



SURFACE VEHICLE RECOMMENDED PRACTICE

J3300™/1

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Low Mu/Winter Driving Skill Certification

RATIONALE

This SAE Recommended Practice describes low mu/winter driving skill levels for operating automobiles as they relate to vehicle operation in low mu/winter driving conditions, primarily for purposes of vehicle testing and evaluation or other professional driving. This document, in combination with SAE J3300, describes specific criteria for establishing low mu/winter driving skill levels, verification methods, and certification procedures for the skill levels. This document may also be used as a basis for developing a low mu/winter driving training program for drivers seeking certification. This document reflects the current industry practice through the on-going cooperation of OEM, supplier, independent test facilities, and other driving-related organizations. It is anticipated that this SAE Recommended Practice will evolve into a broadly accepted SAE Standard and will promote harmonization of driving skill levels across the industry.

1. SCOPE

This SAE Recommended Practice is intended to establish a procedure to certify the low mu/winter driving skill levels of professional drivers. This certification can be used by the individual driver to qualify their skills when seeking employment or other professional activity. These certification levels may also be used by test facilities or other organizations when seeking test or professional drivers of various skills.

This document provides directions for obtaining certification through Probitas Authentication^{®1}, and the low mu/winter driving skill examination requirements.

This document is a supplement to SAE J3300, providing information specific to the low mu/winter driving skill certification and clarifying the application of the rules set forth in J3300 to the low mu/winter driving certification. While the references, definitions, rules, and guidelines presented in SAE J3300 Sections 1 through 5 apply to the low mu/winter driving certification, they are not repeated in this document.

¹ Probitas Authentication[®] is an SAE International affiliate organization that provides certification services for technical transportation professionals (<http://www.sae-itc.org/probitas/about/>).

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Full document details: SAE J3300_1_202008

For more information on this standard, visit
https://www.sae.org/standards/content/J3300/1_202008

Documents

Document Sharing Hub

2. REFERENCES

2.1 Applicable Documents

The following publications form a part of this specification to the extent specified herein. Unless otherwise indicated, the latest issue of SAE publications shall apply.

2.1.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

SAE J266 Steady-State Directional Control Test Procedures for Passenger Cars and Light Trucks

SAE J670 Vehicle Dynamics Terminology

SAE J3300 Driving Level Skill Certification

3. DEFINITIONS

In addition to the definitions provided in SAE J3300, the following definitions are specific to the low mu/winter driving certification.

3.1 LOW MU

Condition where tires skid at low braking, accelerating, and cornering forces such as on snow, ice, or slick/wet surfaces.

4. PROGRAM STRUCTURE

SAE J3300/1 is a low mu/winter driving skill certification Recommended Practice. It has multiple levels of certification based on complexity or difficulty of driving task. All SAE J3300 certifications must be tested by an SAE-certified examiner, using an SAE-certified test course and test vehicle. SAE J3300/1 low mu/winter driving certifications do not have driving level prerequisites, and may be obtained solely for the purposes of low mu/winter driving. Each certification has a specified validity period after which recertification is required, as well as annual maintenance requirements. Certifications may be revoked (decertification) for specific cause or for failure to complete annual maintenance requirements. A tabular summary of prerequisites, annual maintenance requirements, and recertification periods is also presented in [Appendix A](#).

Refer to SAE J3300, Section 4 for processes regarding if a candidate does not pass, recertification, annual maintenance, and decertification.

5. PROGRAM ADMINISTRATION

Probitas Authentication® is designated as the personnel credentialing body for the SAE J3300 driving skill certification.

Refer to SAE J3300, Section 5 for information regarding application for SAE J3300 driving skills certifications through Probitas Authentication®, submitting documentation of annual maintenance requirements, the certification decision authority, complaints and appeals, examiner requirements, certifier requirements, and lead certifier requirements.

Examiner requirements and responsibilities are outlined in SAE J3300, 5.5.

6. LOW MU/WINTER DRIVING CERTIFICATION

This section specifies criteria and evaluation methods for assessing the low mu/winter driving skill level of test drivers or other professional drivers. Multiple low mu/winter driving levels are presented, from basic to advanced skillsets. Each level has approximately three certification tests with objective pass/fail criteria. All tests have four pass/fail criteria categories: safety, control, consistency, and pace. Each level also has a fifth pass/fail criteria set that applies to the whole test: attitude/behavior. A procedure for each skill level and test is included.

6.1 Low Mu/Winter Driving Levels Overview

Currently there are three low mu/winter driving levels. See [Appendices A](#) and [B](#) for a summary of low mu/winter driving level certifications.

