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Truck Weighing Instruments under Legal Metrology Control in Saudi Arabia

SASO is designing an enhanced legal metrology framework for truck scales, bridge weighing scales, and weigh-in-motion (WIM) systems to lower the number of fine tickets and enhance transportation infrastructure efficiency

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The Challenge

The absence of a unified legal metrology framework, harmonized technical requirements, and standardized verification procedures across truck scales, bridge weighbridges, weigh-in-motion (WIM) systems, and industrial weighing facilities (including factories, quarries, mining sites, and logistics hubs) results in inconsistent weighing outcomes between locations. This lack of uniformity undermines measurement comparability, compromises the fairness and accuracy of commercial transactions, weakens confidence in trade, and increases the risk of disputes among stakeholders. Furthermore, the absence of harmonized metrological controls and limited traceability to SI units reduces the effectiveness of regulatory enforcement and vehicle weight control.

The Solution

The SASO metrology team recently assessed the truck weighing instruments currently in use in the market, focusing on the range of instrument types, their operational condition, and the applicable legal metrology controls. The team interviewed instrument owners and operators and observed several legal metrology verification activities. The assessment identified differences in type-approval requirements, verification intervals and test procedures, and capability requirements for licensed verification bodies.

The SASO team has responded to this challenge by designing a unified legal metrology framework covering non-automatic weighbridges and weigh-in-motion (WIM) systems.¹ The framework is grounded in the Saudi Measurement and Calibration Law,² approved by Council of Ministers Decision No. 202 dated 30/2/1446 AH and issued by Royal Decree No. M/79 dated 6/3/1446 AH (9 September 2024), and its Executive Regulation,³ issued by Ministerial Decision

¹ SASO, Technical Requirements for Non-Automatic Weighing Instruments (Appendix 2 to the Executive Regulation), as applicable.

<https://www.saso.gov.sa/ar/sectors/measurement/Documents/%D8%A7%D9%84%D8%A7%D8%B4%D8%AA%D8%B1%D8%A7%D8%B7%D8%A7%D8%AA%20%D8%A7%D9%84%D9%81%D9%86%D9%8A%D8%A9%20%D9%84%D9%84%D9%85%D9%88%D8%A7%D8%B2%D9%8A%D9%8A%D9%86%20%D8%BA%D9%8A%D8%B1%20%D8%A7%D9%84%D8%AA%D9%84%D9%82%D8%A7%D8%A6%D9%8A%D8%A9.pdf>

² Kingdom of Saudi Arabia, Measurement and Calibration Law, Council of Ministers Decision No. 202 dated 30/2/1446 AH and Royal Decree No. M/79 dated 6/3/1446 AH (9 September 2024). https://saso.gov.sa/ar/Laws-And-Regulations/exeRules/Pages/RE-calibration_and_measurement.aspx

³ SASO, Executive Regulation of the Measurement and Calibration Law, Ministerial Decision No. 273 dated 12/9/1446 AH (12 March 2025). <https://www.saso.gov.sa/ar/sectors/measurement/Documents/%D8%A7%D9%84%D9%84%D8%A7%D8%A6%D8%AD%D8%A9%20%D8%A7%D9%84%D8%AA%D9%86%D9%81%D9%8A%D8%B0%D9%8A%D8%A9%20%D9%84%D9%84%D9%82%D9%8A%D8%A7%D8%B3%20%D9%88%D8%A7%D9%84%D9%85%D8%B9%D8%A7%D9%8A%D8%B1%D8%A9.pdf>

No. 273 dated 12/9/1446 AH (12 March 2025). It also aligns with OIML R 76-1:2006, Non-automatic weighing instruments - Part 1: Metrological and technical requirements - Tests⁴ and OIML R 134-1:2006, Automatic instruments for weighing road vehicles in motion and measuring axle loads - Part 1: Metrological and technical requirements – Tests.⁵ The framework establishes harmonized type-approval requirements and mandatory initial, periodic, and post-maintenance verifications, and requires that legal metrology verification services be delivered by licensed verification bodies.

SASO plans to launch legal verification services for truck scales during 2026. The detailed implementation schedule will be confirmed following completion of the required regulatory approvals and operational readiness activities.

A Quantifiable Impact

The implementation of the legal metrology framework for truck weighing systems is expected to deliver measurable, data-driven outcomes. The program has been designed to cover approximately 845 industrial weighbridges distributed across 15 administrative regions, as well as 172 road weighing systems (99 fixed and 73 mobile) used to monitor truck loads across the Kingdom. The initiative targets key economic sectors, including ports, manufacturing plants, mining sites, quarries, and logistics operators. A unified legal metrology framework will standardize performance requirements, strengthen metrological traceability, reduce uncertainty, and ensure consistent enforcement through reliable, internationally harmonized measurements.

The proposed framework is expected to establish consistent and comparable weighing measurements across different truck weighing systems through harmonized technical requirements, standardized verification procedures, and traceability to SI units. This will enhance the fairness and accuracy of commercial transactions, strengthen confidence in the reliability of weighing results, improve the effectiveness of regulatory enforcement, and reduce disputes among stakeholders.

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⁴ OIML R 76-1:2006. https://www.oiml.org/en/files/pdf_r/r076-1-e06.pdf

⁵ OIML R 134-1:2006. https://www.oiml.org/en/files/pdf_r/r134-1-e06.pdf