

**STANDARD PERFORMANCE
SPECIFICATION FOR
NEWLY MANUFACTURED
ICE HOCKEY FACE PROTECTORS**

NOCSAE DOC (ND) 035 – 11m16

Prepared By



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

Modified March 2016

TABLE OF CONTENTS

Scope	1
Referenced Documents	1
Sample Size.....	1
Helmet Preparation	2
Faceguard Projectile Tests.....	2
Faceguard Penetration Test.....	3
Test Requirements.....	3
Labels and Warnings	4
Figure 3.....	8
FEBRUARY 2011, MODIFICATIONS/REVISIONS	9
MAY 2012 MODIFICATIONS/REVISIONS.....	9
OCTOBER 2014 MODIFICATIONS/REVISIONS	9
JUNE 2015 MODIFICATIONS/REVISIONS	9
MARCH 2016 MODIFICATIONS/REVISIONS.....	9

1. Scope

- 1.1. This standard specification establishes performance requirements for new ice hockey face protectors intended to be mounted onto compatible ice hockey helmets that have been certified to meet the NOCSAE standard 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 DROP 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. Sample Size

- 3.1. See Sections 6 and 11, NOCSAE DOC.001, for QC/QA/QA protocol testing.
- 3.2. For any standalone test report; at least five (5) Face Protectors of each model mounted onto helmets that meet the requirements of NOCSAE Doc ND030 and bear the NOCSAE logo, in each critical size must be tested.
- 3.3. In cases where the protector is furnished in one size and fits more than one size of helmet, testing shall be conducted on the medium headform with a helmet that is intended to fit the medium headform. If more than one size helmet is intended to fit the medium headform, the critical size as defined in ND 021 shall be used. If more than one critical helmet size intended to fit the medium headform is available, the critical size with minimal standoff between face protector and headform nose when the helmet is fitted according to instructions, with the face protector fitted according to instructions and including any required accessories such as a chin strap, shall be used.
 - 3.3.1. In cases where the protector is furnished in one size and fits more than one size of helmet not intended to fit the medium headform, and testing on the medium headform is likely to result in erroneous results, testing shall be conducted on the appropriate headform with a helmet intended to fit that headform size. If more than one critical helmet size intended to fit the selected headform is available, the critical size with minimal standoff between face protector and headform nose when the helmet is fitted according to instructions, with the face protector fitted according to instructions and including any required accessories such as a chin strap, shall be used.

4. Helmet Preparation

- 4.1. See Section 10, NOCSAE DOC.001
- 4.2. Low Temperature: Expose product to conditioned temperature of $-3^{\circ}\text{F} \pm 3^{\circ}\text{F}$ ($-19.4^{\circ}\text{C} \pm 1.7^{\circ}\text{C}$) for at least four hours and a maximum of twenty-four (24) hours.
- 4.3. Face protectors that must be mounted to helmets of a given model with a size smaller than $6 \frac{5}{8}$ **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 $7 \frac{5}{8}$ **may** require "shim" pads to be inserted between the largest NOCSAE headform and the interior of the helmet, opposite from the impact site.

5. Faceguard Projectile Tests

- 5.1. See Section 5.2, NOCSAE DOC.021.
- 5.2. The ice hockey puck used must be an official ice hockey puck and shall conform to the International Ice Hockey Federation (IIHF) standard and shall have: a diameter that equals $3 \pm .02$ inch (76.2 ± 0.5 mm), a thickness that equals 1 ± 0.02 inch (25.4 ± 0.5 mm), a mass of 5.5 to 6 ounces (156 to 170 g), a hardness of 92 ± 0.5 IRH (International Rubber Hardness) at $32^{\circ} \pm 2^{\circ}\text{F}$ ($0^{\circ} \pm 1^{\circ}\text{C}$).
- 5.3. Each faceguard to be tested shall be mounted on an ice hockey helmet according to the manufacturer's instructions. Face protectors shall be impacted at each of these positions:
 - 5.3.1. Directly in front, aimed at the nose, with the headform and helmet in an upright (vertical) position. The barrel (line of puck travel) shall be perpendicular to the Coronal plane.
 - 5.3.2. 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 puck to be aimed at the eye.
 - 5.3.3. 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 puck contact must be at the edge of, or within the "no contact" area.
- 5.4. Impacts shall be aimed at each of the positions designated in 6.2 above according to the following:
 - 5.4.1. At least one impact shall be at the center of the widest opening in the faceguard.

