

**LABORATORY PROCEDURAL
GUIDE FOR CERTIFYING
NEWLY MANUFACTURED
FIELD HOCKEY HEADGEAR**

NOCSAE DOC (ND)161-16

Prepared By



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

TABLE OF CONTENTS

Scope.....	1
Referenced Documents.....	1
Test Equipment Required.....	1
Mechanical Set-up.....	2
Laboratory Environment	2
Helmet Preparation.....	2
Calibration Procedures	2
Sample Selection.....	2
Testing Procedure for Certification	2
Reports.....	3

1 Scope

- 1.1 This procedural guide establishes recommended practices for the certification of field hockey headgear.
- 1.2 **All testing and requirements of this standard specification must be in accordance with NOCSAE DOC.001 and NOCSAE DOC.021, NOCSAE DOC.061 and NOCSAE DOC.101.**
- 1.3 *This recommended practice 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 recommended practice 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 EQUIPMENT, NOCSAE DOC.001.
- 2.2 STANDARD PROJECTILE IMPACT TEST METHOD AND EQUIPMENT USED IN EVALUATING THE PERFORMANCE CHARACTERISTICS OF PROTECTIVE HEADGEAR/PROJECTILE, NOCSAE DOC.021.
- 2.3 STANDARD PERFORMANCE SPECIFICATON FOR NEWLY MANUFACTURED FIELD HOCKEY HEADGEAR, NOCSAE DOC.061.
- 2.4 EQUIPMENT CALIBRATION PROCEDURES - NOCSAE DOC.101.

3 Test Equipment Required

- 3.1 Twin-wire Guide Assembly (as shown in Figure 3, NOCSAE DOC.001).
- 3.2 Ball Propelling Device (as shown in Figure 1, NOCSAE DOC.021).
- 3.3 Appropriate NOCSAE headforms (see Section 13, NOCSAE DOC.001).
- 3.4 Appropriate MEP pads (see Section 15, NOCSAE DOC.001).
- 3.5 Catcher's Helmet Anvil (as shown in Figure 3, NOCSAE DOC.024).
- 3.6 PCB Triaxial Accelerometers, #354MO3, #356A66 or equivalent.
- 3.7 KME Series 200 Data Analyzer (or any analog/digital equivalent that can be demonstrated to correctly calculate SI from a given input signal)¹
- 3.8 Miscellaneous tools and equipment.

¹ The portion of this procedural guide that is specific to data acquisition equipment use and calibration is for the KME Series 200 only. You should refer to the manual for the specific system you are using for differences in system operation.

- 3.8.1 Digital voltmeter (DVM), 3 ½ digit, 1mv resolution, ±0.5% accuracy and connecting cables.
- 3.8.2 Torque wrench, range to 200 in/lb minimum, 5 % accuracy.
- 3.8.3 Appropriate electrical connectors (banana clips).
- 3.8.4 Tape measure.
- 3.8.5 Non-conducting glass/plastic jeweler's screwdriver (tweaking tool).
- 3.8.6 Miscellaneous hand tools.

4 Mechanical Set-up

All components of each assembly (i.e., the headform, headform adjuster, headform rotator stem, headform collar, linear bearing table, etc.) must be rigidly connected. Any looseness or play will cause spurious signals (false SI results). The linear bearing table must traverse freely but without bearing “slap” or excess play.

5 Laboratory Environment

See Section 12, NOCSAE DOC.001 and Section 3.2.4, NOCSAE DOC.021.

6 Headgear Preparation

- 6.1 See Section 4, NOCSAE DOC.061.
- 6.2 Headgear to be tested must be moved into a Laboratory environment for conditioning at least four (4) hours prior to impacting.

7 Calibration Procedures

See NOCSAE DOC.101.

8 Sample Selection

- 8.1 See Section 11, NOCSAE DOC.001.
- 8.2 Each certifier must test an adequate and representative sample size in order to be reasonably sure that Headgear released to use, but not actually tested, will meet the requirements as set out in NOCSAE DOC.001 and NOCSAE DOC.061. Certifiers may be faced with processing Headgear manufactured from variable raw materials. Sample selection **must** be random yet demonstrate that raw material variability's have been accounted for.

9 Testing Procedure for Certification

- 9.1 Calibrate your system and run the pre-testing calibration check as described above.
- 9.2 Obtain a field hockey ball that has been verified to meet the requirements of NOCSAE DOC.069, use this projectile for the tests.

- 9.3 Headgear selected for testing must be tested in all locations as specified in Section 5.1, NOCSAE DOC.061.
- 9.4 Headgear that includes face protection must be tested in all locations as specified in Section 5.2, NOCSAE DOC.061.
- 9.5 Testing may begin in any location. All (except high temperature) impacts must be completed before moving to a new location. It is not necessary to complete all testing on a given helmet or faceguard before removing the helmet from the test rig.
- 9.6 Headgear selected for high temperature testing must have already been impacted at ambient temperature.
- 9.7 Immediately after impact, record SI results and peak g's. Any delay greater than 30 seconds can result in erroneous data.
- 9.8 Periodically, post-testing calibration checks need to be run to assure that the system being used has remained correctly calibrated (see Section 18, NOCSAE DOC.001 and Section 5, NOCSAE DOC.101).
- 9.9 Evaluate one sample for labels and Warnings section 7, NOCSAE DOC.061.

10 **Reports**

All reports must comply with Section 14, NOCSAE DOC.001.