

**STANDARD PERFORMANCE
SPECIFICATION FOR
NEWLY MANUFACTURED
FIELD HOCKEY HEADGEAR**

NOCSAE DOC (ND) 061- 14

Prepared By



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

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1. Scope

- 1.1. This standard specification establishes performance requirements for new field hockey headgear with attached faceguard as supplied by manufacturers. The requirements of this standard shall be subject to Level 3 compliance criteria unless otherwise stated herein.
- 1.2. **All testing and requirements of this standard specification must be in accordance with NOCSAE DOC.001 and NOCSAE DOC.021, 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 TEST METHOD AND EQUIPMENT USED IN EVALUATING THE PERFORMANCE CHARACTERISTICS OF HEADGEAR/EQUIPMENT, 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.

3. Test Sample Size

- 3.1. See Sections 6 and 11, NOCSAE DOC.001, for QC/QA protocol testing.
- 3.2. For any standalone test report; At least five (5) of each headgear model in each of the critical sizes must be tested

4. Headgear Preparation

- 4.1. See Section 10, NOCSAE DOC.001.
- 4.2. To obtain a reasonable fit (as determined by the test technician) for testing purposes, headgear with the thinnest padding in a shell size, **may** require "shim" pads to be inserted between the smallest NOCSAE headform that the headgear is to be tested on and the interior of the headgear, opposite from the impact site.
- 4.3. Headgear 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. High Temperature: Expose product to conditioned temperature of 100° F ± 3° F (39° ± 1° C) for at least four hours and a maximum of twenty-four (24) hours.

NOTE: When performing conditioned environment temperature testing, the first impact shall occur within two minutes after removing the sample from the conditioning environment. The sample must be returned to the conditioning environment for a minimum of 3 minutes for each minute the sample was out of the conditioning environment. Conditioning must be complete before testing can resume on that sample.

5. Impact Attenuation Tests

5.1. Headgear Projectile Tests:

- 5.1.3. The field hockey ball(s) used shall meet the requirements of NOCSAE DOC.069.
- 5.1.4. Impact locations are described in Section 19, NOCSAE DOC.001 and described in Figure 1.
- 5.1.5. The head model will be positioned with its impact site located within 24 inches (61 cm) from the end of the muzzle (or from the point at which the ball is released).
- 5.1.6. Two of the untested submitted sample headgear shall be impacted with a field hockey ball in accordance with Table 1 and depicted in Figure 2 (attached).

TABLE 1

**LOCATION - MILES PER HOUR (m/sec)
(All speeds must be -0+3MPH)**

	FRONT	FRONT BOSS	RIGHT SIDE	RIGHT REAR BOSS	REAR	RANDOM
Ambient Temperature	60 (26.8)	60 (26.8)	60 (26.8)	60 (26.8)	60 (26.8)	60 (26.8)
High Temperature*	60 (26.8)	60 (26.8)	60 (26.8)	60 (26.8)	60 (26.8)	60 (26.8)

* The location to be impacted for the high temperature impacts varies and depends upon the results of the ambient temperature impacts completed first, each headgear shall be impacted at the location that resulted in the highest Severity Index result during the ambient conditioned impacts. Only one high temperature impact per each headgear.

