

**STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION**

**SUPPLEMENT 1058  
SURFACE SMOOTHNESS REQUIREMENTS**

**July 16, 2004**

**1058.01 Scope**

**1058.02 Materials and Equipment**

**1058.03 Profile Device Approval and Verification**

**1058.01 Scope.** This Supplement covers the equipment requirements for measuring smoothness on asphalt and concrete pavements. Included are the initial equipment and operator approval process and verification process at the project.

**1058.02 Materials and Equipment.** Furnish and maintain a low speed non-contact profiler during the paving operations. Develop a Profile Index Trace in accordance with California Test 526, 1978 using the profiler. A trace of the pavement profile is recorded on a scale of 1 inch equal to 25 feet (25 mm equal to 7.6 m) longitudinally and 1 inch equal to 1 inch (25 mm equal to 25 mm) vertically. Software will allow multiple prints of a single profile run with different blanking band settings as well as providing IRI per ASTM E950 and ride number results. Software will provide electronic copies of all longitudinal pavement profiles in ERD format (University of Michigan Transportation Research Institute's Engineering Research Division [ERD] format).

All profilers and their Contractor user must be approved by the Department. This approval is contingent upon project verification of the equipment. A copy of the approval letter will be presented by the Contractor to the project Engineer before the start of the mainline paving operation. The profiler and software settings as approved will not be altered in any manner during the project and until the next Department approval.

**1058.03 Profile Device Approval and Project Verification.** Any profiler to be approved must meet the following requirements. A Contractor desiring approval will arrange a date between April 1 and June 1 with the Office of Materials Management, Asphalt Materials section for running the ODOT test track. The approval will be valid for two years provided no equipment or software changes are made. If any changes in equipment, settings, software updates etc. occur, the profiler must be re-approved. The equipment supplier may be on hand but track runs for approval will be by a Contractor person who will operate or train others to operate the desired equipment on Department projects. Approval will be by letter to the Contractor.

Test track approval will consist of a single set of five runs of the profile device. The runs will all be within a range of 4.00 inches/ mile (63.1 mm/km) and the average will be within 2.00 inches/ mile (31.6 mm/km) of the average of five runs of a high speed profiler as run by the Department and meeting the above range. One additional set of five runs will be allowed should any problems arise. Only five test runs prior to actual approval runs are allowed. (ie Any training of the operator should be prior to the approval test date.) When runs are completed, the

distance and height measurements will be verified. Gauge blocks will be cold stamped with a unique identifying number. The height readout or recording will be within +/- 0.02 inches (0.508 mm) of a caliper reading of each gauge block, and distance will be within 1 percent. Once testing is complete, the equipment settings and information will be recorded on the approval letter. Data will include but not be limited to accelerometer manufacturer and identifiers, drive device, computer type, software identifier, filter settings, rounding settings, etc.

The Engineer will verify the equipment available and equipment settings against the approval letter data and note accordingly on his copy of the letter. A copy of this verification will be given to the Contractor. The Contractor will demonstrate the profile device operation prior to project use. The demonstration will consist of an agreed upon known distance measurement on the project and height measurement using the equipment gauge blocks after calibration. The above tolerances will apply. The Contractor shall provide a caliper accurate to 0.001 inches (0.0254 mm) for verifying gauge blocks dimensions. The Engineer can request a new demonstration of distance and height accuracy and verify computer settings at any time. Should the equipment not verify or equipment changes are noted by the Engineer, the profile device shall not be used. It can be re-approved at the next approval period.