



|   |                           |
|---|---------------------------|
| <b>Elevating and Amusement Devices<br/>Safety Program</b> | Ref. No.:<br>300 / 21     |
| <b>ADVISORY</b>   | Date:<br>October 13, 2021 |

**Subject:** Escalator Step/Skirt Performance Index and Step to Skirt Clearance Requirements  
**Distribution:** Posted on TSSA website

This advisory is intended to inform Owners, Contractors and Consultants of the required criteria for a valid Step/Skirt Performance Index Test (hereinafter referred to as SSPI Test) as well as the required pass criteria and the step to skirt clearance for inspection.

### 1. Testing Pass Criteria

| Registration Date (& B44 Code)                                   | Index without Skirt Deflector | Index with Skirt Deflector | Skirt-Step Clearance (& Loaded Gap force)         |
|--|-------------------------------|----------------------------|---|
| <b>1-Jan-1962 to 31-Mar-1986</b><br>(CSA B44-1960 to B44S3-1982) | ≤ 0.15                        | ≤ 0.4                      | ≤ 4.8 mm each side &<br>≤ 6.4 mm total both sides |
| <b>1-Apr-1986 to 22-Mar-2002</b><br>(CSA B44-1985 to B44S2-1998) | ≤ 0.15                        | ≤ 0.4                      | ≤ 5 mm each side &<br>≤ 6 mm total both sides     |
| <b>23-Mar-2002 to 31-Dec-2003</b><br>(CSA B44-2000)              | ≤ 0.15                        | ≤ 0.4                      | ≤ 4 mm each side &<br>≤ 7 mm total both sides     |
| <b>1-Jan-2004 and later</b><br>(CSA B44-2000 Update 1 and later) | ≤ 0.15                        | ≤ 0.25                     | ≤ 5 mm with<br>loaded gap force = 110N            |

### 2. Invalid SSPI Tests

A Step Skirt Performance Index Test will be considered invalid if any of the following conditions specified in 2.1 to 2.3 are present in the test results. Results presented in the Maintenance Logbook that are invalid will be considered a failed test and will be required to be retested.

#### 2.1. Loaded Clearance < 0mm

If at any point during the test the Loaded Clearance recorded in the results of the SSPI test is less than 0, then the test is considered invalid. This applies to all vintages of escalators. Refer to the example in Figure 2.1.

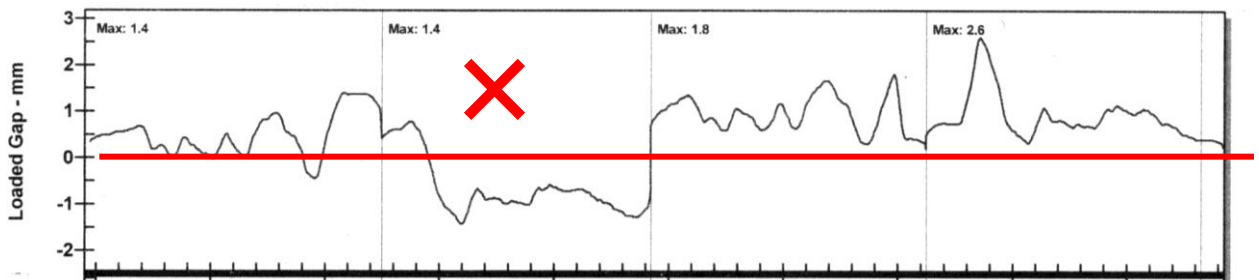


Figure 2.1

#### 2.2. Missing Sample

A valid SSPI Test requires 4 samples. Measurements from 1 step, both left and right side, and measurements from a second step on both left and right sides that is at least 8 steps from the first.

The example in Figure 2.2 has the result for “Step 2, Left” missing from the test report.

