commenters should double space their comments.

The original and 14 copies of such comments must be received by July 14, 1998. Comments should be submitted to the Office of the Secretary, Federal Energy Regulatory Commission, 888 First Street, NE, Washington DC 20426 and should refer to Docket No. RM98–8–000.

In addition, commenters are asked to submit their written comments and executive summaries on 3½-inch diskette formatted for MS–DOS based computers. In light of the ability to translate MS–DOS based materials, the text need only be submitted in the format and version for which it was generated (*i.e.*, MS DOS WORD, WordPerfect, ASC III, etc.). For Macintosh users, it would be helpful to save the documents in word processor format and then write them to files on a diskette formatted for MS–DOS machines.

Commissioner Bailey dissented in part with a separate statement attached.

By direction of the Commission.

David P. Boergers,

Acting Secretary.

BAILEY, Commissioner, Dissenting in Part

I am dissenting in part from this NOI. This document poses a series of questions for public comment addressing alternatives to the Commission's current method of exercising its jurisdiction on the OCS. I have already expressed my disagreement with many of the Commission's jurisdictional determinations with respect to pipelines on the offshore. After seeing the application of the 1996 policy statement to specific cases, I concluded that continued application of the primary function test on the offshore is largely unworkable. There is a host of conflicting precedent, as is evident from looking at the record in the Sea Robin case.[1] Although I certainly understand the need for this Commission to rethink these issues, I have already reevaluated my position as indicated in earlier dissents.[2] And I certainly feel that, to the extent the Sea Robin remand goes unanswered, that is unacceptable.

Let me reemphasize some points I have made in the past. I continue to believe that we should adopt a common sense definition of gathering as outlined by the Court of Appeals in the EP Operating decision.[3] We should recognize that today's deep water production means even longer and wider lines to move production to market, and that the movement of gas across the OCS is often a collection process. While it might be ideal to preserve FERC/NGA jurisdiction as a backstop in case a complaint arises, I do not think we have that right if the function of a line can be viewed as gathering under a common sense analysis.

Producers on the OCS are not without statutory protection. The antidiscrimination provisions of the Outer Continental Shelf Lands Act are real. The law has not changed. This Commission has acknowledged its jurisdiction pursuant to that statue and would respond promptly to complaints filed by shippers on OCS gathering lines that are not otherwise subject to the Commission's NGA jurisdiction. Ultimately, if an unduly discriminatory rate is found to be without remedy under the OCSLA, a legislative solution would be a viable option if that need were demonstrated.

In sum, I do not find the fear of regulatory gap to be so compelling that we should adopt a strained definition of what constitutes a gathering line. While I will certainly review the comments we receive in response to this current NOI, I do want to emphasize my thinking on these issues. My thoughts are based on the extensive record we developed at the time of the 1996 Policy Statement addressing many of these questions, as well as the cases decided subsequently. I look forward to the continuing dialogue, and I urge the Commission, for the sake of those cases that are lingering, to resolve some of these outstanding issues as expeditiously as we can.

Vicky A. Bailey,

Commissioner.

[FR Doc. 98–14964 Filed 6–4–98; 8:45 am]

BILLING CODE 6717–01–P

[1] Sea Robin Pipeline Company v. FERC, 127 F.3d 365 (Fifth Cir. 1997); reh'g denied, February 5, 1998.

[2] See Shell Gas Pipeline Company, 78 FERC ¶ 61,192 (1997).

[3] EP Operating Company v. FERC, 876 F.2d 46 (Fifth Cir. 1989).

DEPARTMENT OF TRANSPORTATION

Federal Highway Administration

49 CFR Part 350

[FHWA Docket No. FHWA–98–3611]

Development of Functional Specifications for Performance-based Brake Testers Used To Inspect Commercial Motor Vehicles

AGENCY: Federal Highway Administration (FHWA), DOT.

ACTION: Request for comments.

SUMMARY: The FHWA is requesting public comment concerning the development of functional specifications for performance-based brake testing machines purchased with Federal funds through the FHWA's Motor Carrier Safety Assistance Program (MCSAP). The FHWA is nearing the completion of a multi-year research program to evaluate prototype performance-based brake testing technologies, including roller dynamometers, flat-plate brake testers, breakaway torque brake testers, an on-board electronic decelerometer, and an infrared brake temperature measurement system. To date, the FHWA has determined that certain performance-based brake testing machines are eligible for funding under MCSAP, but only as screening and sorting devices in commercial vehicle inspections. The FHWA is requesting public comments on generic functional specifications that would be applicable to a range of brake testing technologies. The States would use the functional specifications as guidelines to determine whether the purchase of a specific brake tester would be an eligible expense item under the MCSAP.

