

the next place where repairs can be made. This movement must be consistent with § 229.9.

(h) Any locomotive subject to Part 229, that was built before December 31, 1948, and that is not used regularly in commuter or intercity passenger service, shall be considered historic equipment and excepted from the requirements of paragraphs (d) through (h) of this section.

[45 FR 21109, Mar. 31, 1980, as amended at 61 FR 8887, Mar. 6, 1996; 68 FR 49717, Aug. 19, 2003; 69 FR 12537, Mar. 16, 2004]

#### § 229.127 Cab lights.

(a) Each locomotive shall have cab lights which will provide sufficient illumination for the control instruments, meters, and gauges to enable the engine crew to make accurate readings from their normal positions in the cab. These lights shall be located, constructed, and maintained so that light shines only on those parts requiring illumination and does not interfere with the crew's vision of the track and signals. Each controlling locomotive shall also have a conveniently located light that can be readily turned on and off by the persons operating the locomotive and that provides sufficient illumination for them to read train orders and timetables.

(b) Cab passageways and compartments shall have adequate illumination.

#### § 229.129 Locomotive horn.

(a) Each lead locomotive shall be equipped with a locomotive horn that produces a minimum sound level of 96 dB(A) and a maximum sound level of 110 dB(A) at 100 feet forward of the locomotive in its direction of travel. The locomotive horn shall be arranged so that it can be conveniently operated from the engineer's usual position during operation of the locomotive.

(b)(1) Each locomotive built on or after September 18, 2006 shall be tested in accordance with this section to ensure that the horn installed on such locomotive is in compliance with paragraph (a) of this section. Locomotives built on or after September 18, 2006 may, however, be tested in accordance with an acceptance sampling scheme such that there is a probability of .05

or less of rejecting a lot with a proportion of defectives equal to an AQL of 1% or less, as set forth in 7 CFR part 43.

(2) Each locomotive built before September 18, 2006 shall be tested in accordance with this section before June 24, 2010 to ensure that the horn installed on such locomotive is in compliance with paragraph (a) of this section.

(3) Each remanufactured locomotive, as determined pursuant to § 229.5 of this part, shall be tested in accordance with this section to ensure that the horn installed on such locomotive is in compliance with paragraph (a).

(4)(i) Except as provided in paragraph (b)(4)(ii) of this section, each locomotive equipped with a replacement locomotive horn shall be tested, in accordance with paragraph (c) of this section, before the next two annual tests required by § 229.27 of this part are completed.

(ii) Locomotives that have already been tested individually or through acceptance sampling, in accordance with paragraphs (b)(1), (b)(2), or (b)(3) of this section, shall not be required to undergo sound level testing when equipped with a replacement locomotive horn, provided the replacement locomotive horn is of the same model as the locomotive horn that was replaced and the mounting location and type of mounting are the same.

(c) Testing of the locomotive horn sound level shall be in accordance with the following requirements:

(1) A properly calibrated sound level meter shall be used that, at a minimum, complies with the requirements of International Electrotechnical Commission (IEC) Standard 61672-1 (2002-05) for a Class 2 instrument.

(2) An acoustic calibrator shall be used that, at a minimum, complies with the requirements of IEC standard 60942 (1997-11) for a Class 2 instrument.

(3) The manufacturer's instructions pertaining to mounting and orienting the microphone; positioning of the observer; and periodic factory recalibration shall be followed.

(4) A microphone windscreen shall be used and tripods or similar microphone mountings shall be used that minimize

§ 229.131

interference with the sound being measured.

(5) The test site shall be free of large reflective structures, such as barriers, hills, billboards, tractor trailers or other large vehicles, locomotives or rail cars on adjacent tracks, bridges or buildings, within 200 feet to the front and sides of the locomotive. The locomotive shall be positioned on straight, level track.

(6) Measurements shall be taken only when ambient air temperature is between 32 degrees and 104 degrees Fahrenheit inclusively; relative humidity is between 20 percent and 95 percent inclusively; wind velocity is not more than 12 miles per hour and there is no precipitation.

(7) With the exception of cab-mounted or low-mounted horns, the microphone shall be located 100 feet forward of the front knuckle of the locomotive, 15 feet above the top of the rail, at an angle no greater than 20 degrees from the center line of the track, and oriented with respect to the sound source according to the manufacturer's recommendations. For cab-mounted and low-mounted horns, the microphone shall be located 100 feet forward of the front knuckle of the locomotive, four feet above the top of the rail, at an angle no greater than 20 degrees from the center line of the track, and oriented with respect to the sound source according to the manufacturer's recommendations. The observer shall not stand between the microphone and the horn.

(8) Background noise shall be minimal: the sound level at the test site immediately before and after each horn sounding event shall be at least 10 dB(A) below the level measured during the horn sounding.

(9) *Measurement procedures.* The sound level meter shall be set for A-weighting with slow exponential response and shall be calibrated with the acoustic calibrator immediately before and after compliance tests. Any change in the before and after calibration levels shall be less than 0.5 dB. After the output from the locomotive horn system has reached a stable level, the A-weighted equivalent sound level (slow response) for a 10-second duration (LAeq, 10s) shall be obtained either di-

rectly using an integrating-averaging sound level meter, or recorded once per second and calculated indirectly. The arithmetic-average of a series of at least six such 10-second duration readings shall be used to determine compliance. The standard deviation of the readings shall be less than 1.5 dB.

(10) Written reports of locomotive horn testing required by this part shall be made and shall reflect horn type; the date, place, and manner of testing; and sound level measurements. These reports, which shall be signed by the person who performs the test, shall be retained by the railroad, at a location of its choice, until a subsequent locomotive horn test is completed and shall be made available, upon request, to FRA as provided by 49 U.S.C. 20107.

(d) This section does not apply to locomotives of rapid transit operations which are otherwise subject to this part.

[71 FR 47666, Aug. 17, 2006]

§ 229.131 Sanders.

(a) Prior to departure from an initial terminal, each locomotive, except for MU locomotives, shall be equipped with operative sanders that deposit sand on each rail in front of the first power operated wheel set in the direction of movement or shall be handled in accordance with the requirements contained in § 229.9.

(b) A locomotive being used in road service with sanders that become inoperative after departure from an initial terminal shall be handled in accordance with the following:

(1) A lead locomotive being used in road service that experiences inoperative sanders after departure from an initial terminal may continue in service until the earliest of the following occurrences:

- (i) Arrival at the next initial terminal;
- (ii) Arrival at a location where it is placed in a facility with a sand delivery system;
- (iii) The next periodic inspection under § 229.23; or
- (iv) Fourteen calendar days from the date the sanders are first discovered to be inoperative; and