

Testing of a Bridge Weigh-In-Motion System in Cold Environmental Conditions

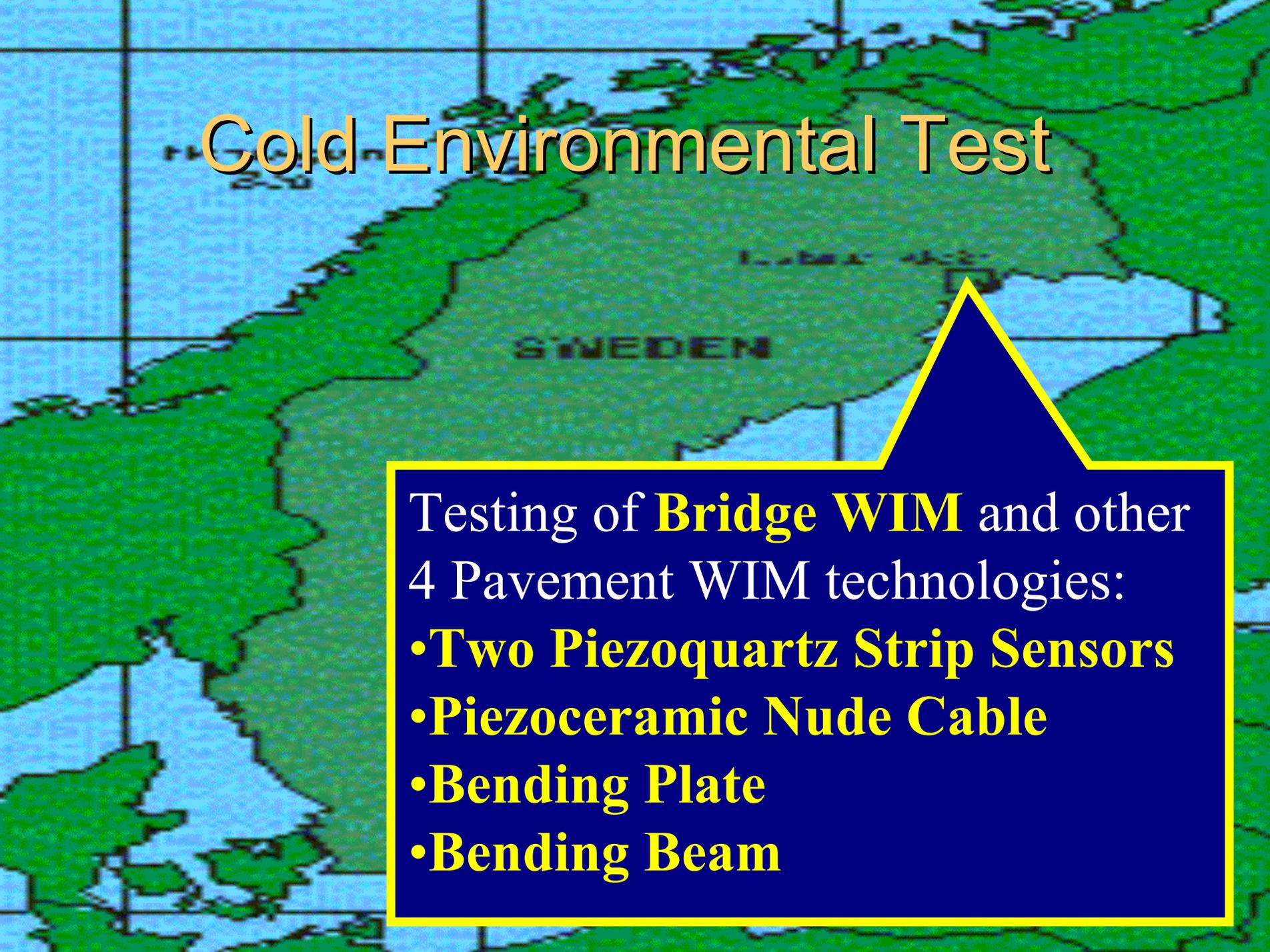
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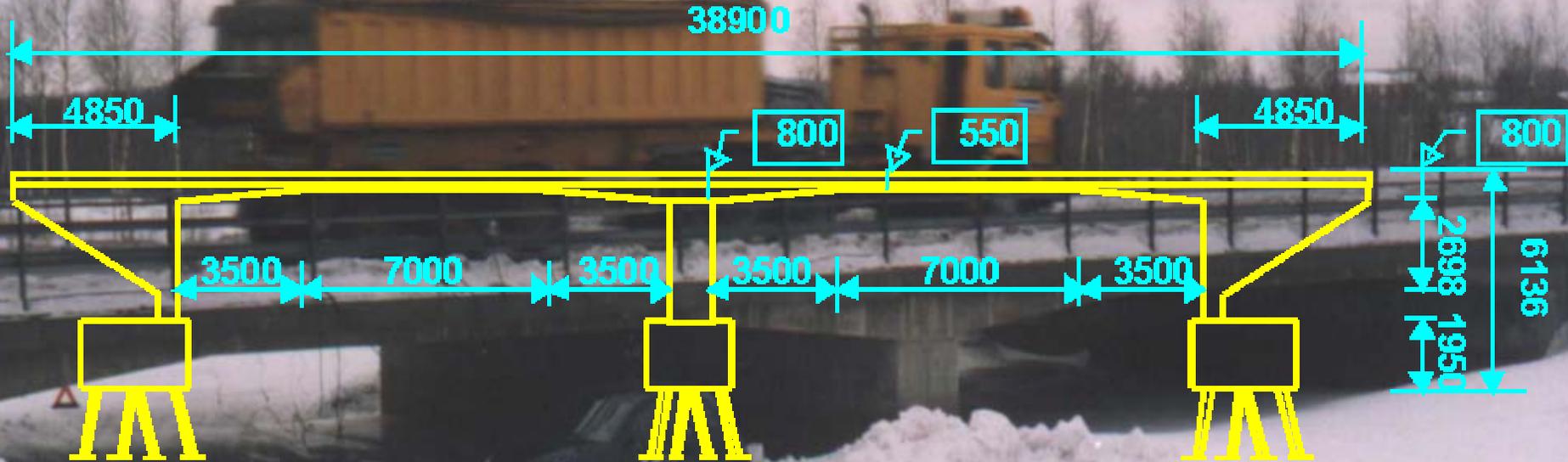
Cold Environmental Test

