



Standard Specification for Testing Off-Road Motorcycle and ATV Helmets¹

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1. Scope

1.1 This specification covers performance requirements for helmets used by off-road motorcycle and All-Terrain Vehicle (ATV) riders.

1.2 Compliance with the federally mandated FMVSS No. 218 shall be documented as part of compliance with this ASTM standard.

1.3 This specification provides additional performance requirements including positional stability and performance criteria for chin bars on full-facial coverage helmets if the helmet is equipped with a chin bar.

1.4 This standard does not require that helmets provide full facial coverage.

1.5 This is a performance specification and is not intended to restrict design.

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

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

1.8 Headgear designed to comply with this and other standards may proclaim uses as certified by the manufacturer.

1.9 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.10 The following safety caveat applies to the chemical, mechanical, or physical, or a combination thereof, test methods described herein and is meant specifically for those performing the tests (in an effort to provide them with notice to take the appropriate precautions when conducting the tests): *This stan-*

ard does not purport to address all of the safety concerns, 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 *ASTM Standards:*²

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

F2220 Specification for Headforms

F2727 Guide for Manufacturers for Labeling Headgear Products

2.2 *Other Standards:*

UNI EN 960 Headforms for Use in the Testing of Protective Helmets

Federal Motor Vehicle Safety Standard No. 218 Motorcycle Helmets, effective May 13, 2013

Laboratory Test Procedure for FMVSS No. 218: TP-218-07 effective May 13, 2013

American National Standard for Four Wheel All-Terrain Vehicles, ANSI SVIA 1-2010

3. Terminology

3.1 *Definitions*—Off-road motorcycle and ATV use includes, but is not limited to, motocross, supercross, enduro, endurocross, arenacross, flat-track, observed trials, hill-climbing, ice-racing, and non-competitive uses such as trail, cross-country, desert, sand dune riding, etc.

3.2 *All-Terrain Vehicle (ATV), n*—a motorized off-highway vehicle designed to travel on four low pressure tires, having a seat designed to be straddled by the operator and handlebars for steering control (ANSI SVIA 1-2010, section 3).

3.3 This standard is not applicable to off-road vehicles in which the operator or passenger are enclosed and/or restrained with a lap/shoulder belt system.

¹ This specification is under the jurisdiction of ASTM Committee F08 on Sports Equipment, Playing Surfaces, 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.

4. Labels and Warnings

4.1 Shall meet the requirements set forth in Test Methods F1446.

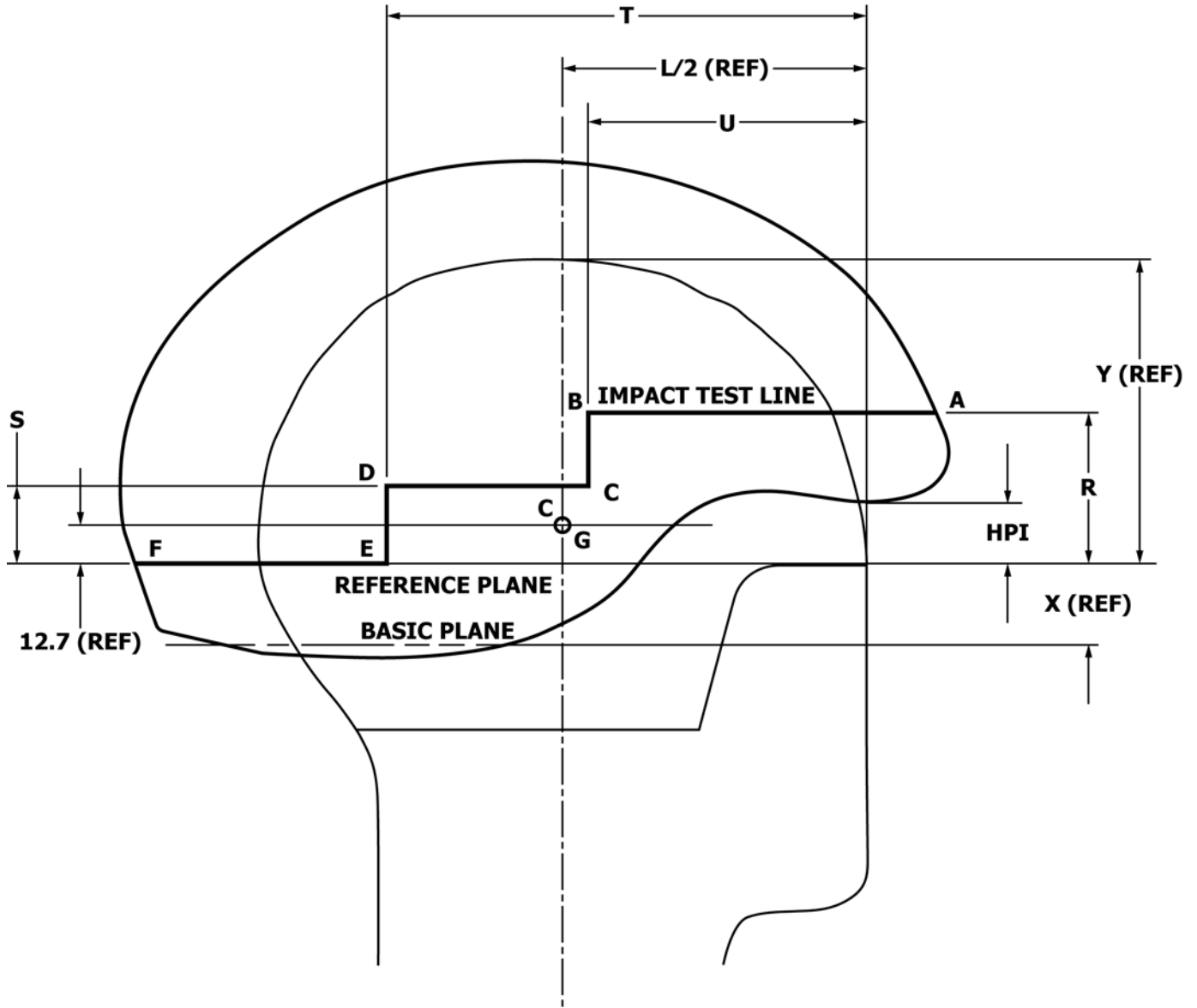
4.2 Shall follow the guidelines set forth in Guide F2727.

