NOTE

This product bulletin replaces Product Bulletin 380IES (January 2025), Product Bulletin Series 380IES-5 (March 2025), and Product Bulletin Series 385IES (January 2026).

Overview

3M™ Stamark™ High Performance Tape 380IES and 381IES ("380IES" and "381IES" respectively) are durable pavement marking tapes that are highly retroreflective under dry conditions. These tapes utilize specially designed optics to provide premium dry performance.

- A380IES and A381IES come without a liner and are used for lane lines, edge lines, channelizing lines, and gore markings.
- L380IES and L381IES L380IES and L381IES come with a liner and are suitable for both standard roadway applications and cutting into symbols and legends.
- SMS-L380IES and SMS-L381IES come with a liner as precut symbols and legends.

3M™ Stamark™ High Performance Tape 380IES-5 and 381IES-5 ("380IES-5" and "381IES-5" respectively) are durable pavement contrast marking tapes that are highly retroreflective under dry conditions. These tapes use specially designed optics to provide premium dry performance and incorporate a matte black film border, bonded to the edges of the central retroreflective film to provide contrast.

3M™ Stamark™ High Performance Tape 385IES ("385IES") is a pavement masking tape that forms a durable, conformable, weather resistant, matte black (non-reflective), skid and tear resistant pavement marking with a preformed, diamond, surface texture pattern.

Collectively these products comprise the 3M™ Stamark™ High Performance Tape Series 380IES ("Series 380IES"). Series 380IES tapes can be used as inlay markings on new asphalt or as overlay markings on most asphalt and concrete pavement surfaces in good condition. The tapes can also be recessed into a grooved surface.

Table A. Product Names and Colors

Color	Product Name
White	3M™ Stamark™ High Performance Tape 380IES
Yellow	3M™ Stamark™ High Performance Tape 381IES
White with black contrast	3M™ Stamark™ High Performance Tape 380IES-5
Yellow with black contrast	3M™ Stamark™ High Performance Tape 381IES-5
Matte Black	3M™ Stamark™ High Performance Tape 385IES

Product Features

- **Series 380IES**
  - Durable and conformable to pavement
  - Manufactured with no intentional use of heavy metals, lead chromate pigments, or other similar, lead-containing materials
  - Precoated with an extended season pressure sensitive adhesive on the bottom surface
  - Patterned textured surface
- **380IES, 381IES, 380IES-5, 381IES-5**
  - Highly retroreflective under dry conditions
  - Designed to provide long-term retroreflectivity
  - Abrasion-resistant zirconia enriched optics bonded in a highly durable polyurethane topcoat
  - Patterned surface presents a near-vertical surface to traffic to maximize retroreflectance
  - 0.09 in. (2.3 mm) nominal thickness
- **381IES, 381IES-5**
  - Yellow zirconia-enriched optics incorporated to improve nighttime yellow color
- **385IES**
  - 0.09 in. (2.3 mm) nominal thickness

Specifications

Retroreflectivity (Not Applicable to 385IES)

Table B presents minimum initial coefficient of retroreflected luminance (R_L) values for Series 380IES products (except 385IES) under dry conditions. Under dry conditions, R_L is measured in accordance with the testing procedures of ASTM E1710. R_L values are expressed in millicandelas per square foot per footcandle [(mcd • ft^{-2}) • fc^{-1}].

NOTE

For 380IES-5 and 381IES-5, the values given in Table B are only applicable to the white and yellow portions of the tapes.

Table B. Minimum Dry R_L Values for White and Yellow Tape

	White (380IES/380IES-5)	Yellow (381IES/381IES-5)
Condition/Test	Dry ASTM E1710	Dry ASTM E1710
Entrance Angle[a]	88.76°	88.76°
Observation Angle[a]	1.05°	1.05°
Coefficient of Retroreflected Luminance (mcd/m^2/lux)[b]	500	300

a. An Entrance Angle of 88.76° and an Observation Angle of 1.05° are used to simulate the viewing geometry of a driver at a distance of 30 meters.
b. The quantity of retroreflected luminance (R_L) "relates to the way the effective retroreflective surface is focused on the retina of the human eye and to the visual effect thereby produced. It is recommended for describing the performance of highway signs and striping, or large vehicular markings which are commonly viewed as discernible surface areas." Federal Test Method Standard 370, 3.1.2, Note 6, March 1, 1977.

Measurements shall be reported as an average value for each roll tested, and averages shall be calculated from a minimum of three measurements per roll.

Color

The daytime and nighttime colors of Series 380IES (except 385IES) conform to ASTM D6628, the Standard Specification for Color of Pavement Marking Materials.

385IES has a matte black (non-reflective) appearance under both daytime and nighttime lighting conditions.

