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(13) Two different test specimens must be subjected to the large object impact portion of these tests.

(14) A material so tested must perform so that:

(i) there shall be no penetration of the back surfaces (side closest to Witness Plate) of the Target Material by the projectile. Partial penetration of the impact (front) surface of the Target Material does not constitute a failure; and

(ii) there shall be no penetration of particles from the back side of the Target Material through the back side of the prescribed Witness Plate.

(15) Test specimens must consecutively pass the required number of tests at the required minimum velocities. Individual tests resulting in failures at greater than the required minimum velocities may be repeated but a failure of an individual test at less than the minimum velocity shall result in termination of the total test and failure of the material.

(16) After successful completion of the prescribed set of required consecutive tests, a manufacturer may certify in writing that a particular glazing material meets the requirements of these standards.

c. Material Identification

(1) Each individual unit of glazing material shall be permanently marked, prior to installation, to indicate that this type of material has been successfully tested as set forth in this appendix and that marking shall be done in such a manner that it is clearly visible after the material has been installed.

(2) Each individual unit of a glazing material that has successfully passed the Type I testing regimen shall be marked to indicate:

(i) ''FRA Type I'' material;

(ii) the manufacturer of the material;

(iii) the type or brand identification of the material.

(3) Each individual unit of a glazing material that has successfully passed the Type II testing regimen shall be marked to indicate:

(i) ''FRA Type II'' material;

(ii) the manufacturer of the material;

(iii) the type or brand identification of the material.

APPENDIX B TO PART 223—SCHEDULE OF CIVIL PENALTIES [1]

Section	Violation	Willful violation
223.9 New or rebuilt equipment:		
(a) Locomotives	$2,500	$5,000
(b) Cabooses	2,500	5,000
(c) Passenger cars	2,500	5,000
223.11(c) Existing locomotives	2,500	5,000
(d) Repair of window	1,000	2,000
223.13(c) Existing cabooses	2,500	5,000
(d) Repair of window	1,000	2,000
223.15(c) Existing passenger cars	2,500	5,000
(d) Repair of window	1,000	2,000
223.17 Identification of units	1,000	2,000

[1] A penalty may be assessed against an individual only for a willful violation. The Administrator reserves the right to assess a penalty of up to $105,000 for any violation where circumstances warrant. See 49 U.S.C. 21301, 21304, and 49 CFR part 209, appendix A. If more than one item is listed as a type of violation of a given section, each item is also designated by a ''penalty code,'' which is used to facilitate assessment of civil penalties, and which may or may not correspond to any subsection designation(s). For convenience, penalty citations will cite the CFR section and the penalty code, if any. FRA reserves the right, should litigation become necessary, to substitute in its complaint the CFR citation in place of the combined CFR and penalty code citation, should they differ.

[63 FR 24676, May 4, 1998, as amended at 69 FR 30594, May 28, 2004; 73 FR 6400, Feb. 1, 2008; 73 FR 79702, Dec. 30, 2008; 77 FR 24420, Apr. 24, 2012]

PART 224—REFLECTORIZATION OF RAIL FREIGHT ROLLING STOCK

Subpart A—General

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224.3 Applicability.
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224.9 Responsibility for compliance.
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224.106 Location of retroreflective sheeting.
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224.109 Inspection, repair, and replacement.
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APPENDIX A TO PART 224—SCHEDULE OF CIVIL PENALTIES

APPENDIX B TO PART 224—FORM REFLECTORIZATION IMPLEMENTATION COMPLIANCE REPORT

APPENDIX C TO PART 224—GUIDELINES FOR SUBMITTING REFLECTORIZATION IMPLEMENTATION COMPLIANCE REPORTS

AUTHORITY: 49 U.S.C. 20103, 20107, 20148 and 21301; 28 U.S.C. 2461, note; and 49 CFR 1.49.

SOURCE: 70 FR 62176, Oct. 28, 2005, unless otherwise noted.

Subpart A—General

§ 224.1 Purpose and scope.

(a) The purpose of this part is to reduce highway-rail grade crossing accidents and deaths, injuries, and property damage resulting from those accidents, by enhancing the conspicuity of rail freight rolling stock so as to increase its detectability by motor vehicle operators at night and under conditions of poor visibility.

(b) In order to achieve cost-effective mitigation of collision risk at highway-rail grade crossings, this part establishes the duties of freight rolling stock owners (including those who manage maintenance of freight rolling stock, supply freight rolling stock for transportation, or offer freight rolling stock in transportation) and railroads to progressively apply retroreflective material to freight rolling stock, and to periodically inspect and maintain that material. Freight rolling stock owners, however, are under no duty to install, clean or otherwise maintain, or repair reflective material except as specified in this part.

(c) This part establishes a schedule for the application of retroreflective material to rail freight rolling stock and prescribes standards for the application, inspection, and maintenance of retroreflective material to rail freight rolling stock for the purpose of enhancing its detectability at highway-rail grade crossings. This part does not restrict a freight rolling stock owner or railroad from applying retroreflective material to freight rolling stock for other purposes if not inconsistent with the recognizable pattern required by this part.

§ 224.3 Applicability.

This part applies to all railroad freight cars and locomotives that operate over a public or private highway-rail grade crossing and are used for revenue or work train service, except:

(a) Freight rolling stock that operates only on track inside an installation that is not part of the general railroad system of transportation;

(b) Rapid transit operations in an urban area that are not connected to the general railroad system of transportation;

(c) Locomotives and passenger cars used exclusively in passenger service; or

(d) Freight rolling stock that is subject to a reflectorization requirement promulgated by another Federal agency.

§ 224.5 Definitions.

Administrator means the Administrator of the Federal Railroad Administration or the Administrator's delegate.

Associate Administrator means the Associate Administrator for Safety, Federal Railroad Administration, or the Associate Administrator's delegate.

Damaged means scratched, broken, chipped, peeled, or delaminated.

Flat car means a car having a flat floor or deck on the underframe with no sides, ends or roof (including spine cars, articulated and mult-unit intermodal cars).

Freight rolling stock means:

(1) Any locomotive subject to part 229 of this chapter used to haul or switch freight cars (whether in revenue or work train service); and

(2) Any railroad freight car (whether used in revenue or work train service).

Freight rolling stock owner means any person who owns freight rolling stock, is a lessee of freight rolling stock, manages the maintenance or use of freight rolling stock on behalf of an owner or one or more lessors or lessees, or otherwise controls the maintenance or use of freight rolling stock.

Locomotive has the meaning assigned by § 229.5 of this chapter, but for purposes of this part applies only to a locomotive used in the transportation of freight or the operation of a work train.

Obscured means concealed or hidden (i.e., covered up, as where a layer of paint or dense chemical residue blocks all incoming light); this term does not refer to ordinary accumulations of dirt,

grime, or ice resulting from the normal railroad operating environment.

Person means an entity of any type covered under 1 U.S.C. 1, including but not limited to the following: A railroad; a manager, supervisor, official, or other employee or agent of a railroad; any owner, manufacturer, lessor, or lessee of railroad equipment, track or facilities; any independent contractor providing goods or services to a railroad; and any employee of such an owner, manufacturer, lessor, lessee, or independent contractor.