A map of Sweden is shown in the background, colored in shades of green and blue. A dark blue callout box with a yellow border and a yellow triangle pointing to the location of the test is overlaid on the map. The word 'SWEDEN' is visible on the map.

Testing of **Bridge WIM** and other
4 Pavement WIM technologies:

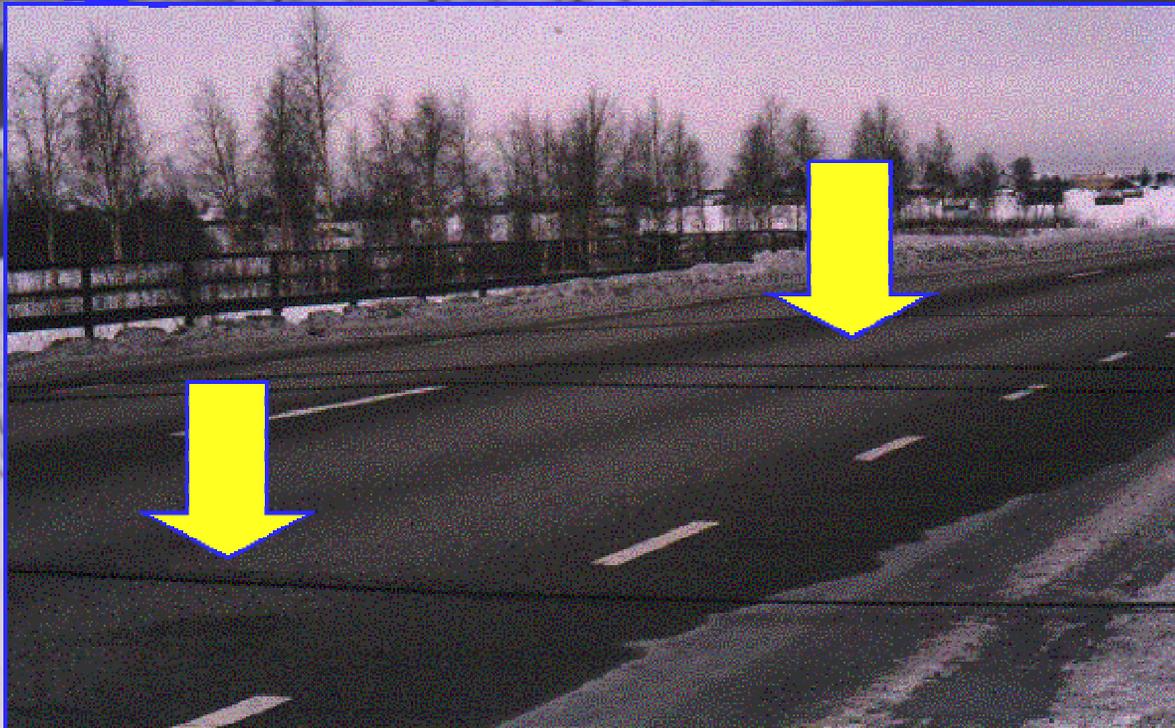
- **Two Piezoquartz Strip Sensors**
- **Piezoceramic Nude Cable**
- **Bending Plate**
- **Bending Beam**

