Southern African Transport Conference

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International Workshop on Weigh-In-Motion
WIM for Direct Weight Enforcement

Implementation of WIM for Direct Enforcement

Hans van Loo

ISWIM
International Society for Weigh in Motion

Corner Stone International Sagl

Content

- Status Quo
- Elements of Implementation
- Different levels of testing
- Key take aways

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Status Quo

- Why WIM for Direct Enforcement
  - High efficiency combined with high effectiveness.
  - High control rate (>99%), operational 24/7
  - Low number of staff required
  - Suitable for highways with high volume of trucks
- But …
  - It is not easy to implement
  - It is no magic solution for all overloading
    - It's effect limited to area around WIM
    - It may be sensitive to evasion.

Status Quo

- WIM Technology is ready
  - More Accurate Sensors
  - More Advanced Systems
- National Implementations
  - Czech, Hungary, Russia, Brazil, USA and Belgium
  - Germany, France, Poland, UAE, South Africa, …
- Limited International Harmonization
  - International Type Approval often not accepted
  - Additional Costs for Vendors and Users

Elements of Implementation

- Legal Acceptance
  - System performance
  - Operational procedures
- System Certification
  - 3 Levels of testing
  - Initial/periodical performance
- Data Quality Control
  - Every day performance

Key Elements of Implementation

Legal Acceptance:

- Provides legal basis for use
- Requirements for:
  - System Accuracy & Reliability
  - In MPE, fit for purpose
- Procedures for:
  - Procedures for Operation & Maintenance
- Included in National Legislation
  - Supported by Court Decision

Key Elements of Implementation

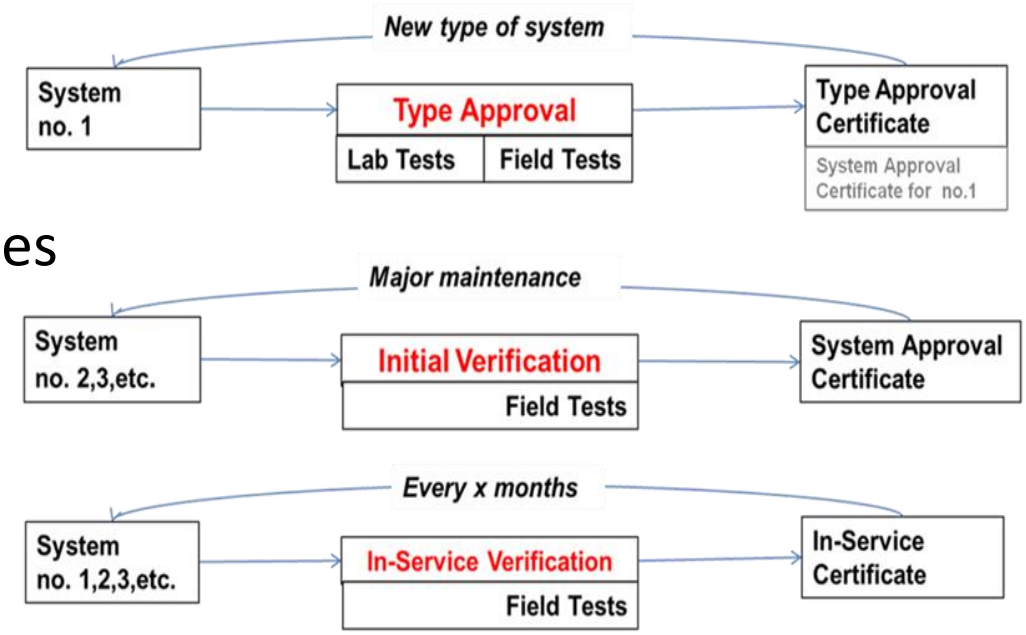
System Certification:

- Provides metrological reference
- Independent Certification
  - By Approved Metrology Institute
- Specifications
  - International Standards
  - Specific National Conditions
- 3 Levels of Testing

Key Elements of Implementation

Type Approval:

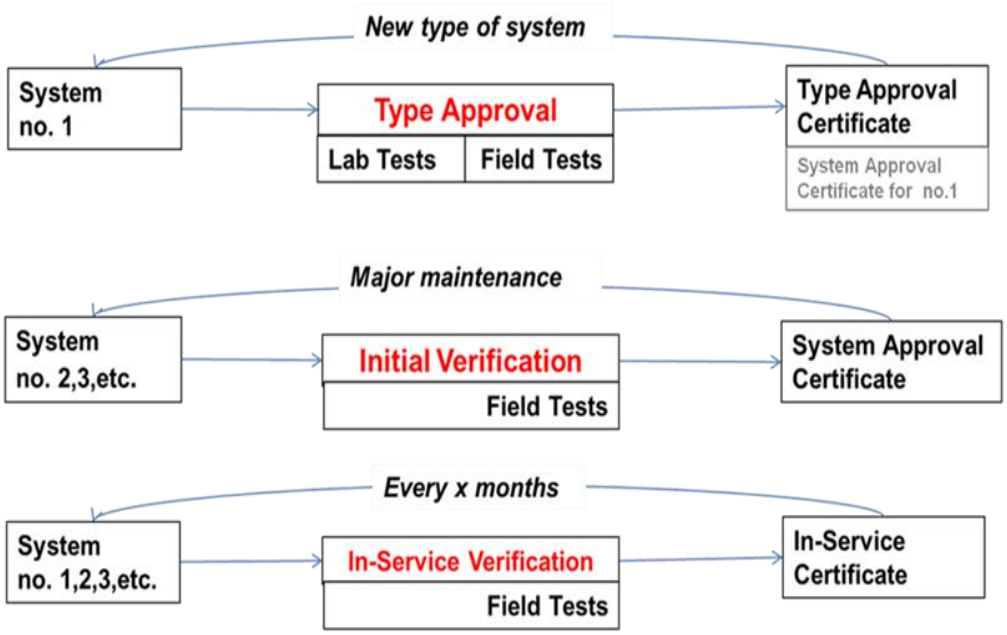
- Laboratory Tests
  - Immunity to disturbances
- Field Tests
  - Weighing Performance
  - Ideal Conditions
  - Large Test
- International Standards
  - OIML-R134, NMi-WIM



Key Elements of Implementation

Initial Verfication:

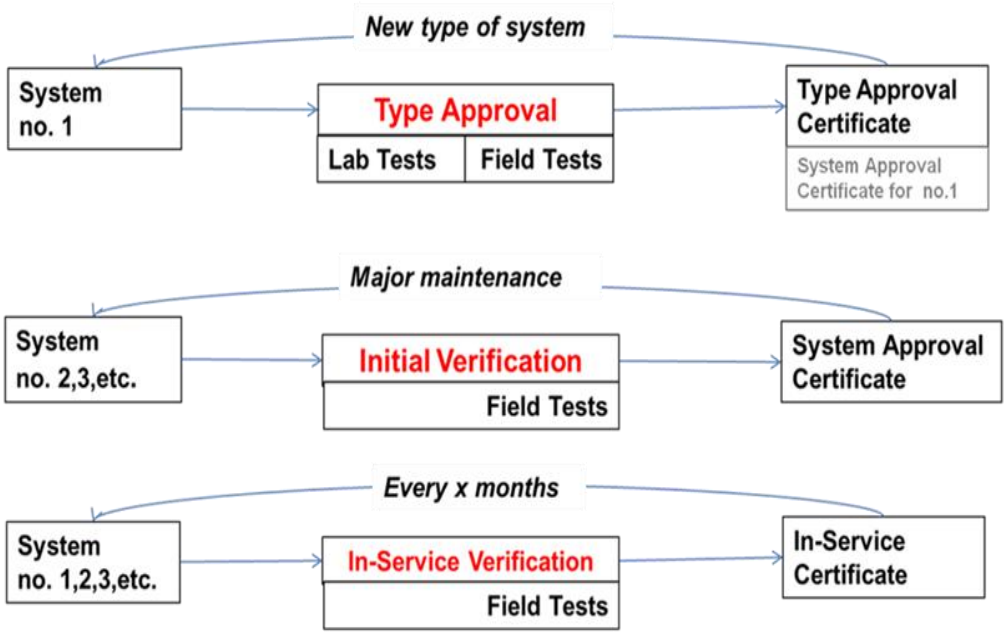
- Field Tests
  - Weighing Performance
  - Local Conditions
  - Medium Test
- National Standard
  - Types of Vehicles
  - Speed Range



Key Elements of Implementation

In-Service Verfication:

- Field Tests
  - Weighing Performance
  - Stability over Time
  - Small Test
- National Standard
  - Types of Vehicles
  - Period



Key Elements of Implementation

Data Quality Control:

- Guarantee of In-Service Accuracy
  - Confidence Levels from WIM
  - Statistical Performance Checks
  - Reference Measurements
- Implementation
  - Use of Confideence Levels
  - Use of Enforcement Margins
  - Specific Vehicle Types, Loads or Axles

Recommendations

What to do:

- Implement All Three Elements!
- Have Legal Procedures accepted in court
- Accept International Type Approval
- Adapt Initial and In-Service Verification
  - To Specific National Conditions
- Data Quality Control is essential
  - Guarantee of day-to-day performance

Recommendations

What to do:

- Set National specifications fit to purpose
  - Accuracy in MPE
- Step by step Implementation
  - Reduce, confidence levels and accuracy margins
  - Use International Experience
- Don’t forget about Vehicle Identification

Key take aways

Remember:

- WIM for Direct Enforcement
  - Is efficient and effective
  - But it is not the ‘magic’ of WIM
- Reliability over Accuracy
  - Better to ‘miss’ some overloaded vehicles, than to make one false ‘catch’.
- WIM Technology is ready!
  - It is all about implementation!

Questions

SOON TO COME!

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ISWIM Practitioners' Guide on the Implementation of WIM Systems for Direct Weight Enforcement

www.is-wim.net

Hans van Loo

hans.vanloo.int@gmail.com