- 5.4.2. At least one impact shall be aimed at the material structure of the faceguard.
- 5.4.3. The random impact shall be selected to investigate any apparent weakness in the faceguard which may allow contact to the face.
- 5.5. A different faceguard shall be used for each test position at each temperature (five guards are needed for the complete test series).
- 5.6. The head model will be positioned with its impact site located within 24 inches (610 mm) from the end of the muzzle (or from the point at which the puck is released).
- 5.7. Each submitted sample shall be impacted with a puck in accordance with Table 1 and depicted in Figure 2.

TABLE 1
LOCATION - MILES PER HOUR (m/sec)
(All speeds must be \pm 3%)

	AT THE NOSE	AT AN EYE	RANDOM
Ambient Temperature	63 (28)	63 (28)	63 (28)
Low Temperature	63 (28)	63 (28)	N/A

6. Faceguard Penetration Test

- 6.1. Each faceguard to be tested shall be mounted on an ice hockey helmet according to the manufacturer's instructions. Position the helmet onto the appropriate NOCSAE headform.
- 6.2. 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.

7. Test Requirements

- 7.1. Helmet 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 helmets "shimmed" as per section 4.4, the replacement or repositioning of shims is allowed.
- 7.2. When tested accordance to section 6, all faceguards shall remain intact with no crazing, breaking or cracking, either in the material or at the testing points.
- 7.3. A passing helmet model is able to withstand all impacts and meets all other requirements when tested in accordance with this performance specification.

7.4. When tested in accordance to section 6, 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).

7.4.1. Verification of puck contact - For verification of puck 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 puck 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 puck and the protector to determine if they contain residue of paste. Also inspect the headform ocular area for evidence of contact.

7.5. When tested in accordance to section 7, no contact to the ocular area is ever permitted.

7.6. A passing helmet model is able to withstand all impacts and meets all other requirements when tested in accordance with this performance specification.

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, "SEI Certified, Meets NOCSAE Standard®" Shall be permanently and legibly affixed.

NOTE: You must have an executed, valid license agreement with NOCSAE to use any of the NOCSAE logos at any time. NOCSAE, the NOCSAE seals/logos, and the National Operating Committee on Standards for Athletic Equipment are registered marks and the exclusive property of the Committee. Use of the marks in any manner is prohibited without prior written permission of the NOCSAE Board of Directors.

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 ICE HOCKEY LOGO.

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

This standard is subject to revision at any time by the responsible technical authority and must be reviewed every five years and if not revised either reapproved or withdrawn. Your comments are invited either for revision, modification or creation of additional standards and should be addressed to NOCSAE's Executive Director. Check the web at www.nocsae.org to obtain the latest version of a standard.

This standard is copyrighted by NOCSAE 11020 King St. Suite 215, Overland Park, Kansas 66210 USA. Copies may be obtained from the NOCSAE web site at www.nocsae.org

