



NATIONAL TYPE EVALUATION PROGRAM

Certificate of Conformance

for Weighing and Measuring Devices

For:

Weighing/Load Receiving Element
Railroad Track Scale/Vehicle Scale/Modular/Electronic
Models: LPR and LPRA Series
 n_{max} : 5 400
 e_{min} : 100 lb
Capacity and Section Capacity: (see page 2)
Platform: (see page 2)
CLC: 50 Tons (Vehicle Scale Use)
Accuracy Class: IIII

Submitted By:

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Standard Features and Options

- The installation may consist of one or more platforms. A dead space may be located between the platforms. The length of the dead space(s) will depend upon the weighing requirements of the individual installation and the length of the cars being weighed.
- 15.6 ft platforms and less are two section scales, larger sizes are three or more sections.

Model No. Code and Description:

XX	YY	LPR or LPRA	ZZZ
Module Length	Cooper Rating	Model Family	Load Cell Capacity in Thousand Pounds

Note: if more than one platform of the same length is installed, the model number on the identification plate on each platform will include a different alpha character at the end. This alpha character permits separate identification of each platform.

Option:

- Deck for Vehicle Scale Weighing (The suitability of using 100-lb increments to weigh highway vehicles will be dependent upon compliance with suitability requirements of NIST Handbook 44 and local weights and measures jurisdictions.)
- For Vehicle Scale Use: Module lengths from 7 ft to 31 ft; Platform widths from 9 ft to 12 ft

Load Cells Used:

Revere Transducers Model CSP (Certificate No. 88-082A1),
Cardinal Model SCA (Certificate No. 89-042), or metrologically equivalent, NTEP certified load cell.

Combination vehicle/railway track scale installations must satisfy the relationship of: Nominal capacity \leq CLC (N - 0.5) where N is the number of sections and $v_{min} \leq d/\sqrt{N}$ where N = number of load cells. The scale division cannot be smaller than 100 lb.

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.

James Cassidy
Chairman, NCWM, Inc.

Kristin Macey
Chairman, National Type Evaluation Program Committee
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Cardinal Scale Manufacturing Co.

Weighing/Load Receiving Element / LPR and LPRA Series

Application: General purpose railway scale and vehicle scale weighing / load receiving element. The suitability of commercial two-draft weighing on individual modules is dependent on the local weights and measures jurisdiction.

Identification: A metal identification plate is attached to the weighbridge and is located near the point where the load cell cable leaves the load-receiving element to connect with the indicating element. Compliance with CLC marking requirements must be verified for combination vehicle/railway track installations.

Model Numbers	Scale Capacity (tons)	Section Capacity (tons)	Scale Width (Railway Scales)
13-80 LPRA-200	270	180	9'9"
26-80 LPRA-200	270	180	9'9"
13-80 LPRA-120	200	100	9'9"
26-80 LPRA-120	200	100	9'9"
13-80 LPRA-100	170	85	9'9"
26-80 LPRA-100	170	85	9'9"
13-70 LPR-120	240	120	9'3"
26-70 LPR-120	240	120	9'3"
13-70 LPR-100	200	100	9'3"
26-70 LPR-100	200	100	9'3"

Note: LPRA Series are built to AAR/A,R,E,A, Handbook specifications.

The following from the AAR/A.R.E.A. Handbook are for informational purposes only:

- Para. 3.3 Capacities: The multiple model scale, including those with spaces between modules, shall be treated as a single scale.
- 2.2.1(b) ...The nominal capacity of a scale with more than two sections shall not exceed twice the rated sectional capacity. ...
- 2.2.2. Rated Sectional Capacity

The rated sectional capacity of a load-cell scale should be factored in accordance with the following:

Section Capacity (tons)	Each Load Cell Rated Capacity (lb)
35	50 000
85	100 000
180	200 000
270	300 000

The rated sectional capacity shall in no case exceed the actual sectional capacity.

Sealing: Individual load cells and the sections are calibrated in the load cell junction box for each module. A wire security seal can be threaded through a drilled head screw and a hole drilled on the flange welded to the junction box. The overall calibration is adjusted at the primary indicating element. Procedures for applying a security seal to the indicating element are on its Certificate of Conformance (CC).

Test Conditions: This Certificate supersedes Certificate of Conformance 93-051A2 and is issued to clarify the information provided on the certificate and specify parameters allowed in NCWM Publication 14, Digital Electronic Scales, Technical Policy. Previous test conditions and information provided by the manufacturer was thoroughly reviewed by NTEP. Previous test conditions are listed below for reference.

Certificate of Conformance Number 93-051A2: This Certificate supersedes Certificate of Conformance 93-051A1 and is issued to clarify the application and use of the railway track scale, without additional testing, per adopted NTEP policy.

Certificate of Conformance Number 93-051A1: This CC supersedes CC 93-051 and is issued to clarify that either one or two modules may be used. The scale tested consisted of two modules which were tested individually and as a pair.



Cardinal Scale Manufacturing Co.

Weighing/Load Receiving Element / LPR and LPRA Series

Certificate of Conformance 93-051: The Model 26-26-80 LPRA-200 was submitted for evaluation. It was interfaced to the Cardinal/Detecto Model 738 indicating element (CC Number 86-035A3) for this evaluation. An increasing and decreasing load test was performed using a total of 100,000 lb of test weights. Test loads were applied to one section in 10,000-lb increments beginning with 30,000 lb. The remaining sections were tested at 50,000 and 100,000-lb test loads. The test loads were placed at the ends of each module and over the right and left sides of each interior section. A strain load test was conducted at 212,700 lb using an empty railcar and 100,000 lb of test weights. Similar section, strain load and increasing/ decreasing load tests were conducted using 100,000 lb of test weights approximately 45 days later. The results of this evaluation indicate the scale complies with applicable requirements.

Evaluated By: Bill Norrs (USDA/FGIS), Ron Flores (CA) 93-051

Type Evaluation Criteria Used: NIST, Handbook 44: Specifications, Tolerances and Other Technical Requirements for Weighing and Measuring Devices, 2017. NCWM, Publication 14: Weighing Devices, 2017.

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

Information Reviewed By: C. V. Cotsoradis (NIST) 93-051A1; J. Truex (NCWM) 93-051A2, 93-051A3; Darrell Flocken (NCWM) 93-051A3

Example of Device:

