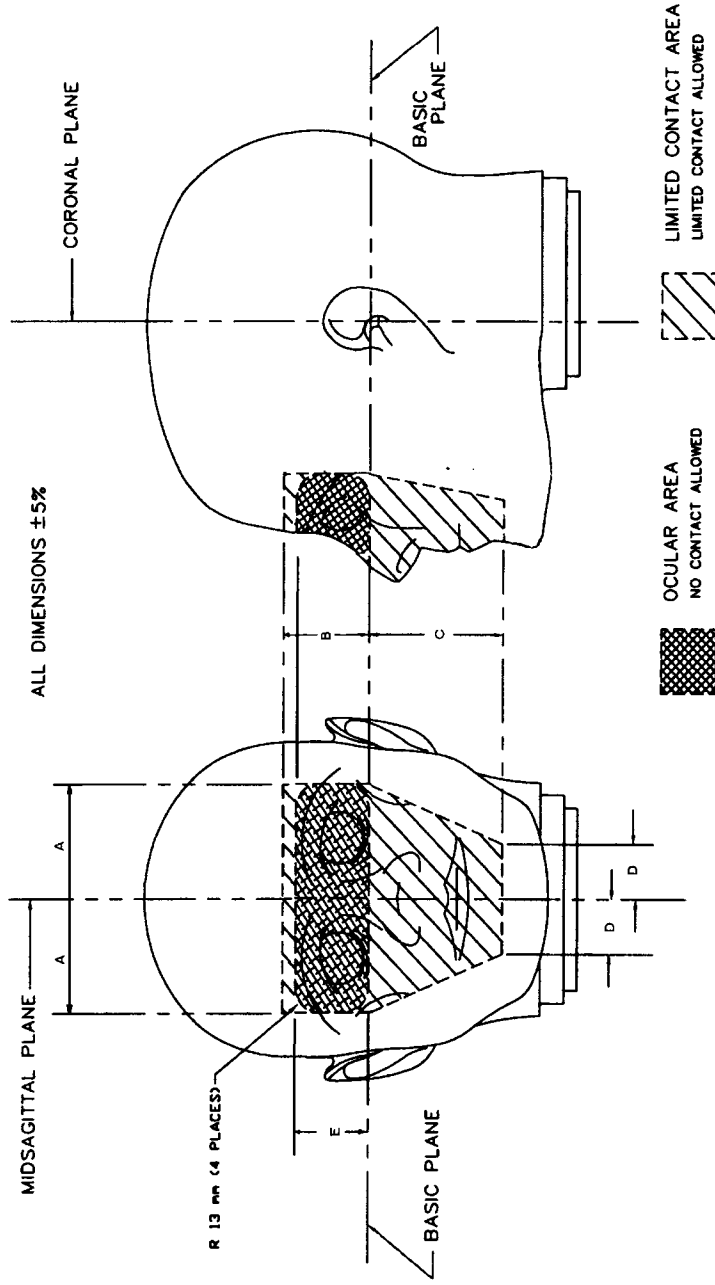
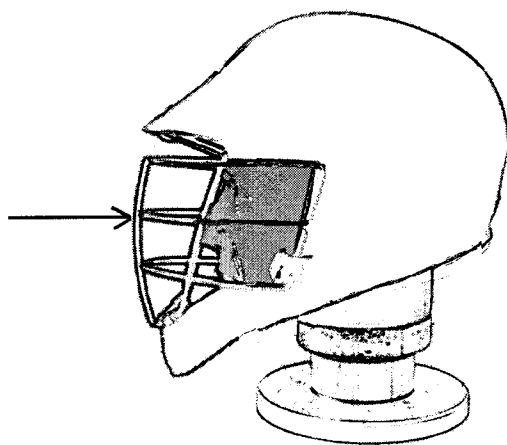


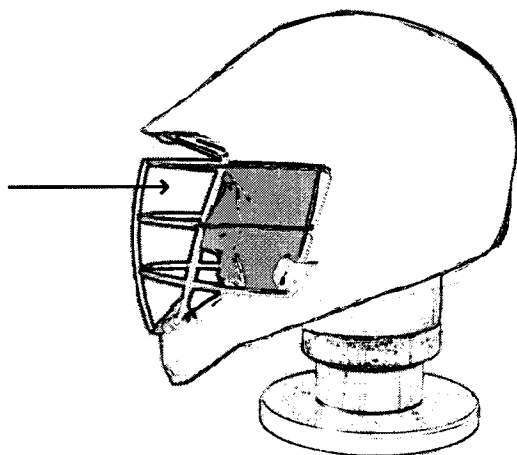
TABLE 2

Headform	Label	A	B	C	D	E
Small	Dimension, mm (in)	54 (2.113)	41 (1.619)	64 (2.518)	26 (1.019)	32 (1.259)
Medium	Dimension, mm (in)	56 (2.205)	45 (1.772)	70 (2.756)	27 (1.062)	35 (1.378)
Large	Dimension, mm (in)	62 (2.421)	50 (1.969)	78 (3.063)	30 (1.167)	39 (1.532)

