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**Standard Method of Test for**

**Pavement Thickness by  
Magnetic Pulse Induction**

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AASHTO Designation: T 359-16<sup>1</sup>  
Release: Group 1 (April 2016)



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## 1. SCOPE

- 1.1. This test method covers the determination of the pavement thickness by using magnetic pulse induction. This method is intended for use with plain jointed concrete pavements, asphalt pavements, base courses with cement binders and unbound aggregate layers. It is not applicable for continuously reinforced, mesh reinforced, or fiber reinforced pavement where the metal reinforcement would interfere with the magnetic field.
- 1.2. The values stated in SI units are to be regarded as the standard.
- 1.3. *This standard does not purport to address all of the safety problems, 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.*

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## 2. REFERENCED DOCUMENTS

- 2.1. *AASHTO Standard:*
- T 148, Measuring Length of Drilled Concrete Cores

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## 3. SUMMARY OF TEST METHOD

- 3.1. The method uses magnetic pulse induction technology to measure the thickness of one or several layers above a metal reflector. While scanning, the device generates a variant magnetic field that creates an eddy current in the reflector. The eddy current will generate an induced magnetic field inside the reflector, the intensity of which is detected by sensors from the device. For a given type of reflector, the intensity of the induced magnetic field is determined primarily by the distance from the device to the target. A calibration file, recording the relationship between the induced magnetic field intensity and the distance, is developed for each unique type of reflector produced by the manufacturer. Reflectors are usually either round or square galvanized sheet steel about 6 mm thick. They usually range in size depending on the anticipated thickness of the pavement to be measured. For pavements up to 350 mm thick, round 300-mm diameter reflectors are adequate. Square 355-mm reflectors are adequate for pavements up to 500 mm thick.

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## 4. SIGNIFICANCE AND USE

- 4.1. This test method covers the indirect measurement of the pavement thickness to provide a rapid, nondestructive result. The method is used to determine the compliance of concrete pavement construction with the thickness specifications. The nondestructive thickness results have shown good correlation with direct measurement of pavement thickness using T 148 (References 12.1).<sup>2</sup>