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An American National Standard

Standard Specification for Helmets Used for Recreational Snow Sports[1]

This standard is issued under the fixed designation F2040; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope*

1.1 This specification defines performance requirements for helmets used in nonmotorized recreational snow sports (such as skiing, snowboarding, and other alpine sports). This specification is a performance standard and is not intended to restrict design. Although a helmet that meets this specification will help reduce the risk of some types of injuries to the head at slower speeds, the protection is limited. The user is responsible for participating in the sport within his/her abilities and the nature of the snow conditions which may vary widely. Compliance with the common sense rules of the sport's safety, including any applicable responsibility codes, is essential to help reduce the risk of personal injury.

1.2 All testing and requirements of this specification shall be in accordance with Test Methods F1446, except where noted herein.

1.3 Partial utilization of this specification is prohibited. Any statement of compliance with this specification shall be a certification that the product meets all of the requirements of the specification in its entirety. A product that fails to meet any one of the requirements of this specification is considered to have failed the standard and should not be sold with any indication that it meets parts of the standard.

2. Referenced Documents

2.1 *ASTM Standards:*[2]

F1446 Test Methods for Equipment and Procedures Used in Evaluating the Performance Characteristics of Protective Headgear

3. Headforms

3.1 Headforms to be used in this specification are as specified in the section on Test Headforms of Test Methods F1446. The appropriate size headform shall be selected in accordance with the section on Headform Size Selection of Test Methods F1446 for the helmet to be tested.

4. ~~Marking the Test Line~~

~~4.1The test line is shown in Fig. 1 and shall be marked in accordance with Test Methods F1446.~~

~~5.Conditioning and Number of Samples~~

~~5.1Four sample helmets are required for each shell/liner size combination.~~

~~5.2Conditioning of the samples to be tested is described in the section on Conditioning Environment of Test Methods F1446, but differs as follows:~~

~~5.2.1*Low Temperature*—The low temperature shall be -22 to -28°C.~~

~~5.2.2*High Temperature*—The high temperature shall be 32 to 38°C.~~

~~6.Retention System Testing~~

~~6.1The Dynamic Strength Retention Test shall be completed in accordance with Test Methods F1446 prior to impact testing.~~

~~6.2*Dynamic Strength Retention Test*— The hot, cold, and wet helmets shall be subjected to the Dynamic Strength Retention Test. Place the helmet on the appropriate size headform on the test device described in the section on Apparatus of Test Methods F1446.~~

~~6.2.1Place the twin bar (jaw) system with rod and drop weight attached within the fastened retention system.~~

~~6.2.2Mark the position of the twin bar with preload and drop weights in position.~~

~~6.2.3Drop a 4-kg sliding weight a distance of 0.6 m.~~

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[1] This specification is under the jurisdiction of ASTM Committee F08 on Sports Equipment and Facilities and is the direct responsibility of Subcommittee F08.53 on Headgear and Helmets.

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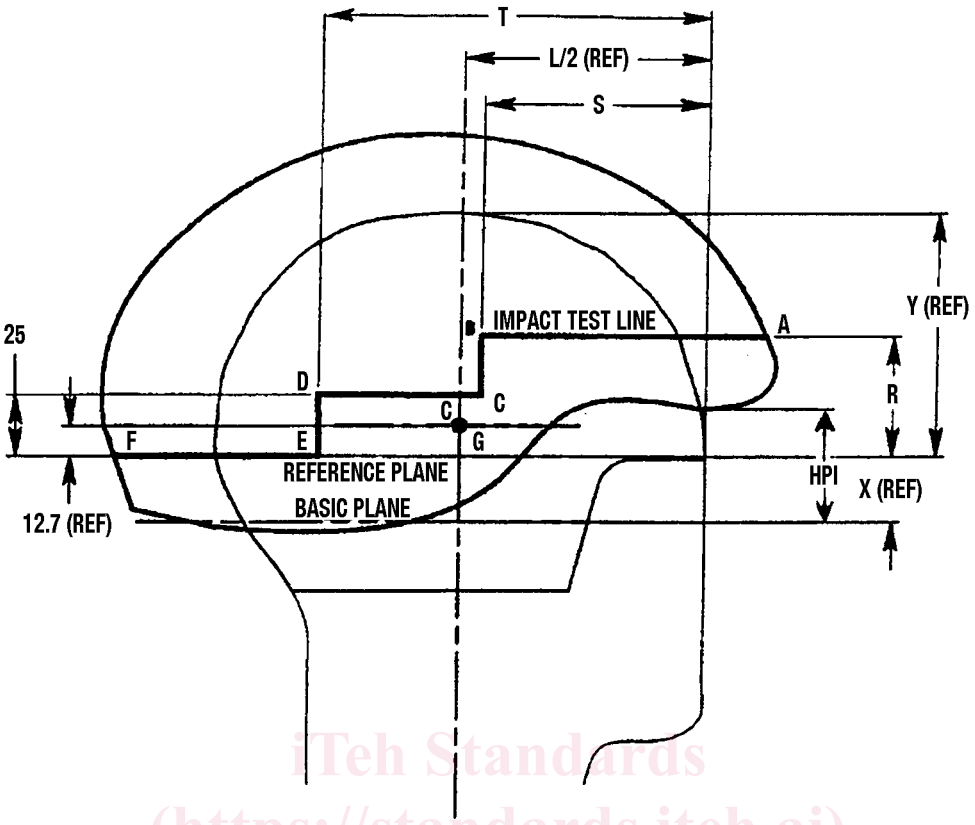
[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

***A Summary of Changes section appears at the end of this standard.**



HEADFORM SIZE	DIMENSION X	L/2	Y	R	S	T
A	24.0	88.0	89.7	47	84	142
E	26.0	94.5	96.0	49	88	151
J	27.5	101.0	102.5	50	92	160
M	29.0	106.0	107.0	52	96	166
O	30.0	108.5	110.0	53	97	170

FIG. ~~1~~ 2 Marking the Test Line

~~6.2.4The retention system shall remain intact without elongating more than 30 mm.~~

~~6.3The ambient helmet shall be subjected to the positional stability (roll-off) test in accordance with Test Methods F1446 using a 4 kg drop mass from a height of 0.6 m.~~

~~6.3.1The retention system shall remain intact and the helmet shall remain on the headform.~~

~~7.~~Anvils and Impact Velocities

~~7~~4.1 Anvils to be used for impact tests in this specification are described as follows:

~~7.1.1~~4.1.1 *Flat Anvil*, as described in the section on Apparatus of Test Methods F1446.

~~7.1.2~~

4.1.2 *Hemispherical Anvil*, as described in the section on Apparatus of Test Methods F1446.

~~7.1.3~~

4.1.3 *Edge Anvil*, constructed of solid steel in accordance with ~~Fig. 2~~Fig. 1.

~~7.2~~

4.2 *Impact Velocities*:

~~7.2.1~~

4.2.1 Impacts upon the flat anvil shall achieve a velocity of 6.2 m/s (corresponding to a theoretical drop height of 2.0 m).

~~7.2.2~~

4.2.2 Impacts upon the hemispherical anvil shall achieve a velocity of 4.8 m/s (corresponding to a theoretical drop height of 1.2 m).