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INTERMOBILITY

Official Strategic Partner | الشريك الاستراتيجي الرئيسي

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Workshop Partner



CESTEL Bridge Weigh-in-Motion

for direct enforcement

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About CESTEL

- Established in 1978.
- Located in Slovenia, EU.
- 100% private company.
- Main business areas:
 - Dynamic weighing with Bridge WIM (SiWIM)
 - Static weighing & vehicle dimensions control
 - Exceptional transport control
 - Environment monitoring
 - And more....



About SiWIM

In-house development. 24 years on global markets. 6 continents. 30+ countries.

SiWIM the Bridge Weigh-in-Motion system:

- bridge used as a weighing platform,
- no structural damage to the infrastructure,
- portability – permanent or short-term measurements,
- modularly built,
- accuracy level A(5) according to COST323 or 10F according to OIML R134 can be achieved.



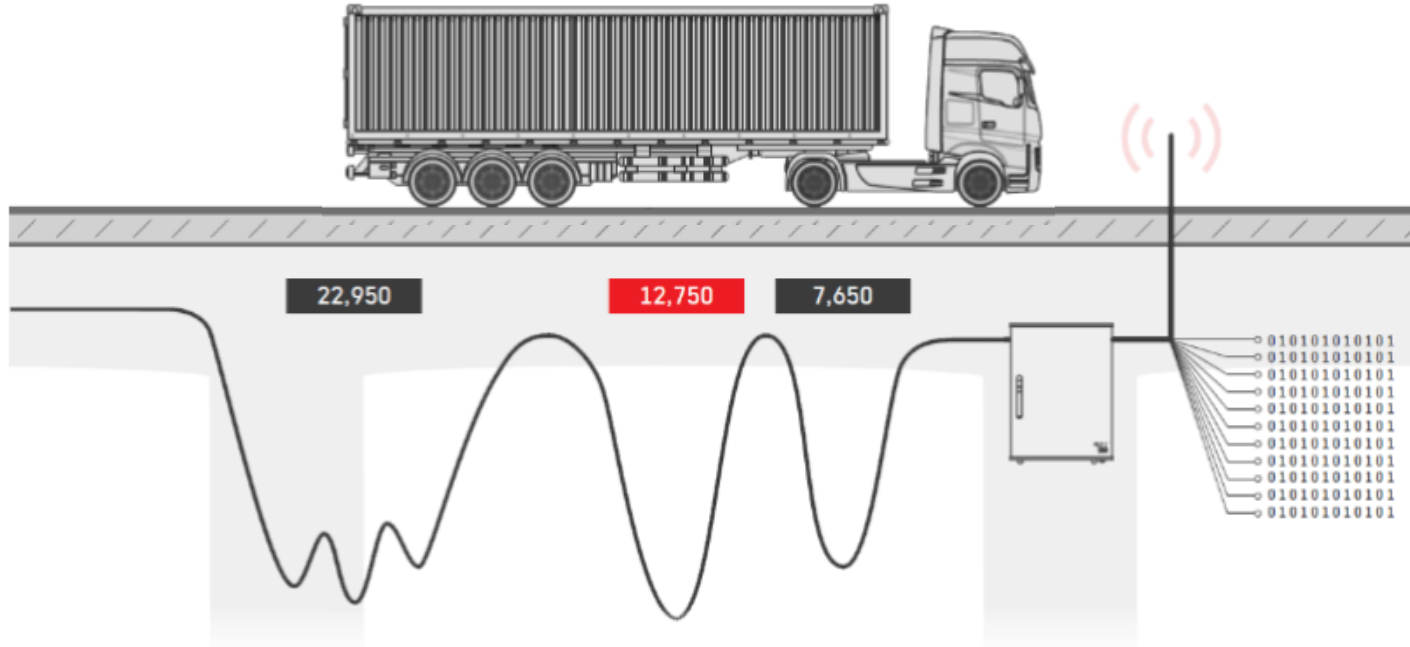
Advantages of Bridge WIM technology

- Fast installation.
- No damage to the structure.
- Portability.
- Not visible to truck drivers.
- Price performance.
- Multiple purpose of usage.
- SiWIM + other add-ons (SHM, ANPR, ADR,...).





Basic working principle





Installation on different types of bridges

Beam bridge



Slab bridge



Steel structure bridge



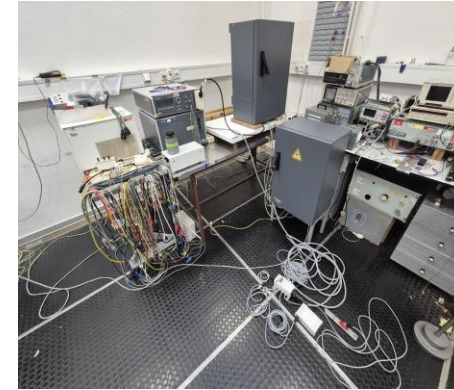
OIML R134



Organisation Internationale de
Métrologie Légale

International Organization of
Legal Metrology

August 2025: **SiWIM MkIV Bridge WIM system** receives **OIML type approval certificate**.
The first Bridge WIM system to receive the OIML approval.



Site approval planned for 2026.

The certification procedures and associated testing were conducted by the Czech Metrology Institute.



Data quality

To consider:

- Ensure quality bridge and road.
- Regular accuracy checks with pre-weighed trucks.





Before starting direct enforcement

Setup of a procedure for commercial OIML use for direct enforcement:

- Development of country-specific quality assessment for direct enforcement.
- List of potential locations.
- Conventional bridge WIM measurement.
- Analysis of data.
- Decision on whether the site is appropriate for direct enforcement.





Other circumstances

Unknown factors:

- Bridge's structural characteristics and material composition.
- Interactions with the surrounding substructure.
- Interaction between the structure and the environmental conditions.





Challenges



Proactive enforcement

Cost effectiveness and scalability.

- Direct enforcement on important road sections.
- Portable WIM systems and short-term measurements across the road network.

IMPORTANT – policies based on traffic studies:

- identification of local hotspots of overloaded traffic,
- dialog with the violating companies,
- black/white lists,
- methodology for road damage compensation.



Conclusions

Should we use Bridge WIM for direct enforcement? Yes, if...

- Select appropriate bridge.
- Do the measurement and verify collected data.
- Based on all criteria, decide whether the location and measured data are suitable for direct enforcement or not.
- Consider all the advantages and disadvantages when making a final decision.
- **Direct enforcement should be one segment of the WIM strategy to safeguard the infrastructure and road safety.**



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Thank You!
SiWIM you soon!

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