Railroad means all forms of non-highway ground transportation that run on rails or electromagnetic guideways, including high speed ground transportation systems that connect metropolitan areas, without regard to whether they use new technologies not associated with traditional railroads.

Railroad freight car has the meaning assigned by § 215.5 of this chapter.

Tank car means a rail car, the body of which consists of a tank for transporting liquids.

Universal Machine Language Equipment Register means the database containing information on rail equipment maintained by the Association of American Railroads.

Unqualified Retroreflective Sheeting means engineering grade sheeting, super engineering grade sheeting (enclosed lens) or high-intensity type sheeting (ASTM Type I, II, III, or IV Sheeting) as described in ASTM International Standard D–4956–04, ''Standard Specification for Retroreflective Sheeting for Traffic Control.''

Work train means a non-revenue service train used for the maintenance and upkeep service of the railroad.

§ 224.7 Waivers.

(a) Any person subject to a requirement of this part may petition the Administrator for a waiver of compliance with such requirement. The filing of such a petition does not affect that person's responsibility for compliance with that requirement while the petition is being considered.

(b) Each petition for waiver under this section shall be filed in the manner and contain the information required by part 211 of this chapter.

(c) If the Administrator finds that a waiver of compliance is in the public interest and is consistent with railroad safety, the Administrator may grant the waiver subject to any conditions that the Administrator deems necessary.

§ 224.9 Responsibility for compliance.

(a) Freight rolling stock owners, railroads, and (with respect to certification of material) manufacturers of retroreflective material, are primarily responsible for compliance with this part. However, any person that performs any function or task required by this part (including any employee, agent, or contractor of the aforementioned), must perform that function in accordance with this part.

(b) Any person performing any function or task required by this part shall be deemed to have consented to FRA inspection of the person's facilities and records to the extent necessary to determine whether the function or task is being performed in accordance with the requirements of this part.

§ 224.11 Penalties.

(a) Any person (including but not limited to a railroad; any manager, supervisor, official, or other employee or agent of a railroad; any owner, manufacturer, lessor, or lessee of railroad equipment, track, or facilities; any employee of such owner, manufacturer, lessor, lessee, or independent contractor) who violates any requirement of this part or causes the violation of any such requirement is subject to a civil penalty of at least $650, but not more than $25,000 per violation, except that: Penalties may be assessed against individuals only for willful violations, and, where a grossly negligent violation or a pattern of repeated violations has created an imminent hazard of death or injury to persons, or has caused death or injury, a penalty not to exceed $105,000 per violation may be assessed. Each day a violation continues shall constitute a separate offense. Appendix A to this part contains a schedule of civil penalty amounts used in connection with this part.

(b) Any person who knowingly and willfully falsifies a record or report required by this part is subject to criminal penalties under 49 U.S.C. 21311.

[70 FR 62176, Oct. 28, 2005, as amended at 72 FR 51197, Sept. 6, 2007; 73 FR 79702, Dec. 30, 2008; 77 FR 24420, Apr. 24, 2012]

§ 224.13 Preemptive effect.

Under 49 U.S.C. 20106, issuance of this part preempts any State law, rule, regulation, or order covering the same subject matter, except an additional or more stringent law, rule, regulation, or order that is necessary to eliminate or reduce an essentially local safety hazard; that is not incompatible with a law, rule, regulation, or order of the United States Government; and that does not unreasonably burden interstate commerce.

§ 224.15 Special approval procedures.

(a) *General*. The following procedures govern consideration and action upon requests for special approval of alternative standards under § 224.103(e).

(b) *Petitions*. (1) Each petition for special approval of an alternative standard shall contain—

(i) The name, title, address, and telephone number of the primary person to be contacted with regard to the petition;

(ii) The alternative proposed, in detail, to be substituted for the particular requirements of this part; and

(iii) Appropriate data and analysis establishing that the alternative will provide at least an equivalent level of safety and meet the requirements of § 224.103(e).

(2) Each petition for special approval of an alternative standard shall be submitted to the Docket Clerk, Office of Chief Counsel, Federal Railroad Administration, RCC–10, Mail Stop 10, 1200 New Jersey Avenue, SE., Washington, DC 20590.

(c) *Notice*. FRA will publish a notice in the FEDERAL REGISTER concerning each petition under paragraph (b) of this section.

(d) *Public comment*. FRA will provide a period of not less than 30 days from the date of publication of the notice in the FEDERAL REGISTER during which any person may comment on the petition.

(1) Each comment shall set forth specifically the basis upon which it is made, and contain a concise statement of the interest of the commenter in the proceeding.

(2) Each comment shall be submitted to the U.S. Department of Transportation, Docket Operations (M–30), West Building Ground Floor, Room W12–140, 1200 New Jersey Avenue, SE., Washington, DC 20590, and shall contain the assigned docket number which appears in the FEDERAL REGISTER for that proceeding. The form of such submission may be in written or electronic form consistent with the standards and requirements established by the Federal Docket Management System and posted on its Web site at *http://www.regulations.gov*.

(3) In the event FRA determines that it requires additional information to appropriately consider the petition, FRA will conduct a hearing on the petition in accordance with the procedures provided in § 211.25 of this chapter.

(e) *Disposition of petitions*. (1) If FRA finds that the petition complies with the requirements of this section and that the proposed alternative standard is acceptable or changes are justified, or both, the petition will be granted, normally within 90 days of its receipt. The Associate Administrator may determine the applicability of other technical requirements of this part when rendering a decision on the petition. If the petition is neither granted nor denied within 90 days, the petition remains pending for decision. FRA may attach special conditions to the approval of the petition. Following the approval of a petition, FRA may reopen consideration of the petition for cause stated.

(2) If FRA finds that the petition does not comply with the requirements of this section, or that the proposed alternative standard is not acceptable or that the proposed changes are not justified, or both, the petition will be denied, normally within 90 days of its receipt.

(3) When FRA grants or denies a petition, or reopens consideration of a petition, written notice is sent to the petitioner and other interested parties and

a copy of the notice is placed in the electronic docket of the proceeding.

[70 FR 62176, Oct. 28, 2005, as amended at 74 FR 25173, May 27, 2009]

Subpart B—Application, Inspection, and Maintenance of Retroreflective Material

§ 224.101 General requirements.

All rail freight rolling stock subject to this part shall be equipped with retroreflective sheeting that conforms to the requirements of this part. Notwithstanding any other provision of this chapter, the application, inspection, and maintenance of that sheeting shall be conducted in accordance with this subpart or in accordance with an alternative standard providing at least an equivalent level of safety after special approval of FRA under § 224.15.

§ 224.103 Characteristics of retroreflective sheeting.

(a) *Construction*. Retroreflective sheeting applied pursuant to this part shall consist of a smooth, flat, transparent exterior film with microprismatic retroreflective elements embedded in or suspended beneath the film so as to form a non-exposed retroreflective optical system.

(b) *Color*. Retroreflective sheeting applied pursuant to this part shall be yellow, fluorescent yellow, or white as specified by the chromaticity coordinates of ASTM International's Standard D 4956–04, ''Standard Specification for Retroreflective Sheeting for Traffic Control.'' The Director of the Federal Register approves the incorporation by reference of this standard in this section in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. You may obtain a copy of the incorporated standard from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428–2959 or at *http://www.astm.org*. You may inspect a copy of the incorporated standard at the Federal Railroad Administration, Docket Clerk, 1200 New Jersey Avenue, SE., Washington, DC 20590 or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202–741–6030, or go to *http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html*.

