

**LABORATORY PROCEDURAL
GUIDE FOR CERTIFYING
NEWLY MANUFACTURED
BASEBALL/SOFTBALL BATTER'S
HELMET MOUNTED FACE PROTECTOR**

NOCSAE DOC (ND)073-04m14

Prepared By



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ON STANDARDS FOR ATHLETIC EQUIPMENT**

Modified October 2014

TABLE OF CONTENTS

Scope1
Referenced Documents1
Test Equipment Required1
Mechanical Set-up2
Laboratory Environment2
Helmet Preparation2
Calibration Procedures2
Sample Selection2
Testing Procedure for Certification3
Reports3

FEBRUARY, 2011 MODIFICATIONS/REVISIONS4
OCTOBER, 2014 MODIFICATIONS/REVISIONS4

1 Scope

- 1.1 This procedural guide establishes recommended practices for the certification of baseball/softball batter's helmet mounted face protectors.
- 1.2 **All testing and requirements of this standard specification must be in accordance with NOCSAE DOC.001, NOCSAE DOC.021, NOCSAE DOC.072 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 HEADGEAR/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 BASEBALL/SOFTBALL BATTER'S HELMET MOUNTED FACE PROTECTOR, NOCSAE DOC.072.
- 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 Test Headforms, NOCSAE DOC. 001).
- 3.4 Appropriate MEP pads (see Impact Test Instruments and Equipment, NOCSAE DOC. 001).
- 3.5 PCB Triaxial Accelerometers, #354MO3, #356A66 or equivalent.
- 3.6 KME Series 200 Data Analyzer (or any analog/digital equivalent that can be demonstrated to correctly calculate SI from a given input signal)¹

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.

For technical assistance you may contact Southern Impact Research Center.

- 3.7 Miscellaneous tools and equipment.
 - 3.7.1 Digital voltmeter (DVM), 3 ½ digit, 1mv resolution, ±0.5% accuracy and connecting cables.
 - 3.7.2 Torque wrench, range to 200 in/lb minimum, 5 % accuracy.
 - 3.7.3 Appropriate electrical connectors (banana clips).
 - 3.7.4 Tape measure.
 - 3.7.5 Non-conducting glass/plastic jeweler's screwdriver (tweaking tool).
 - 3.7.6 Miscellaneous hand tools.

4 Mechanical Set-up

- 4.1 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.
- 4.2 The ball selected for the test must meet the specification for the ball type. See Impact Attenuation Tests NOCSAE DOC.072.
- 4.3 Select the appropriate barrel for the ball type to be used for the test.
- 4.4 Adjust the air to attain the speed requirement for the ball type to be used in the test. See Table 1, NOCSAE DOC.072.

5 Laboratory Environment

- 5.1 See Conditioning Environments, NOCSAE DOC.001.

6 Headgear Preparation

- 6.1 See Conditioning Environments, NOCSAE DOC.001 and Specific Terminology NOCSAE DOC.021.
- 6.2 Helmets to be tested must be moved into a Laboratory environment for conditioning at least four (4) hours prior to impacting.

7 Calibration Procedures

- 7.1 See NOCSAE DOC.101.

8 Sample Selection

- 8.1 See Sample Size, NOCSAE DOC.001 and NOCSAE DOC.072
- 8.2 Each certifier must test an adequate and representative sample size in order to be reasonably sure that the face protectors released to use, but not actually tested, will meet the requirements as set out in NOCSAE DOC.001, NOCSAE DOC.021 and

NOCSAE DOC.072. Certifiers may be faced with processing face protectors 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 in Section 7 above.
- 9.2 Face protectors selected for testing must be tested in all locations as specified in Impact Attenuation Test NOCSAE DOC.072.
- 9.3 Testing may begin in any location.
- 9.4 Immediately after impact, record SI results and peak g's. Any delay greater than 30 seconds can result in erroneous data. Inspect ball and/or face protector for contact to the face as specified in Impact Attenuation Test NOCSAE DOC.072.
- 9.5 Periodically, post-testing calibration (system) checks need to be run to assure that the system being used has remained correctly calibrated (see System Check, NOCSAE DOC.001 and Post calibration System Check, NOCSAE DOC.101).

10 Reports

- 10.1 All reports must comply with Reports, NOCSAE DOC.001.

FEBRUARY, 2011 MODIFICATIONS/REVISIONS

- Added additional accelerometer options in section 3.4
- Specified resolution and tolerance for DVM and Torque Wrench

OCTOBER, 2014 MODIFICATIONS/REVISIONS

- Updated title name of NOCSAE DOC. 001