



STATE OF DELAWARE
STATE COUNCIL FOR PERSONS WITH DISABILITIES

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MEMORANDUM

DATE: November 30, 2010

TO: Ms. Jana Simpler, Director
Office of Highway Safety

FROM: Daniese McMullin-Powell, ^{Chairperson} ~~Chairperson~~
State Council for Persons with Disabilities

RE: 14 DE Reg. 432 OHS [Proposed Motorcycle Helmet & Eye Protection Regulation]

The State Council for Persons with Disabilities (SCPD) has reviewed the Department of Safety & Homeland Security/Office of Highway Safety's (OHS's) proposal to amend its regulations to more clearly specify what motorcycle helmets and eye protections are approved for use. The proposed regulation was published as 14 DE Reg. 432 in the November 1, 2010 issue of the Register of Regulations. As background, consistent with Title 21 Del.C. §4185, motorcyclists up to 19 years of age must ride with a helmet and eye protection approved by the Secretary of the Department of Safety and Homeland Security. Riders age 19 and above must wear the Secretary-approved eye protection and carry the Secretary-approved helmet on the motorcycle. The Office of Highway Safety is now issuing a revised implementing regulation. SCPD has the following observations.

First, the National Highway Safety Administration maintains a motorcycle helmet regulation codified at 49 C.F.R. 571.218. Its website contains a 66 page notice of proposed rulemaking (NPR) which contains a comprehensive discussion of the advantages of helmets and issues related to helmet mislabeling and enforcement of helmet laws. For example, the NPR contains the following information: 1) helmets have an overall effectiveness of 37% in preventing fatalities in potentially fatal crashes (p. 8); and 2) riders who crash without helmets are 3 times more likely to have brain injuries (p. 9).

Second, there is a major problem with "novelty helmets" and fake "DOT" stickers. Some motorcyclists affix "DOT" stickers obtained from retailers to their helmets to create the appearance of properly certified, compliant helmets. Enforcement is difficult since the sellers assert that the letters simply stand for "Doing Our Thing" (p. 14). Even in states with mandatory helmet laws,

“non-compliant helmets were used by 15% of motorcyclists” (p. 9). The NPR proposes several safeguards to improve helmet safety, including manufacturers placing the DOT symbol under the clear coat of the helmet, including the word “certified” on the helmet, and including manufacturer model, date of manufacture, and other information prominently on the outside of a helmet. However, it is unclear if the NPR (which is undated) was ever issued. In any event, the Code of Federal Regulations (CFR) still contains the 1988 version of the regulation. An excerpt is attached.

Third, in §1.1, for improved grammar, substitute “are as follows” for “are ones that”.

Fourth, since the federal standards may change, the OHS may wish to insert “most current” before the phrases “Federal Motor Vehicle Standard (FMVSS) 218” and “Federal Motor Vehicle Safety Standard 218”. Otherwise, someone could argue that the State is adopting the version in effect in 2010 rather than any updated version.

Fifth, §§1.2.1 and 1.2.2 are ostensibly “surplusage” since §1.1 requires riders to comply with the federal “218” standard and §§1.2.1 and 1.2.2 quote almost verbatim from the federal “218” standard. Compare §1.2.1 with 49 C.F.R. 218 - S.5.6.1 and §1.2.2 with 49 C.F.R. 218 - S.5.6.1(f). Incorporating the language in the current federal regulation could present a problem if the federal standards change.

Sixth, it would be preferable to address the novelty helmet and fake DOT sticker issue in the regulation. Assuming deletion of §§1.2.1 and 1.2.2 pursuant to the above paragraph, consider inserting a new §1.2.1 to read as follows:

1.2.1. Without limitation, the following helmets are categorically disapproved:

- 1.2.1.1. “Novelty” helmets which do not meet or exceed the standards in §1.1.1;
- 1.2.1.2. Helmets affixed with a DOT symbol not installed by the helmet’s manufacturer; and
- 1.2.1.3. Helmets with counterfeit labels in lieu of the label affixed by the helmet’s manufacturer pursuant to the federal standards identified in §1.1.1.