(c) *Performance*. Retroreflective sheeting applied pursuant to this part shall meet the requirements of ASTM D 4956–04, for Type V Sheeting if metalized or Type VII Sheeting if non-metalized, except for the initial minimum values of the coefficient of retroreflection, and shall, as initially applied, meet the minimum values for the coefficient of retroreflection specified in Table 1 of this subpart.

[70 FR 62176, Oct. 28, 2005, as amended at 74 FR 25173, May 27, 2009]

TABLE 1 TO SUBPART B OF PART 224—MINIMUM COEFFICIENT OF RETROREFLECTION (R_A) (IN CANDELA/LUX/METER^2) REQUIREMENT FOR RETROREFLECTIVE SHEETING (MINIMUM PHOTOMETRIC PERFORMANCE REQUIREMENTS)

Entrance angle	Observation angle			
	0.2 Degree		0.5 Degree	
	Yellow or fluorescent yellow	White	Yellow or fluorescent yellow	White
−4°	400	600	100	160
30°	220	350	45	75

(d) *Certification*. The characters ''FRA–224'', constituting the manufacturer's certification that the retroreflective sheeting conforms to the requirements of paragraphs (a) through (c) of this section, shall appear at least once on the exposed surface of each piece of sheeting in the final application. The characters shall be a minimum of three millimeters high, and shall be permanently stamped, etched, molded, or printed within the product and each certification shall be spaced no more than four inches apart.

(e) *Alternative standards*. Upon petition by a freight rolling stock owner or railroad under

§ 224.15, the Associate Administrator may approve an alternative technology as providing equivalent safety. Any such petition shall provide data and analysis sufficient to establish that the technology will result in conspicuity and durability at least equal to sheeting described in paragraphs (a) through (c) applied in accordance with this part and will present a recognizable visual target that is suitably consistent with freight rolling stock equipped with retroreflective sheeting meeting the technical requirements of this part to provide the intended warning to motorists.

§ 224.105 Sheeting dimensions and quantity.

Retroreflective sheeting shall be applied along the length of each railroad freight car and locomotive side as described in § 224.106. Unless otherwise specified, retroreflective sheeting applied under this part shall be applied in strips 4 inches wide and 18 or 36 inches long, as practicable. The amount of retroreflective sheeting to be applied to each car or locomotive subject to this part is dependent on the length of the car or locomotive and the color of the sheeting. For purposes of this part, the length of a railroad freight car or locomotive is measured from endsill to endsill, exclusive of the coupler and draft gear. Each side of a railroad freight car subject to this part, including each unit of multi-unit cars, and each side of a locomotive subject to this part must be equipped with at least the minimum amount of retroreflective sheeting specified in Table 2 of this subpart.

TABLE 2 TO SUBPART B OF PART 224—MINIMUM QUANTITY REQUIREMENT FOR RETROREFLECTIVE SHEETING ON FREIGHT ROLLING STOCK

Freight car or locomotive length	Minimum area of retroreflective sheeting required (per car/locomotive side)—yellow sheeting (ft^2)	Minimum area of retroreflective sheeting required (per car/locomotive side)—white sheeting (ft^2)
Less than 50 ft.	3.5	4.0
Over 50 ft. to 60 ft.	4.0	5.0
Over 60 ft. to 70 ft.	4.5	5.5
Over 70 ft. to 80 ft.	5.0	6.0
Over 80 ft. to 90 ft.	5.5	7.0
Over 90 ft. to 100 ft. [1]	6.0	7.5

[1] Freight cars or locomotives over 100 ft. in length must be equipped with an additional one-half a square foot of sheeting on each side for every additional 10 feet of length.

§ 224.106 Location of retroreflective sheeting.

(a) *Railroad freight cars.* The retroreflective sheeting shall be applied along the length of each railroad freight car side in the manner provided by a uniform industry standard accepted by the Associate Administrator that provides for distribution of material along the length of each car and as close as practicable to 42 inches above the top of rail. In the event such a standard is not proffered by industry or accepted by the Associate Administrator, the criteria set forth in this subpart shall apply. Retroreflective sheeting applied under this part must be located clear of appurtenances and devices such as ladders and other safety appliances, pipes, or other attachments that may obscure its visibility. Retroreflective sheeting need not be applied to discontinuous surfaces such as bolts, rivets, door hinges, or other irregularly shaped areas that may prevent the sheeting from adhering to the car sides. In addition, retroreflective sheeting need not be applied over existing or required car stencils and markings. If necessary to avoid appurtenances, discontinuous surfaces, or existing or required car markings or stencils, 4x18 and 4x36 inch strips of retroreflective material may be divided into 4x9 inch strips and applied on either side of the appurtenance, discontinuous surface, or car markings or stencils, as practicable. Unless otherwise specified, retroreflective sheeting shall be applied along the sides of freight rolling stock at intervals not to exceed every 12 feet, as practicable. If it is not practicable to apply retroreflective sheeting every 12 feet

because of existing stencils, appurtenances, or discontinuous surfaces, the sheeting shall be applied at the next smallest interval practicable.

(1) *General rule.* On railroad freight cars other than flat cars and tank cars, retroreflective sheeting shall be applied in either a vertical or horizontal pattern along the length of the car sides, with the bottom edge of the sheeting as close as practicable to 42 inches above the top of rail. Retroreflective sheeting shall not be applied below the side sill.

(i) *Vertical application.* If retroreflective sheeting is applied in a vertical pattern, at least one 4x36 inch strip or two 4x18 inch strips, one above the other, shall be applied as close to each end of the car as practicable. Between these two vertical end strips, a minimum of one 4x18 inch strip shall be applied at least every 12 feet, as practicable. *See* Figures 1, 2 and 3.

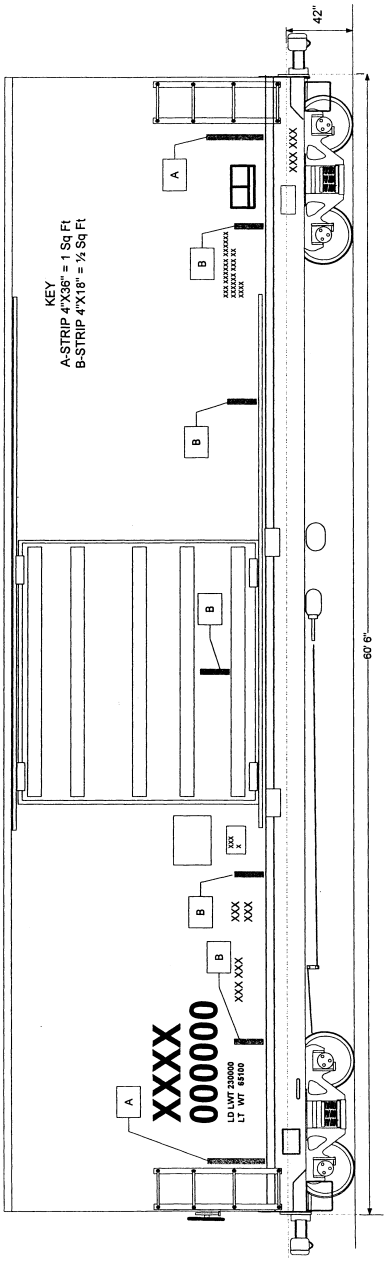


Figure 1
Yellow vertical reflective sheeting (4.5 sq. ft.) pattern applied to a typical 60' 6" Box Car (additional sheeting required per 49 CFR 224.105 if white sheeting is applied in lieu of yellow)