Figure 1

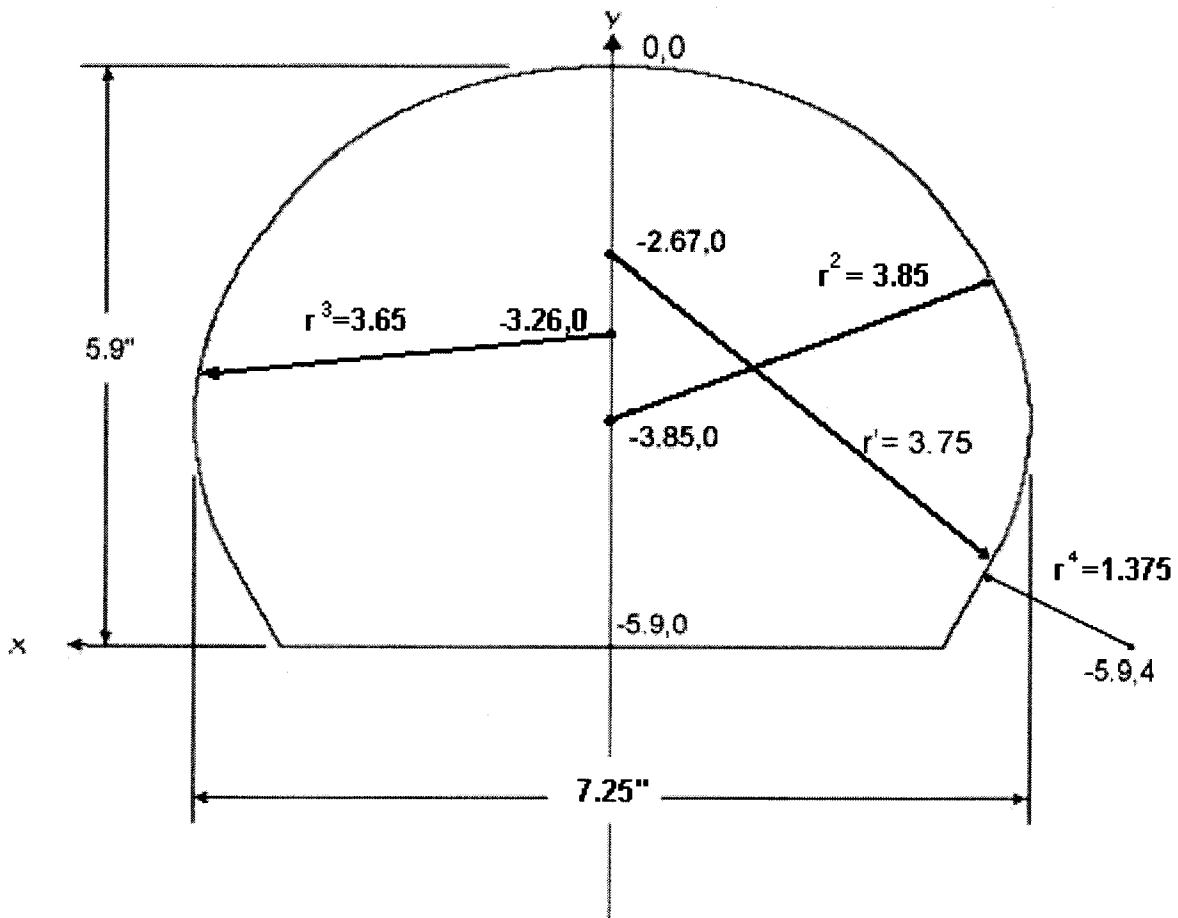


**At The Nose 1**



**At The Eye 1**

**Figure 2**



Drawing not to scale.

### Test Blade Penetrator<sup>1</sup>

Cut from  $\frac{1}{4}$ -inch rigid material. All dimensions in inches. Tolerance  $\pm 0.125$  inch. Drawing uses a coordinate system with its origin at the top along the centerline. Radii 1 and 2 begin on the centerline and blend smoothly with radius 3, also beginning on the centerline, all of which blends smoothly to reverse radius 4. The center point of radius 4 is  $-5.9$ " from apex at the centerline and to the right 4". The left and right sides are mirrored. Only the radiused edges are for penetration testing. The corner points created at the base of the test penetrator shall not be used to test for penetration.

Figure 3

<sup>1</sup> Test Blade Penetrator is available from Southern Impact Research Center.

### **JULY, 2004 MODIFICATIONS/REVISIONS**

- Clarified penetrator drawing.

### **AUGUST, 2004 MODIFICATIONS/REVISIONS**

- Modified Scope
- Added NOCSAE 041 as a referenced document

### **NOVEMBER, 2004 MODIFICATIONS/REVISIONS**

- Clarified penetrator drawing by adding 4<sup>th</sup> radius.

### **JUNE, 2007 MODIFICATIONS/REVISIONS**

- Updated Figure 1 to show limited contact/ocular area coverage on headforms.

### **DECEMBER, 2009 MODIFICATIONS/REVISIONS**

- **Revision**, Added dimensions for limited contact/ocular area for small and large headforms to Figure 1.
- Corrected typo in dimension for penetrator Figure 3