Description of the B-WIM Site



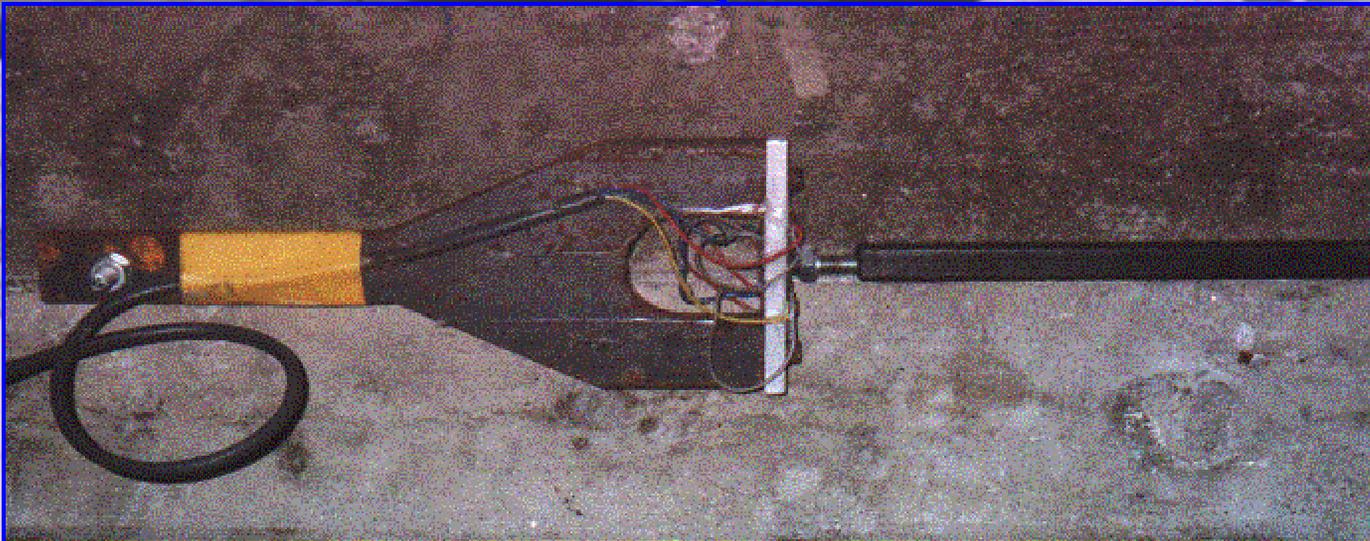
- **Integral Bridge composed of two spans, 14.6 m each**