6.1.1 Low Mu/Winter Driving Level 2 (LM2)

Assesses ability to drive reasonably and consistently and to always maintain control of a vehicle below the vehicle acceleration limits (cornering, accelerating, and braking) in low mu/winter driving conditions. The intended purpose of LM2 is to ensure that any driver possesses the minimum skills to drive a simple sub-limit set maneuver or procedure consistently in low mu conditions. For example, LM2 is a recommended minimum requirement for drivers of test procedures, such as durability, in low mu conditions when consistency is an important factor in test quality. It is also recommended for drivers like chauffeurs and taxi or limo drivers who drive in low mu/winter driving conditions, and where smooth driving is an important factor in customer satisfaction.

6.1.2 Low Mu/Winter Driving Level 3 (LM3)

Assesses ability to control a vehicle at near-limit handling up to 65 km/h (40 mph) or straight-line speed on low mu up to 90 km/h (55 mph). The intended purpose of LM3 is to ensure that any driver possesses the minimum skills to drive a vehicle in a mode or condition in low mu/winter driving conditions where it may exceed the linear range. For example, LM3 is recommended for drivers encroaching on non-linear range on proving grounds and public roads in low mu/winter driving conditions.

6.1.3 Low Mu/Winter Driving Level 4 (LM4)

Assesses ability to control a vehicle at the limit or in the non-linear range in low mu/winter driving conditions. The intended purpose of LM4 is to ensure that any driver possesses the minimum skills to drive a vehicle at its limit of handling in low mu/winter driving conditions, but not for vehicles with a high center of gravity.

6.2 Prerequisites

Low mu/winter driving levels do not have any prerequisites, other than a valid government-issued driver's license. Candidates are not required to certify to lower low mu/winter driving levels prior to certifying to the maximum level desired; e.g., a candidate may take the LM4 examination without needing to first certify at the LM2 and LM3 levels.

6.3 Examination Requirements

6.3.1 Dynamic Evaluation

Each low mu/winter driving level has multiple objective pass/fail certification tests. Each driving test has criteria for safety, control, consistency, and pace. There is also an overall pass/fail criterion for behavior and attitude at each level. The candidate must pass all criteria for all tests within a low mu/winter driving level to pass the examination for that level. See [Appendices B](#) and [C](#) for summaries of the test methodology.

6.3.2 Facility Requirements

- A snow-packed vehicle dynamics area (VDA) or equivalent with an area of 60 x 90 m (200 x 300 feet) is required to perform these driver certification tests.
- Approximately 50 cones are required for this event. Two colors or other distinguishing factors are preferred.
- A timer or stopwatch is required.
- See [Appendix D](#) for course layout. Any layout other than the standard layout must be approved by an SAE J3300 certifier.

6.3.3 Vehicle Requirements

- Three vehicles with all season/winter tires are required to perform the series of low mu/winter driving certifications. An SAE certifier must approve bogey/reference times for all vehicles and their respective set-ups (e.g., tires).
- AWD, RWD, or FWD mid-size sedan with all-season tires and the ability to disable ABS for Level 2 Test 1 (LM2.1).
- RWD vehicle with all-season tires and the ability to disable ESC for Levels 2 through 4, Test 2 (LM2.2, LM3.2, and LM4.2).
- FWD vehicle with winter tires on the front, all-season tires on the rear, and the ability to disable ESC for Level 4 Test 3 (LM4.3).

6.4 Recertification

- LM2: Recertification is required every 10 years.
- LM3: Recertification is required every 5 years.
- LM4: Recertification is required every 5 years.

6.5 Annual Maintenance

Maintenance requirements are managed via signing the SAE J3300 annual declaration (4.5.1) and are enforced in alignment with the J3300 Code of Conduct (4.5.2). The annual declaration process is the same for all certifications.

Maintenance requirements vary by endorsement level. For the low mu/winter driving endorsement, the following annual maintenance requirements must be declared:

6.5.1 Low Mu Level 2

In the last year, I have:

- Met all maintenance requirements for DL1.
- Conducted at least 4 hours of testing or driving at the LM2 level.

6.5.2 Low Mu Level 3

In the last year, I have:

- Met all maintenance requirements for LM2 level.
- Conducted at least 4 hours of testing or driving at the LM3 level that involved some non-linearity.
- Reported all incidents and unintended or unapproved off-course excursions regardless of severity or damages for SAE J3300 review.

6.5.3 Low Mu Level 4

In the last year, I have:

- Met all maintenance requirements for LM3.
- Conducted at least 4 total hours of testing or driving that involved non-linearity.

For additional requirements for annual maintenance, refer to SAE J3300 foundational driving levels, 4.5