Test Method for Measuring Key Dimensions of Detectable Warning Surface Samples

SC T 115

1. Scope

To test Detectable Warning Surfaces used on sidewalk curb ramps as warnings to pedestrians that have vision impairments and/or use assisting devices in accordance with SCDOT Standard Drawings.

2. Referenced Documents

2.1 SCDOT Standard Drawing 720-905-02
2.2 SC-T-100A Table of Random Numbers
2.3 National Institute of Standards and Technology (NIST)

3. Apparatus & Test Equipment

3.1 Apparatus
- 3.1.1 Sample to be tested (Must be at least 1' long x 2' wide)
- 3.1.2 Random number generator / chart
- 3.1.3 Calipers
- 3.1.4 Micrometer
- 3.1.5 Tape measure
- 3.1.6 Felt Tip Marker
- 3.1.7 Calculator
- 3.1.8 Detectable Warning Test Sheet
- 3.1.9 Pen / Pencil

3.2 Test Equipment
- 3.2.1 All calipers, micrometers, and tape measures utilized for testing shall be calibrated or verified traceable to NIST.

4. Test Specimens

4.1 Detectable warning surface sample

5. Procedure

5.1 Record the length and width of the sample to the nearest inch on the test sheet.
5.2 Multiply a random number obtained from either a random number generator or a random number chart between 0 and 1 by 12 and record on test sheet.

5.3 On the sample, measure down the number of inches calculated above rounded to nearest whole number.
5.4 Mark off that point.
5.5 Measure down an additional 12 inches and make another mark.
5.6 Repeat steps 5.1 through 5.4 for the width of the sample, if the sample is wider than 12", measuring from left to right.
5.7 Record the location of the test area on the test sheet.
5.8 Number the domes that are fully contained in the square foot area sequentially, from left to right and top to bottom. If the dome is only partially contained in the square foot area, it is not numbered.
5.9 Number the spaces between the domes that are fully contained in the square foot area sequentially, starting with the horizontal spaces and continuing with the vertical spaces, from left to right and then from top to bottom. If the space is only partially contained in the square foot area, it is not numbered.
5.10 Record the number of domes and spaces located in the square foot sample on the test sheet.
5.11 Using a random number generator or random number chart, obtain ten random numbers between 0 and 1 that will represent ten unique domes and ten unique spaces to be tested, and record the numbers in the Random Number Column.
5.12 Multiply the random numbers by the number of domes in the test area (d) and record your answer to the nearest whole number in the Dome Number Column.
5.13 Multiply the same random numbers by the number of spaces in the test area (s) and record your answer to the nearest whole number in the Space Number Column.

6. Calculations

6.1 For each Dome in the Dome Number column
- 6.1.1 Using the calipers, measure and record the base diameter of each dome to the nearest thousandth of an inch.
- 6.1.2 Using the calipers, measure and record the top diameter of each dome to the nearest thousandth of an inch.
- 6.1.3 Find and record the average of the top and bottom diameter of each dome by adding the ten results together and dividing by ten.
- 6.1.4 Compare the results to the acceptable ranges on the SCDOT Standard Drawing number 720-905-02.

6.2 For each Space in the Space Number column
- 6.2.1 Using the micrometer, find and record the height of the space to the nearest thousandth of an inch.
- 6.2.2 Using the calipers, find and record the center-to-center spacing of the domes to the nearest thousandth of an inch by averaging the base diameter of the two domes enclosing the selected space, then subtracting that from the distance between the outside edges of the domes.
- 6.2.3 Find and record the average of the height and the center-to-center spacing by adding the results together and dividing by 10.

6.2.4 Compare the results with the acceptable ranges listed on Standard Drawing Number 720-905-02.

7. Report

7.1 Report the results on Form (MSC015)