Skid Resistance

The surface of Series 380IES provides an initial average skid resistance value of 45 BPN when tested according to the procedure of ASTM E303, subject to the following modification:

- Skid resistance is calculated as the average of two measurements taken at an angle of 45° from one another.

Patchability

Snow removal equipment and heavy traffic may cause wear and damage to Series 380IES. Such damaged areas can be repaired using patches made of Series 380IES. Remove damaged tape and replace it according to the instructions presented in the "Overlay Applications" section of 3M Information Folder 5.7.

Application

Install Series 380IES according to the instructions in 3M Information Folder 5.7.

Durability

Series 380IES tapes are weather resistant. The durability of Series 380IES depends on several environmental and traffic conditions, including, but not limited to, snow removal practices, method of application, and pavement and atmospheric conditions at the time of application. 3M recommends the customer thoroughly evaluate Series 380IES under the conditions present at the installation location prior to large-scale implementation.

With the exception of 385IES, tapes in Series 380IES provide excellent retroreflectivity and color retention. They are a highly effective lane marking material and will show no appreciable fading, lifting, shrinkage, or chipping for the duration of the warranty period, when applied according to the 3M requirements described in the 3M product literature.

Storage

Store indoors, in a cool, dry area. Use within two years of the date of manufacture.

3M Related Literature

Always confirm you have the most current version of the applicable product bulletin, information folder, or other product information from 3M's website at www.3m.com/roadsafety.

- 3M Information Folder 5.17 Using 3M™ Stamark™ Surface Preparation Adhesive P-50 with 3M™ Stamark™ Pavement Marking Tapes
- 3M Information Folder 5.18 Grooving and Grinding Guidelines for 3M™ Pavement Markings
- 3M Information Folder 5.21 Using 3M™ Stamark™ Surface Preparation Adhesive SPA60 with 3M™ Stamark™ Pavement Marking Tapes
- 3M Information Folder 5.26 90 Degree Peel Adhesion Test Method for Preformed Pavement Marking Tapes
- 3M Information Folder 5.7 3M™ Stamark™ Tapes Pavement Surface Preparation and Application Techniques
- 3M Information Folder 5.8 Application of 3M™ Stamark™ Pre-Cut Symbols and Legends
- 3M™ Stamark™ Pavement Markings Tapes Climate Guide
- 3M™ Road Surface Guide for 3M™ Stamark™ Pavement Marking Tapes

Health and Safety

Chemicals

When handling any chemical products, read the manufacturers' container labels and the safety data sheets (SDS) for important health, safety, and environmental information.

Follow this link to obtain SDS sheets for 3M products.

Follow this link to obtain information about substances of very high concern (SVHC) for EU products.

Tools and Equipment Usage

When using any equipment, always follow the manufacturer's instructions for safe operation.

Warranty Information

3M Basic Product Warranty

Series 380IES is warranted to meet the product specifications at the time of shipment.

3M Warranty (Not Applicable to 385IES)

The following warranty terms are applicable to 380IES, 381IES, 380IES-5, and 381IES-5 and are NOT applicable to 385IES.

3M warrants that, under normal traffic conditions, these tapes, when used in pavement marking applications, will remain visible and retain a minimum coefficient of retroreflected luminance (R_L) of 100 mcd/m^2/lux under dry conditions when measured in accordance with ASTM E1710 for the periods presented in Table C ("Warranty Period"), as measured from the date of installation ("Installation Date"), subject to the provisions presented in Table C ("3M Warranty").

Table C. Warranty Periods According to Application Type

Application	Warranty Period
Longitudinal Lines	4 years
Symbols and Legends	2 years

3M also warrants that Tape sold by 3M and installed as transverse (stopbars and crosswalks) and channelizing markings will maintain road presence for the Warranty Periods indicated in Table D, according to the provisions presented in Table D.

	Warranty Periods	
Application Surface	**Snow Removal Areas Road Presence and Non-wear-through**	**Non-snow Removal Areas Road Presence and Non-wear-through**
Channelizing Markings		
New Asphalt Inlay	2 years	2 years
Asphalt Grooved/Recessed	2 years	2 years
Asphalt Overlay	1 year	2 years
New Concrete Overlay	1 year	2 years
Concrete Grooved/Recessed	2 years	2 years
Stop Bars and Crosswalks with ADT/Lane of 6,000 or Less		
New Asphalt Inlay	1 year	2 years
Asphalt Grooved/Recessed	1 year	2 years
Asphalt Overlay	—	1 year
New Concrete Overlay	—	1 year
Concrete Grooved/Recessed	1 year	2 years

