Workshop C2

Al Bustan Rotana Hotel, Bahri B & Stallion

CITA Corporate Member Presentations Inspection Procedures, Methods and Data Systems

Chaired by Juha Tukiainen

Member of CITA Bureau Permanent

Workshop C2

Presentation 1

TANDEM TEST LINE

Hakim El Jebli

Ryme, Spain

Ryme

Tandem test line

Tandem test line

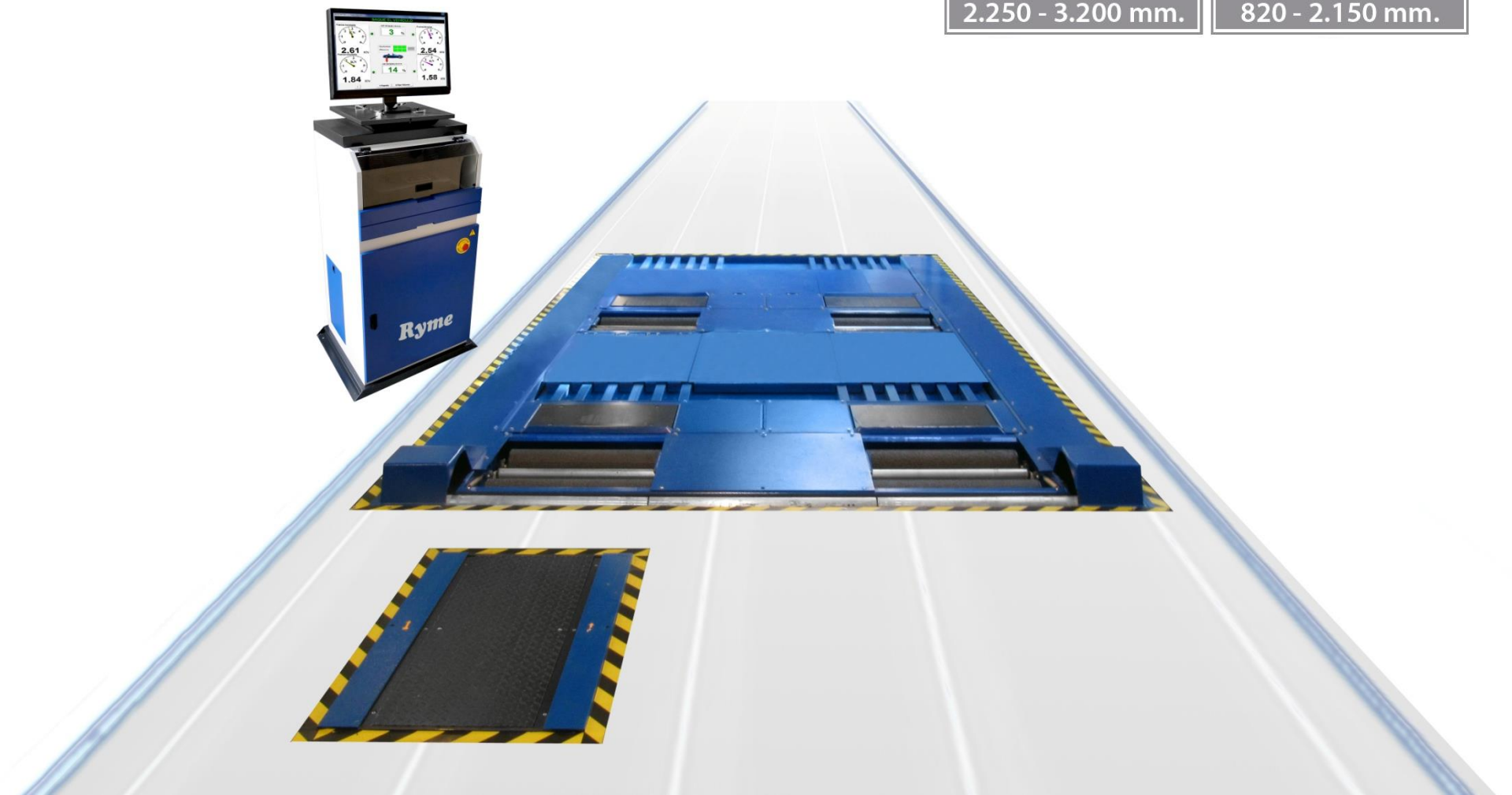
4,6 Kw.

3,5 Tn.

Ø 202 mm. | Ø 166 mm.

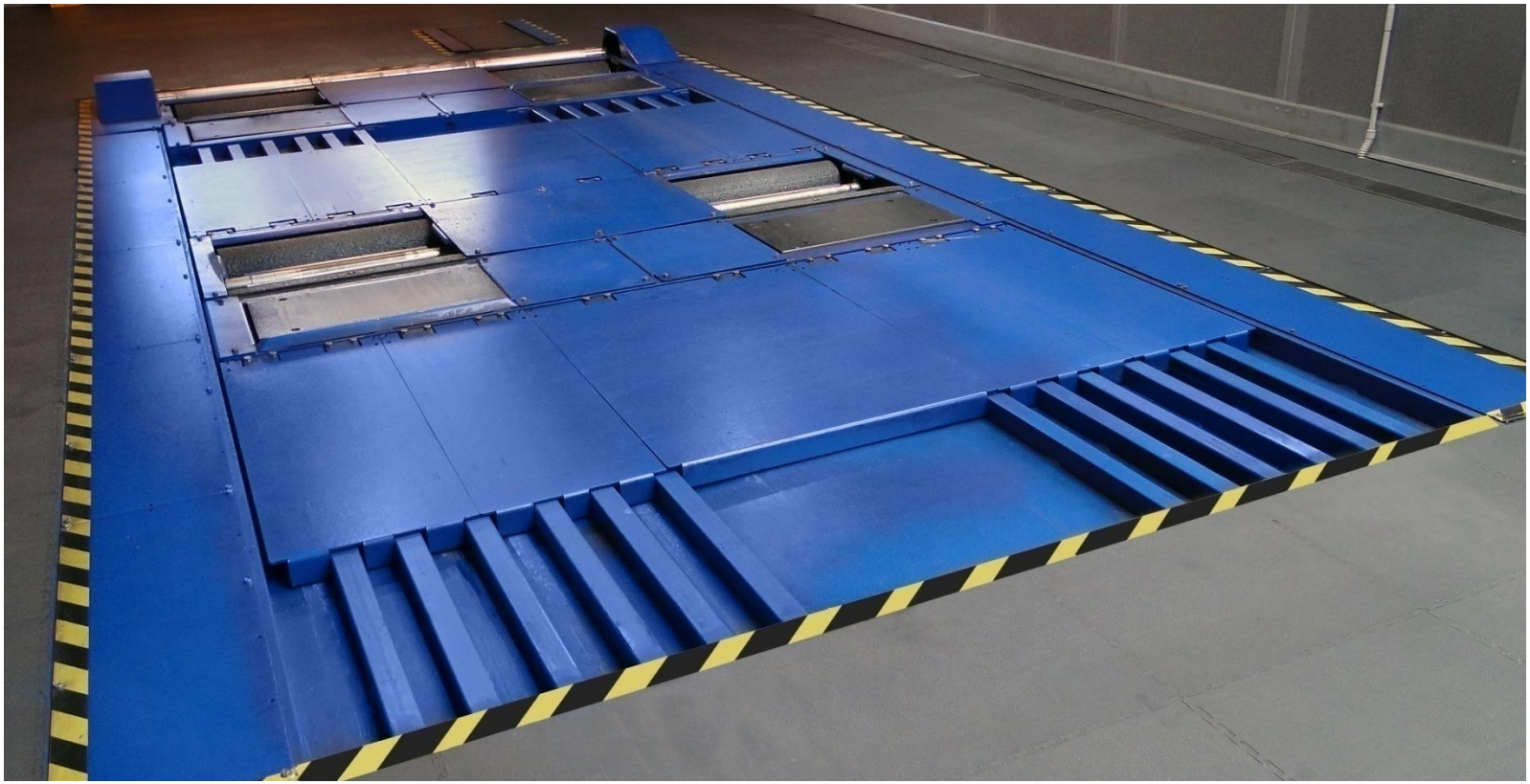
2.250 - 3.200 mm.

820 - 2.150 mm.



Brake Tester & Suspension Bench

- The Tandem test line is composed by two pairs of benches: 2 for the brake test and 2 for the suspension test



Automatic Adjustment

- The Tandem has an automatic adjustment to the specific distance between the axles of each vehicle

Pneumatic Retention System

- It has a pneumatic retention system of the vehicule that gives greater stability and safety for the braking test

Data Base

- The Tandem test line has a Data Base that includes the axle distances of the European, American and Asiatic vehicles.

Operation: Vehicle Selection

Once chosen the vehicle to be tested, the Tandem adapts the axle distance automatically and allows to do a quick inspection of the vehicle

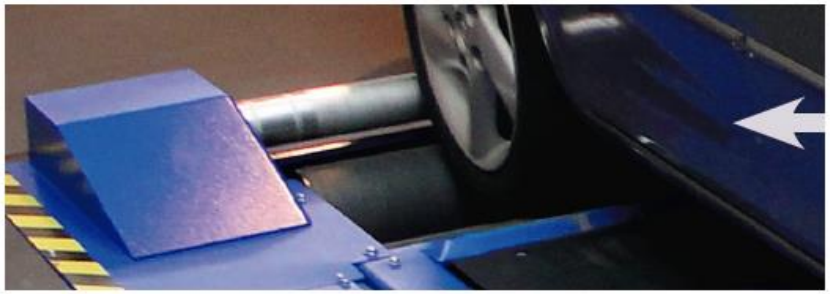
Operation: Side Slip Teste

The first test is the **Side Slip Tester to register the deviation of the steering axle**

Operation: Brake Teste

Initially a lifting pneumatic beam retains the vehicle. When the proper placement of the vehicle is detected the lifting beam descends, leaving the axles perfectly positioned on the tandem of brake testers. At this moment a retention roller rests on the rear tires, giving the test a greater stability and therefore more safety. Then the motors of the brake tester start. The four wheels are tested simultaneously.

The ovality and brake values of the entire vehicle are then completed and registered.



