

# Standard Test Method for Static Measurements on Tires for Passenger Cars, Light Trucks, and Medium Duty Vehicles<sup>1</sup>

This standard is issued under the fixed designation F 1502; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

## 1. Scope

1.1 This test method covers methods for performing certain mechanical static measurements on tires. The term “static” implies that the tire is not rotating while measurements are being made.

1.2 *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:

- D 2240 Test Method for Rubber Property—Durometer Hardness<sup>2</sup>
- F 421 Test Method for Measuring Groove and Void Depth in Passenger Car Tires<sup>3</sup>
- F 538 Terminology Relating to the Characteristics and Performance of Tires<sup>3</sup>
- F 870 Test Method for Tread Footprints of Passenger Car Tires Groove-Area Fraction and Dimensional Measurements<sup>3</sup>
- F 1082 Practice for Tires—Determining Precision for Test Method Standards<sup>3</sup>

## 3. Terminology

### 3.1 Definitions:

- 3.1.1 *outside diameter,  $n$* —the maximum diameter of a tire when it is mounted and inflated.
- 3.1.2 *overall width,  $n$* —the maximum cross-sectional width of a tire, including protective or decorative ribs.
- 3.1.3 *tire weight,  $n$* —the weight of an unmounted tire without tube or flap.
- 3.1.4 *tread arc width,  $n$* —the length of the arc measured from one extreme of the tread design proper to the opposite

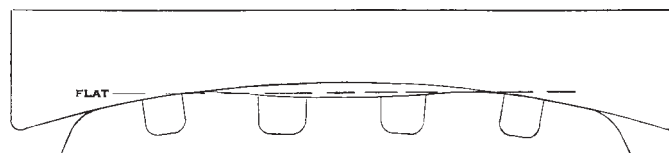


FIG. 1 Type C: Tread Contour with a Center-Low Oxbow

extreme; that is, from shoulder to shoulder perpendicular to the circumferential center line.

3.1.5 *tread hardness,  $n$* —the hardness of an element in the tread design as measured by a designated standard gage.

3.1.6 *tread radius,  $n$* —the radius of a circle whose arc best fits the tread surface when the radius template used is held perpendicular to the circumferential center line of an inflated tire.

## 4. Significance and Use

4.1 Static measurements of tires are important to tire manufacturers, processing engineers, and vehicle design engineers for purposes of commerce (in consumer/vendor agreements) and in tire research and development.

4.2 The procedures are sufficiently detailed to achieve commercially acceptable reproducibility among laboratories and may therefore be used for specification, compliance, or reference purposes.

4.3 Changes attributable to growth after inflation may be obtained by comparing measurements made immediately after inflation with those made 18 to 24 h later. This is the principal purpose for which tire width measurements, for example, are made.

## 5. Tire Marking

5.1 For measurements other than weight, the tire shall be marked at six equally spaced locations around the circumference. Starting at the DOT serial, make radial lines from bead to bead, perpendicular to the tread center line, at 60-degree intervals. Number the resulting sections “1” through “6” in a clockwise sequence as viewed from the side containing the serial number.

## 6. Procedures

### 6.1 Tire Weight:

<sup>1</sup> This test method is under the jurisdiction of ASTM Committee F-09 on Tires and is the direct responsibility of Subcommittee F09.30 on Laboratory (Non-Vehicular) Testing.

Current edition approved Feb. 15, 1994. Published April 1994.

<sup>2</sup> Annual Book of ASTM Standards, Vol 09.01.

<sup>3</sup> Annual Book of ASTM Standards, Vol 09.02.