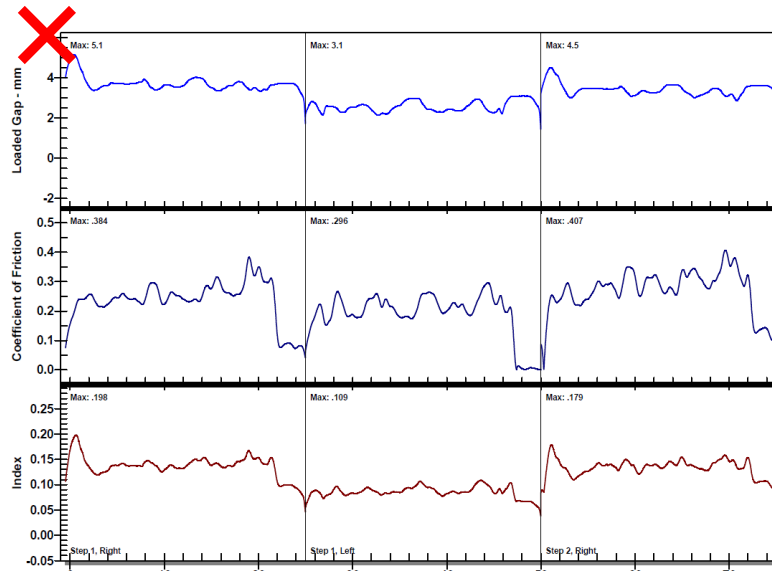


Figure 2.2

### 2.3. Test Interval Too Short

Where there are no skirt brushes installed, the SSPI Test should be performed from the step just before the start of the curved skirt panel until the moving step reaches the curved skirt panel at the opposite end.

Where skirt brushes have been installed, testing shall start on a step that is as close as is practical for the PMT IMD1 to be installed and shall be stopped as close to the transition on the opposite end without damaging the PMT IMD1 by impact with installed skirt brushes.

The SSPI Test result will be considered invalid if the duration of the test (interval time) is less than 90% of the travel time between top and bottom transition points as described in the previous 2 paragraphs. See the example in Figure 2.3.

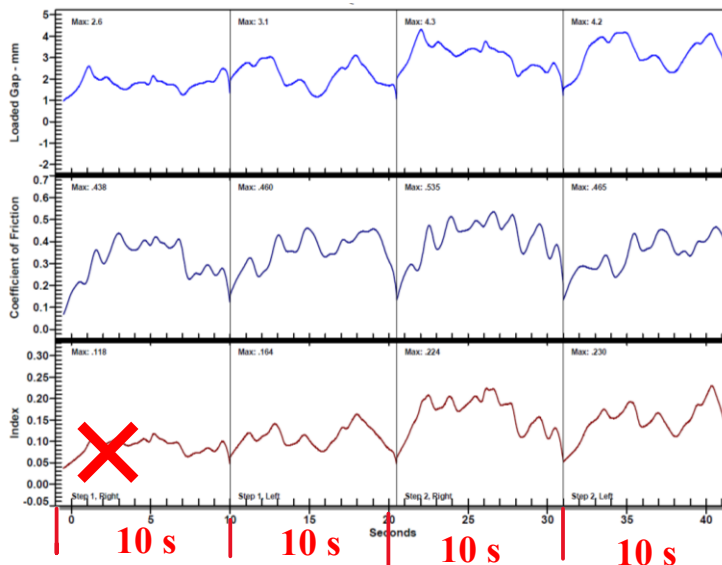
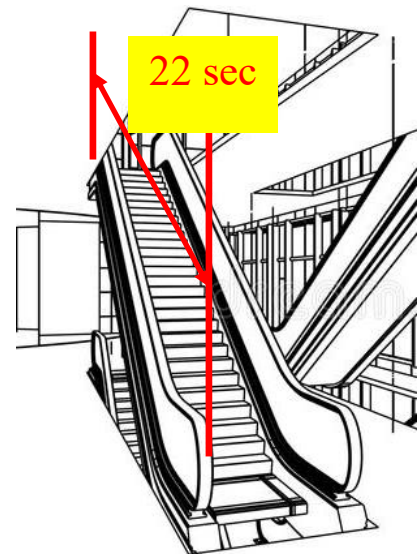


Figure 2.3



### 3. Possible Invalid SSPI Test

An SSPI Test may be considered a possible invalid test if any of the following conditions specified in 3.1 to 3.3 are present in the test results.

#### 3.1. Repeatability of Results

The 2 sample results from the left side of the escalator skirt and the 2 sample results from the right side of the escalator should share a similar graph profile. It is not required that they be the same, but there should be a recognized repeatability between the results. If there is a significant discernable difference between the 2 samples, the test will be considered a possible invalid test.