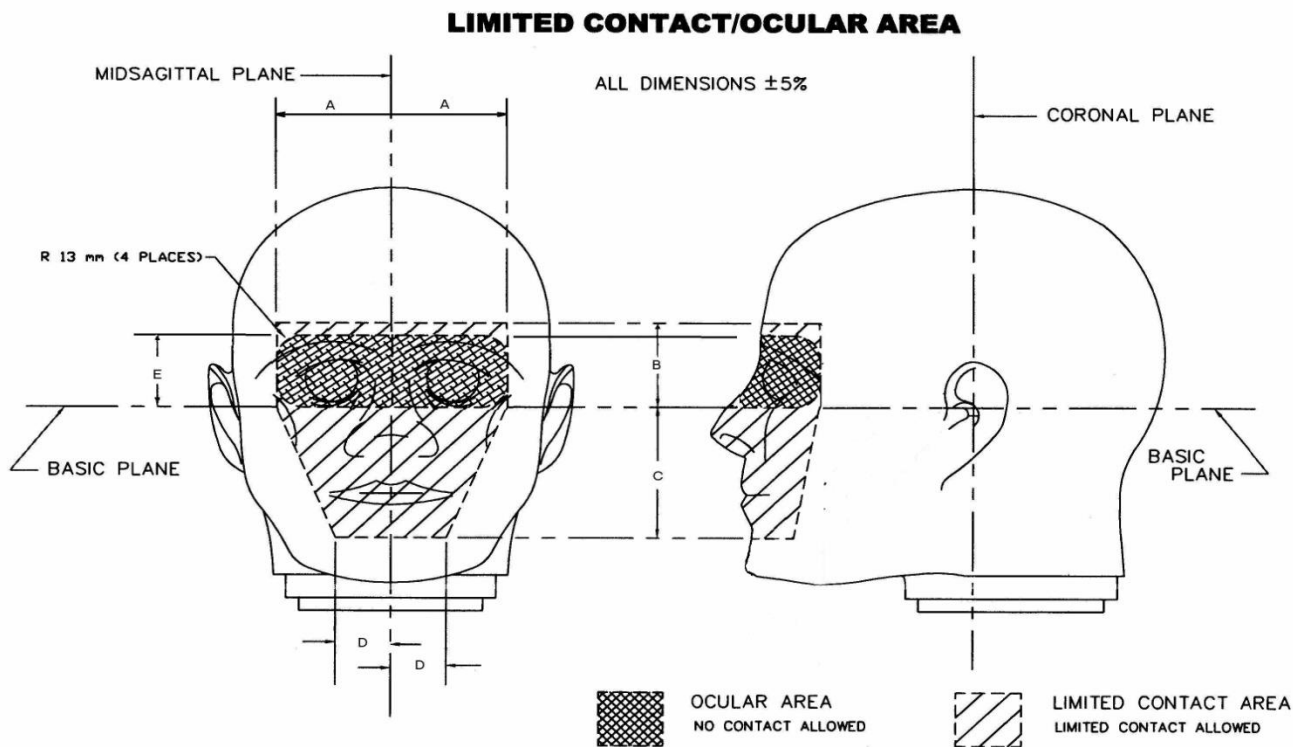
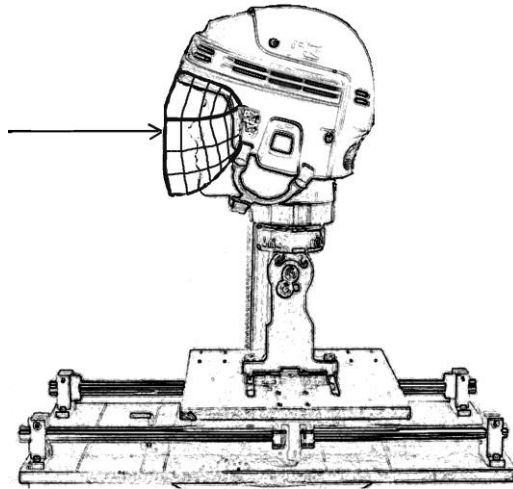