Thank you for your consideration and please contact SCPD if you have any questions or comments regarding our observations or recommendations on the proposed regulation.

cc: Mr. Brian Hartman, Esq.
SCPD Brain Injury Committee
Governor’s Advisory Council for Exceptional Citizens
Developmental Disabilities Council
Brain Injury Committee

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Table 1. Minimum Specific Intensity Per Unit Area (SIA)

(Candelas per Footcandle Per Square Foot)

Type III Retroreflective Material

A - Glass Bead Retroreflective Element Material

Observation Angle (°)	Entrance Angle (°)	White	Red	Yellow
0.2	-4	250	45	170
0.2	+30	150	25	100
0.5	-4	95	15	62
0.5	+30	65	10	45

B - Prismatic Retroreflective Element Material

Observation Angle (°)	Entrance Angle (°)	White	Red	Yellow
0.2	-4	250	45	170
0.2	+30	95	13.3	64
0.5	-4	200	28	136
0.5	+30	65	10	45

[37 FR 9395, May 10, 1972]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting §571.217 see the List of CFR Sections Affected which appears in the Finding Aids section of the printed volume and on GPO Access.

§571.218 Standard No. 218; Motorcycle helmets.

S1. *Scope.* This standard establishes minimum performance requirements for helmets designed for use by motorcyclists and other motor vehicle users.

S2. *Purpose.* The purpose of this standard is to reduce deaths and injuries to motorcyclists and other motor vehicle users resulting from head impacts.

S3. *Application.* This standard applies to all helmets designed for use by motorcyclists and other motor vehicle users.

S4. *Definitions.*

Basic plane means a plane through the centers of the right and left external ear openings and the lower edge of the eye sockets (Figure 1) of a reference headform (Figure 2) or test headform.

Helmet positioning index means the distance in inches, as specified by the manufacturer, from the lowest point of the brow opening at the lateral midpoint of the helmet to the basic plane of a reference headform, when the helmet is firmly and properly positioned on the reference headform.

Midsagittal plane means a longitudinal plane through the apex of a reference headform or test headform that is perpendicular to the basic plane (Figure 3).

Reference headform means a measuring device contoured to the dimensions of one of the three headforms described in Table 2 and Figures 5 through 8 with surface markings indicating the locations of the basic, midsagittal, and reference planes, and the centers of the external ear openings.

Reference plane means a plane above and parallel to the basic plane on a reference headform or test headform (Figure 2) at the distance indicated in Table 2.

Retention system means the complete assembly by which the helmet is retained in position on the head during use.

Test headform means a test device contoured to the dimensions of one of the three headforms described in Table 2 and Figures 5 through 8 with surface markings indicating the locations of the basic, mid-sagittal, and reference planes.

S5. Requirements. Each helmet shall meet the requirements of S5.1, S5.2, and S5.3 when subjected to any conditioning procedure specified in S6.4, and tested in accordance with S7.1, S7.2, and S7.3.

S5.1 Impact attenuation. When an impact attenuation test is conducted in accordance with S7.1, all of the following requirements shall be met:

(a) Peak accelerations shall not exceed 400g;

(b) Accelerations in excess of 200g shall not exceed a cumulative duration of 2.0 milliseconds; and

(c) Accelerations in excess of 150g shall not exceed a cumulative duration of 4.0 milliseconds.

S5.2 Penetration. When a penetration test is conducted in accordance with S7.2, the striker shall not contact the surface of the test headform.

S5.3 Retention system.

S5.3.1 When tested in accordance with S7.3:

(a) The retention system or its components shall attain the loads specified without separation; and

(b) The adjustable portion of the retention system test device shall not move more than 1 inch (2.5 cm) measured between preliminary and test load positions.

S5.3.2 Where the retention system consists of components which can be independently fastened without securing the complete assembly, each such component shall independently meet the requirements of S5.3.1.

S5.4 Configuration. Each helmet shall have a protective surface of continuous contour at all points on or above the test line described in S6.2.3. The helmet shall provide peripheral vision clearance of at least 105° to each side of the mid-sagittal plane, when the helmet is adjusted as specified in S6.3. The vertex of these angles, shown in Figure 3, shall be at the point on the anterior surface of the reference headform at the intersection of the mid-sagittal and basic planes. The brow opening of the helmet shall be at least 1 inch (2.5 cm) above all points in the basic plane that are within the angles of peripheral vision (see Figure 3).