Operation: Suspension Test

The pneumatic lifting system will position the vehicle on level with the floor in order **to make easier the exit from the brake tester rollers. Then the vehicle moves to the tandem suspension tester. Again, both axles are simultaneously tested.**

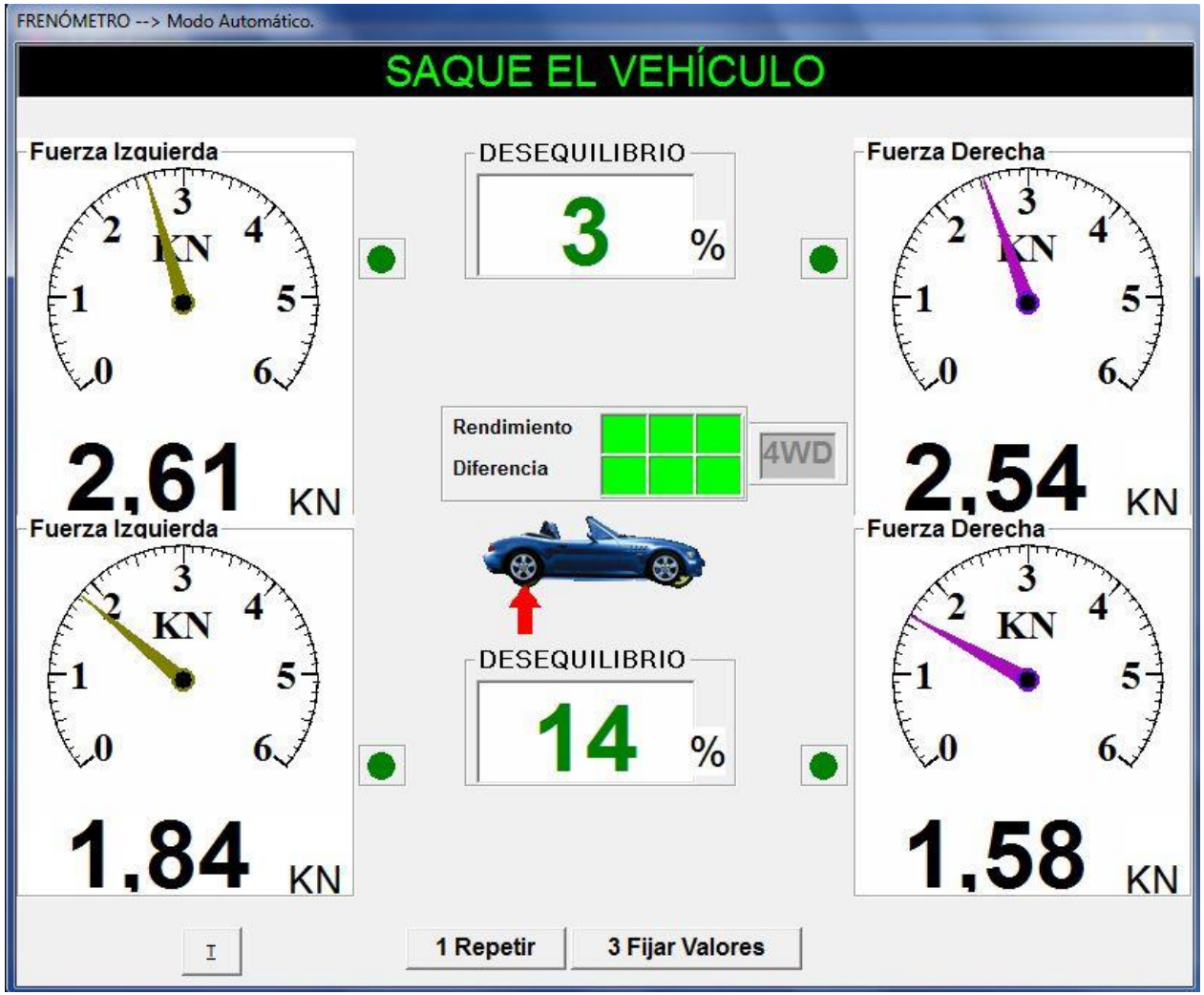
Operation: End of the Tests

Once finished the tests, the vehicles is removed from the Tandem test line and the operator can continue the remaining tests of the inspection such us emission, headlight, visual inspection, etc..

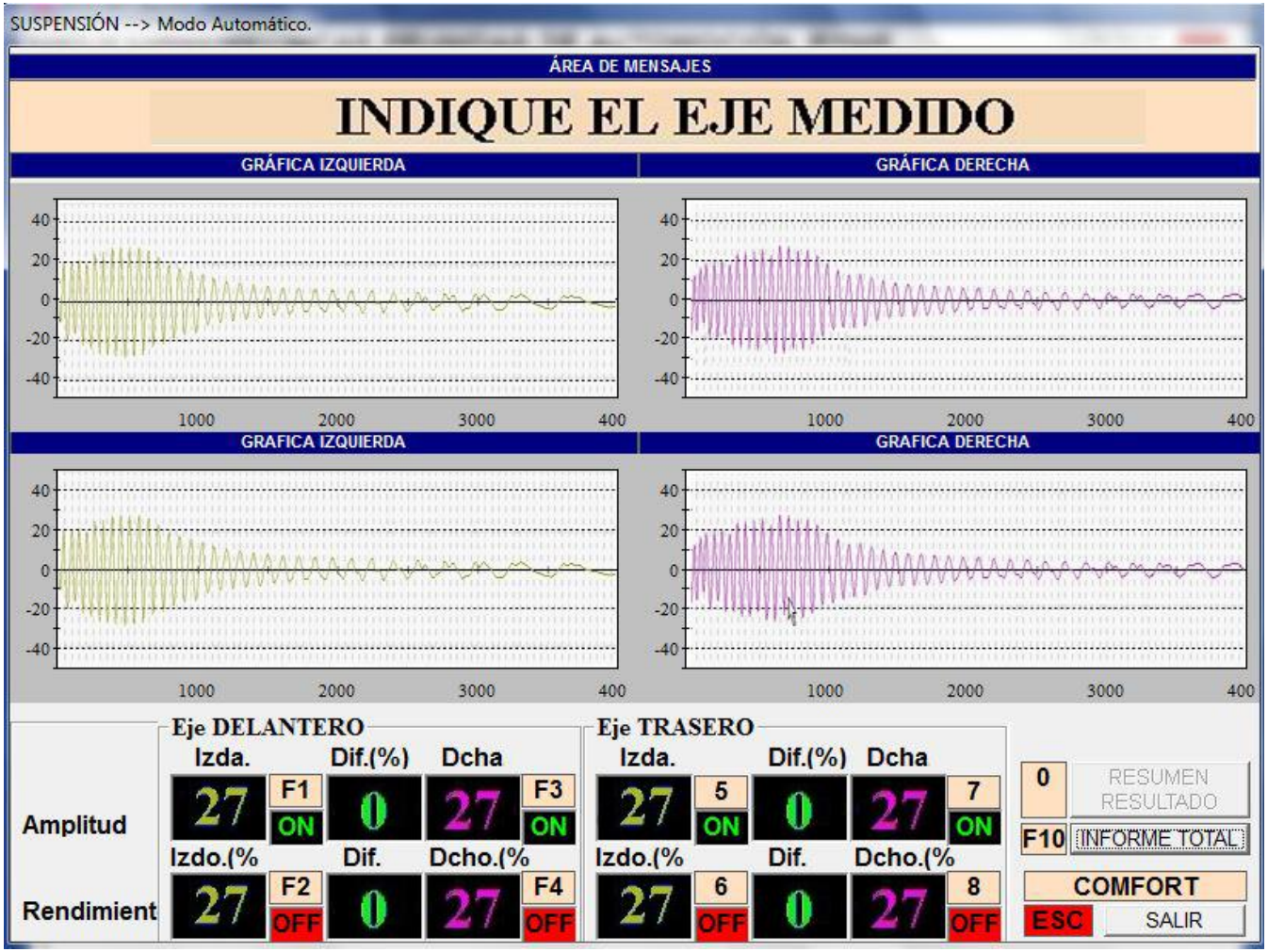
Advantages of the Tandem

- Reduction of the time of the vehicle inspection around 50%.
- Increase the productivity of the inspection in more than 100%.
- As the Tandem tests both axles at the same time, the vehicle movements are reduced and the operator can focus on inspecting the vehicle instead of moving the vehicle.
- Free Rollers are not required for the 4x4 vehicles do to the simultaneous test of both axles. In the inspection of the 4x4 vehicles the reduced time is even higher than 50%.
- While testing both axles at the same time the test and its values are more approximate to the real performance of the vehicle.

Software: Brake Teste



Software: Suspension test




It adjusts automatically to the specific distance
between the axles of the vehicle

Ryme

Thank you for your attention !

www.ryme.com

CITA 2015
INTERNATIONAL MOTOR VEHICLE INSPECTION COMMITTEE
Conference and 17th General Assembly
14-16th APRIL DUBAI U.A.E.
WWW.CITA-VEHICLEINSPECTION.ORG

Workshop C2

Presentation 2

Software for Data Collection and Analysis for PTI-Tests with VeRTest

Stefan Velkoski

Robert Bosch GmbH, Germany

Software for Data collection and analysis of PTI-Tests with VeRTest

Stefan Velkoski – Robert Bosch GmbH

2015 CITA Conference, 14-16th April 2015, Dubai, UAE

BOSCH

VeRTest – Users and Sponsors

- VeRTest = Vehicle Roadworthiness Test
- Users:
  - Vehicle Test Organizations
  - Authorized companies which are working for Ministry of Transport
  - Authorized personnel (such as. Employee of the Ministry of Transport and Communications, etc.)
  - Organizations and institutions that may require some statistical data (ex. Emission of CO2, etc.), such as Ecology organization, Ministry etc.
- Successfully Implemented in:
  - Macedonia (on governmental level)
  - Serbia (AMSS in test period)