DATES: Comments must be received on or before August 4, 1998.

ADDRESSES: Submit written, signed comments to the docket identified at the beginning of this notice, the Docket Clerk, U.S. DOT Dockets, Room PL–401, 400 Seventh Street, SW., Washington, DC 20590–0001. All comments received will be available for examination at the above address from 10 a.m. to 5 p.m., e.t., Monday through Friday, except Federal holidays. Those desiring notification of receipt of comments must include a self-addressed, stamped envelope or postcard.

FOR FURTHER INFORMATION CONTACT: Mr. Larry W. Minor, Vehicle and Operations Division, Office of Motor Carrier Research and Standards, (202) 366–4009; or Mr. Steve Keppler, Intelligent Transportation Systems—Commercial Vehicle Operations Division, Office of Motor Carrier Safety and Technology, (202) 366–0950, or Mr. Charles E. Medalen, Office of the Chief Counsel, (202) 366–1354, Federal Highway Administration, 400 Seventh Street, SW., Washington, D. C. 20590. Office hours are from 7:45 a.m. to 4:15 p.m., e.t., Monday through Friday, except Federal holidays.

SUPPLEMENTARY INFORMATION:

Electronic Access

Internet users can access all comments received by the U.S. DOT Dockets, Room PL–401, by using the universal resource locator (URL): http://dms.dot.gov. It is available 24 hours each day, 365 days each year. Please follow the instructions online for more information and help.

An electronic copy of this document may be downloaded using a modem and suitable communications software from the Government Printing Office's Electronic Bulletin Board Service at (202) 512–1661. Internet users may reach the **Federal Register**'s home page at: http://www.nara.gov/fedreg and the Government Printing Office's database at: http://www.access.gpo.gov/nara.

Background

In 1993, the FHWA initiated a research program to evaluate various performance-based brake testing technologies for application to commercial motor vehicles. The purpose of the program was to determine, through field-test data collection, if performance-based brake inspection technologies could improve, or assist with the throughput and accuracy of, the current inspection techniques which involve visual examination of components, measurement of push-rod travel on air-braked vehicles, and listening for air leaks. Following the completion of the first task of the program, in which various performance-based technologies were analyzed, several of the technologies were selected for evaluation in a roadside field-test.

During the field tests, inspections were performed using both visual and performance-based methods to compare their ability to detect vehicle brake defects. In particular, a Commercial Vehicle Safety Alliance (CVSA) Level 4 inspection (consisting of the brake and tire portion of a Level 1 inspection) was conducted in addition to a performance-based brake test. The dual inspections were performed by State officials in each of ten States (Colorado, Connecticut, Indiana, Maryland, Minnesota, Nevada, Ohio, Oregon, West Virginia, Wisconsin) that volunteered to participate in the field test program.

The data collected from these dual inspections were tabulated and correlations were sought between Federal Motor Carrier Safety Regulations (FMCSRs) violations, the North American Uniform Vehicle Out-of-Service Criteria used by officials in the United States, Canada, and Mexico, and various pass/fail criteria used by manufacturers of performance-based technology. In addition to the performance-based brake ''failure'' information, data relating to the operational characteristics of each prototype machine were also collected and evaluated. These data included setup and tear down times, vehicle inspection times, maintenance requirements, user friendliness, calibration procedures and results, operator skill-level requirements and information to generate a cost-benefit analysis. A key source of data was the interviews (performed by the researchers) with State inspectors.

The preliminary findings from the first phase of the prototype brake testing program are documented in an interim report, ''Evaluation of Performance-Based Brake Testing Technologies,'' December 1995, FHWA–MC–96–004. A copy of this report has been placed in the docket and may be obtained by contacting one of the individuals listed at the beginning of this notice. The interim report presents findings based upon approximately one year of data from roller dynamometers used in Colorado and Ohio, and a flat plate tester in Minnesota.

The first phase of the brake testing program also included an evaluation of an on-board decelerometer, and an infrared brake temperature measurement system. The evaluations of these technologies did not involve a year-long data collection effort. The evaluation of the decelerometer was conducted using Indiana school buses that were undergoing annual summer inspections. Use of this technology in roadside inspections appears impractical. The logistics are difficult and the majority of the vehicles tested would be loaded with cargo in transit—few commercial motor vehicle drivers would be willing to perform panic stops in other than emergency situations because of the potential damage to their cargo. The evaluation of the infrared brake temperature measurement system was conducted in Oregon. Since criteria for using infrared technology for detecting faulty brakes had not yet been developed, the field-test data were collected and analyzed to determine whether any correlation could be made between the brake temperature data and the inspection results.