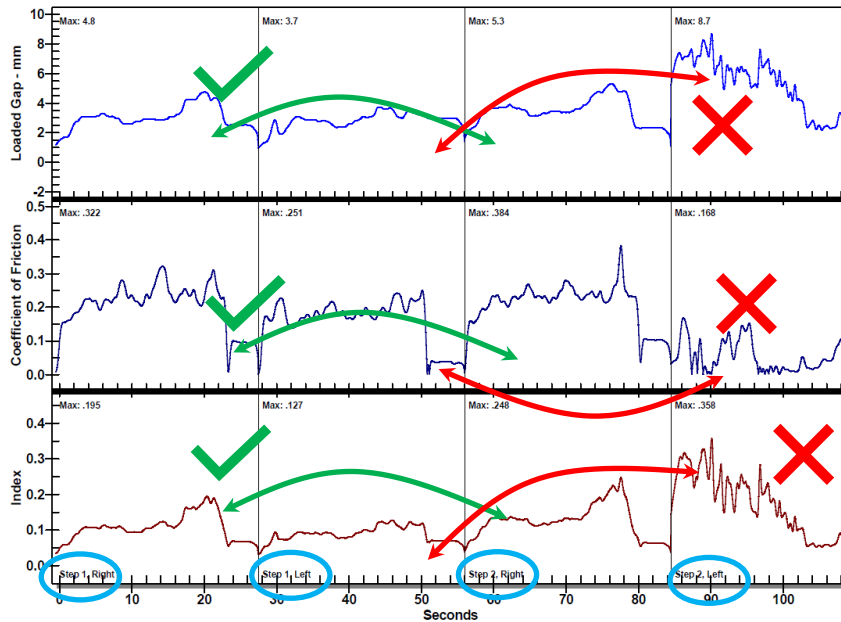


Figure 3.1

#### 3.2. Measured Gap > Loaded Gap

The Measured Gap will always be less than the Loaded Gap measured at the same point. It is expected that technicians performing an SSPI test will compare their Loaded Gap results from the SSPI chart against Measured Gap results to ensure their test is valid. If it is found that there are multiple locations where the Measured Gap is larger than the Loaded Gap, the SSPI test results will be considered a possible invalid test.

#### 3.3. SSPI Test Results Not Properly Identified and Dated

An SSPI Test Result that has not been properly identified in a manner that would directly relate it to a device, would be considered a possible invalid test. In addition to this, a test presented as current with a date that is not current will not be accepted unless additional evidence is presented to indicate it was completed within the required testing cycle.

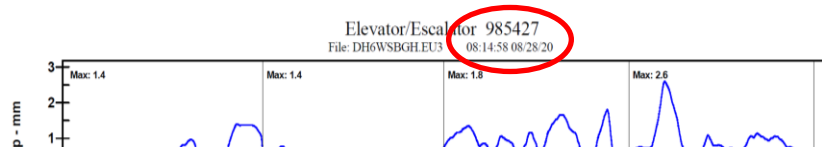


Figure 3.3

#### 4. Required Interval and Signing for SSPI Testing (8.6.8.15.19)

SSPI Testing is a Category 1 Test and shall be performed annually. Technicians shall only sign off the Category Test for SSPI if the chart produced is valid (as per the previous sections) and demonstrates that the device is compliant to the applicable specification for the vintage of the device. Adjustments to the device and re-testing of the SSPI must be done until a valid and compliant chart is produced and before the Category 1 Test can be signed off.

#### 5. Invalid Step to Skirt Clearance Inspection

##### 5.1. Escalators registered 1-Jan-2004 to present (B44-2000 Update 1 and newer)

The Loaded Gap, as presented in the SSPI Test, is the Valid Test Result when determining if the Skirt Clearance meets the required pass criteria as set out in Section 1. The Loaded Gap Value from the SSPI Test will only be accepted if it is from a valid test result chart.

The Loaded Gap is required to be maintained within the required code specified limits along the entire skirt where the steps are moving adjacent to it. This also includes the areas in the transition before the steps run flat. See Figure 5.1. It is recognized that it is not possible to measure dynamically in and near the transition with a PMT IMD1 machine nor is it practical to perform a real time static measurement with the same machine in the same area due to Skirt Deflector (Brush) installations. However, it is still the responsibility of the owner through their maintaining contractor to ensure that the area in the transition meets the loaded gap requirements of the code.