5.2. Faceguard Projectile Tests:

- 5.2.1. See Section 5, NOCSAE DOC.021.
- 5.2.2. For verification of ball or protector contact with the face of the headform, refer to Figure 3 and Table 3 for the size headform used and cover the entire facial area (limited contact/ocular area) from the frontal bone superiorly to the mandible inferiorly with Pressure Indicator Paste.
- 5.2.3. Five of the submitted sample headgear with attached faceguards shall be impacted with a field hockey ball one time each. No submitted sample shall be impacted more than once. The impact locations are described below in Table 2 and Figure 4.
 - 5.2.3.1. Directly in front with the headform and headgear in an upright (vertical) position. [Barrel (line of ball travel) shall be perpendicular to the Coronal plane]. See figure 4a.
 - 5.2.3.2. With the headform and headgear in an upright (vertical) position and rotated away from the Midsagittal plane at a 45° angle from the direction of impact. See figure 4b.
 - 5.2.3.3. 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 3, attached. The center of ball contact must be at the edge of, or within the “no contact” area.
- 5.2.4. Impact targeting options
 - 5.2.4.1. At least one impact in section 5.2.2 shall be at the center of the widest opening in the faceguard while in the chosen position.
 - 5.2.4.2. At least one impact in section 5.2.2 shall be aimed at the material structure of the faceguard while in the chosen position
 - 5.2.4.3. An impact in section 5.2.2 shall be selected to exploit any location on the faceguard that may result in a failure during the impact test.
 - 5.2.4.4. Two submitted samples are conditioned to cold temperature and impacted in any two of the three locations in section 5.2.2 and utilizing any of the targeting options in section 5.2.3.

Note: It is up to the test technician to determine which of the impact locations in 5.2.2 can be exploited by the Targeting Options in section 5.2.3.

- 5.2.5. The head model will be positioned with its impact site located within 24in (61 cm) from the end of the muzzle (or from the point at which the ball is released).

TABLE 2

**LOCATION - MILES PER HOUR (m/sec)
(All speeds must be -0+3MPH)**

	FRONT (90°)	AT A 45° ANGLE	RANDOM
Ambient Temperature	60 (26.8)	60 (26.8)	60 (26.8)
Low Temperature	60 (26.8)	60 (26.8)	N/A

5. Test Requirements

- 6.1. Headgear repositioning during testing is anticipated. Any structural changes or other changes that take place during impact testing which result in un-restorable, loosening of the fit (see Section 20, NOCSAE DOC.001) shall be cause for failure. In the case of headgears “shimmed” as per section 4.2, the replacement or repositioning of shims is allowed.
- 6.2. The peak severity index of any impact shall not exceed 1200 SI.
- 6.3. A passing headgear model is able to withstand all impacts at an acceptable SI and meets all other requirements when tested in accordance with this performance specification.
- 6.4. When tested in accordance to section 5.2, 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 3 attached).
- 6.4.1. Verification of ball contact - 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.

7. Labels and Warnings

- 7.1. See Section 9, NOCSAE DOC.001 and Section 9, NOCSAE DOC.021.

* This requirement shall be subject to Level 2 compliance criteria.

- 7.2. Each headgear shall have permanently affixed to the exterior of the shell a clearly legible statement which can be easily read without removal of any decal tape, other temporary material or permanent part, which contains language which effectively communicates to the purchaser and user the following information, using the same or similar language:

WARNING:

DO NOT USE THIS HEADGEAR IF THE SHELL IS CRACKED OR DEFORMED; OR IF THE INTERIOR PADDING IS DETERIORATED. SEVERE HEAD OR NECK INJURY, INCLUDING PARALYSIS OR DEATH MAY OCCUR TO YOU DESPITE USING THIS HEADGEAR. NO HEADGEAR CAN PREVENT ALL HEAD INJURIES OR ANY NECK INJURIES A PLAYER MIGHT RECEIVE WHILE PARTICIPATING IN FIELD HOCKEY.

- 7.3. A permanent, exact replica of this seal must appear legibly on the exterior of the shell -