West Virginia is currently participating in the field test evaluation of a roller dynamometer, Wisconsin is collecting data on a flat-plate tester, and Maryland and Nevada are collecting data on breakaway torque testers. Connecticut participated in the testing of a roller dynamometer for several months, but elected to discontinue its involvement in the research program. The final report on the research program will be published later this year.

In addition to research involving State agencies, the FHWA is also working with motor carrier fleets to provide the private sector with the opportunity to learn about the performance-based brake testing technologies and determine whether the use of the technologies would benefit their maintenance programs.

Determination of Eligibility for MCSAP Funding

On April 1, 1996, the FHWA issued a memorandum advising agency staff that two specific performance-based brake testing machines are eligible for funding under MCSAP. On March 11, 1997, the FHWA issued another memorandum announcing the eligibility for funding of a third performance-based brake testing machine. Copies of the memoranda are in the docket. The memoranda indicated that the devices are prototypes, and are approved for screening and sorting purposes only. This means that States may request MCSAP funding to purchase one of the approved brake testers for use in screening or sorting vehicles at inspection sites. Vehicles failing the brake performance test would have to be inspected to determine the reason for the poor test results. Generally, motor carriers cannot be cited for brake-related violations of the FMCSRs solely on the basis of the results from a performance-based brake tester. Currently, citations are based upon the specific defects or deficiencies found during the in-depth inspection.

The FHWA is considering whether to the develop pass/fail criteria for braking force that could be implemented by Federal and State officials using performance-based brake testing technologies. As inspection criteria or regulations are developed through the rulemaking process, the use of the performance-based brake testing machines could be expanded to include enforcement of the new Federal brake performance standards. The new standards would be an alternative to the 32.2 kilometers per hour (20 miles per hour) stopping-distance test currently specified in 49 CFR 393.52, but rarely enforced by Federal and State officials because of the difficulty in performing such tests at the roadside. If performance-based standards are developed through the rulemaking process, the States would be able to issue citations based upon the output (e.g., brake force, brake balance, deceleration, etc.) from the brake testers.

The development of pass/fail criteria for braking force in commercial motor

vehicles is being considered for rulemaking and comments are not being requested on the topic at this time.

Public Meeting

On December 8, 1997, the FHWA held a public meeting at the National Highway Traffic Safety Administration's (NHTSA) Vehicle Research and Test Center to discuss the development of functional specifications for performance-based brake testers. A notice announcing the meeting was published in the **Federal Register** on November 13, 1997 (62 FR 60817). In addition to the FHWA and NHTSA, the following companies were represented at the public meeting: Battelle; B & B Automotive; B & G Technologies, Inc; Dennis National Lease; Hicklin Engineering; Hunter Engineering Company; Gooch Brake; MGM Brakes; Motion Control Industries, Inc.; Nepean Engineering Pty. Ltd.; Radlinski & Associates, Inc.; and Truckalyser Canada, Inc.

Most of the participants at the public meeting were either manufacturers of performance-based brake testers or distributors of such devices. The participants reviewed a draft of the functional specifications presented in the appendix to this notice. The comments from the participants have been incorporated to the extent practicable.

Request for Comments

The FHWA is requesting comments from all interested parties on the functional specifications in the appendix to this notice. Although participants at the public meeting provided very helpful comments, the agency is requesting additional comments through this notice to ensure that all interested persons who were unable to attend the public meeting have an opportunity to comment on this subject.

All comments received before the close of business on the comment closing date indicated above will be considered and will be available for examination in the docket room at the above address. Comments received after the comment closing date will be filed in the docket and will be considered to the extent practicable, but the FHWA may adopt, and publish in the **Federal Register**, final functional specifications at any time after the close of the comment period. In addition to late comments, the FHWA will also continue to file in the docket relevant information that becomes available after the comment closing date, and interested persons should continue to examine the docket for new material.

Authority: 49 U.S.C. 31136, 31502; and 49 CFR 1.48.

Issued on: May 20, 1998.

Kenneth R. Wykle,

Federal Highway Administrator.