Description of the B-WIM Site



- Axle Detectors

Description of the B-WIM Site



- **Strain Sensors**

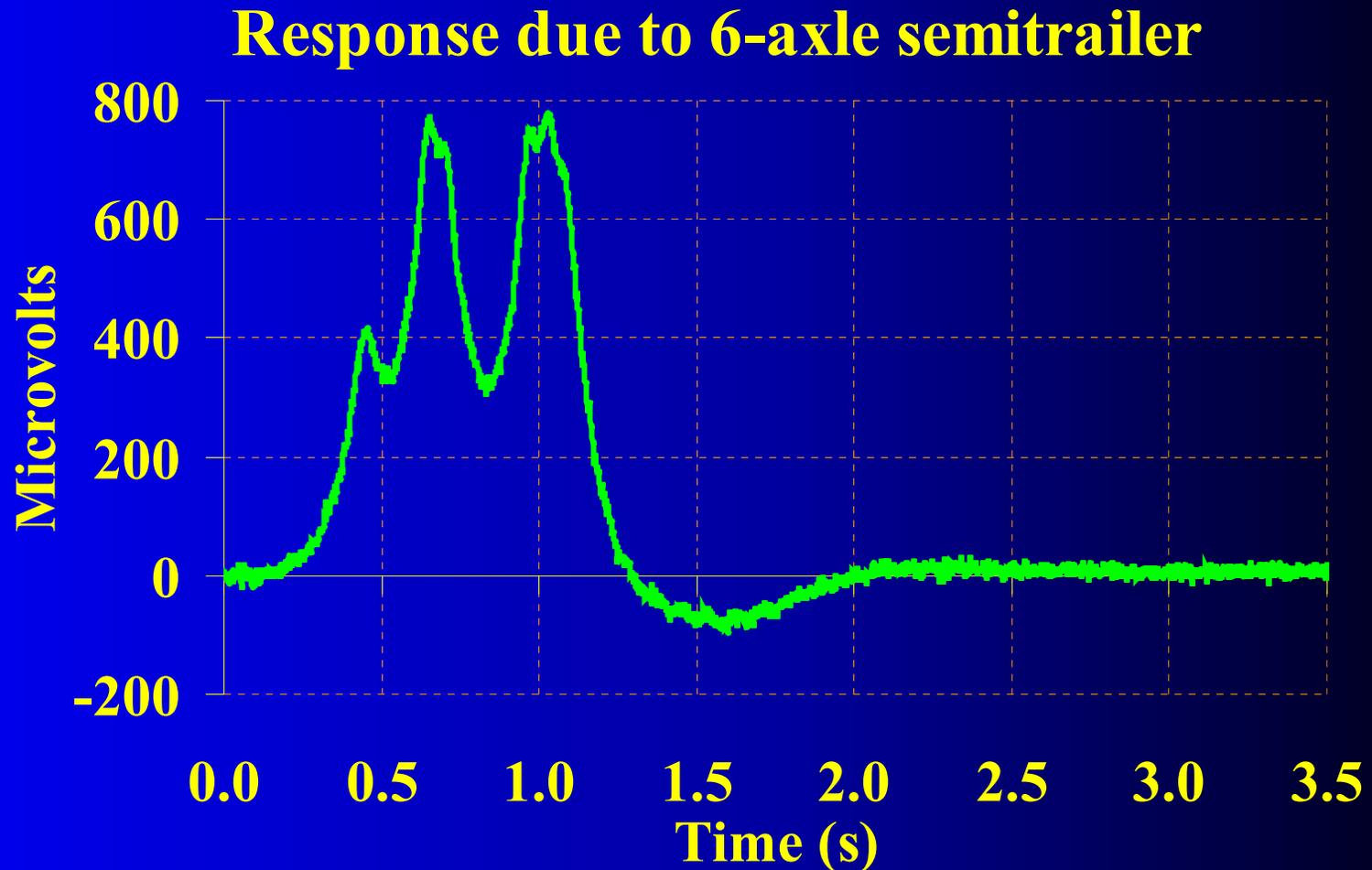