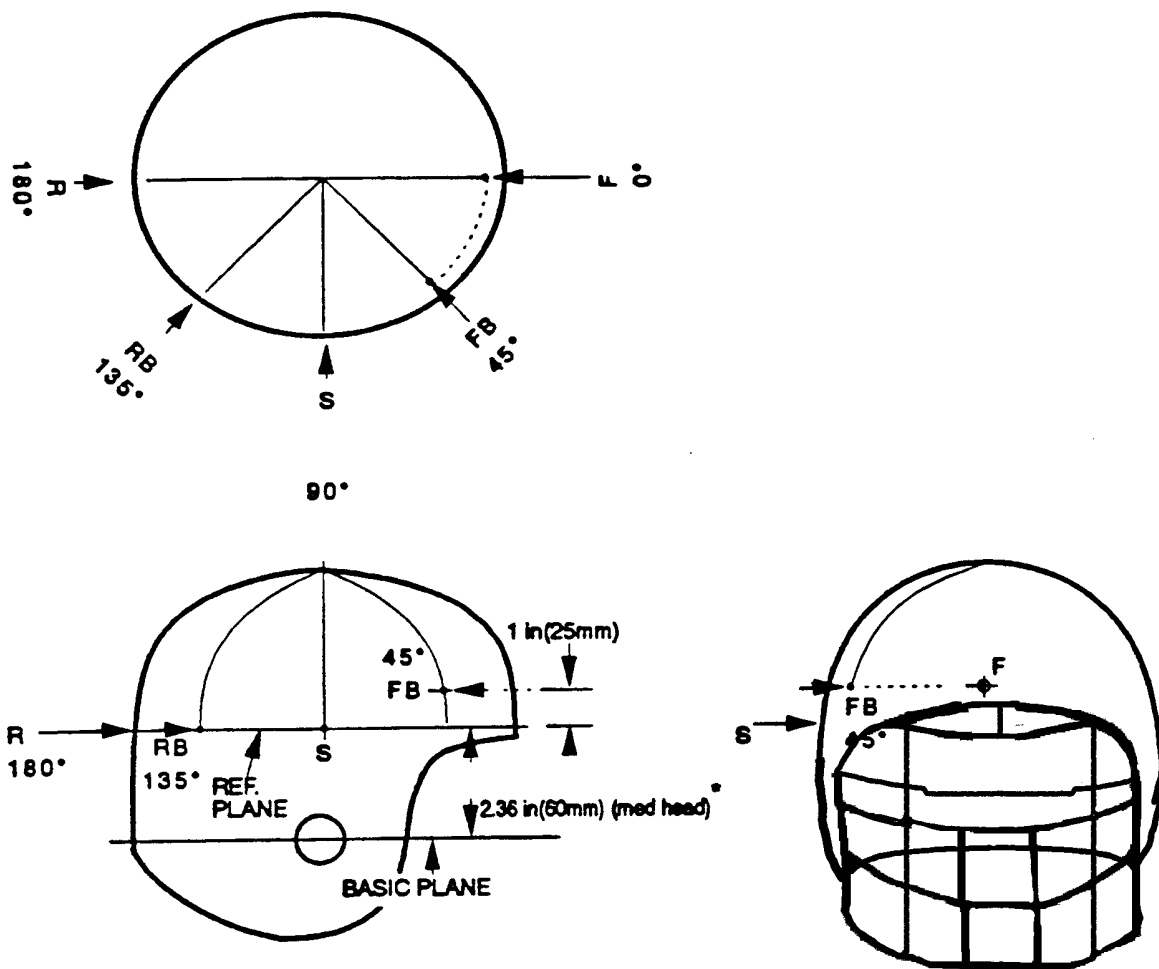


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FIELD HOCKEY HEADGEAR IMPACT LOCATIONS



* For the small headform the REFERENCE PLANE is 2.16 inches above the BASIC PLANE.
For the large headform the REFERENCE PLANE is 2.48 inches above the BASIC PLANE.

The random location may be selected from any point within the allowed impact area but not closer than 1 inch (25 mm) from the edge of the helmet nor less than 1 inch (25 mm) from any previous impact.

Random locations chosen must allow the rotator assembly to be locked in the position selected.

Impact area- for a helmet that is to be tested on the medium headform *, the impact area must include all locations on the headform above the BASIC PLANE rearward of a location 2.5 inches (64mm) forward of where the BASIC PLANE intersects with the CORONAL PLANE and any point on or above the REFERENCE PLANE in front of that same intersection. Impact area measurements are made with the face guard in place per section 1.1.