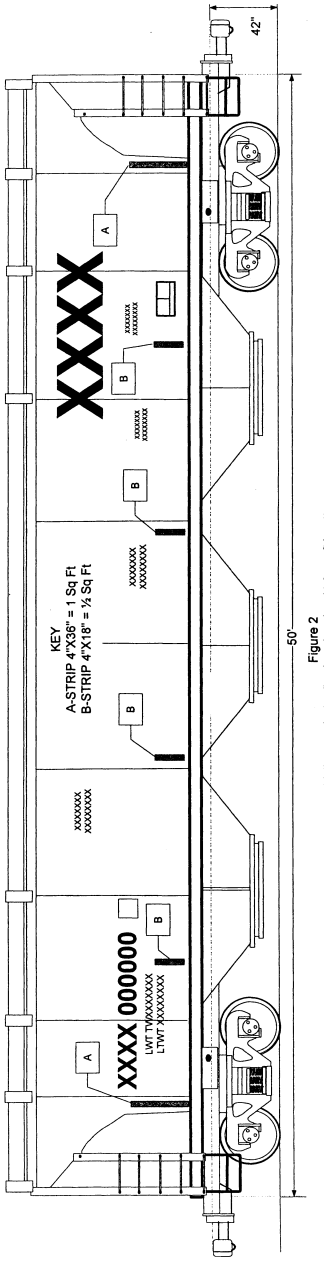


Figure 2
Yellow vertical reflective sheeting (4.0 sq. ft.) pattern applied to a typical 50 feet Covered Hopper Car (additional sheeting required per 49 CFR 224.105 if white sheeting is applied in lieu of yellow)

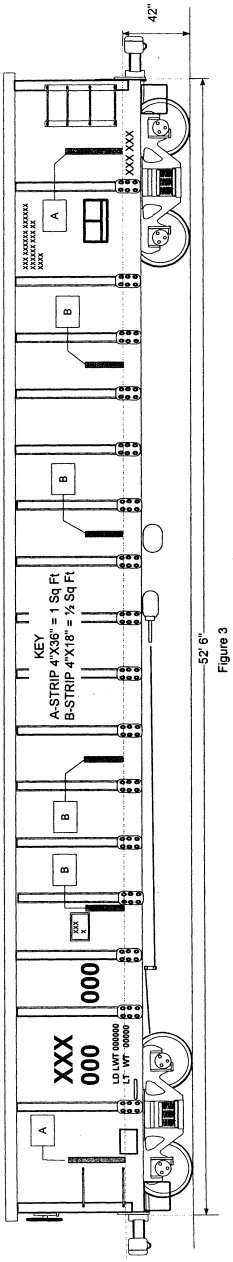


Figure 3
Yellow vertical reflective sheeting (4.0 sq. ft.) pattern applied to a typical 52' 6" Gondola Car (additional sheeting required per 49 CFR 224.105 if white sheeting is applied in lieu of yellow

(ii) *Horizontal application.* If retroreflective sheeting is applied in a horizontal pattern, at least one 4x36 inch strip, or two 4x18 inch strips, one above or next to the other, shall be applied as close to each end of the car as practicable. Between these end strips, a minimum of one 4x18 inch strip shall be

applied at least every 12 feet, as practicable. *See* Figures 4, 5, and 6.

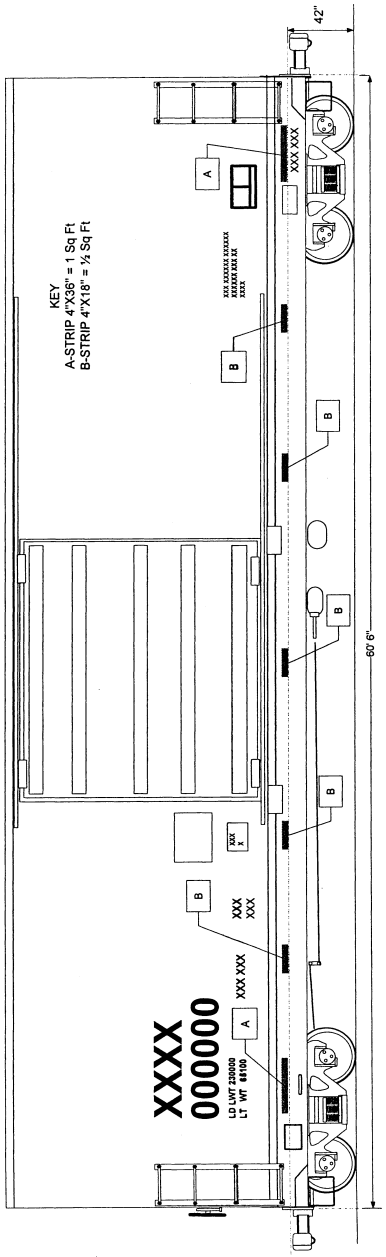


Figure 4
Alternate Pattern
Yellow horizontal reflective sheeting (4.5 sq. ft.) pattern applied to a typical 60' 6" Box Car (additional sheeting required per 49 CFR 224.105 if white sheeting is applied in lieu of yellow)

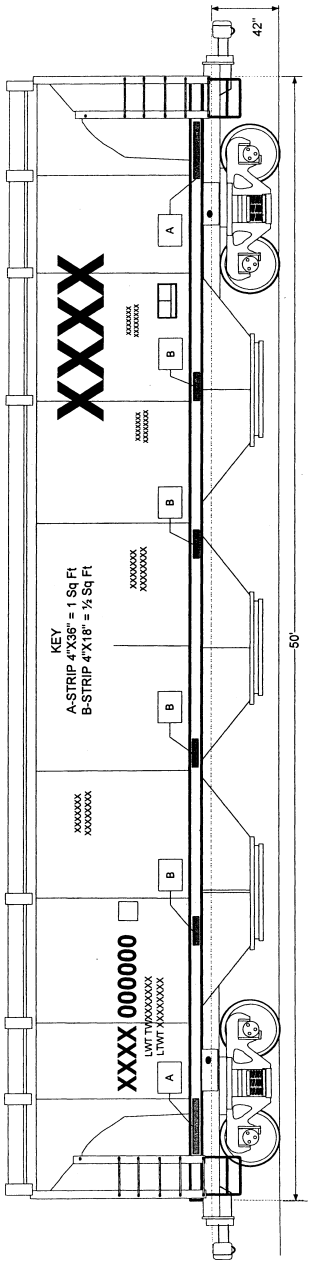


Figure 5
Alternate Pattern
Yellow horizontal reflective sheeting (4.0 sq. ft.) pattern applied to a typical 50 feet Covered Hopper Car (additional sheeting required per 49 CFR 224.105 if white sheeting is applied in lieu of yellow)