BILLING CODE 4910–22–P

APPENDIX:
FUNCTIONAL SPECIFICATIONS FOR PERFORMANCE-BASED BRAKE TESTERS FOR COMMERCIAL MOTOR VEHICLES

Table of Contents

Page

SCOPE 1
Identification 1
General Description 1

ABBREVIATIONS/DEFINITIONS 1

REQUIREMENTS 2
Functional Performance 2
Vehicles to be Tested 2
Determining Braking Capability 2
Brake Force Determination 3
Coefficient of Friction 3
Weighing Capability 3
Measurement Accuracy 3
Calibration 4
Identification of Faulty Brakes 4
Operator Interface 5
Identification of Faulty Tests 6
Inspection Time 6
Setup/Tear Down Time 6
Physical Characteristics 6
Capabilities 6
Portability 7
Utilities 7
Appearance 8
Environment 8
Temperature 8
Humidity 8
Water Resistance 8
Sunlight 8
UV Radiation 8

Table of Contents (Continued)

Safety 8
Documentation 9
Operation Manual 9
Maintenance Manual 9
Calibration Procedure 9
Drawings 9
Personnel Requirements 9
Number of Personnel 9
Skill Level 10

QUALITY ASSURANCE PROVISIONS 10
Compliance 10
Analysis 10
Test 10
Demonstration 10
Certified Vendor Data 10
Inspection 11
Non-Compliance Disclosure 11
Methods of Verification 11
Extended Verification Duration 11

FUNCTIONAL SPECIFICATIONS FOR PERFORMANCE-BASED BRAKE TESTERS FOR COMMERCIAL MOTOR VEHICLES

1. SCOPE

1.1 **Identification** – This specification establishes the performance, verification, and documentation requirements for developing a Performance-Based Brake Tester for Commercial Vehicles (herein referred to as the "brake tester").

1.2 **General Description** - A performance-based brake tester for commercial vehicles is considered to be any device that can determine the braking capability of a vehicle based on the results of a physical measurement related to slowing or stopping the vehicle. Examples of different brake tester configurations include roller dynamometers, instrumented skid plates, breakaway torque testers, and decelerometers. The determination of braking capability shall be independent of the type of brake (disk or drum), method of application (hydraulic, pneumatic, or electric), or rate of brake application by the vehicle driver.

Once the braking capability has been measured, the brake tester shall be able to compare the available braking to preset performance limits or criteria in order to determine whether a particular brake or vehicle has sufficient brake force to stop safely. Based on this comparison, the brake tester shall clearly indicate to the operator(s) whether or not the individual brake or vehicle satisfies the predetermined performance criteria. Lastly, the brake tester shall be able to both print a hardcopy of the test results showing the target criteria and whether the individual brake or vehicle passed, and must accommodate the transmission of the data electronically in Commercial Vehicle Information Systems and Networks (CVISN)-compatible Electronic Data Interchange (EDI) formats and transaction sets.

2. ABBREVIATIONS/DEFINITIONS

ASCII	American Standard Code Information Interchange
ASME	American Society of Mechanical Engineers
COF	Coefficient of Friction
CVISN	Commercial Vehicle Information Systems and Networks

CVSA	Commercial Vehicle Safety Alliance
EDI	Electronic Data Interchange
FMCSR	Federal Motor Carrier Safety Regulations
FMVSS	Federal Motor Vehicle Safety Standards
g	The magnitude of deceleration equal to the magnitude of the acceleration due to gravity (32.2 ft/sec^2 or 9.8 m/sec^2).
GAW	Gross Axle Weight
GVW	Gross Vehicle Weight
kg_f	Kilograms force (common metric unit used for weight)
NHTSA	National Highway Traffic Safety Administration
NIST	National Institute of Standards and Technology
OSHA	Occupational Safety and Health Administration
Brake force (BF)	The force that the outer diameter of the tire imparts on the road surface as a result of the brakes being applied.
Deceleration	The rate of change of a decreasing velocity profile.
Accuracy	How closely a reported measurement agrees to the true value of that quantity.
Tolerance	The allowable deviation of a reported measurement from its true value.
UV	Ultraviolate

3. REQUIREMENTS

3.1 Functional Performance

3.1.1 Vehicles to be Tested – The brake tester shall be designed to maximize the number of truck and bus configurations in the North American trucking and motorcoach fleets that can be tested. Examples of configuration differences that can impact brake tester design include tire sizes, axle spacing, ground clearance, full time drive axle interlocks, dynamic or unstable cargo, and aerodynamic fairings. The tester software should be able to accommodate up to 11 axles. Any limitations in vehicles that can be tested shall be clearly outlined in the Operation Manual (See section 3.5 Documentation).