Description of the B-WIM Site



- **Data Acquisition Equipment**

Bridge WIM Calibration

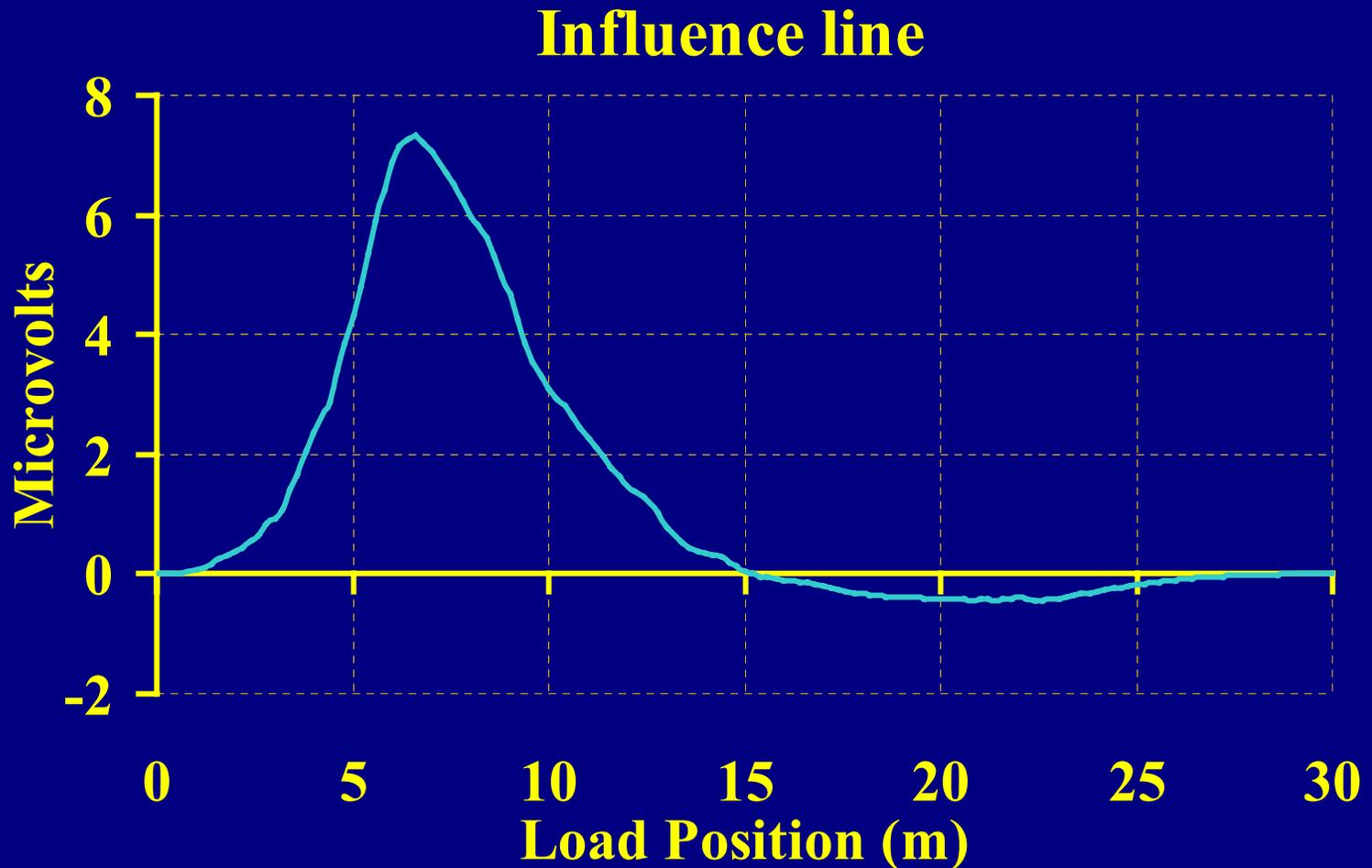