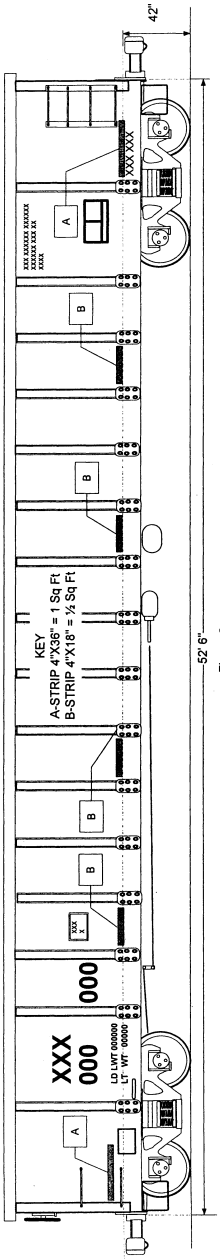
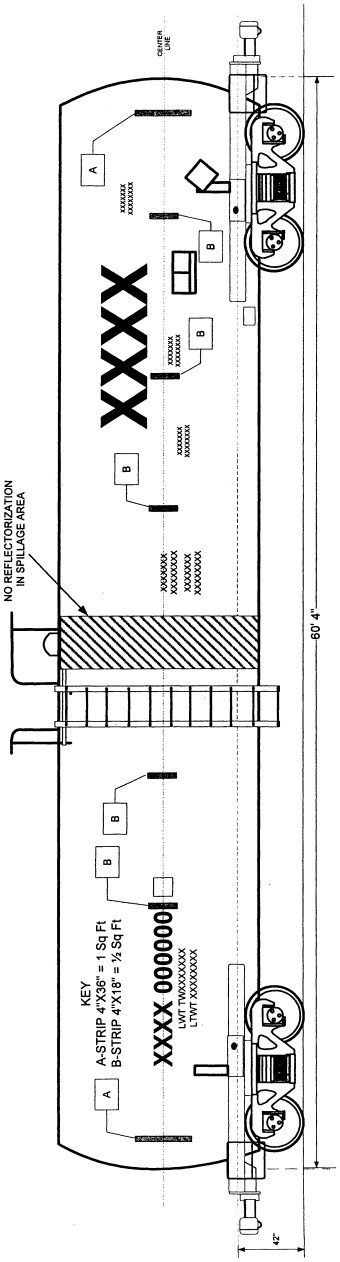


Figure 6
Alternate Pattern
Yellow horizontal reflective sheeting (4.0 sq. ft.) pattern applied to a typical 52' 6" Gondola Car (additional sheeting required per 49 CFR 224.105 if white sheeting is applied in lieu of yellow)

(2) *Tank cars.* On tank cars, retroreflective sheeting shall be applied vertically to each car side and centered on the horizontal centerline of the tank, or as near as practicable. If it is not practicable to safely apply the sheeting centered vertically about the horizontal centerline of the tank,

the sheeting may be applied vertically with its top edge no lower than the horizontal centerline of the tank. A minimum of either one 4x36 inch strip or two 4x18 inch strips, one above the other, shall be applied as close to each end of the car as practicable. Between these two end strips, a minimum of one 4x18 inch strip shall be applied at least every 12 feet, as practicable. Retroreflective sheeting applied under this part shall not be located in the spillage area directly beneath the manway used to load and unload the tank. *See* Figures 7 and 8.


NO REFLECTORIZATION
IN SPILLAGE AREA
KEY
A-STRIP 4"X36" = 1 Sq Ft
B-STRIP 4"X18" = ½ Sq Ft
XXXX 000000
LWT TWXXXXXXX
LTWT XXXXXXXX
XXXXXXX
XXXXXXX
X

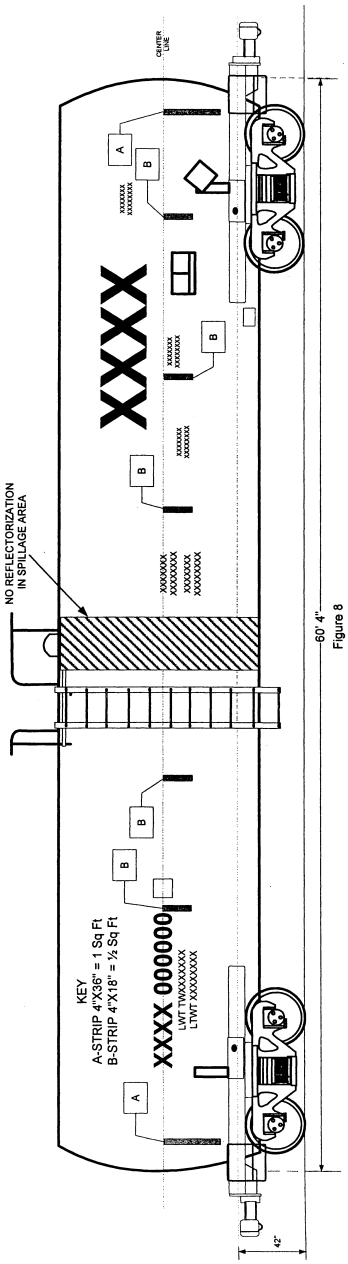


Figure 8
Yellow vertical reflective sheeting (4.5 sq. ft.) pattern applied to a typical Tank Car between 60' and 70' (additional sheeting required per 49 CFR 224.105 if white sheeting is applied in lieu of yellow)

(3) *Flat cars.* On flat cars, retroreflective sheeting shall be applied in a horizontal pattern along the length of the side sill with the bottom edge of the sheeting no lower than the bottom of the side sill and the top edge of the sheeting no higher than the top of the car deck or floor. At least two

4x18 inch strips, one above the other, shall be applied as close to each end of the car as practicable. If the side sill is less than 8 inches wide, one 4x36 inch strip, or two 4x18 inch strips may be applied one next to the other, dividing the strips into nine inch segments as necessary in accordance with paragraph (a) of this section. Between the two end strips, a minimum of one 4x18 inch strip shall be applied at least every 12 feet, as practicable. *See* Figure 9. If a car has a separate rack structure, retroreflective sheeting may be applied to the flat car portion only in accordance with the requirements of this section. For cars without continuous side sills, retroreflective sheeting may be applied to other surfaces inboard of the sides, such as the center sill, provided that the sheeting is not obscured by other components.

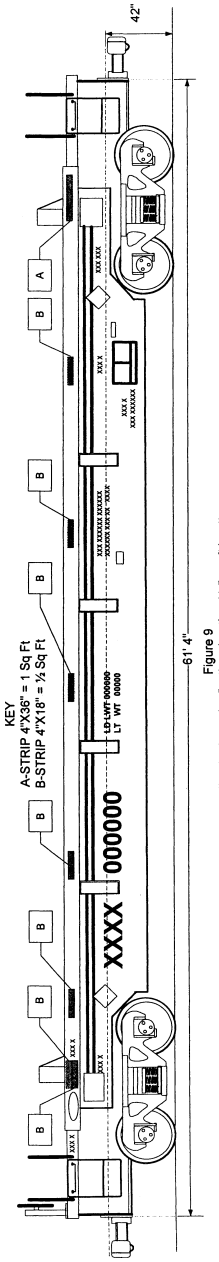


Figure 9
Yellow horizontal reflective sheeting (4.5 sq. ft.) pattern applied to a typical Flat Car (additional sheeting required per 49 CFR 224.105 if white sheeting is applied in lieu of yellow)

(4) *Cars of special construction.* This paragraph applies to any car the design of which is not compatible with the patterns of application otherwise provided in this section. Retroreflective sheeting shall conform as closely as practicable to the requirements of paragraphs (a)(1) through (a)(3) of this

section and shall have the minimum amount of sheeting described in § 224.105 distributed along the length of each car side.