4.3 Shall have the words “For off-road motorcycle and ATV riding and racing.”

4.4 Shall comply with all labeling requirements of FMVSS 218 at S5.6.

5. Marking the Test Line

5.1 The test line is shown in Fig. 1 and shall be marked in accordance with Test Methods F1446. The test area created by this test line must fall completely on the helmet.



HEADFORM SIZE	DIMENSION						
	X	L/2	Y	R	S	T	U
A	24.0	88.0	89.7	47.5	23.0	142.0	84.0
E	26.0	94.5	96.0	49.0	24.0	151.0	88.0
J	27.5	101.0	102.5	50.5	25.0	160.0	92.0
M	29.0	106.0	107.0	52.0	27.0	166.0	96.0
O	30.0	108.5	110.0	53.0	27.0	170.0	97.0

FIG. 1 Marking the Test Line

6. Conditioning and Number of Samples

6.1 Conditioning of the samples to be tested shall be in accordance with the section entitled “Conditioning Environments” in Test Methods **F1446**. All tests for compliance with this standard are done in ambient condition.

6.2 For all helmets with or without a chin bar, one sample helmet is required for each shell-liner size combination as defined in Test Methods **F1446**.

7. Impact Sites

7.1 There are currently no impact tests specified beyond those included in compliance with FMVSS 218 at 10.1.

8. Roll-Off Testing

8.1 The ambient helmet shall be subjected to the Roll-Off test in accordance with Test Methods **F1446** subsection 12.7.2 using a 10-kg drop mass from a height of 0.6 m and utilizing the failure criteria established by **F1446**.

9. Chin Bar Rigidity Test

9.1 The chin bar rigidity test applies to helmets with a chin bar only.

9.2 If a chin bar is present, it shall be tested in accordance with the procedures in Test Methods **F1446**, Chin Bar Rigidity Test, subsection 12.9, with an impact velocity of 3.5 m/s + 5 %, using an ambient sample that has not been subjected to any other impact testing.

9.3 The maximum deflection of the chin bar shall not exceed 60 mm as specified by Test Methods **F1446** subsection 12.9.1.

10. Compliance Documentation

10.1 Compliance with this standard requires documented compliance with FMVSS No. 218: Motorcycle Helmets. Each compliance test report to this ASTM standard must have a complete and passing test report showing compliance with FMVSS 218. For a sample report, refer to the current FMVSS 218 Test Procedure (TP-218-07). This supporting document shall be attached to the ASTM XXXX report. Without a supporting FMVSS 218 report, the ASTM report will be in violation of subsection 1.8 prohibiting partial compliance.

11. Keywords

11.1 all-terrain vehicle; ATV; competition; headgear; helmet; motocross; motorcycle; off-road; racing; sand dune; trail

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