

§213.59

greater than four inches in accordance with §213.329(c) and (d) on curves in Class 1 through 5 track which are contiguous to the high speed track provided that—

(1) The track owner or railroad submits a test plan to the Federal Railroad Administrator for approval no less than thirty calendar days prior to any proposed implementation of the higher curving speeds. The test plan shall include an analysis and determination of carbody acceleration safety limits for each vehicle type which indicate wheel unloading of 60 percent in a steady state condition and 80 percent in a transient (point by point) condition. Accelerometers shall be laterally-oriented and floor-mounted near the end of a representative vehicle of each type;

(2) Upon FRA approval of a test plan, the track owner or railroad conducts incrementally increasing train speed test runs over the curves in the identified track segment(s) to demonstrate that wheel unloading is within the limits prescribed in paragraph (g)(1) of this section;

(3) Upon FRA approval of a cant deficiency level, the track owner or railroad inspects the curves in the identified track segment with a Track Geometry Measurement System (TGMS) qualified in accordance with §213.333 (b) through (g) at an inspection frequency of at least twice annually with not less than 120 days interval between inspections; and

(4) The track owner or railroad operates an instrumented car having dynamic response characteristics that are representative of other equipment assigned to service or a portable device that monitors on-board instrumentation on trains over the curves in the identified track segment at the rev-

enue speed profile at a frequency of at least once every 90-day period with not less than 30 days interval between inspections. The instrumented car or the portable device shall monitor a laterally-oriented accelerometer placed near the end of the vehicle at the floor level. If the carbody lateral acceleration measurement exceeds the safety limits prescribed in paragraph (g)(1), the railroad shall operate trains at curving speeds in accordance with paragraph (b) or (c) of this section; and

(5) The track owner or railroad shall maintain a copy of the most recent exception printouts for the inspections required under paragraphs (g)(3) and (4) of this section.

[63 FR 34029, June 22, 1998; 63 FR 54078, Oct. 8, 1998]

§213.59 Elevation of curved track; runoff.

(a) If a curve is elevated, the full elevation shall be provided throughout the curve, unless physical conditions do not permit. If elevation runoff occurs in a curve, the actual minimum elevation shall be used in computing the maximum allowable operating speed for that curve under §213.57(b).

(b) Elevation runoff shall be at a uniform rate, within the limits of track surface deviation prescribed in §213.63, and it shall extend at least the full length of the spirals. If physical conditions do not permit a spiral long enough to accommodate the minimum length of runoff, part of the runoff may be on tangent track.

§213.63 Track surface.

Each owner of the track to which this part applies shall maintain the surface of its track within the limits prescribed in the following table:

| Track surface | Class of track | | | | |
|---|----------------|---------------|---------------|---------------|---------------|
| | 1 (inches) | 2 (inches) | 3 (inches) | 4 (inches) | 5 (inches) |
| The runoff in any 31 feet of rail at the end of a raise may not be more than | 3½ | 3 | 2 | 1½ | 1 |
| The deviation from uniform profile on either rail at the mid-ordinate of a 62-foot chord may not be more than | 3 | 2¾ | 2¼ | 2 | 1¼ |
| The deviation from zero crosslevel at any point on tangent or reverse crosslevel elevation on curves may not be more than | 3 | 2 | 1¾ | 1¼ | 1 |
| The difference in crosslevel between any two points less than 62 feet apart may not be more than*1,2 | 3 | 2¼ | 2 | 1¾ | 1½ |

| Track surface | Class of track | | | | |
|--|----------------|---------------|---------------|---------------|---------------|
| | 1 (inches) | 2 (inches) | 3 (inches) | 4 (inches) | 5 (inches) |
| * Where determined by engineering decision prior to the promulgation of this rule, due to physical restrictions on spiral length and operating practices and experience, the variation in crosslevel on spirals per 31 feet may not be more than | 2 | 1¾ | 1¼ | 1 | ¾ |

¹ Except as limited by § 213.57(a), where the elevation at any point in a curve equals or exceeds 6 inches, the difference in crosslevel within 62 feet between that point and a point with greater elevation may not be more than 1½ inches. (Footnote 1 is applicable September 21, 1999.)

² However, to control harmonics on Class 2 through 5 jointed track with staggered joints, the crosslevel differences shall not exceed 1¼ inches in all of six consecutive pairs of joints, as created by 7 low joints. Track with joints staggered less than 10 feet shall not be considered as having staggered joints. Joints within the 7 low joints outside of the regular joint spacing shall not be considered as joints for purposes of this footnote. (Footnote 2 is applicable September 21, 1999.)

[63 FR 34029, June 22, 1998; 63 FR 45959, Aug. 28, 1998]

Subpart D—Track Structure

§ 213.101 Scope.

This subpart prescribes minimum requirements for ballast, crossties, track assembly fittings, and the physical conditions of rails.

§ 213.103 Ballast; general.

Unless it is otherwise structurally supported, all track shall be supported by material which will—

- (a) Transmit and distribute the load of the track and railroad rolling equipment to the subgrade;
- (b) Restrain the track laterally, longitudinally, and vertically under dynamic loads imposed by railroad rolling equipment and thermal stress exerted by the rails;
- (c) Provide adequate drainage for the track; and
- (d) Maintain proper track crosslevel, surface, and alinement.

§ 213.109 Crossties.

- (a) Crossties shall be made of a material to which rail can be securely fastened.
- (b) Each 39 foot segment of track shall have—
 - (1) A sufficient number of crossties which in combination provide effective support that will—
 - (i) Hold gage within the limits prescribed in § 213.53(b);
 - (ii) Maintain surface within the limits prescribed in § 213.63; and
 - (iii) Maintain alinement within the limits prescribed in § 213.55.
 - (2) The minimum number and type of crossties specified in paragraphs (c) and (d) of this section effectively dis-

tributed to support the entire segment; and

(3) At least one crosstie of the type specified in paragraphs (c) and (d) of this section that is located at a joint location as specified in paragraph (f) of this section.

(c) Each 39 foot segment of: Class 1 track shall have five crossties; Classes 2 and 3 track shall have eight crossties; and Classes 4 and 5 track shall have 12 crossties, which are not:

- (1) Broken through;
- (2) Split or otherwise impaired to the extent the crossties will allow the ballast to work through, or will not hold spikes or rail fasteners;
- (3) So deteriorated that the tie plate or base of rail can move laterally more than ½ inch relative to the crossties; or
- (4) Cut by the tie plate through more than 40 percent of a ties' thickness.

(d) Each 39 foot segment of track shall have the minimum number and type of crossties as indicated in the following table (this paragraph (d) is applicable September 21, 2000).

| Class of track | Tangent track and curves ≤ 2 degrees | Turnouts and curved track over 2 degrees |
|---------------------------|--------------------------------------|--|
| Class 1 track | 5 | 6 |
| Class 2 track | 8 | 9 |
| Class 3 track | 8 | 10 |
| Class 4 and 5 track | 12 | 14 |

(e) Crossties counted to satisfy the requirements set forth in the table in paragraph (d) of this section shall not be—

- (1) Broken through;