(b) *Locomotives*. Locomotives subject to this part shall be equipped with at least the minimum amounts of retroreflective sheeting required by § 224.105 either in strips four inches wide and 18 or 36 inches long and spaced as uniformly as practicable along the length of the locomotive sides, or in one continuous strip, at least four inches wide, along the length of the locomotive. Retroreflective sheeting applied to locomotive sides shall be applied as close as practicable to 42 inches from the top of the rail.

§ 224.107 Implementation schedule.

(a) *Railroad freight cars*. All railroad freight cars subject to this part must be equipped with retroreflective sheeting conforming to this part by November 28, 2015. If a car already has reflective material applied that does not meet the standards of this part, it is not necessary to remove the material unless its placement interferes with the placement of the sheeting required by this part.

(1) *New cars*. Retroreflective sheeting conforming to this part must be applied to all cars constructed after January 26, 2006, before the cars are placed in service.

(2) *Existing cars without retroreflective sheeting*. (i) If, as of October 28, 2005, a car subject to this part is not equipped on each side with at least one square foot of retroreflective sheeting as specified in paragraph (a)(3) of this section, retroreflective sheeting conforming to this part must be applied to the car at the earliest of the following two occasions occurring after November 28, 2005 or in accordance with paragraph (a)(2)(ii) of this section:

(A) When the car is repainted or rebuilt; or

(B) Within nine months (270 calendar days) after the car first undergoes a single car air brake test as prescribed by 49 CFR 232.305.

(ii) A freight rolling stock owner may elect not to follow the schedule in paragraph (a)(2)(i) of this section if, not later than January 26, 2006 the freight rolling stock owner submits to FRA a completed Reflectorization Implementation Compliance Report certifying that the cars in the owner's fleet subject to this part will be equipped with retroreflective sheeting as required by this part in accordance with the schedule specified in Table 3 of this section. *See* Appendix B of this part for Reflectorization Implementation Compliance Report form.

TABLE 3 TO SUBPART B OF PART 224—ALTERNATIVE SCHEDULE FOR APPLICATION OF RETROREFLECTIVE MATERIAL TO FREIGHT CARS PER § 224.107(a)(2)(ii)

(A) [1]	(B) (percent)
November 28, 2007	20
November 28, 2008	30
November 28, 2009	40
November 28, 2010	50
November 28, 2011	60
November 28, 2012	70
November 28, 2013	80
November 28, 2014	90
November 28, 2015	100

[1] Column (A) indicates the date by which the minimum percentage of an owner's freight cars specified in column (B) must be equipped with retroreflective sheeting conforming to this part.

Thereafter,

(A) The designated fleet shall be equipped with retroreflective sheeting according to the schedule specified in Table 3 of this section;

(B) No later than January 28, 2008, the freight rolling stock owner shall submit to FRA an updated Reflectorization Implementation Compliance Report showing which cars of the fleet subject to this part were equipped with retroreflective sheeting as required by this part during the initial 24-month implementation period. Thereafter, updated Reflectorization Implementation Compliance Reports shall be submitted annually, no later than December 31 of each year for the duration of the 10-year implementation period. *See* Appendix B of this part.

(C) If, following the conclusion of the initial 24-month period or any 12-month period thereafter, the percentage requirements of this section have not been met—

(*1*) The freight rolling stock owner shall be considered in violation of this part;

(*2*) The freight rolling stock owner shall, within 60 days after the close of the period, report the failure to the Associate Administrator;

(*3*) The requirements of paragraph (a)(2)(i) shall apply to all railroad freight cars subject to this part in the freight rolling stock owner's fleet; and

(*4*) The fleet owner shall take such additional action as may be necessary to achieve future compliance.

(D) Cars to be retired shall be included in the fleet total until they are retired.

(3) *Existing cars with retroreflective sheeting*. If as of October 28, 2005, a car is equipped on each side with at least one square foot of retroreflective sheeting, uniformly distributed over the length of each side, that car shall be considered in compliance with this part through November 28, 2015, provided the sheeting is not unqualified retroreflective sheeting, and provided the freight rolling stock owner files a completed Reflectorization Implementation Compliance Report with FRA no later than January 26, 2006 identifying the cars already so equipped. *See* Appendix B of this part for Reflectorization Implementation Compliance form.

(b) *Locomotives*. Except as provided in paragraph (b)(4) of this section, all locomotives subject to this part must be equipped with conforming retroreflective sheeting by November 28, 2010. If a locomotive already has reflective material applied that does not meet the standards of this part, it is not necessary to remove the material unless its placement interferes with the placement of the sheeting required by this part.

(1) *New locomotives*. Retroreflective sheeting conforming to this part must be applied to all locomotives constructed after January 26, 2006, before they are placed in service.

(2) *Existing locomotives without retroreflective sheeting*.

(i) If as of October 28, 2005 a locomotive subject to this part is not equipped with the minimum amount of retroreflective sheeting specified in paragraph (b)(3) of this section, retroreflective sheeting conforming to this part must be applied to the locomotive not later than nine months after the first biennial inspection performed pursuant to 49 CFR 229.29 occurring after November 28, 2005.

(ii) A freight rolling stock owner may elect not to follow the schedule in paragraph (b)(2)(i) of this section, if not later than January 26, 2006, the freight rolling stock owner submits to FRA a Reflectorization Implementation Compliance Report certifying that the locomotives in the owner's fleet subject to this part will be equipped with retroreflective sheeting as required by this part in accordance with the schedule specified in Table 4 of this section. *See* Appendix B of this part.

TABLE 4 TO SUBPART B OF PART 224—ALTERNATIVE SCHEDULE FOR APPLICATION OF RETROREFLECTIVE MATERIAL TO LOCOMOTIVES PER § 224.107(b)(2)(ii)

(A) [1]	(B) (percent)
November 28, 2007	40
November 28, 2008	60
November 28, 2009	80
November 28, 2010	100

[1]Column (A) indicates the date by which the minimum percentage of an owner's locomotives specified in column (B) must be equipped with retroreflective sheeting conforming to this part.

Thereafter,

(A) The designated locomotive fleet shall be equipped with retroreflective sheeting according to the requirements of this paragraph (b)(2)(ii);

(B) No later than January 28, 2008, the freight rolling stock owner shall submit to FRA an updated Reflectorization Implementation Compliance Report showing which locomotives of the fleet subject to this part were equipped with retroreflective sheeting as required by this part during the initial 24 month implementation period. Updated Reflectorization Implementation Compliance Reports shall be submitted annually, no later than December 31 of each year, for the duration of the 5-year implementation period. *See* Appendix B of this part.

