



## NATIONAL TYPE EVALUATION PROGRAM

# Certificate of Conformance

for Weighing and Measuring Devices

**For:**

Weighing/Load Receiving Element  
Load Cell Electronic  
Model: LSE Series  
 $n_{\max}$ : 8 000  
 $e_{\min}$ : 5 lb  
Capacity: 24 000 lb to 50 000 lb  
Platform: up to 12' (width) x 8.75' to 52.5' (length)  
CLC: 16 000 lb  
Section Capacity: 20 000 lb  
Accuracy Class: III L

**\*Submitted By: Contact Info. Updated November 2019**

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**Standard Features and Options**

Model Number LSEXXYY where XX represents capacity in tons and YY represents the platform length in feet.

**Standard Features:**

- Platform Material: Concrete

**Load Cell Used:**

- Cardinal Scale Mfg. Model SB-20000S (Certificate of Conformance No. 87-059) or metrological equivalent

**Indicator:**

- Cardinal Scale Mfg. Model 748-S (Certificate of Conformance No. 93-127) or metrological equivalent

Temperature Range: -10 °C to 40 °C (14 °F to 104 °F)

This device was evaluated under the National Type Evaluation Program and was found to comply with the applicable technical requirements of "NIST Handbook 44: Specifications, Tolerances and Other Technical Requirements for Weighing and Measuring Devices." Evaluation results and device characteristics necessary for inspection and use in commerce are on the following pages. \*Editorial changes, not affecting the type or metrological content, corrected this certificate.

Ivan Hankins  
Chairman, NCWM, Inc.

Hal Prince  
Chairman, NTEP Committee  
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**Cardinal Scale Manufacturing Co.**

Weighing/Load Receiving Element / LSE Series

**Application:** General-purpose livestock scale applications, vehicle or combination livestock/vehicle scale weighing element when interfaced with a compatible and certified indicating element.

**Identification:** The identification plate is glued to the load cell junction box on the side of the scale facing the indicator.

**Sealing:** Sections are adjusted in the load cell junction boxes (one for each section) and can be sealed with physical security seals. Overall calibration adjustments are made at the indicator and can be sealed with a physical seal.

**Test Conditions:** This Certificate supersedes Certificate of Conformance Number 97-043A2 and is issued to correct an error in identifying the  $e_{\min}$  value. On previous Certificates of Conformance, the value was incorrectly identified as  $v_{\min}$ . In addition, the minimum platform width was changed to cover widths less than 12'. No additional testing was deemed necessary. Previous test conditions are listed below for reference.

**Certificate of Conformance Number 97-043A2:** This Certificate supersedes Certificate of Conformance Number 97-043A1 and is issued to add the requirement for section capacity for the Livestock application of the Weighing/Load Receiving Element. This Certificate is issued without additional testing. It is based on the change in NIST Handbook 44 requiring that the nominal capacity not exceed twice the section capacity for a weighing element of three or more sections. The original evaluation was on a 40 000 lb nominal capacity device. The previous test conditions are listed below for reference.

**Certificate of Conformance Number 97-043A1:** This Certificate supersedes Certificate of Conformance Number 97-043 and is issued to expand the application to include vehicle weighing. The certificate is issued without additional testing. Previous test conditions are listed below for reference.

**Certificate of Conformance Number 97-043:** The Model LSE2035 was submitted for evaluation (12 ft x 35 ft, three-section platform with a capacity of 40 000 lb and a 16 000 lb CLC). The longest span between sections was 17' 6 3/4". The emphasis of this evaluation was on device design and performance. The scale was tested to 35 000 lb with known test standards. The scale was interfaced with a Cardinal indicator Model 748-S. Several section and mid span tests were conducted using 16 000 lb of known test standards. Several increasing/decreasing distributed load tests were conducted using 35 000 lb of known test standards. Physical security seals were applied to the indicator and load cell junction boxes. Similar tests were repeated after the minimum time and use requirements were met.

**Evaluated By:** L. Walrod (NE) and R. Suiter (NE) 97-043; D. Flocken (NCWM) 97-043A3

**Type Evaluation Criteria Used:** NIST, Handbook 44: Specifications, Tolerances and Other Technical Requirements for Weighing and Measuring Devices, 1997. NCWM, Publication 14: Weighing Devices, 1997.

**Conclusion:** The results of the evaluation and information provided by the manufacturer indicate the device complies with applicable requirements.

**Information Reviewed By:** S. Patoray, L. Bernetich (NCWM) 97-043A1, 97-043A2; D. Flocken (NCWM) 97-043A3



**Cardinal Scale Manufacturing Co.**  
Weighing/Load Receiving Element / LSE Series

**Examples of Device:**



Model LSE for livestock applications



Model LSE for vehicle applications