Developed by

BRANSYS
SOLUTIONS FOR YOUR NEEDS

in cooperation with

BOSCH

BOSCH

System description - VeRTest

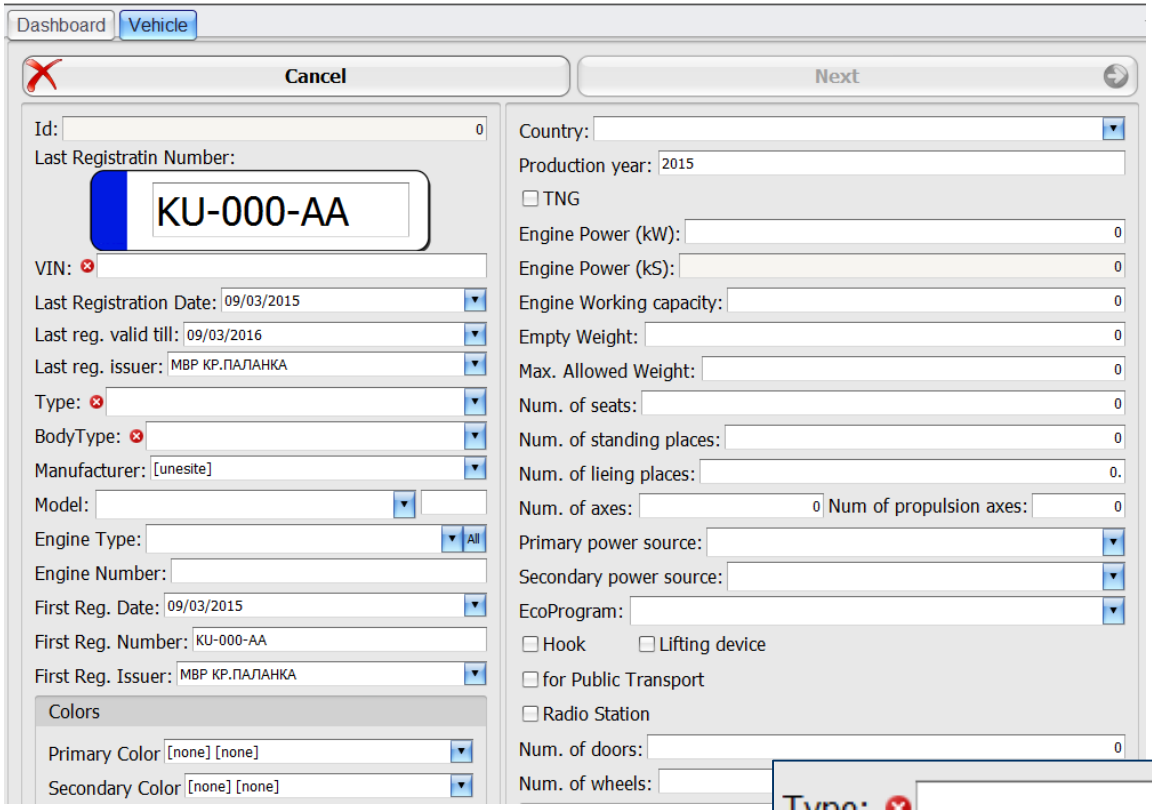
- **VeRTest** is a sole integrated IT system in the area of
  - Vehicle Data
  - Registered Vehicles
  - Technical Inspected Vehicles
  - Results from measuring with testing equipment
  - Owners and Users of Vehicles
  - Traffic Licenses, international driving licenses and many other documents depending on the local law
  - Collection of fees for Registration
  - Reports and Statistics

ONE Vision:
Creating a fully efficient and effective, error free, integrated IT system to collect, store and analyze all vehicle data in electronic form

Why VeRTest?

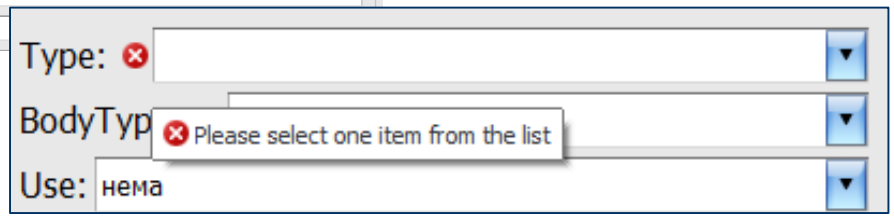
- Centralized unified and secure database
- Harmonizing the local legislation with the European and global legislation.
- Increasing the frequency of technical inspections and mandatory items to review
- Error free procedures and data exchange
- Complete customizable system for statistics and data analyzing
- Scheduling and organizing the complete process of technical inspection
- Marketing promotions

Working Flow without errors



Error control on each entered value providing error free data

Error notification on each field on mouse hover over the red image

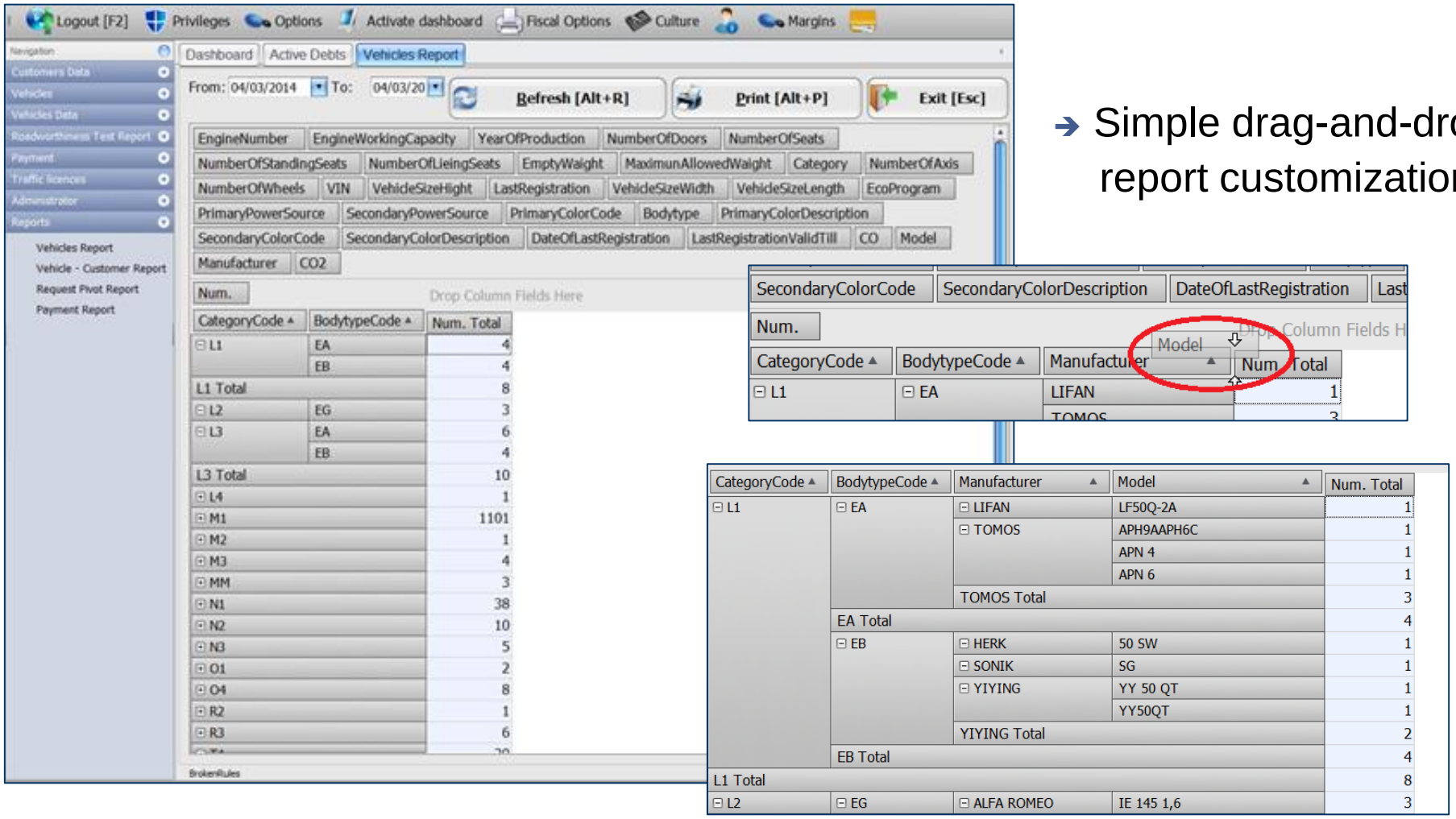


BOSCH

Key business benefits of VeRTest

- reduced errors in the output documents
- increased control over the operations
- a step towards to a paperless archive of incoming documents and outcomes of every preformed process
- control over the collecting of registration fees provided by the state and local government
- cheaper operating costs
- increased productivity
- Facilitated procedures
- Aggregate statistics
- Friendlier interface with easy manipulation of the system

Data Storage and Data Selection



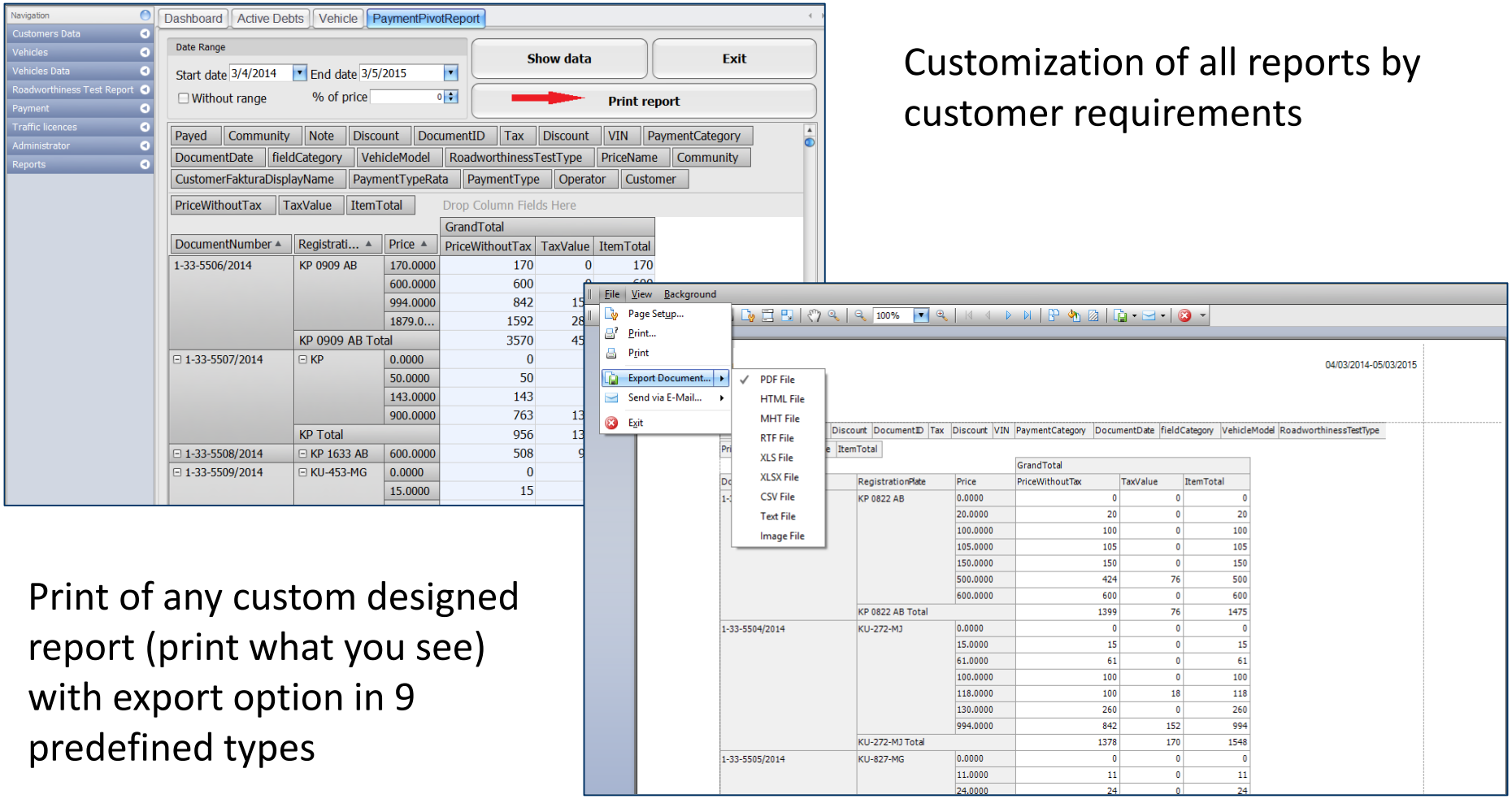
- Simple drag-and-drop report customization

BOSCH

User Interaction

- The software provides a simple and user-oriented environment.
- It can easily be adjusted towards the needs of the operator (adaptation of fields for input, color screen, choice of language for communication, etc.)..
- Possibility of collecting detailed information on the owners (users) of vehicles for promoting the user – operator relationship ex. mobile phone numbers, e-mail addresses etc.

Report printing and data export



Customization of all reports by customer requirements

Print of any custom designed report (print what you see) with export option in 9 predefined types

BOSCH

Software for Data collection and analysis of PTI-Tests with VeRTest

Stefan Velkoski – Robert Bosch GmbH

2015 CITA Conference, 14-16th April 2015, Dubai, UAE

BOSCH

Workshop C2

Presentation 3

Improvement of the Reliability and the Consistency of the PTI

Jan van der Does

Executive Project/Product Manager, Van Leeuwen Test Systems B.V., The Netherlands

Improvement of the reliability and the consistency of the PTI

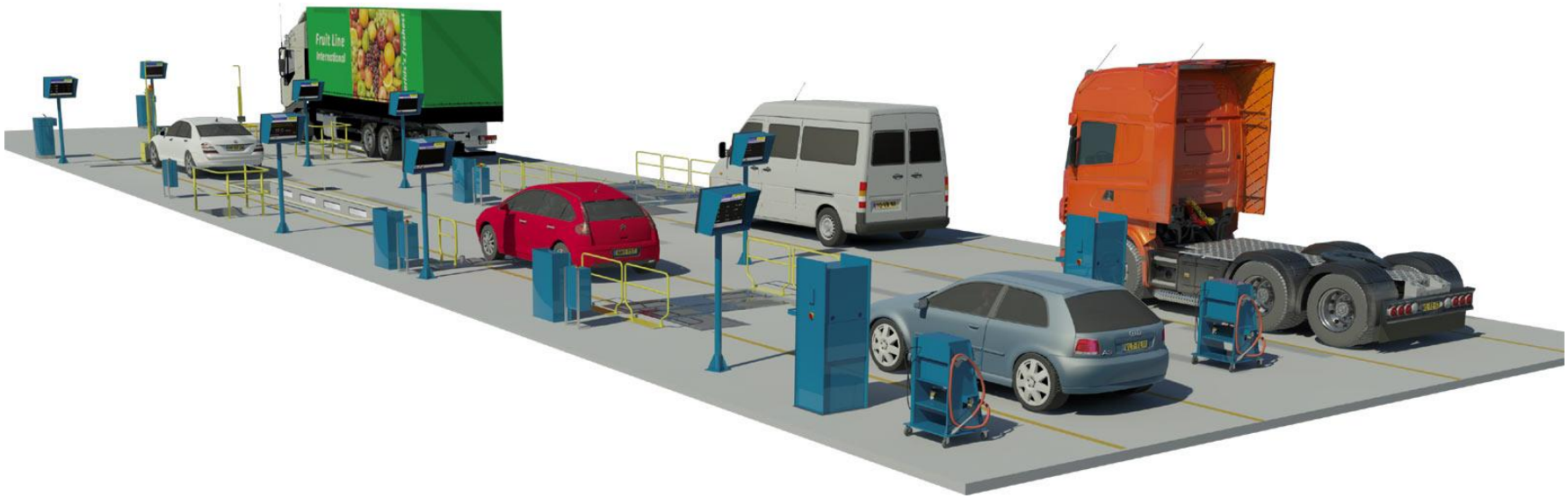
Van Leeuwen Test Systems B.V.
The Netherlands

V1.0

Applicable to large test stations …..

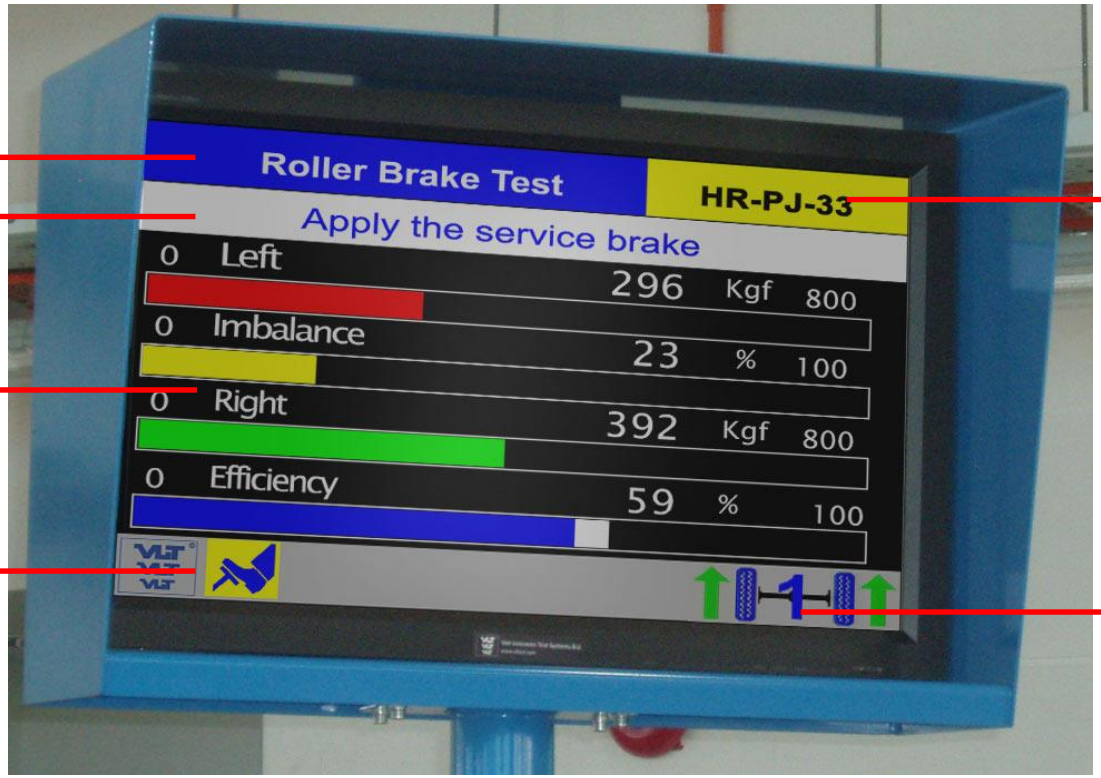
Improvement of the PTI

small and 1-lane test stations ……



and mobile test stations.

Information on overhead monitor



type of test

driver instructions

real-time measuring values

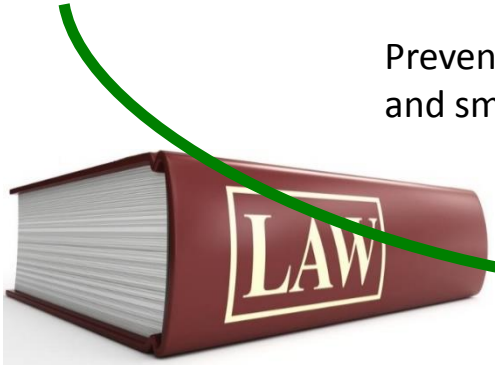
tests to perform

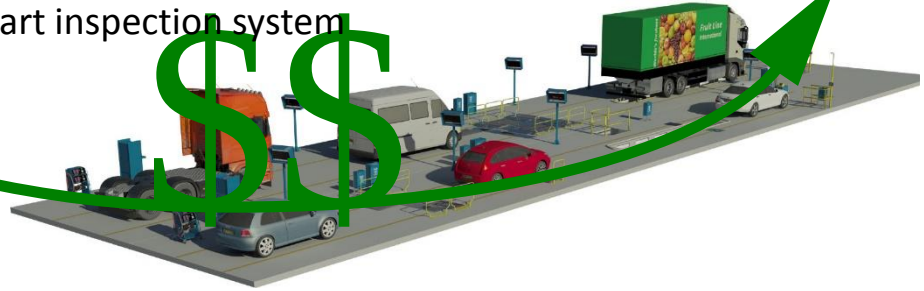
licence number

axle nr.

Bribery sensitive situation

Prevent by strict regulation
and smart inspection system





- Prevent contact between customer and vehicle examiner

waiting area

vehicle inspection area

- Alternatively assign vehicle examiner to random lane.
- System requires random compulsory re-inspections to be carried out by the manager.

Controlled access to parts of IT system

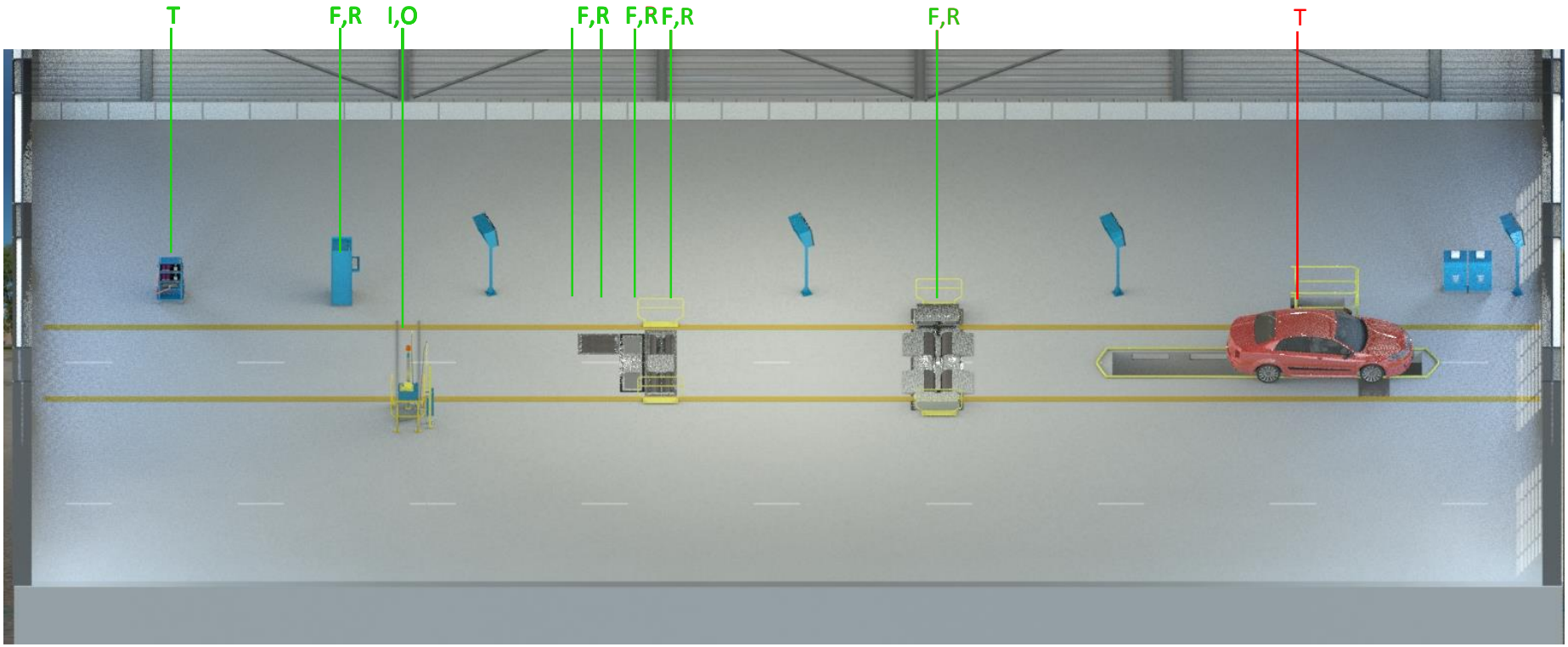
Permissions

Add permission

Permission name	Station overview	End of day summary	Inspector reporting	Statistics and graphics	Information equipment/calibration	Add equipment event	User access	Vehicle info
Administrator	v	v	v	v	v	v	v	v
Manager	v	v	v	v	v	x	x	v
Station Manager	v	v	v	v	v	x	x	v
Maintenance	x	x	x	x	v	v	x	x

