



Standard Guide for Conducting Subjective Pavement Ride Quality Ratings¹

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1. Scope

1.1 This guide covers a procedure for obtaining subjective numerical ride ratings for a group of representative highway pavement sections having a broad spectrum of physical characteristics.

1.2 The intent of this guide is to describe a procedure for generating a set of comparatively scaled ride ratings, subjectively derived, for a subgroup of pavement sections having a ride quality distribution approximating the general population of highways of interest. This set will provide statistical estimates of the average subjective ride ratings which would be obtained for the same group of pavement sections if the entire population of users could be interrogated.

1.3 For the data to be a reasonable representation of the average ride quality judgments of the total highway user community for the total population of highway pavements, certain sampling theory precepts must be observed; The size of the rating panel, the selection of its members from the user community, the method of quantifying the individual judgments, as well as the selection of the sample pavement sections are all important areas to be considered.

1.4 An important use of the resulting ride quality data would be to determine the ability of various hypothesized deterministic functions of physical parameters of the pavement samples, such as measured longitudinal profile, and so forth, to provide an estimate of subjective ride quality judgments.

1.5 This guide is based on guidelines described in Appendix F of NCHRP Report 275,² and in Appendix E of NCHRP Report 308.³

1.6 The values stated in both inch-pound and SI units are to be regarded separately as the standard. The units given in parentheses are for information only.

1.7 *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:⁴

E177 Practice for Use of the Terms Precision and Bias in ASTM Test Methods

E178 Practice for Dealing With Outlying Observations

E867 Terminology Relating to Vehicle-Pavement Systems

E950 Test Method for Measuring the Longitudinal Profile of Traveled Surfaces with an Accelerometer Established Inertial Profiling Reference

3. Terminology

3.1 Definitions:

3.1.1 *mean panel rating (MPR)*, n —the average value, for each section of highway pavement, of ride quality ratings assigned by a ride quality rating panel

3.1.2 *ride quality rating*, n —a numerical value subjectively assigned to a section of highway pavement by an individual quantifying his judgment of the level of ride quality for that section based on a psychophysical scale.

3.1.3 *ride quality rating panel*, n —a group of highway users, statistically representative of the total expected highway user population, in rating the ride qualities of pavements.

3.1.4 *rideability*, n —a subjective judgment of the comparative discomfort induced by traveling over a specific section of highway pavement in a vehicle.

4. Summary of Guide

4.1 This guide is intended to provide a statistically valid and practical method of obtaining a set of scaled ride quality ratings, based on subjective judgments by a sample group of raters selected from the total population of expected users, for a subset of test sections selected to represent the general

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² Janoff, M.S., Nick, J.B., Davit, B.S., and Hayhoe, G.F., "Pavement Roughness and Rideability," *NCHRP Report 275*, September 1985.

³ Janoff, M.S., "Pavement Roughness and Rideability Field Evaluation," *NCHRP Report 308*, July 1988.

⁴ 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.