(C) If, following the conclusion of the initial 24-month period or any 12-month period thereafter, the percentage requirements of this section have not been met—

(*1*) The freight rolling stock owner shall be considered in violation of this part;

(*2*) The freight rolling stock owner shall, within 60 days after the close of the period, report the failure to the Associate Administrator;

(*3*) The requirements of paragraph (b)(2)(i) shall apply to all locomotives subject to this part in the freight rolling stock owner's fleet; and

(*4*) The fleet owner shall take such additional action as may be necessary to achieve future compliance.

(D) Locomotives to be retired shall be included in the fleet total until they are retired.

(3) *Existing locomotives with retroreflective sheeting*. If as of October 28, 2005, a locomotive is equipped on each side with at least one square foot of retroreflective sheeting, that locomotive shall be considered in compliance with this part for through November 28, 2015, provided the existing material is not unqualified retroreflective sheeting, and provided the freight rolling stock owner files a Reflectorization Implementation Compliance Report with FRA no later than January 26, 2006, identifying the cars already so

equipped. *See* appendix B of this part. If, as of October 28, 2005, a locomotive is equipped with unqualified retroreflective sheeting, the locomotive will be considered in compliance with this part through November 28, 2015, provided the locomotive is equipped with a minimum of 3 square feet of retroreflective material on each side and provided the freight rolling stock owner files a Reflectorization Implementation Compliance Report with FRA no later than January 26, 2006, identifying the locomotives already so equipped. *See* appendix B of this part.

(4) Each railroad that has fewer than 400,000 annual employee work hours as of the end of calendar year 2004, and does not share locomotive power with another railroad with 400,000 or more annual employee work hours, may bring its locomotive fleet into compliance according to the following schedule: fifty percent of the railroad's locomotives must be retrofitted pursuant to § 224.106(b) by October 28, 2010, and one hundred percent must be retrofitted pursuant to § 224.106(b) by October 28, 2015. If a railroad with fewer than 400,000 annual employee work hours shares locomotive power with a railroad with 400,000 or more annual employee work hours, the smaller railroad must comply with the requirements of paragraphs (b)(2) and (3) of this section.

§ 224.109 Inspection, repair, and replacement.

(a) *Railroad freight cars.* Retroreflective sheeting on railroad freight cars subject to this part must be visually inspected for presence and condition whenever a car undergoes a single car air brake test required under 49 CFR 232.305. If at the time of inspection less than 80 percent of the amount of sheeting required under § 224.105 (§ 224.107 in the case of freight cars subject to § 224.107(a)(3)) on either side of a car is present, not damaged, and not obscured, the inspecting railroad or contractor shall promptly notify the person responsible for the reporting mark, as indicated in the Universal Machine Language Equipment Register, of the damaged, obscured, or missing sheeting (unless the inspecting railroad or contractor is the person responsible for the reporting mark). The inspecting railroad or contractor shall retain a written or electronic copy of each such notification made for at least two years from the date of the notice and shall make these records available for inspection and copying by the FRA upon request. Any person notified of a defect under this section shall have nine months (270 calendar days) from the date of notification to repair or replace the damaged, obscured, or missing sheeting. Where the inspecting railroad or contractor is the person responsible for the reporting mark, the person shall have nine months (270 calendar days) from the date of the inspection to repair or replace the damaged, obscured, or missing sheeting.

(b) *Locomotives.* Retroreflective sheeting must be visually inspected for presence and condition when the locomotive receives the annual inspection required under 49 CFR 229.27. If at the time of inspection less than 80 percent of the amount of sheeting required under § 224.105 (§ 224.107 in the case of locomotives subject to § 224.107(b)(3)) on either side of a locomotive is present, not damaged, and not obscured, the damaged, obscured, or missing sheeting must be repaired or replaced within nine months (270 calendar days) from the date of inspection, provided a record of the defect is maintained in the locomotive cab or in a secure and accessible electronic database to which FRA is provided access on request.

§ 224.111 Renewal.

Regardless of condition, retroreflective sheeting required under this part must be replaced with new sheeting no later than ten years after the date of initial installation. At the time of replacement, it is not necessary to remove the old sheeting unless it interferes with the placement of the new sheeting, but the old sheeting shall not be considered in calculating the amount of retroreflective material required under this part. For purposes of this section, November 28, 2005, shall be considered the initial date of installation for freight cars and locomotives covered by § 224.107(a)(3) or 224.107(b)(3).

APPENDIX A TO PART 224—SCHEDULE OF CIVIL PENALTIES[1]

SUBPART B—APPLICATION, INSPECTION, AND MAINTENANCE OF RETROREFLECTIVE MATERIAL

Section	Violation	Willful violation
§ 224.103 Characteristics of retroreflective sheeting:		
(a)–(d) Retroreflective sheeting applied does not meet the requirements of § 224.103	$2,500	$5,000
§ 224.105 Sheeting dimensions and quantity:		
Failure to apply minimum amount of retroreflective sheeting in accordance with Table 2	2,500	5,000
Applying retroreflective sheeting of wrong dimensions	2,500	5,000
§ 224.106 Location of retroreflective sheeting:		
(a), (b)Applying retroreflective sheeting in nonconforming pattern	2,000	4,000
§ 224.107 Implementation schedule:		
(a)(1), (b)(1) Failure to apply retroreflective sheeting to new freight car or locomotive before equipment placed in service	5,000	7,500
(a)(2), (b)(2), (b)(4) Failure to apply retroreflective sheeting to existing freight car or locomotive in accordance with minimum schedule of paragraphs (a)(2), (b)(2), or (b)(4)	5,000	7,500
§ 224.109 Inspection, repair, and replacement:		
(a) Failure to perform inspection	5,000	7,500
Failure to properly notify car owner of defect	2,500	5,000
Failure to retain written notification of defect for two years	1,500	2,500
Failure to repair defect after notification	5,000	7,500
(b) Failure to perform inspection	5,000	7,500
Failure to repair defect	5,000	7,500

[1] A penalty may be assessed against an individual only for a willful violation. The Administrator reserves the right to assess a penalty of up to $105,000 for any violation where circumstances warrant. *See* 49 CFR part 209, appendix A.

[70 FR 62176, Oct. 28, 2005, as amended at 73 FR 79702, Dec. 30, 2008; 77 FR 24420, Apr. 24, 2012]

APPENDIX B TO PART 224—REFLECTORIZATION IMPLEMENTATION COMPLIANCE REPORT

OMB No. 2130-0566

REFLECTORIZATION IMPLEMENTATION COMPLIANCE REPORT

Instructions for completing form:

If submitting this form to FRA as an initial Reflectorization Implementation Compliance Report in accordance with 49 CFR 224.107(a)(2)(ii) and/or (b)(2)(ii), complete Parts I, II, III and IV. If submitting this form in accordance with 49 CFR 224.107(a)(3) and/or (b)(3), complete Parts I, II, III, IV, and V.