Tracking system links the tests to the correct vehicle (axle)

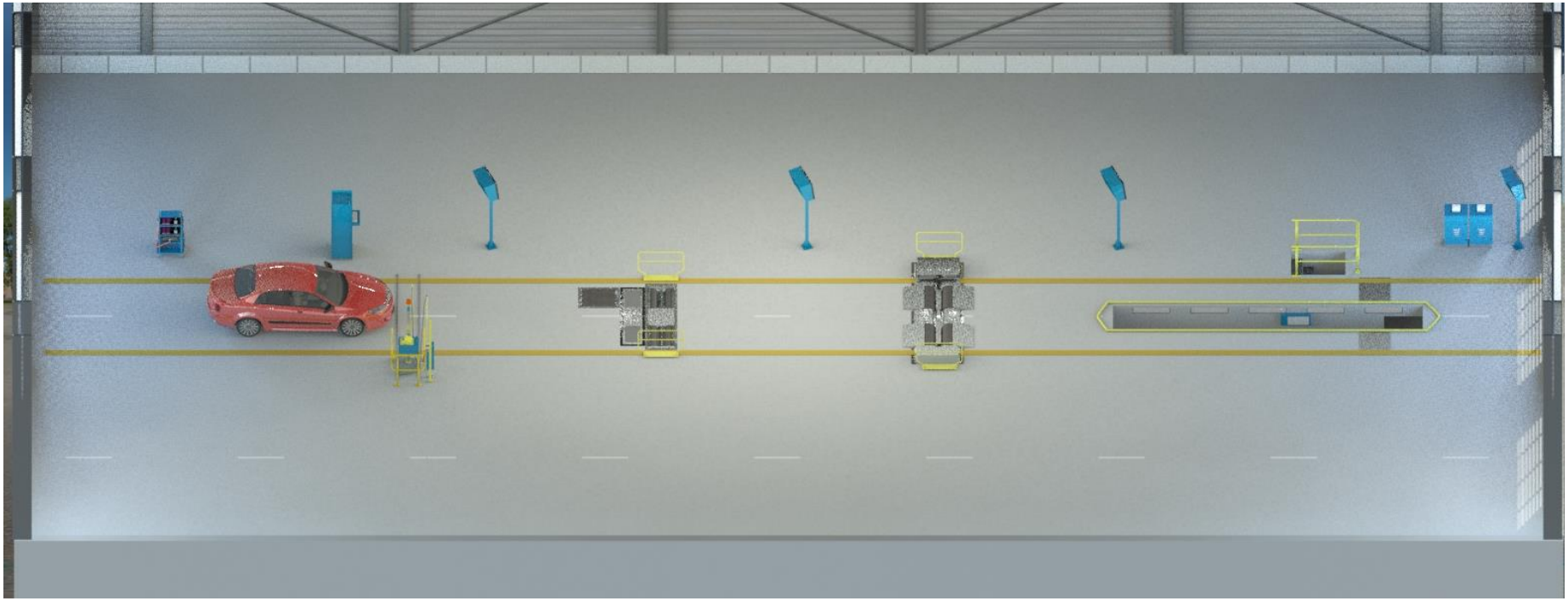
T = tracking
F = front axle
R = rear axle
I = in
O = out



Improvement of the PTI

Licence number check

Stage 1



Inspector identification with RFID tag

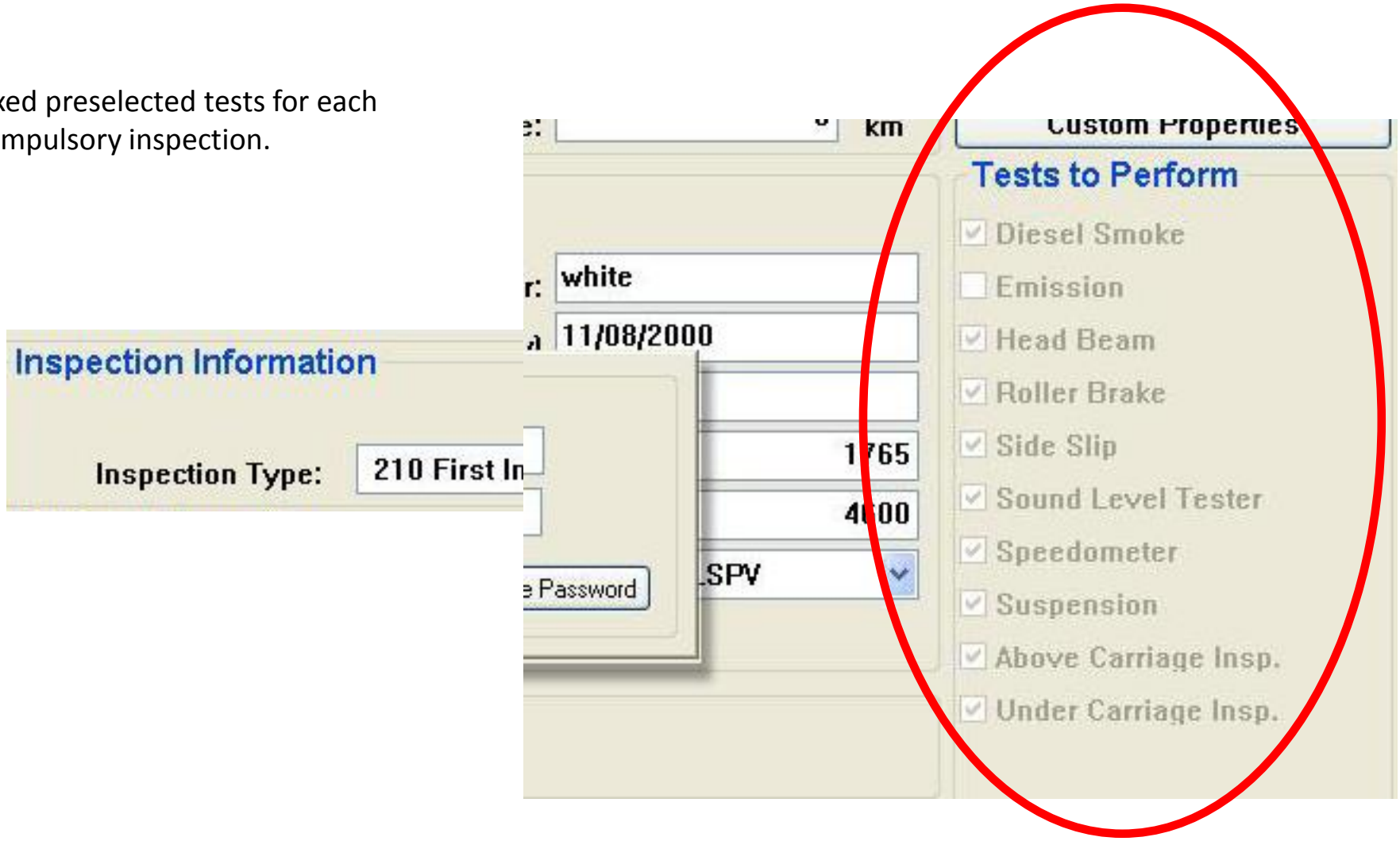
Inspector id stored with each test

RollerBrakeTest				
Test Result	Start Time	End Time	Lane	Performed by
Passed	17:41:12	17:42:36	406050	[redacted]

Measured Values							
Axle	Weight	Drag	Brake type	Left force	Right force	Efficiency	Diff - Prog
1	781	22,6%	Service	271	252	67%	F
			Serv Imbal.	265	242	-	8%
			Parking	0	0	-	-
2	766	45,8%	Service	214	208	55,1%	P
			Serv Imbal.	214	208	-	2%
			Parking	219	198	54,4%	10%

Irregularity alerts

Fixed preselected tests for each compulsory inspection.