3M Warranty Terms and Conditions

- Series 380IES must be applied according to the Stamark pavement marking tape installation instructions in 3M Information Folder 5.7 to qualify for any applicable materials replacement provisions.
- If 380IES, 381IES, 380IES-5, or 381IES-5 is installed in grooves, the depths of the grooves shall be between 150 and 200 mils. Grooves shall be made with a large diameter cutting head with gang-stacked diamond cutting blades to produce a flat (smooth) groove surface, following the Stamark pavement marking tape application requirements described in 3M Information Folder 5.18.
- Loss of adhesion is not covered by the 3M Warranty when 380IES, 381IES, 380IES-5, or 381IES-5 is applied to surfaces that have been finished using anything other than a gang-stacked diamond cutting head.
- Coefficient of retroreflected luminance (R_L) for 380IES, 381IES, 380IES-5, and 381IES-5 shall be determined at 1.05° observation and 88.76° entrance angles according to ASTM E1710, when measuring under dry conditions. Equipment used in measurements shall be in good calibrated order, according to the calibration schedule recommended by the equipment manufacturer, at the time of measurement. 3M may use an additional calibrated instrument or request a calibrated referee instrument to validate measurements.
- 380IES, 381IES, 380IES-5, 381IES-5, and other 3M components involved in the 3M Warranty must be stored, applied, installed, processed, and used in accordance with all 3M application procedures found in 3M's product bulletins, information folders, manufacturing manuals, and technical memos (which will be furnished upon request).

- 380IES, 381IES, 380IES-5, and 381IES-5 shall be applied with the 3M-required surface preparation adhesive if the installation conditions warrant its use, as per the Stamark pavement marking tape installation instructions in 3M Information Folder 5.7.
- A failure to meet the 3M Warranty must be solely the result of design or manufacturing defects and not of outside causes including improper fabrication, improper application, handling, maintenance, or installation; (b) substrate failure, exposure to chemicals, burial, abrasion, or other mechanical damage, improper use, vandalism, or malicious mischief; or (c) an act of God.
- 3M reserves the right to determine the type of replacement marking and method of installation.
- Claims made under this warranty will be honored only if (a) the customer has maintained an accurate record of installation date, which constitutes the start of the Warranty Period; (b) 3M is notified in writing of a failure within one month of its discovery; (c) reasonable information requested by 3M is provided; and (d) 3M is permitted to verify the cause of the alleged failure.
- Applications in mountainous, heavy snowfall areas above 5,000 ft. (1,500 m) are not covered under the 3M Warranty.
- Damage to pavement markings caused by snow removal equipment is not covered under the 3M warranty.
- 380IES, 381IES, 380IES-5, and 381IES-5 must be shown not to meet the 3M Warranty when measured according to the appropriate ASTM test method, using the sampling procedure described below, to qualify for remedy under the 3M Warranty.

Exclusive Limited Remedy

If Series 380IES is shown not to meet the 3M Warranty, 3M's sole responsibility and purchaser's and user's exclusive remedy shall be: 3M will provide the replacement materials that will restore the pavement marking retroreflectivity values to warranty levels or greater for the unexpired term of the original Warranty Period.

Sampling and Testing Procedure for Determining Initial and Retained Coefficients of Retroreflected Luminance for 3M Warranty Purposes

1. A visual night inspection must be made with a 3M representative and a customer representative present to identify areas of installation which appear to be below the specified minimum retained reflectance values.

   Areas which appear to be below the minimum retained reflectance value shall be identified as potential zones of replacement ("Zone of Replacement"). To qualify for replacement, a zone must be at least 360 feet (108 meters) in road length and shall consist of either edge lines, center lines, or lane lines, but not in combination.
2. Within each zone, reflectance measurements must be taken at specified measurement sections. The measurement procedure varies based on the total length of the Zone of Replacement, as described below.

   Zone of Replacement Measuring 360 Feet (109 m) to 1,080 Feet (329 m) in Length (Figure 1)

   For continuous lines, reflectance measurements must be made at approximately 20 ft. (6 m) intervals throughout the Zone of Replacement. For skip lines, two measurements must be taken at two random locations on each skip throughout the Zone of Replacement.

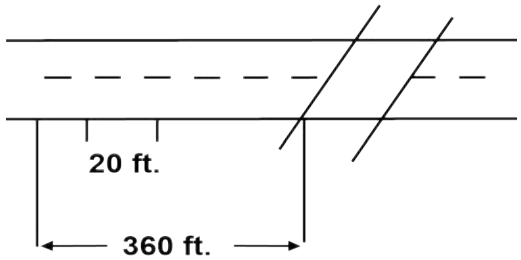


Figure 1. 360 ft Zone of Replacement

Zone of Replacement Measuring 1,080 Feet (329 m) to 6 Miles (9656 m) in Road Length (Figure 2)
A minimum of three measurement sections must be specified within the Zone of Replacement. Each measurement section must be at least 360 ft. in road length. The start point, the midpoint, and the end point of the Zone of Replacement must be included in respective measurement sections as shown in Figure 2. A minimum of 18 measurements must be made at each of three measurement sections within the Zone of Replacement. For continuous lines, reflectance measurements must be made at 20 ft. (6 m) intervals throughout each measurement section. For skip lines, two measurements must be taken at two random locations on each skip in the measurement sections.