3.1.2 Determining Braking Capability – The brake tester shall be able to determine braking capability either by measuring brake forces at the tire perimeter, stopping distance, or deceleration. It is imperative that the braking force measured on the tester is representative of, or can be related

to, the braking force that the tires would impart to the ground. The road/tire friction coefficient should be considered to be at least 0.6.

NOTE : The braking capability of a commercial vehicle can be determined either with respect to an individual wheel or to the vehicle as a whole using the three types of measurements above. Often the brake force measurement is limited by the traction between the vehicle tire and the surface with which it is contacting, so any method of increasing the amount of tractive force transferred through the tire contact patch is beneficial. Braking capacity for an entire vehicle can be inferred by summing brake forces measured at each wheel and comparing the total BF to the GVW, by measuring the stopping distance of a vehicle, or by measuring the average vehicle deceleration during a stop.

3.1.3 Brake Force Determination – Independent determination of maximum brake forces on each side of an axle is required. If a gross technique, such as, stopping distance or deceleration is proposed, it is up to the tester supplier either to make a disclaimer or to demonstrate how such a device can be made to comply with this requirement.

3.1.4 Coefficient of Friction - The COF between the test surface and a standard tire (e.g. 295/75R22.5) must be reported for the machine for a range of loads. The COF must be at least 0.6 under dry conditions.

3.1.5 Weighing Capability – Many of the criteria to be used for identifying insufficient brakes require determination of either GAW or GVW. While the ability to measure individual axle weights or entire vehicle weight using the tester is preferred, it is not required. If the machine has no weighing capability, then the ability to compare brake forces with GAW, GVW, or remotely measured axle weights shall be part of the operating and analysis software.

3.1.6 Measurement Accuracy – Overall system accuracy requirements shall be within the tolerances specified in Table 1 below. Stopping distance and deceleration accuracy requirements may be ignored by suppliers of testers of braking forces.

Table 1. Required System Accuracy

Measured Quantity	Unit	System Accuracy (% of reading)
Brake Force	Lbs. (N)	+/- 2.5
Weight	Lbs. (kg_f)	+/- 2.5
Air Pressure*	psi (kPa)	+/- 2.5
Brake Pedal Force*	Lbs. (N)	+/- 2.5
Velocity	ft/s (m/s)	+/- 2.5
Deceleration	%g	+/- 2.5
Stopping Distance	ft (m)	+/- 2.5

* If so equipped

3.1.7 Calibration

3.1.7.1 Initial Calibration Certification - The brake tester shall be supplied with calibration certificates guaranteeing system measurement accuracy as specified by the manufacturer within the tolerances listed in Table 1, traceable to NIST standards.

3.1.7.2 Accuracy Between Calibrations - System accuracy shall be maintained to within allowable tolerances between calibrations, subject to verification at any time.

3.1.7.3 Recalibration Interval – The recalibration interval required to maintain accuracy shall be maximized. The minimum allowable calibration interval under normal service shall be no shorter than 180 days. More frequent calibrations may be needed after factory authorized adjustments or modifications are made or if severe usage occurs where measurement accuracy may be compromised.

3.1.7.4 Calibration History – Calibrations shall be traceable to NIST standards, and sufficient calibration histories (to show compliance to tester specifications) shall be maintained with the tester in hardcopy form and in a software file that can be accessed upon request by the user.

3.1.8 Identification of Faulty Brakes - The unit shall have the capability to be set by the tester supplier so that the results of a performance-based brake test are compared with predetermined user criteria and can subsequently designate a "pass" or "fail" to that brake or vehicle tested. This pass/fail criterion shall be selected by the appropriate agency using the machine and

may include a combination of stopping distance, average deceleration, brake force and weights, brake force and air pressure, or simply brake force over time.

3.1.9 Operator Interface – A computer system and operating software shall be part of the brake tester. In addition, it shall meet the requirements listed in 3.1.9.1 through 3.1.9.6.

Note: Current off-the-shelf computers and peripherals are preferred from a repair and replacement standpoint; however, well-designed custom equipment is acceptable.

Note: Brake testing software that can run in a MS Windows-type environment is preferred although other common operating systems are acceptable.

3.1.9.1 Measurement Units – The software shall allow the operator to conduct tests and provide output in both Metric and English units.