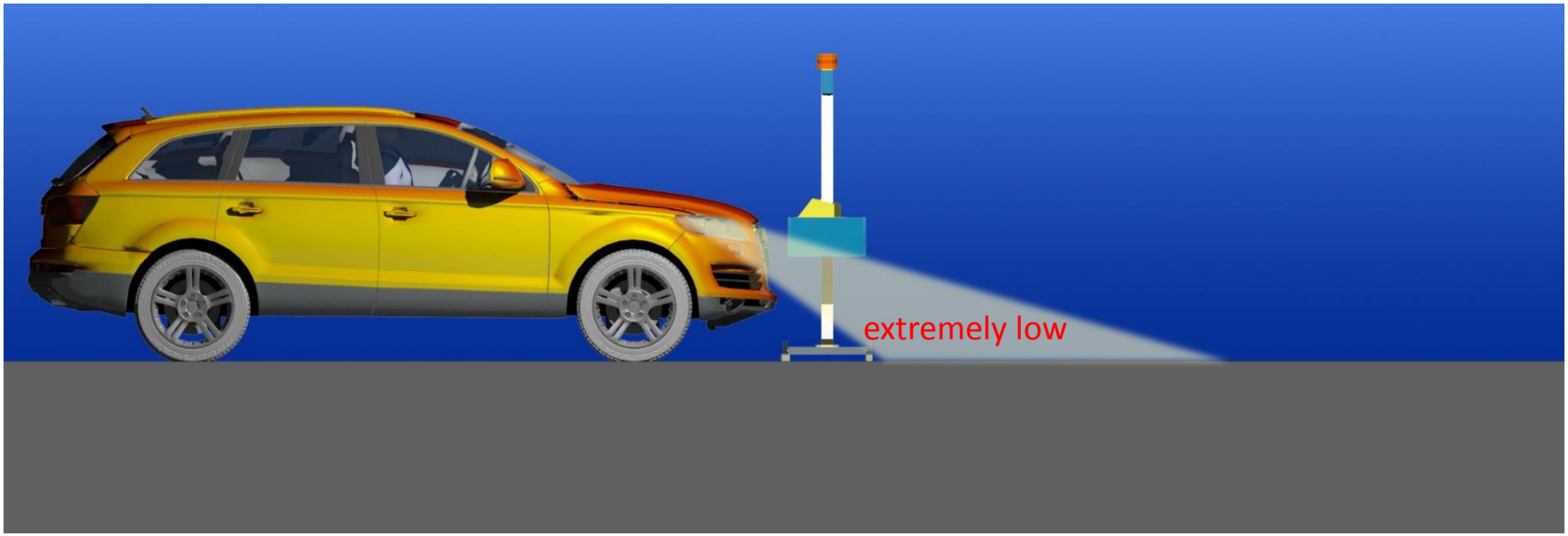


Improvement of the PTI

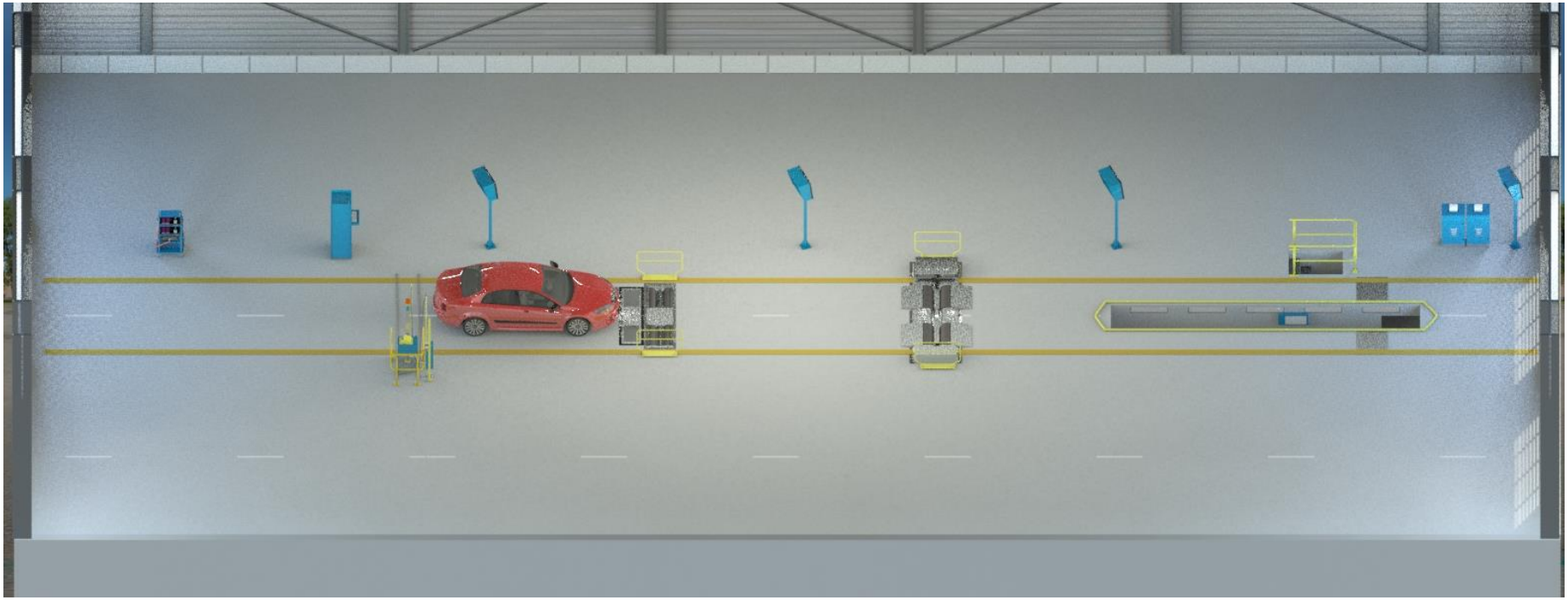
Robotised headlight beam tester with laser scanner to detect incorrect vehicle alignment