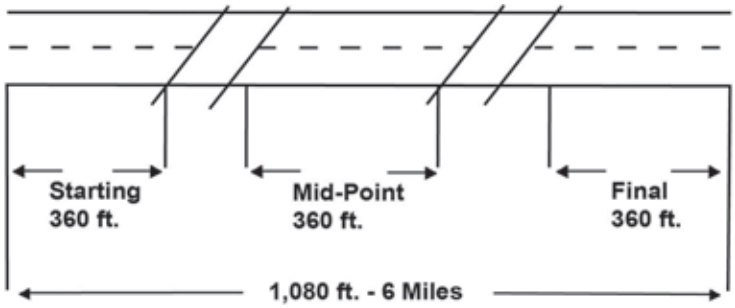


Figure 2. 1,080 ft. to 6 Mile Zone of Replacement

Zone of Replacement Greater than 6 Miles (9656 m) in Road Length (Figure 3)
A minimum of 18 measurements must be made in each measurement section within the Zone of Replacement. The start point and the end point must be a part of a measurement section. Each 3-mile (4.8 kilometers) interval throughout the Zone of Replacement must include at least one measurement section. For continuous lines, reflectance measurements must be made at 20 ft. (6 m) intervals throughout each measurement section. For skip lines, two measurements must be taken at two random locations on each skip in the measurement sections.

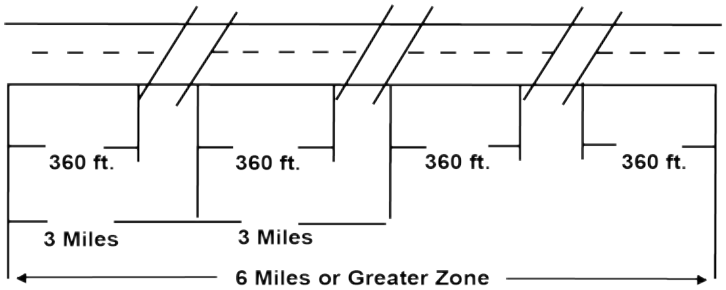


Figure 3. 6 Mile or Greater Zone of Replacement

3. All reflectance measurements made at checkpoints shall be made on clean, dry surfaces with a minimum temperature of 40°F (4°C). The test instrument shall use an entrance angle of 88.76° and an observation angle 1.05° which represent a simulated driver viewing geometry at a 30-meter distance.
4. All reflectance measurements within the Zone of Replacement must be averaged to determine if the minimum retained retroreflectance values have been met.

Technical Information

Technical information, guidance, and other statements provided by 3M are based upon records, tests, or experience that 3M believes to be reliable, but the accuracy, completeness, and representative nature of such information is not guaranteed. Such information is intended for people with knowledge and technical skills sufficient to assess and apply their own informed judgment to the information. No license to any intellectual property rights is granted or implied with respect to this technical information.

Product Selection and Use

Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. Customer is solely responsible for evaluating the product and determining whether it is appropriate and suitable for customer's application, including conducting a workplace hazard assessment, reviewing all applicable regulations and standards, and reviewing the product label and use instructions. Failure to properly evaluate, select, and use a 3M product in accordance with instructions or to meet all applicable safety regulations may result in injury, sickness, death, and/or harm to property.

Warranty, Limited Remedy, and Disclaimer

Unless a different warranty is specifically stated on the applicable 3M product packaging or product literature (in which case such warranty governs), 3M warrants that each 3M product meets the applicable 3M product specification at the time 3M ships the product. 3M MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTY OR CONDITION OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR ARISING OUT OF A COURSE OF DEALING, CUSTOM, OR USAGE OF TRADE. If a 3M product does not conform to this warranty, the sole and exclusive remedy is, at 3M's option, replacement of the 3M product or refund of the purchase price.

Limitation of Liability

Except for the limited remedy stated above, and except to the extent prohibited by law, 3M will not be liable for any loss or damage arising from or related to the 3M product, whether direct, indirect, special, incidental, or consequential (including, but not limited to, lost profits or business opportunity), regardless of the legal or equitable theory asserted, including, but not limited to, warranty, contract, negligence, or strict liability.

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