- Repeated Runs of Calibration Truck



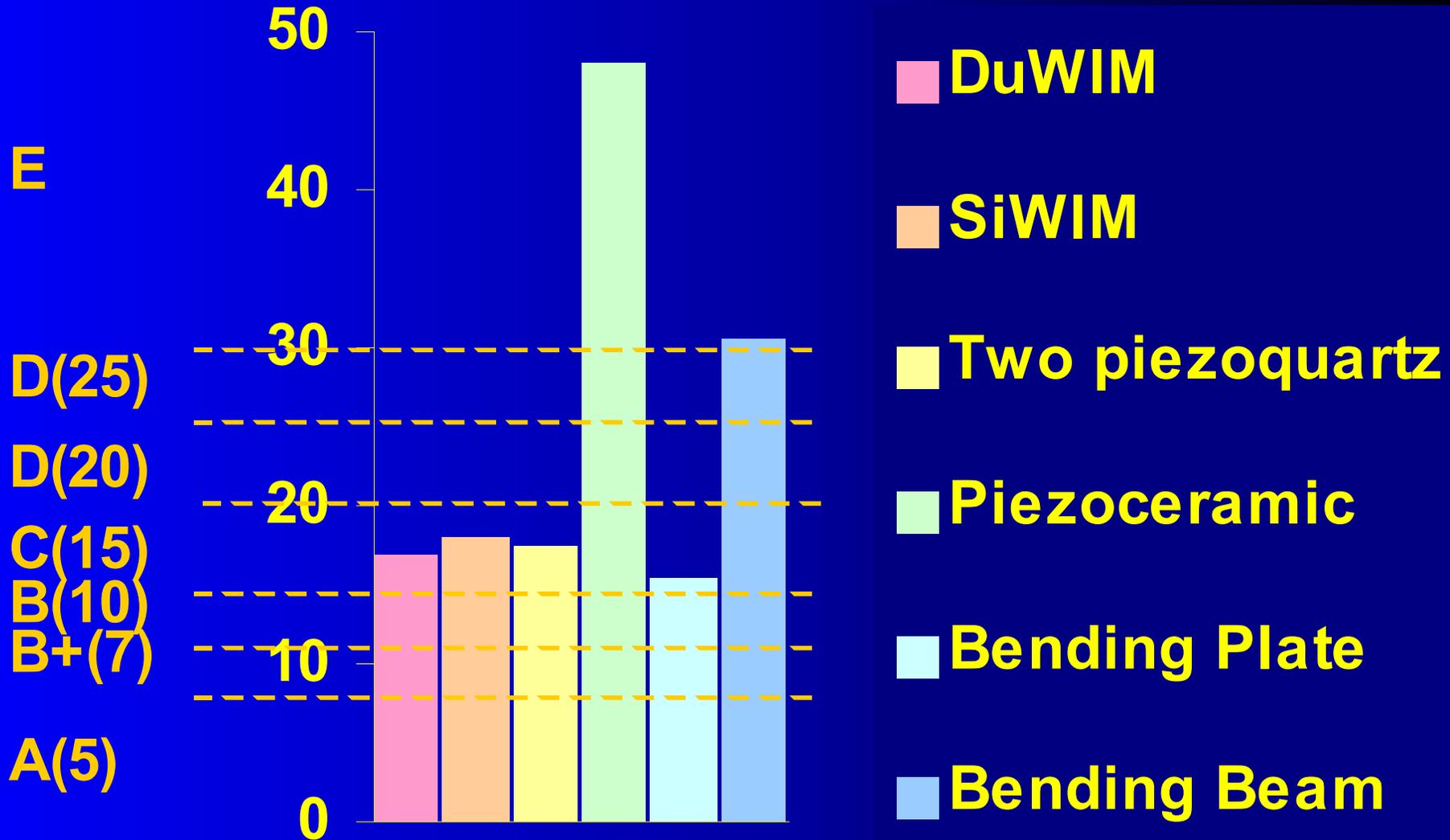
**Bridge record
& truck data**

ALGORITHM