3.1.9.2 Language – All operator interfaces shall use the English language.

3.1.9.3 Results Presentation - The brake tester shall have the capability of providing results of the brake test, with a clear indication of each brake's performance as appropriate, and that of the vehicle as a whole. Output showing a comparison of brake forces to actual wheel or axle weights, GVW, and/or application air pressure, is required depending upon the criteria used for assigning the target value. An ASCII format file for output of brake forces and wheel loads is required for each axle measured.

3.1.9.4 Unique Test Identification - For enforcement purposes, the unit shall be capable of assigning each test a unique test identification number and shall also have, at a minimum, two (2) user-defined fields for input of other information. For example, a corresponding CVSA inspection report number or a unique vehicle identification code.

3.1.9.5 Printer Output - Hardcopy printout capability is required, and capability for digital storage of the results for future reference is also required using standard ASCII character output.

3.1.9.6 Results Transmission – The brake tester computer must accommodate the transmission of the data electronically in CVISN-compatible EDI formats and transaction sets. At a minimum, this shall include a standard RS232

serial port. The ASCII file format will be defined in a subsequent document.

3.1.9.7 User Defined Inputs – A minimum of two blank fields for additional test vehicle information, such as, truck type and driver information shall be included in the software's input functions.

3.1.10 Identification of Faulty Tests - The machine shall be able to identify a test that was improperly run or otherwise invalid. The reason for the invalid test shall be indicated to the machine operator. Examples include: low COF between the test surface and the tires, insufficient data for computations, premature test termination, unreasonable or out of range values, and malfunctioning or improperly connected transducers.

3.1.11 Inspection Time – The amount of time required to conduct a braking assessment for a vehicle shall be minimal. In no instance shall it take skilled operators longer than 15 minutes to perform a brake test on a 5-axle 3S-2 vehicle. The actual range of inspection times for various truck configurations including paperwork shall be listed in the Operation Manual (See section 3.5 Documentation).

3.1.12 Setup/Tear Down Time – The amount of time required to get the brake tester operational shall be minimal. In no instance shall it take two skilled operators longer than 30 minutes to setup or tear down a portable machine or longer than 10 minutes to start up or shut down a fixed installation. The actual setup and teardown times for a two-person crew shall be listed in the Operation Manual (See section 3.5 Documentation).

3.2 Physical Characteristics

NOTE: The brake testers do not have a predefined dimensional specification, although they shall be sized to be transportable by ship, rail, or truck using conventional shipping containers and semi trailers.

3.2.1 Capabilities

3.2.1.1 Weight Capacity – The brake tester shall be capable of operating with up to a 40,000 lb. (18,000 kg_f) axle or a 100,000 lb. (45,000 kg_f) total vehicle weight. If this limit is impractical for a given tester, it should be so stated to avoid damage to the tester and clearly documented in the tester's specifications section of the owner's manual.

3.2.1.2 Brake Force Capacity – The brake tester shall be capable of measuring, within the required accuracy, brake forces of 25 percent of maximum axle weight capacity.

3.2.2 Portability - Any unit that is to be towed from one location to another shall have a trailering device, or self-contained trailering system, that meets the requirements listed in 3.2.2.1 through 3.2.2.4.

3.2.2.1 Trailer Safety - All lighting, markings, brakes, wheels, tires and safety attachment devices shall be consistent with 49 CFR 393 (the FHWA's safety regulations for commercial motor vehicles, including trailers) and 49 CFR 571 (the NHTSA's manufacturing standards, the FMVSSs, for new motor vehicles, including trailers) and other applicable State requirements as dictated by the State agency responsible for the unit.

3.2.2.2 Towing Requirements - All machine specifications pertinent to towing the machine shall be outlined clearly in the Operation Manual (See section 3.5 Documentation) so that a suitable tow vehicle and hitch arrangement can be purchased by the user.

3.2.2.3 Ruggedness - Portable units shall be constructed with a ruggedness to withstand the shock and vibration associated with towing the brake tester over any road surface.

3.2.2.4 Spare Tire – All portable machines shall be fitted with a secured, full-size spare tire and rim compatible with the tires on the trailer.

3.2.3 Utilities

3.2.3.1 Power Source – Brake testing machines may run on either a self-contained power source or electric or pneumatic utilities available at the installation site. Equipment requiring external utilities hookup shall be designed for standard North American voltages, AC frequency, and/or air pressure.

3.2.3.2 Battery Power – If battery power is required for computers or engine starting/running, and there is no onboard charging device, the batteries shall have enough power to allow the brake tester to run for an entire 8-hour shift without recharging.