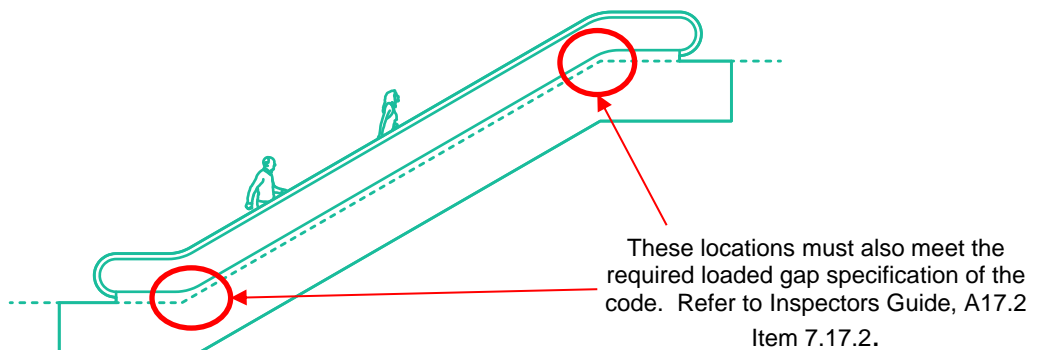


Figure 5.1

The step to skirt gaps in the transition area can be measured using a traditional Skirt Gap Gauge or other comparable method. The resultant measurement should be compared to the step to skirt gaps in known good areas of the incline of the escalator, based on the current SSPI chart for the device. If the gaps in the transition area are larger than those found in known good areas of the incline of the escalator, those areas will need to be adjusted / repaired. Alternatively, skirt brushes can be removed and the PMT IMD1 Machine can be used in real time mode to show the actual Loaded Gap Measurement.

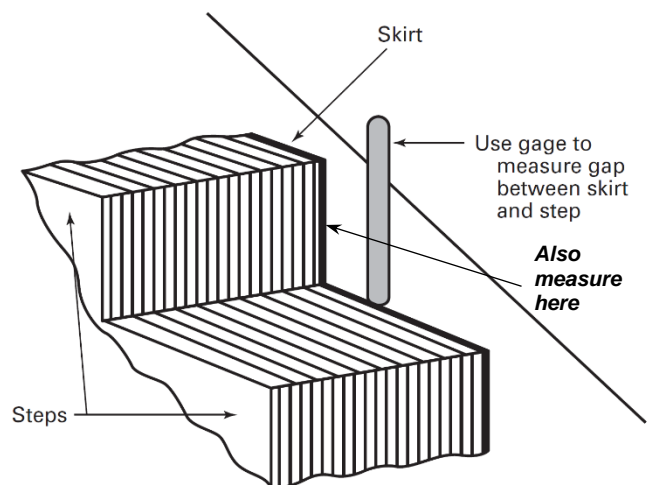


Figure 5.2

## **5.2. Escalators registered before 1-Jan-2004 (B44-2000 and older)**

Measured Gap, using either a Skirt Gap Gauge, or other comparable method, shall be examined along the entire length of step travel for both the left and right skirts. This includes the areas in the transition areas of the escalator. A sampling of steps shall be checked, paying specific attention to gaps that are observed to be large. Refer to the pass criteria set out in Section 1.

The distance between the Step Riser and the Skirt should also be checked in several location along the step travel where the steps are fully extended. See Figure 5.2.

## **6. Required Task Interval and Signing for Step to Skirt Clearance Inspection (8.6.8.2)**

The interval for Step to Skirt Clearance Inspections shall be no more than 12 months. The task shall be only signed if the Step Skirt Clearances are within compliance with the code requirement. (See Section 1.)

More frequent inspections shall be performed based on the age, condition and use of the device. As with all periodic inspection and maintenance tasks, it is the responsibility of the owner through their maintaining contractor to assess the escalator and apply maintenance and inspection intervals appropriately.

## **7. Inspections**

### **7.1. Acceptance Inspections for Newly Commissioned Devices.**

The performance of the SSPI Test shall be witnessed by an Inspector from this Authority. A Valid SSPI test, demonstrating the required pass criteria, is required before the device will be allowed into service.

### **7.2. Periodic Inspections of Existing Devices.**

A valid, current, and successful test, along with copies of the past five years of tests shall always be kept with the Escalator Maintenance Logbook for every escalator in operation. SSPI Testing will not be required to be demonstrated to an inspector from this Authority during a periodic inspection of the device, so long as a current, valid, and successful test result is present in the Maintenance Logbook. An Inspector may order an SSPI Test be performed in their presence if any of the conditions as described in Section 2 or Section 3 are present.