



Standard Test Method for Evaluating Rim Slip Performance of Tires and Wheels¹

This standard is issued under the fixed designation F2803; 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 test method is performed to determine the amount of rotational slip occurring at the tire/wheel interface while under heavy longitudinal load conditions.

1.2 This test method is suitable for research and development purposes where tires are compared during a single series of tests. They may not be suitable for regulatory statutes or specification acceptance because the values obtained may not necessarily agree or correlate either in rank order or absolute performance level with those obtained under other environmental conditions on other surfaces or the same surface after additional use.

1.3 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

1.4 *This standard 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

F538 Terminology Relating to the Characteristics and Performance of Tires

2.2 SAE Standards:³

SAE J2013 Military Tire Glossary

SAE J670e Vehicle Dynamics Terminology

3. Terminology

3.1 Definitions:

¹ This test method is under the jurisdiction of ASTM Committee F09 on Tires and is the direct responsibility of Subcommittee F09.20 on Vehicular Testing.

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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.

³ Available from SAE International (SAE), 400 Commonwealth Dr., Warrendale, PA 15096-0001, <http://www.sae.org>.

3.1.1 *bead*, *n*—of a tire, the part of a tire that comes in contact with the rim and is shaped to secure the tire to the rim.

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3.1.2 *candidate tire*, *n*—test tire that is part of a test program.

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3.1.3 *control tire*, *n*—reference tire used in a specified manner throughout a test program.

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3.1.4 *deflection*, *n*—difference between the unloaded and loaded section heights.

SAE J2013

3.1.5 *drawbar*, *n*—device for coupling a hauling vehicle to a load.

3.1.6 *dynamometer*, *n*—machine used to measure torque and rotational speed (rpm) from which power produced by an engine, motor or other rotating prime mover can be calculated.

3.1.6.1 *Discussion*—For the purpose of this test method, a dynamometer can be any vehicle or trailer that can be towed and produce longitudinal resistance.

3.1.7 *longitudinal force*, *n*—of a tire, the component of the tire force vector in the X direction.

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3.1.8 *longitudinal slip velocity* [L/T], *n*—effective rolling radius multiplied by the difference between the spin velocity (in rad/unit time) of a driven or braked tire and that of a free rolling tire when each is traveling in a straight line.

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3.1.9 *maximum load rating* [M], *n*—of a passenger tire, the load rating at the maximum permissible cold inflation pressure for that tire.

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3.1.10 *paved road*, *n*—two or more lanes, all weather, maintained, hard surface roads with good driving visibility used for heavy and high-density traffic, in accordance with the U.S. Federal Highway Administration.

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3.1.11 *rim*, *n*—specially shaped circular periphery to which a tire may be mounted with appropriate bead fitment.

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3.1.12 *rim slip*, *n*—circumferential distance along the rim flange between the corresponding marks.

3.1.13 *section height*, *n*—radial height of a tire section, expressed as one half the difference between the outside diameter of the unloaded tire and the nominal rim diameter; the outside diameter is measured on a tire-wheel assembly with the tire inflated to rated inflation pressure.

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