3.2.3.3 Recharging of Brake Tester Batteries by the Tow Vehicle - Reliance upon the tow vehicle for battery recharging during brake tester operation is not acceptable.

3.2.4 Appearance – All exposed surfaces of the brake tester need to be made of either a corrosion-resistant material or be coated with a durable finish that can withstand repeated abrasion associated with normal machine usage, as well as protect the painted surfaces from corrosion due to water, road salt, or other de-icing chemicals. Lastly, any protective coatings shall be unaffected by contact with gasoline, diesel fuel, and oils.

3.3 **Environment** – Equipment shall be suitable for the environment in which it is to be used as described in 3.3.1 through 3.3.5 below. Any portable brake tester or permanent outdoor installation shall meet all of the requirements below. Fixed indoor installations shall only meet the applicable requirements.

3.3.1 Temperature – The brake tester shall be capable of operating in ambient temperatures ranging from 0° Fahrenheit (F) (-18° Celsius (C)) to 120° F (49° C).

3.3.2 Humidity – The brake tester shall be capable of operating in relative humidities ranging from 5 to 100 percent over the operating temperature range listed above.

3.3.3 Water Resistance – All electrical systems shall be sealed against water intrusion from wind driven rain. Trailered testers also shall meet water intrusion requirements when being towed in the rain at typical towing speeds.

3.3.4 Sunlight – All controls and computer readouts shall be visible to the operator in direct sunlight. If shading devices are required, they must be included with the unit.

3.3.5 UV Radiation – All exposed surfaces shall be resistant to degradation from ultraviolet light. This is especially important for appearance coatings, hoses, and unpainted plastic parts.

3.4 **Safety** – Depending on how the brake tester is constructed, there are several classes of hazards to which the operators may be exposed. Noise, electrical shock, pressurized systems, rotating machinery, trip hazards, slip hazards, lifting hazards, and pinch points are just some of the hazards that may be present in brake testers. In order to ensure operator safety, the brake tester design shall address these and any other applicable safety issues. While no specific standards are listed in this specification, regulatory agencies such as OSHA, NEC, ASME have standards applicable to mitigate these hazards. The manufacturer may select applicable

standards from any recognized regulatory agency (e.g., NEC) and submit a list of those standards for approval.

3.5 **Documentation** – Two copies each of the following manuals shall be provided with the brake tester. All documentation shall be in English and shall be easily understood by an individual who meets the personnel requirements in section 3.6.

3.5.1 Operation Manual – This manual shall explain how to properly and safely operate the system. This manual shall be written so that a first-time user, with a skill level as listed in Section 3.6.2, unfamiliar with the equipment, can set up the brake tester, conduct tests using it, interpret the results, and print out hardcopy evidence of braking capability for the vehicle being tested.

3.5.2 Maintenance Manual – This manual shall specify preventive maintenance procedures and schedules, the tools required for performing maintenance, diagnostic procedures, and information for ordering replacement parts.

3.5.3 Calibration Procedure – This document shall be provided with the unit, and shall include, at a minimum, the following:

i. A detailed list of calibration equipment and materials required to perform the calibration
ii. A calibration strategy, or summary
iii. Detailed calibration procedures
iv. Sample calibration data sheets (if hardcopies) and calibration data file
v. Recommended calibration interval
vi. Conditions where more frequent calibrations are required
vii. Error analysis showing that the machine is capable of meeting the overall accuracy requirements.

3.5.4 Drawings – A full set of assembly drawings is not required to be provided to the purchaser; however, exploded-view drawings shall be provided to help in identifying part numbers and descriptions. This document can be included in the Maintenance Manual if desired.

3.6 **Personnel Requirements**

3.6.1 Number of Personnel – The number of people needed to set up and to operate the brake tester, excluding the vehicle driver, shall be no more than two. The actual number of operators needed to run the brake tester shall be listed in the Operation Manual (See section 3.5 Documentation).

3.6.2 Skill Level – The brake tester shall be designed to be operated by English-speaking personnel that have at least a secondary school education and a familiarity with using personal computers and common operating systems. The brake tester shall also be designed so that a vehicle operator that is unfamiliar with the tester can easily perform the tasks that will be asked of him by the machine operators.

4. QUALITY ASSURANCE PROVISIONS

4.1 **Compliance** – Showing compliance with the requirements listed in Section 3 shall be accomplished by one or more of the verification methods defined below. Self-certification is acceptable, although failure to adequately perform in the field could result in tester decertification.