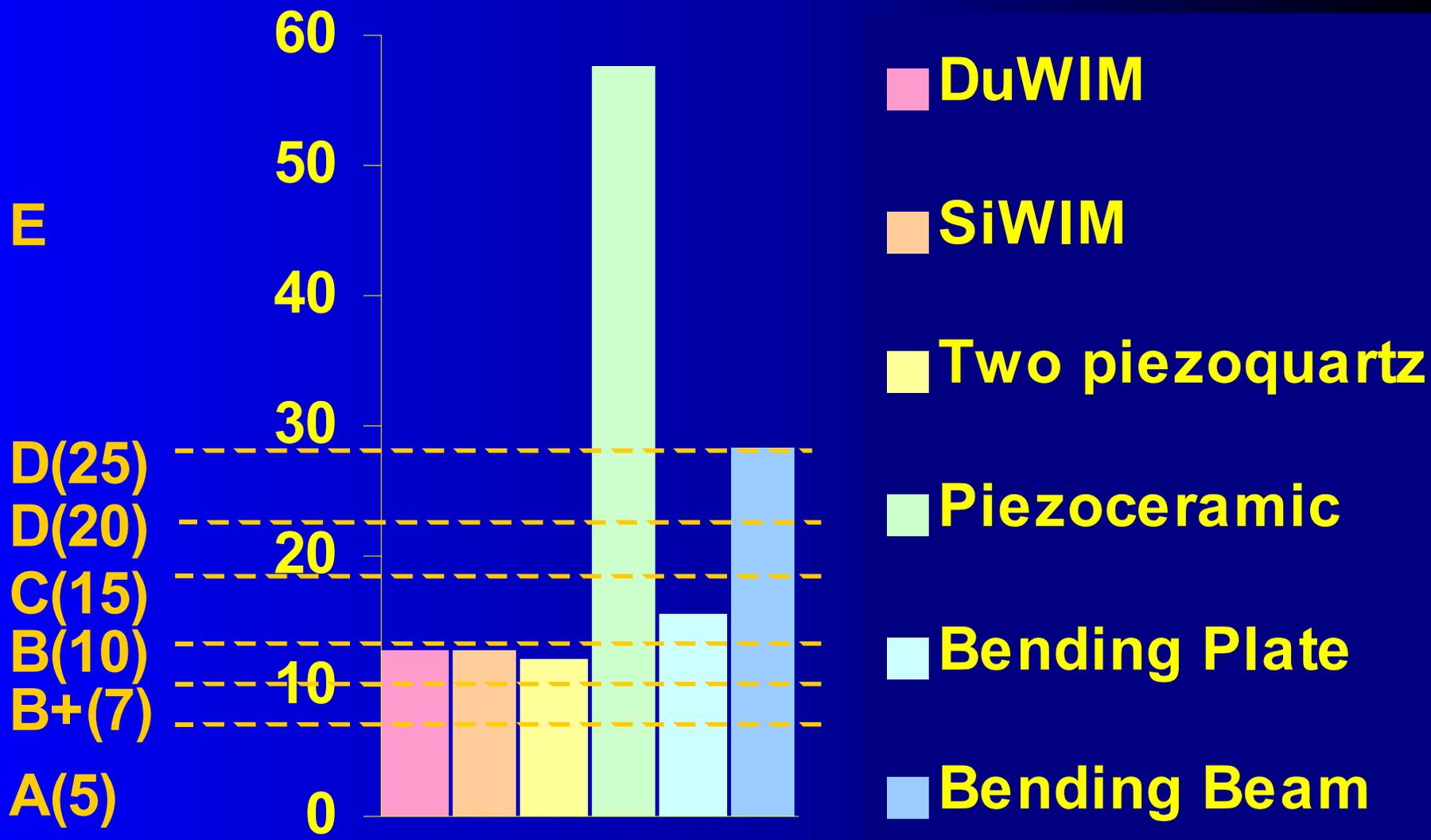
Calibration



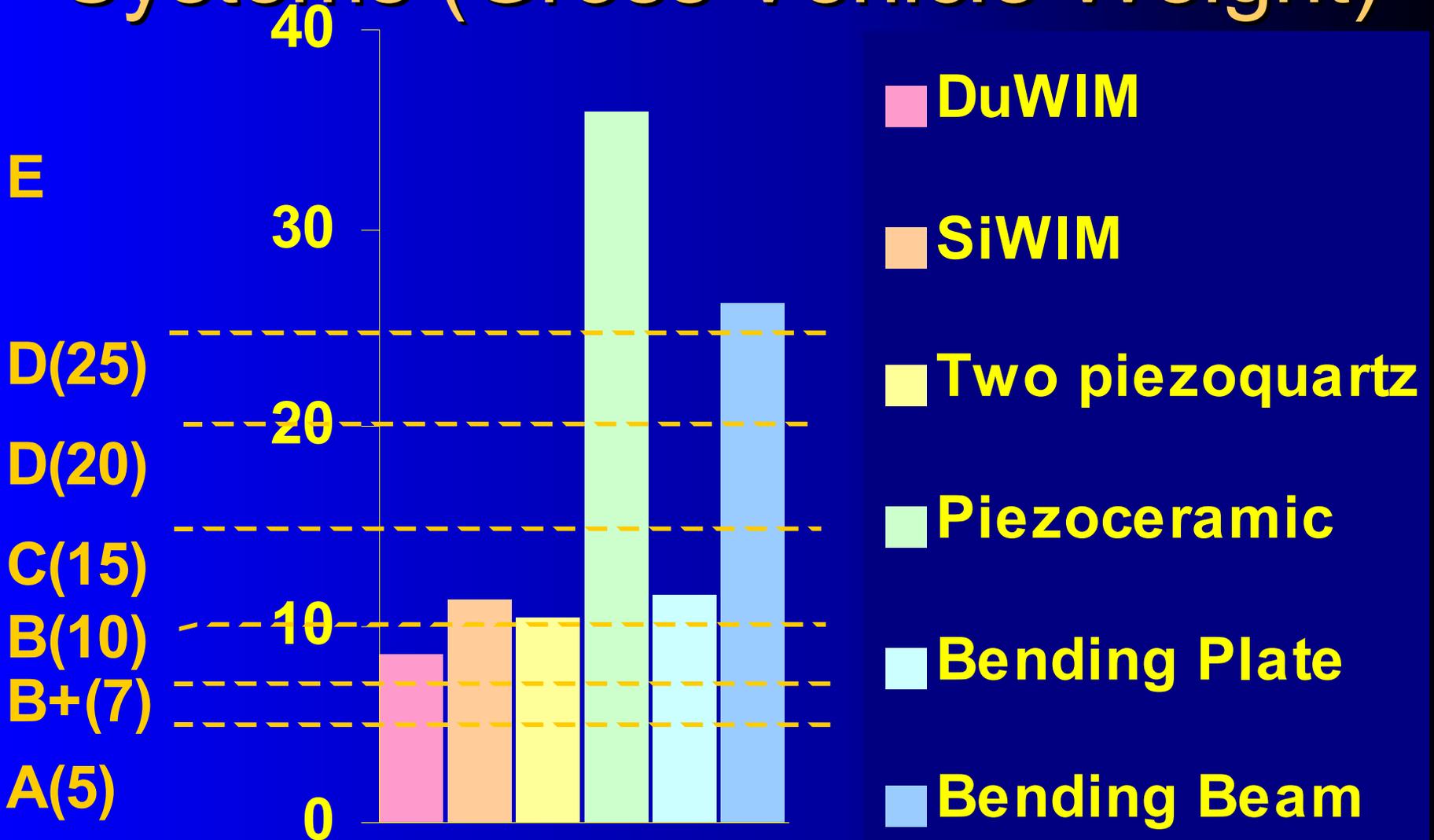
B-WIM versus Pavement WIM Systems (Single Axle)