Movie clip

Comprehensive PTI standards



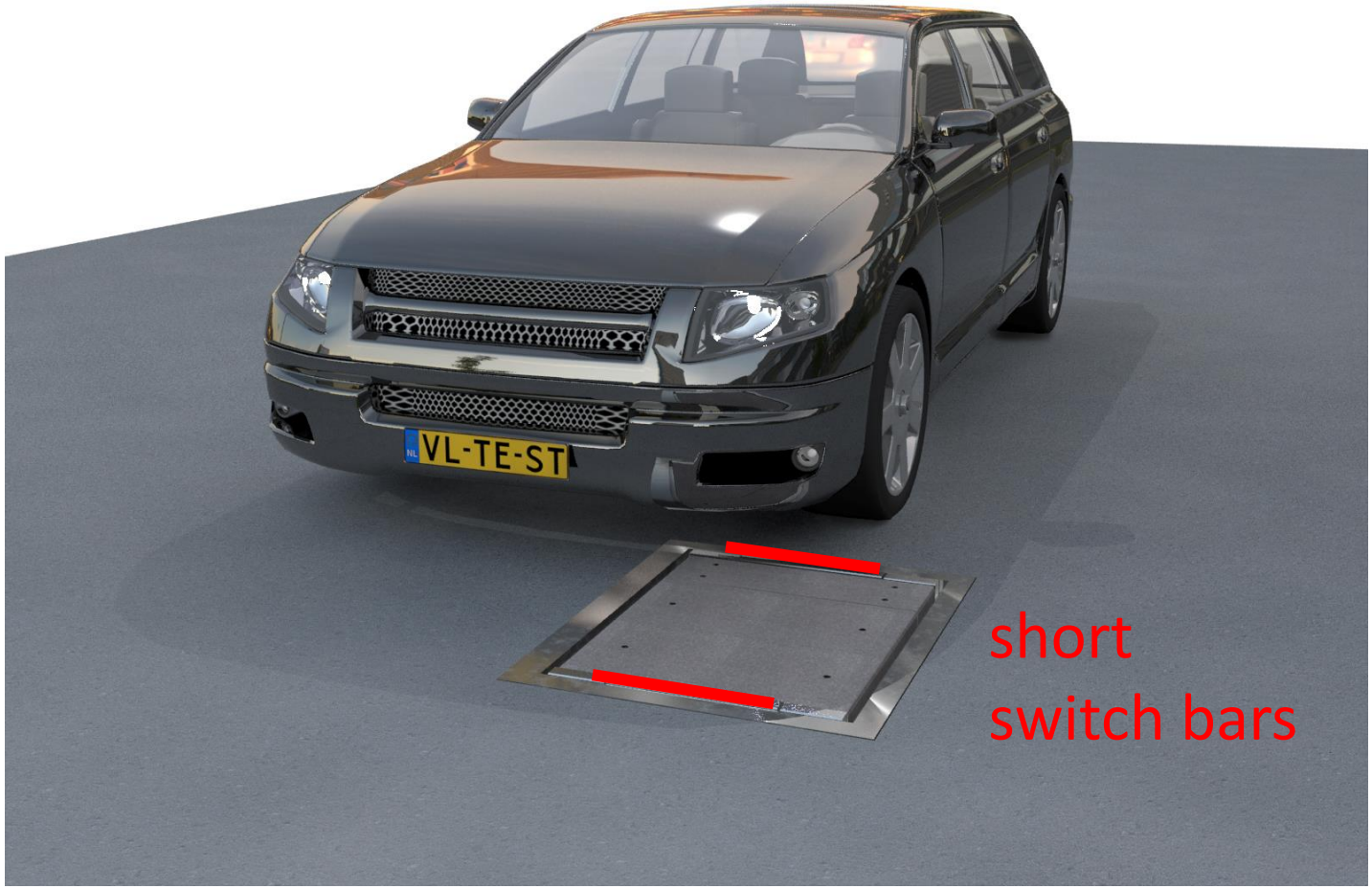
Stage 2



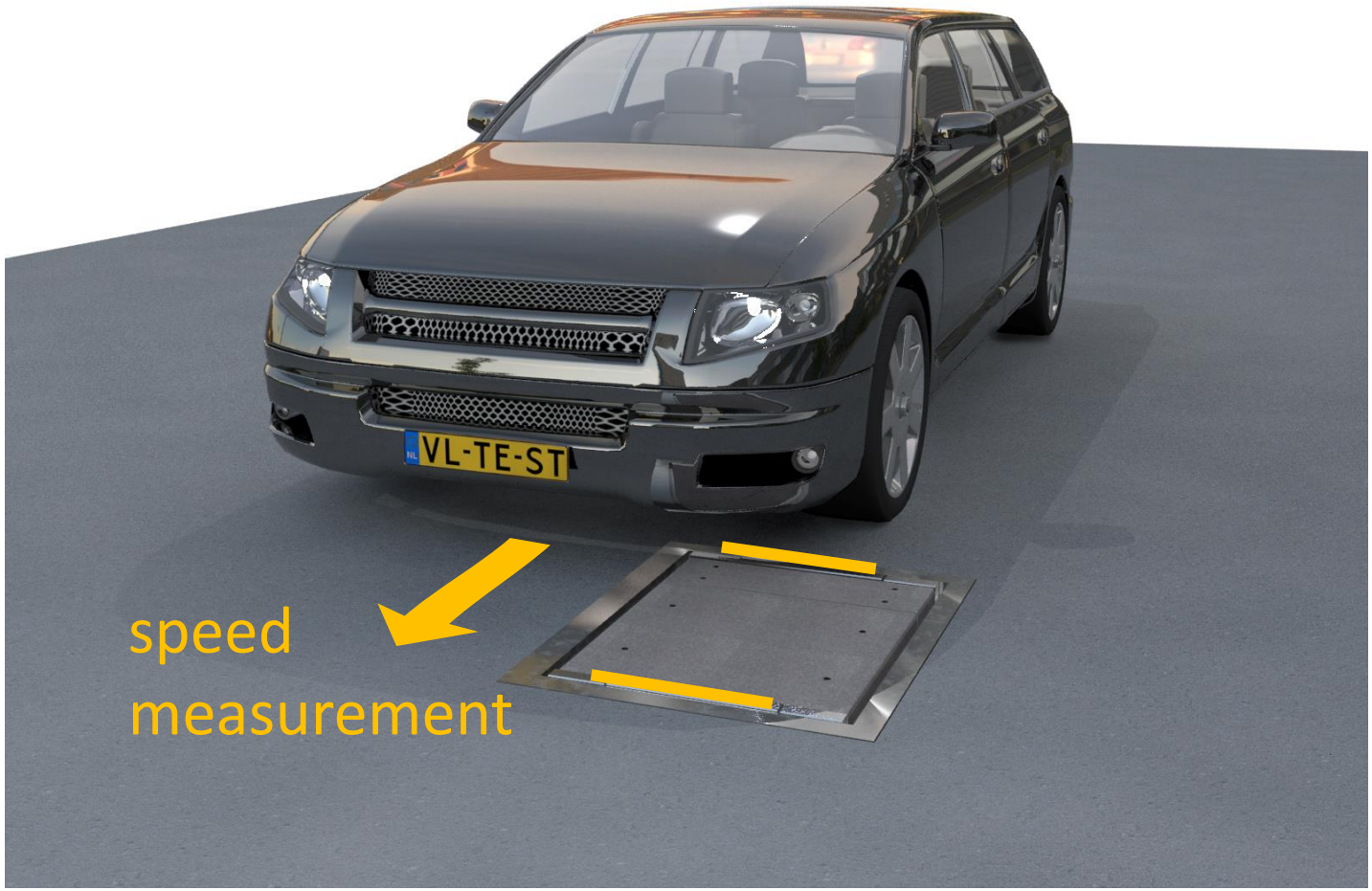
Side slip tester

Side slip tester

Side slip tester

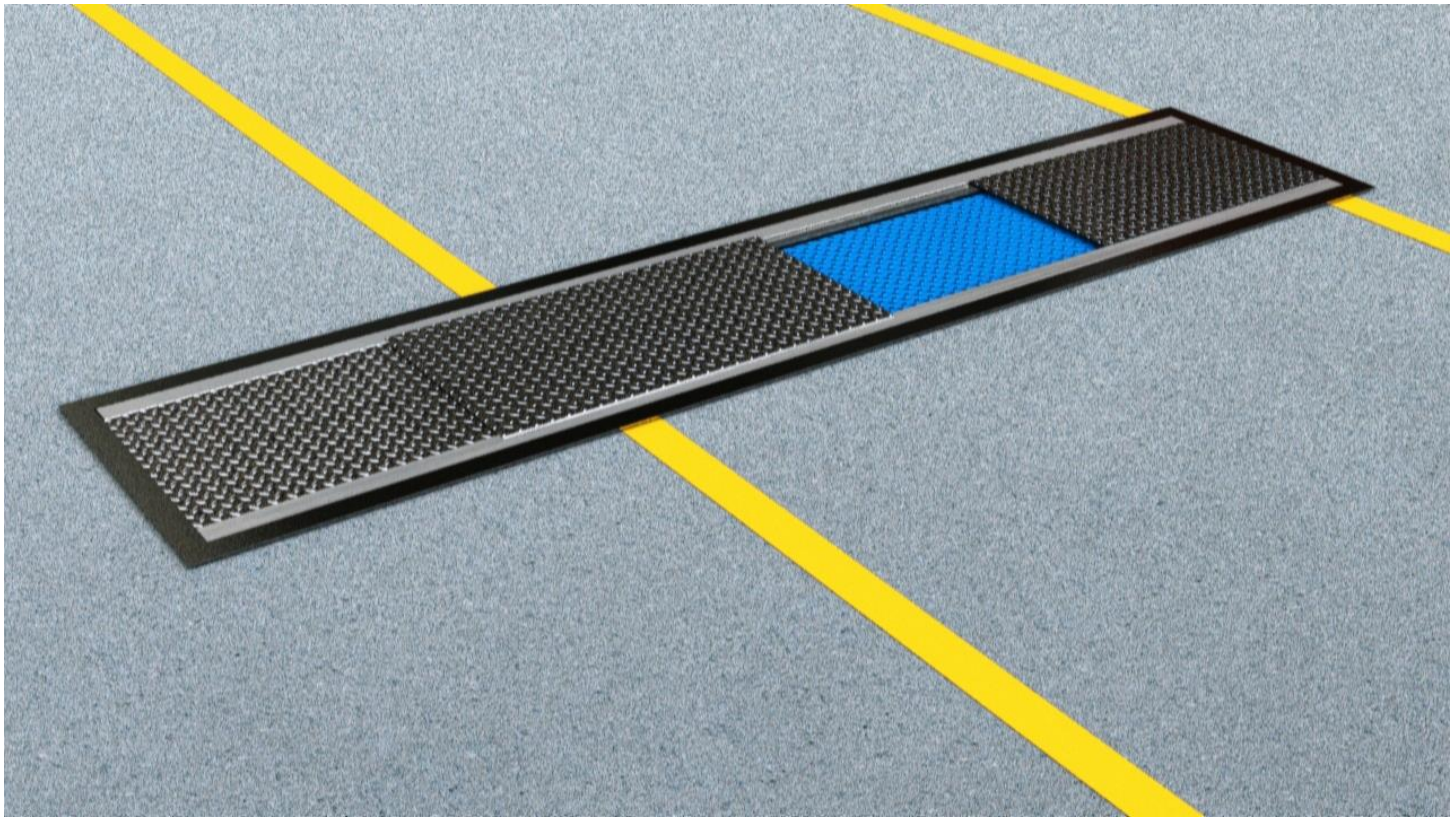


Side slip tester



Tracking system controlled cover plates

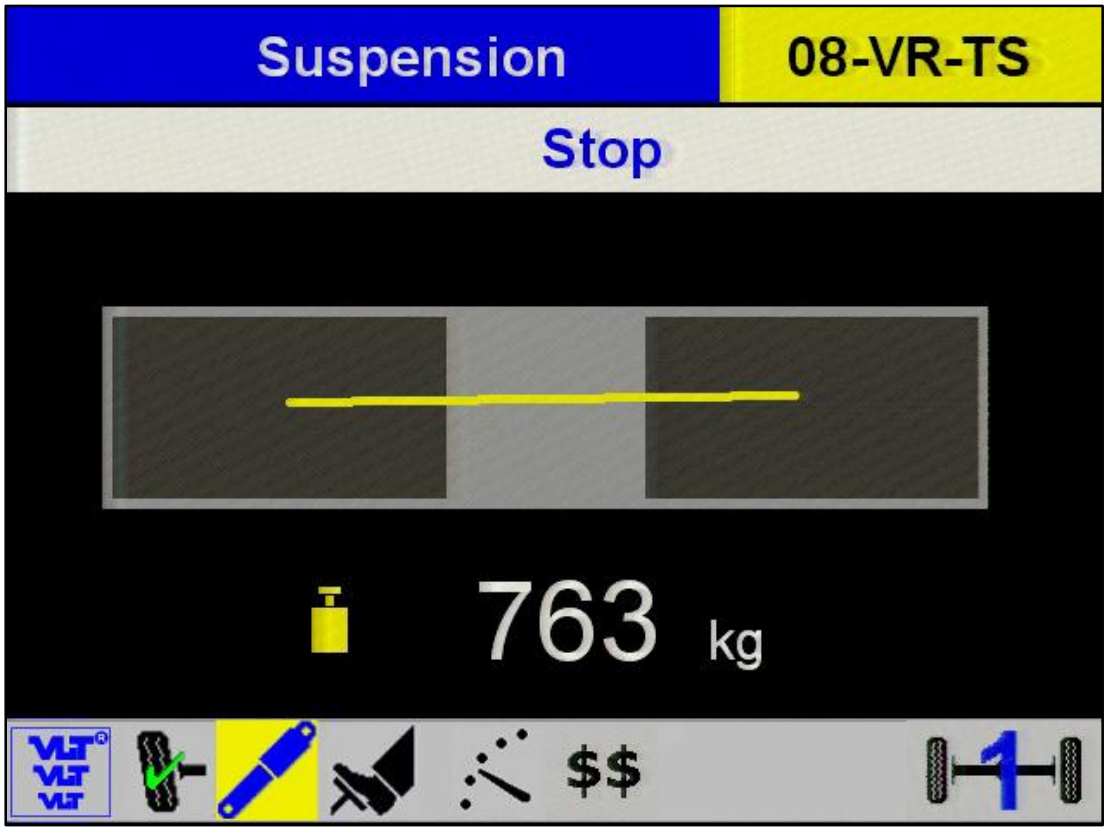
Movie clip



Improvement of the PTI

Misalignment

Axle position indication

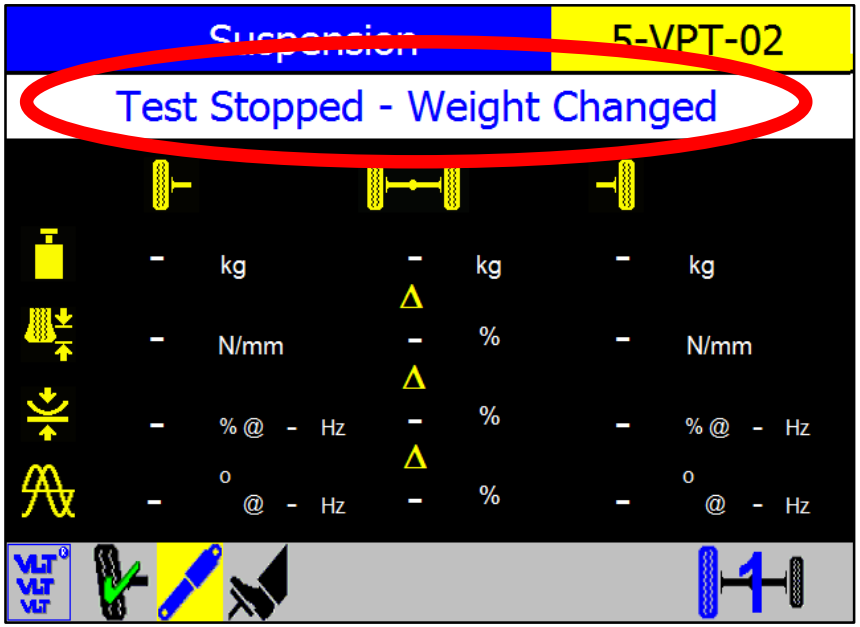


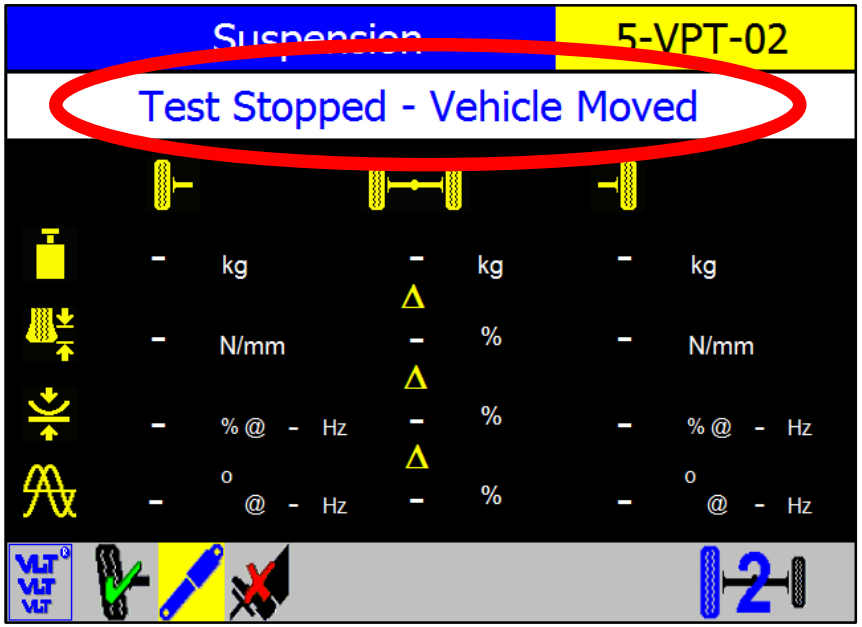
Wheel position check