If this form is being submitted to FRA as an updated Reflectorization Implementation Compliance Report required by 49 CFR 224.107(a)(2)(ii)(B) or (b)(2)(ii)(B), complete Parts I, II, III, and V. In Part V, report the car/locomotive number(s) identifying each freight car and locomotive equipped with retroreflective sheeting conforming to 49 CFR Part 224 during this reporting period

Part I: Identification

Railroad or Car Owner:

Railroad or Car Owner Reporting Code:

Preparer Information:	
Name:	Title:
Address:	Phone:
	Fax:
	Email:

Part II: Type of Submission

☐ Initial Submission

☐ Updated Compliance Report

Part III: Identification of freight rolling stock fleet subject to 49 CFR Part 224

A. How many freight cars in your fleet are subject to 49 CFR part 224? _____

B. How many locomotives in your fleet are subject to 49 CFR part 224? _____

Part IV: Certification (Complete only if Part II: Type of Submission is Initial Submission)

By filing this Reflectorization Implementation Compliance Report and any accompanying documents or electronic files with FRA, the undersigned Freight Rolling Stock Owner is electing to follow the alternative schedules for equipping its freight rolling stock with reflective material as set forth in 49 CFR §§224.107(a)(2)(ii) and/or (b)(2)(ii). By completing, executing, and filing this Compliance Report with FRA, the undersigned Freight Rolling Stock Owner is certifying that its entire fleet of freight rolling stock subject to 49 CFR Part 224 (Part 224) will be equipped with retroreflective sheeting conforming to the requirements of Part 224 in accordance with the schedules set forth in 49 CFR §224.107(a)(2)(ii) and/or (b)(2)(ii). Failure to meet the minimum requirements of Part 224 may result in the assessment of civil penalties or other enforcement action by FRA.

Signature of Corporate Officer/Car owner:	Date:

Name:

Title:

Form FRA F6180.113 11/03

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Part V: Identification of rail freight rolling stock conforming to 49 CFR Part 224

Reapplied[a]	Type (check one): Locomotive	Type (check one): Freight Car	Identification Number:	Reapplied[a]	Type (check one): Locomotive	Type (check one): Freight Car	Identification Number:
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a. Check if freight car/locomotive was reported in Part V of a previous Reflectorization Implementation Compliance Report as conforming to 49 CFR Part 224, but 100% of the retroreflective sheeting on the car/locomotive was replaced with sheeting conforming to Part 224 in this reporting period.

Public reporting burden for this information collection is estimated to average eight hours per response. This estimate included time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this collection of information is 2130-0566.

Form FRA F6180.113 11/03

APPENDIX C TO PART 224—GUIDELINES FOR ELECTRONIC SUBMISSION OF REFLECTORIZATION IMPLEMENTATION COMPLIANCE REPORTS

Appendix C

Guidelines for Submitting Reflectorization Implementation Compliance Reports
49 C.F.R. Part 224

The guidelines below are intended to provide freight rolling stock owners specific guidance and directions for the submission of "Reflectorization Implementation Compliance Reports" (Form FRA F 6180.113) when required by 49 CFR Part 224. A freight rolling stock owner may also contact the FRA's Office of Safety, Motive, Power, & Equipment Division, for further guidance on the submission of such reports.

Who must file a Reflectorization Implementation Compliance Report with FRA?
(1) A freight rolling stock owner (as defined at 49 CFR § 224.5) electing to follow the implementation schedule of 49 CFR §§ 224.107(a)(2)(ii) or (b)(2)(ii); or
(2) A freight rolling stock owner seeking to have existing freight rolling stock grandfathered pursuant to 49 CFR §§ 224.107(a)(3) or (b)(3).

What are the deadlines for submission of Reflectorization Implementation Compliance Reports?
In order to take advantage of the flexible implementation schedules provided in 49 CFR § 224.107(a)(2)(ii) or (b)(2)(ii) or to have freight rolling stock grandfathered pursuant to 49 CFR §§ 224.107(a)(3) or (b)(3), a freight rolling stock owner must submit initial and updated Compliance Reports with the Federal Railroad Administration (FRA) as follows:

(1) An initial Compliance Report no later [INSERT DATE 90 DAYS AFTER PUBLICATION DATE OF FINAL RULE],
(2) An updated Compliance Report no later than [INSERT DATE 26 MONTHS AFTER EFFECTIVE DATE OF FINAL RULE], and
(3) An updated Compliance Report no later than December 31 of each year for the duration of the implementation period.

See 49 CFR §§ 224.107(a)(2)(ii), (a)(3), (b)(2)(ii), (b)(3).

How do I submit a Compliance Report to FRA?
A Compliance Report may be submitted electronically or by filing a paper copy of completed Form FRA F6180.113 (found in Appendix B to 49 CFR Part 224) by following the directions below. If the electronic media or paper copy does not meet the requirements of 49 CFR Part 224, the entire submission will be returned.

(1) Paper Submission: Complete Parts I, II, III, IV and/or V of Form FRA F 6180.113 as instructed on the Form and send the completed Form to the following address:

Creative Information Technology, Incorporated (CITI)
4601 North Fairfax Drive
Suite 1100
Arlington, VA 22203
703-548-3313 Extension 223
POC: Angelica Mamani

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Guidelines for Submitting Reflectorization Implementation Compliance Reports
49 C.F.R. Part 224

(2) Electronic Submission:

(a) Acceptable Disc Media: CD-R storage media only with 700 MB possible range, 1x-48x speed compatible, 4 ½" diameter (Note: CD-RW storage media cannot be accepted)

(b) Specific Directions:

(i) Complete Parts I, II, III, and IV on Form F 6180.113 as instructed on the Form and scan the completed Form FRA F6180.113 onto the disk media into either an Adobe Acrobat format or .jpg format (Note: Forms submitted on CD-RW storage media cannot be accepted and will not be returned); and

(ii) Following the format below, enter the information required by Part V of Form FRA F6180.113 into a spreadsheet in any one of the following formats: MS Excel, Quattro Pro, RTF, or CVS and save that spreadsheet onto the same CD-R disk media as (i) above.

Spreadsheet Format:

Columns on the spreadsheet	Field Name	Size of the Field	Content/Description
A	Car Owner Reporting Code	4 Character	1. The Car Owner Reporting Code found in **Part I** (*Identification*) of the OMB F6180.113. 2. Enter this code in Column A of the spreadsheet. 3. Enter all Capital Letters
B	Identification Number	6 Numbers	1. This is the identification number on **Part V**, (*Identification of rail freight rolling stock confirming to 49 CFR Part 224*). 2. This is the numeric unit identification (use leading zeros) 3. Enter this number in Column B of the spreadsheet.
C	Reapplied	1 Character	1. Has this equipment been reported? 2. Enter 'R' (*replacing the check mark required on the form*), if the car/locomotive was reported in Part V of a previous Reflectorization Implementation Compliance Report. 3. Enter 'I', if the car/locomotive has not been reported previously. 4. Entry must be a capital letter 5. Enter this information in Column C of the spreadsheet.
D	Type	1 character	1. Is this a car/locomotive? 2. Enter 'C' (*replacing the check mark required on the form*), if a rail freight rolling stock car. 3. Enter 'L' (*replacing the check mark required on the form*), if a locomotive. 4. Entry must be a capital letter. 5. Enter this information in Column D of the spreadsheet.

Appendix C

Guidelines for Submitting Reflectorization Implementation Compliance Reports
49 C.F.R. Part 224

(ii) Send the CD-R disk media with the relevant information to FRA at the following address:

Creative Information Technology, Incorporated (CITI)
4601 North Fairfax Drive
Suite 1100
Arlington, VA 22203
703-548-3313 Extension 223
POC: Angelica Mamani