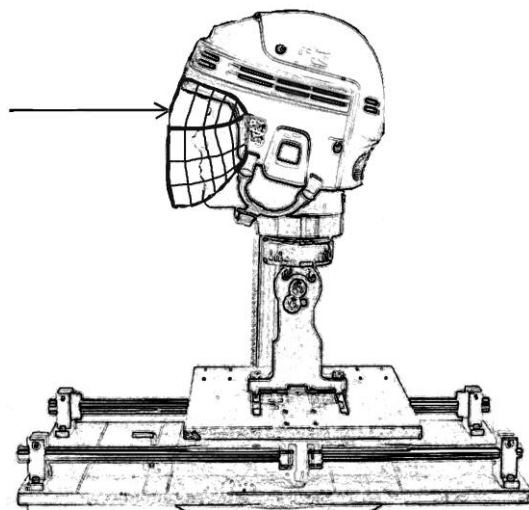
TABLE 2

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



At The Eye

Figure 2

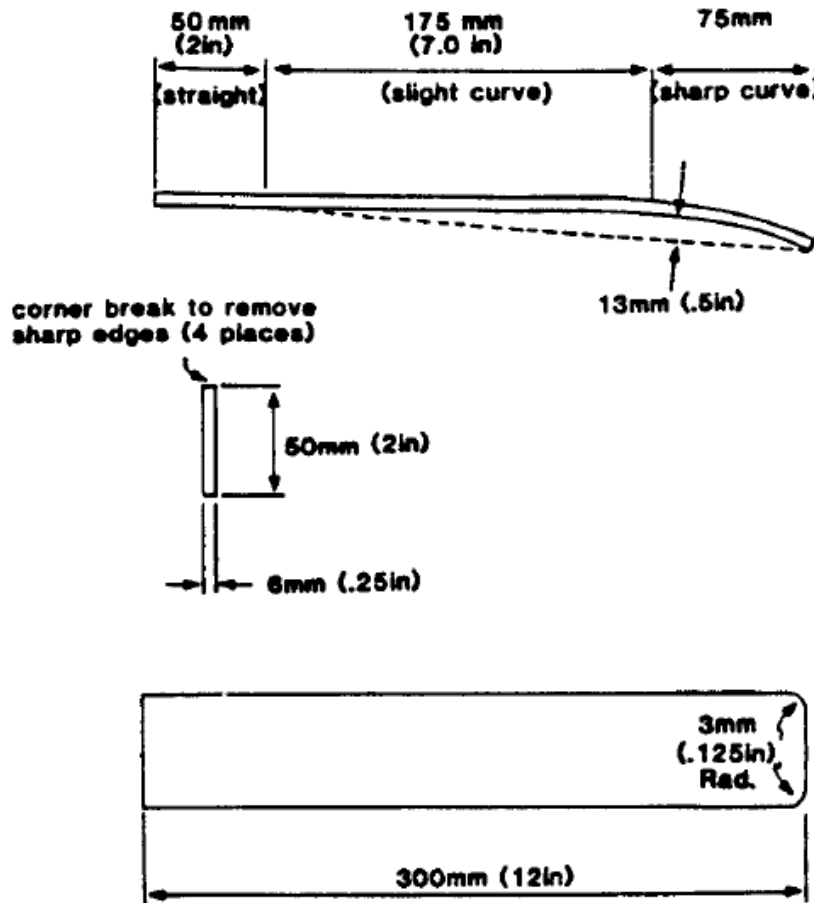


Figure 3

FEBRUARY 2011, MODIFICATIONS/REVISIONS

- **Revision**, Added dimensions for limited contact/ocular area for small and large headforms to Figure 1.
- Moved test requirements to section 8. Clarified test requirements.

MAY 2012 MODIFICATIONS/REVISIONS

- Moved requirements in section “Specific Terminology” to ‘Helmet Preparation’, Deleted section.
- Clarified section 3 for standalone test report
- Moved requirements to section 4 from section 3 for clarity

OCTOBER 2014 MODIFICATIONS/REVISIONS

- Updated document to include level of compliance requirements.
- Added Date specification becomes effective
- Updated title name of NOCSAE DOC. 001
- Added SEI Certification NOCSAE Logo to Section 8, “Labels and Warnings”

JUNE 2015 MODIFICATIONS/REVISIONS

- Updated NOCSAE seal/logo artwork

MARCH 2016 MODIFICATIONS/REVISIONS

- Added reference to “Ice” before ‘hockey’ throughout document
- Changed conversion value of °C temperature to more closely equal °F values
- Changed reference of “ball” to “puck”
- Added sections 3.3 and 3.3.1 to clarify headform selection