*For the small headform use 2.25 inches (57mm) and for the large headform use 2.75 inches (70mm).

Figure 1

Helmet Standard Impact Locations



FRONT



FRONT BOSS



SIDE



Rear Boss



Rear

Figure 2

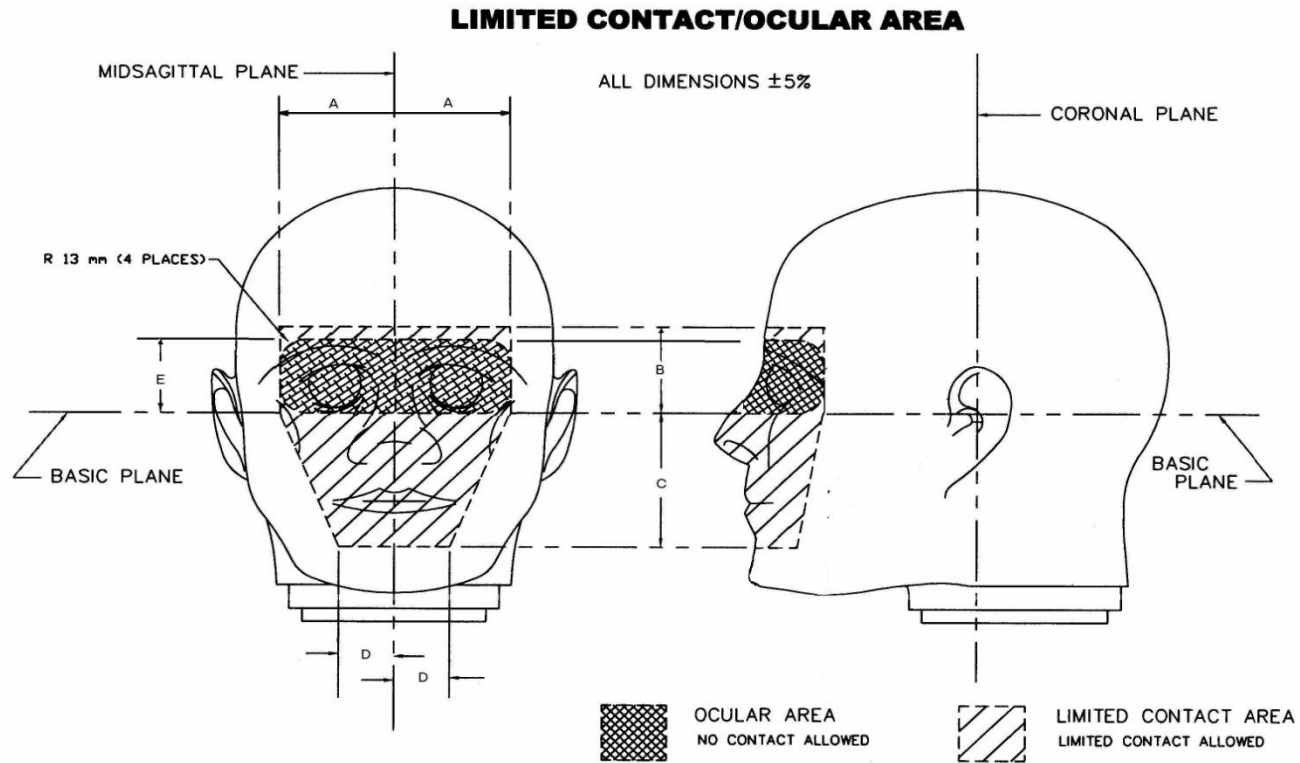


TABLE 3

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 3

Faceguard Standard Impact Locations



FRONT AT MATERIAL



FRONT AT OPENING



45 DEGREE AT MATERIAL



45 DEGREE AT OPENING

FIGURE 4