S5.5 Projections. A helmet shall not have any rigid projections inside its shell. Rigid projections outside any helmet's shell shall be limited to those required for operation of essential accessories, and shall not protrude more than 0.20 inch (5 mm).

S5.6 Labeling.

S5.6.1 Each helmet shall be labeled permanently and legibly, in a manner such that the label(s) can be read easily without removing padding or any other permanent part, with the following:

(a) Manufacturer's name or identification.

(b) Precise model designation.

(c) Size.

(d) Month and year of manufacture. This may be spelled out (for example, June 1988), or expressed in numerals (for example, 6/88).

(e) The symbol DOT, constituting the manufacturer's certification that the

helmet conforms to the applicable Federal motor vehicle safety standards. This symbol shall appear on the outer surface, in a color that contrasts with the background, in letters at least $\frac{3}{8}$ inch (1 cm) high, centered laterally with the horizontal centerline of the symbol located a minimum of $1\frac{1}{2}$ inches (2.9 cm) and a maximum of $1\frac{3}{4}$ inches (3.5 cm) from the bottom edge of the posterior portion of the helmet.

(f) Instructions to the purchaser as follows:

(1) "Shell and liner constructed of (identify type(s) of materials).

(2) "Helmet can be seriously damaged by some common substances without damage being visible to the user. Apply only the following: (Recommended cleaning agents, paints, adhesives, etc., as appropriate).

(3) "Make no modifications. Fasten helmet securely. If helmet experiences a severe blow, return it to the manufacturer for inspection, or destroy it and replace it."

(4) Any additional relevant safety information should be applied at the time of purchase by means of an attached tag, brochure, or other suitable means.

S5.7 Helmet positioning index. Each manufacturer of helmets shall establish a positioning index for each helmet he manufactures. This index shall be furnished immediately to any person who requests the information, with respect to a helmet identified by manufacturer, model designation, and size.

S6. Preliminary test procedures. Before subjecting a helmet to the testing sequence specified in S7., prepare it according to the procedures in S6.1, S6.2, and S6.3.

S6.1 Selection of appropriate headform.

S6.1.1 A helmet with a manufacturer's designated discrete size or size range which does not exceed $6\frac{3}{4}$ (European size: 54) is tested on the small headform. A helmet with a manufacturer's designated discrete size or size range which exceeds $6\frac{3}{4}$, but does not exceed $7\frac{1}{2}$ (European size: 60) is tested on the medium headform. A helmet with a manufacturer's designated discrete size or size range which exceeds $7\frac{1}{2}$ is tested on the large headform.

S6.1.2 A helmet with a manufacturer's designated size range which in-

cludes sizes falling into two or all three size ranges described in S6.1.1 is tested on each headform specified for each size range.

S6.2 Reference marking.

S6.2.1 Use a reference headform that is firmly seated with the basic and reference planes horizontal. Place the complete helmet to be tested on the appropriate reference headform, as specified in S6.1.1 and S6.1.2.

S6.2.2 Apply a 10-pound (4.5 kg) static vertical load through the helmet's apex. Center the helmet laterally and seat it firmly on the reference headform according to its helmet positioning index.

S6.2.3 Maintaining the load and position described in S6.2.2, draw a line (hereinafter referred to as "test line") on the outer surface of the helmet coinciding with portions of the intersection of that service with the following planes, as shown in Figure 2:

(a) A plane 1 inch (2.5 cm) above and parallel to the reference plane in the anterior portion of the reference headform;

(b) A vertical transverse plane 2.5 inches (6.4 cm) behind the point on the anterior surface of the reference headform at the intersection of the mid-sagittal and reference planes;

(c) The reference plane of the reference headform;

(d) A vertical transverse plane 2.5 inches (6.4 cm) behind the center of the external ear opening in a side view; and

(e) A plane 1 inch (2.5 cm) below and parallel to the reference plane in the posterior portion of the reference headform.

S6.3 Helmet positioning.

S6.3.1 Before each test, fix the helmet on a test headform in the position that conforms to its helmet positioning index. Secure the helmet so that it does not shift position before impact or before application of force during testing.

S6.3.2 In testing as specified in S7.1 and S7.2, place the retention system in a position such that it does not interfere with free fall, impact or penetration.

S6.4 Conditioning.

S6.4.1 Immediately before conducting the testing sequence specified in S7,