4.1.1 Analysis – Verification by analysis includes mathematical or graphical studies that demonstrate with a high degree of confidence that a requirement can be met.

4.1.2 Test – Verification by test requires that a test be carried out in accordance with a pre-approved written Test Plan and followed by a Test Report, with quantitative results, showing that each requirement has been met. Examples of requirements to be verified by this method include measurement accuracy of weight, force, and pressure. Verification tests may be performed by any agency or engineering firm equipped to perform and document NIST traceable measurements. Self-certification of compliance is permissible provided that the Test Plan is pre-approved by the FHWA and the Test Report is submitted to the FHWA for approval.

4.1.3 Demonstration – Verification by demonstration requires that the item be operated and that the required function be carried out and witnessed to perform satisfactorily. Little or no quantitative data is generally required. Examples of requirements to be verified by this method include operator skill level and the brake tester's capability to handle a variety of commercial vehicle configurations.

4.1.4 Certified Vendor Data – For purchased items, certified vendor data shall be provided to document compliance with requirements. Examples of requirements to be verified by this method include sensor accuracy and resistance of components to water intrusion or UV radiation.

4.1.5 Inspection – Verification by inspection is carried out by a visual check of the requirement. Examples of requirements to be verified by this method include lighting, existence of spare tire (portables only), dimensions.

4.2 **Non-Compliance Disclosure** – The vendor shall provide a list of all requirements listed in Section 3 that cannot be met and include either the reasons why the requirements cannot be met or how close the brake tester can come to satisfying the requirement. For requirements that are not applicable to a particular type of brake tester, simply indicate that the requirement does not apply.

4.3 **Methods of Verification** – Table 2 defines the verification methods to be used for each requirement.

4.4 **Extended Verification Duration** – Items that require an extended period of time for evaluation of compliance (see Table 2) shall be warranted by the manufacturer. Failure to comply may result in decertification of the tester.

Table 2. Verification Requirements Summary

Requirement	Paragraph	Verification Method(s) Required
Vehicles to be Tested	3.1.1	Analysis or Demonstration
Determining Braking Capability	3.1.2	Test or Demonstration
Brake Force Determination	3.1.3	Demonstration
Coefficient of Friction	3.1.4	Test
Weighing Capability	3.1.5	Demonstration (if applicable)
Measurement Accuracy	3.1.6	Test
Calibration Certification	3.1.7.1	Inspection
Accuracy Between Calibrations*	3.1.7.2	Demonstration
Recalibration Interval*	3.1.7.3	Demonstration
Calibration History	3.1.7.4	Demonstration
Identification of Faulty Brakes	3.1.8	Demonstration
Operator Interface	3.1.9	Inspection
Measurement Units	3.1.9.1	Demonstration
Language	3.1.9.2	Demonstration
Results Presentation	3.1.9.3	Demonstration
Unique Test Identification	3.1.9.4	Demonstration
Printer Output	3.1.9.5	Demonstration
Results Transmission	3.1.9.6	Demonstration
User Defined Inputs	3.1.9.7	Inspection
Identification of Faulty Tests	3.1.10	Demonstration
Inspection Time	3.1.11	Demonstration
Setup/Tear Down Time	3.1.12	Demonstration
Weight Capacity	3.2.1.1	Analysis, Test, or Demonstration
Portability	3.2.2	Inspection
Trailer Safety	3.2.2.1	Inspection
Towing Requirements	3.2.2.2	Inspection
Ruggedness*	3.2.2.3	Inspection
Spare Tire	3.2.2.4	Inspection
Power Source	3.2.3.1	Demonstration or Inspection
Battery Power	3.2.3.2	Analysis or Demonstration
Tow Vehicle Recharging	3.2.3.3	Analysis or Demonstration
Appearance*	3.2.4	Inspection or Certified Vendor Data
Temperature*	3.3.1	Demonstration
Humidity*	3.3.2	Demonstration
Water Resistance*	3.3.3	Demonstration
Sunlight	3.3.4	Demonstration
UV Radiation*	3.3.5	Test or Certified Vendor Data
Safety	3.4	Inspection
Operation Manual	3.5.1	Deliverable
Maintenance Manual	3.5.2	Deliverable
Calibration Procedure	3.5.3	Deliverable
Drawings	3.5.4	Deliverable
Number of Personnel	3.6.1	Demonstration
Skill Level	3.6.2	Demonstration

* Requires extended period of time to establish compliance.

[FR Doc. 98–14678 Filed 6–4–98; 8:45 am]
BILLING CODE 4910–22–C