B-WIM versus Pavement WIM Systems (Axle Group)



B-WIM versus Pavement WIM Systems (Gross Vehicle Weight)



B-WIM Testing

Single Axles



B-WIM Testing

Axle Groups



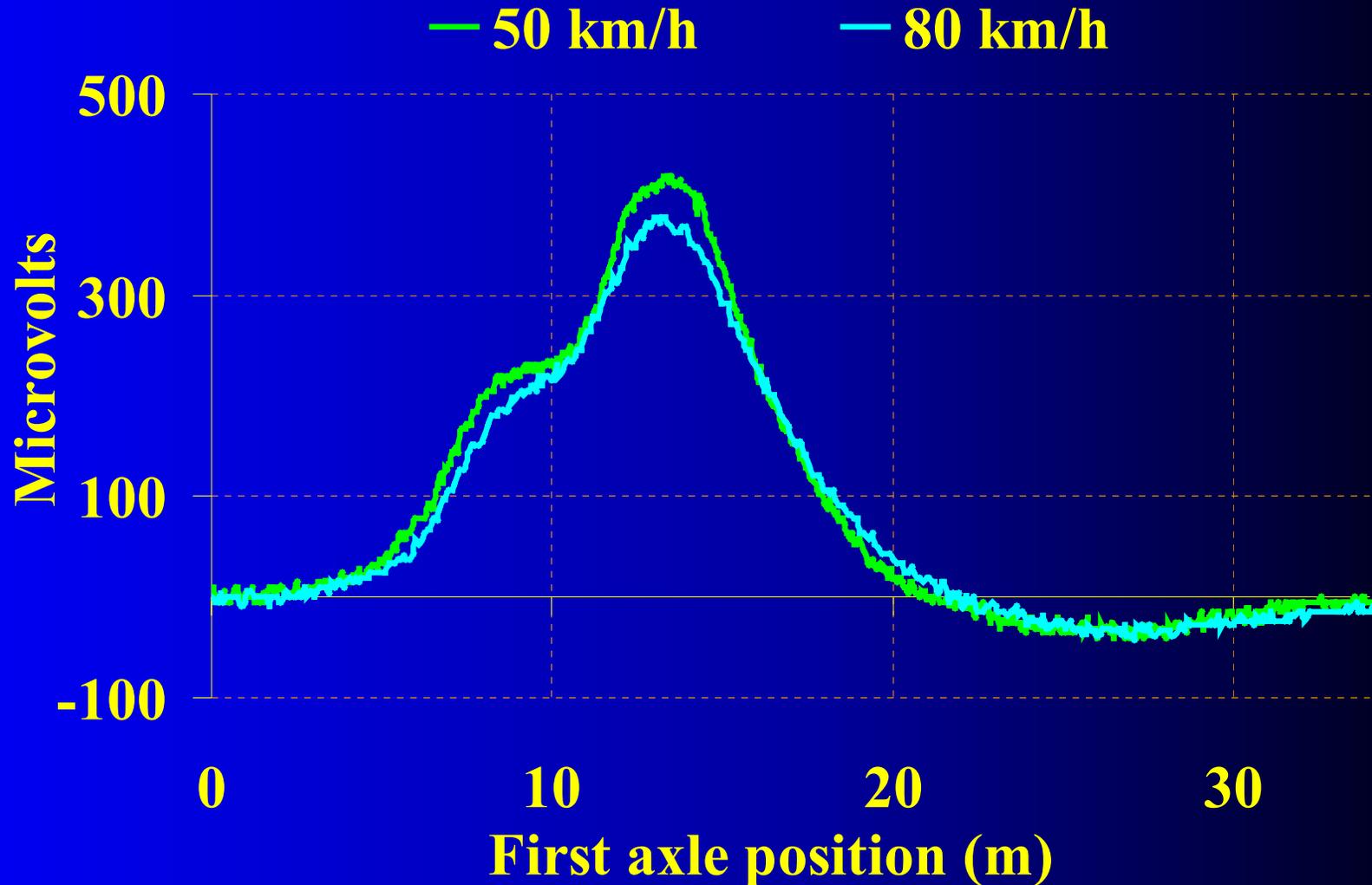
B-WIM Testing

Gross Vehicle Weights



Measurements from Winter Period

Record for 3-axle Calibration Truck



Conclusions

- A Bridge WIM system has been **successfully implemented** in **sub-Artic Climatic Conditions**.
- Overall accuracy classes of **C(15)** in the first two test periods and **B(10)** in the third test period.
- B-WIM has compared favourably to other WIM technologies, specially concerning **Gross Vehicle Weights**.