allowed wheel position area

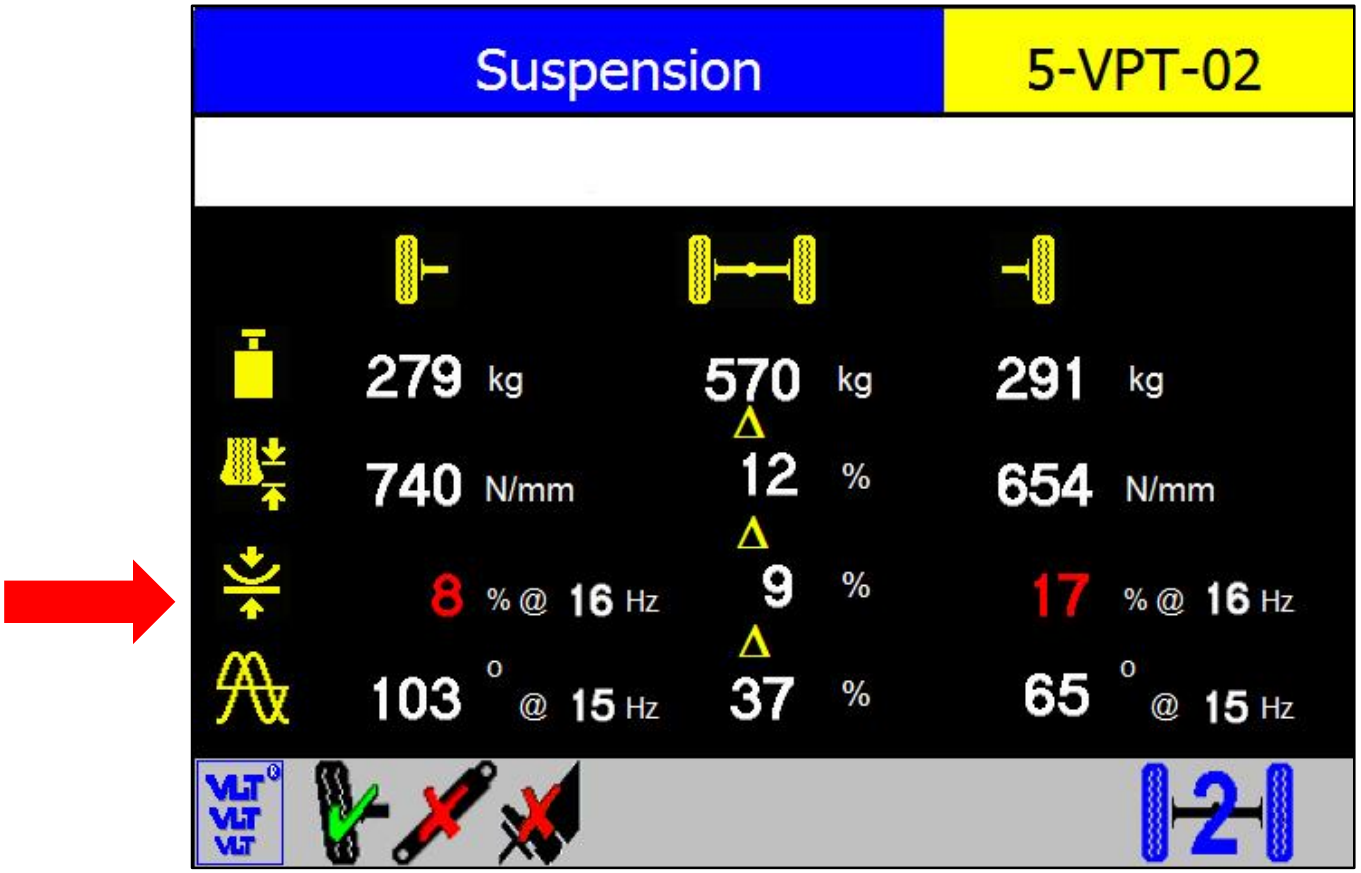
weight load cell

Weight and position change check during suspension test



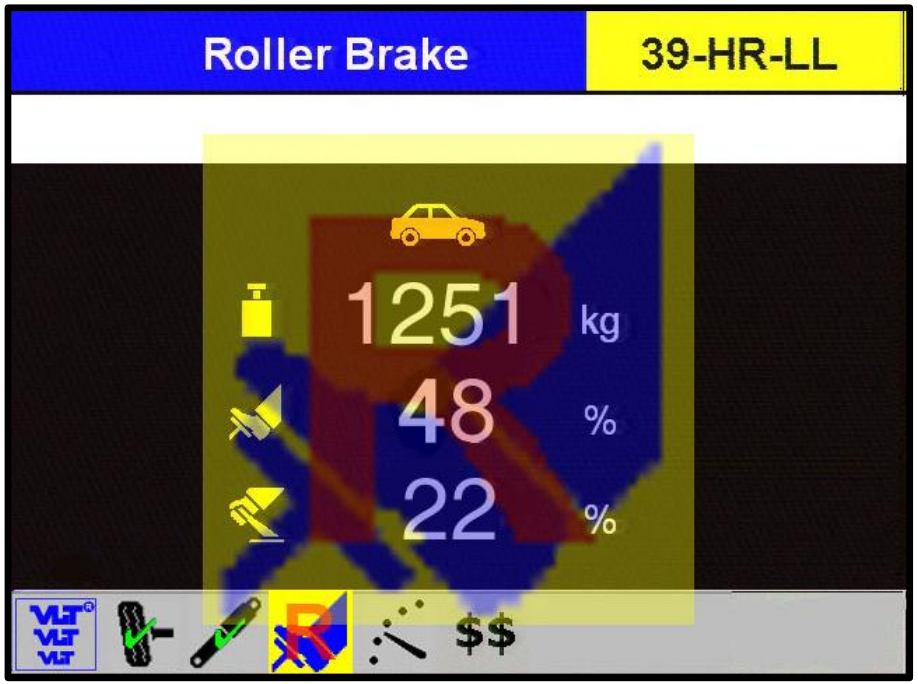


Judgment against absolute values, so not only a left/right comparison



‘Safety’ barriers around brake tester

Automatic triggering of re-test

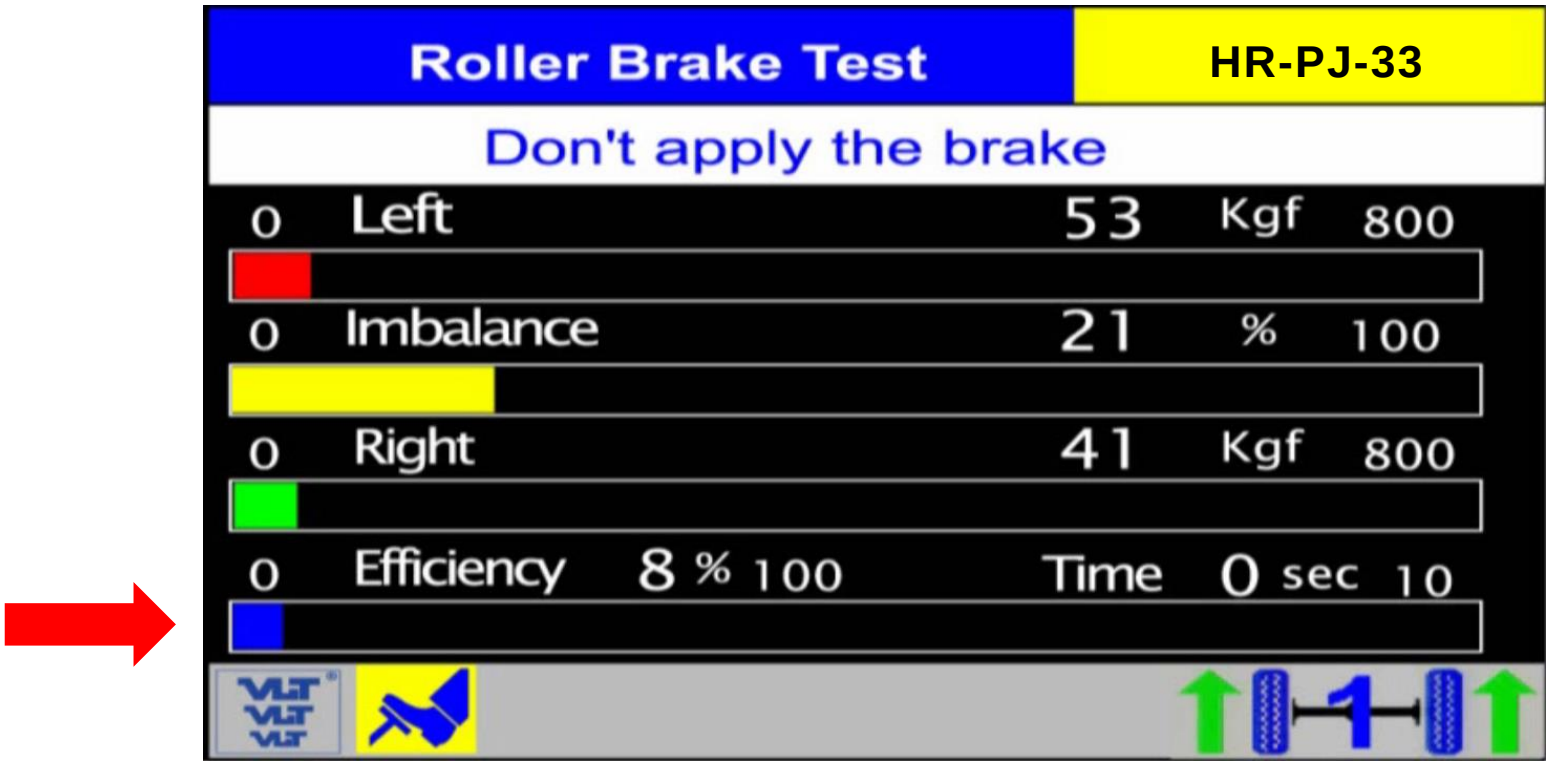


In this example: requirement = 50%

Compulsory re-test

Progressivity check to detect slamming on the brake.

Movie clip

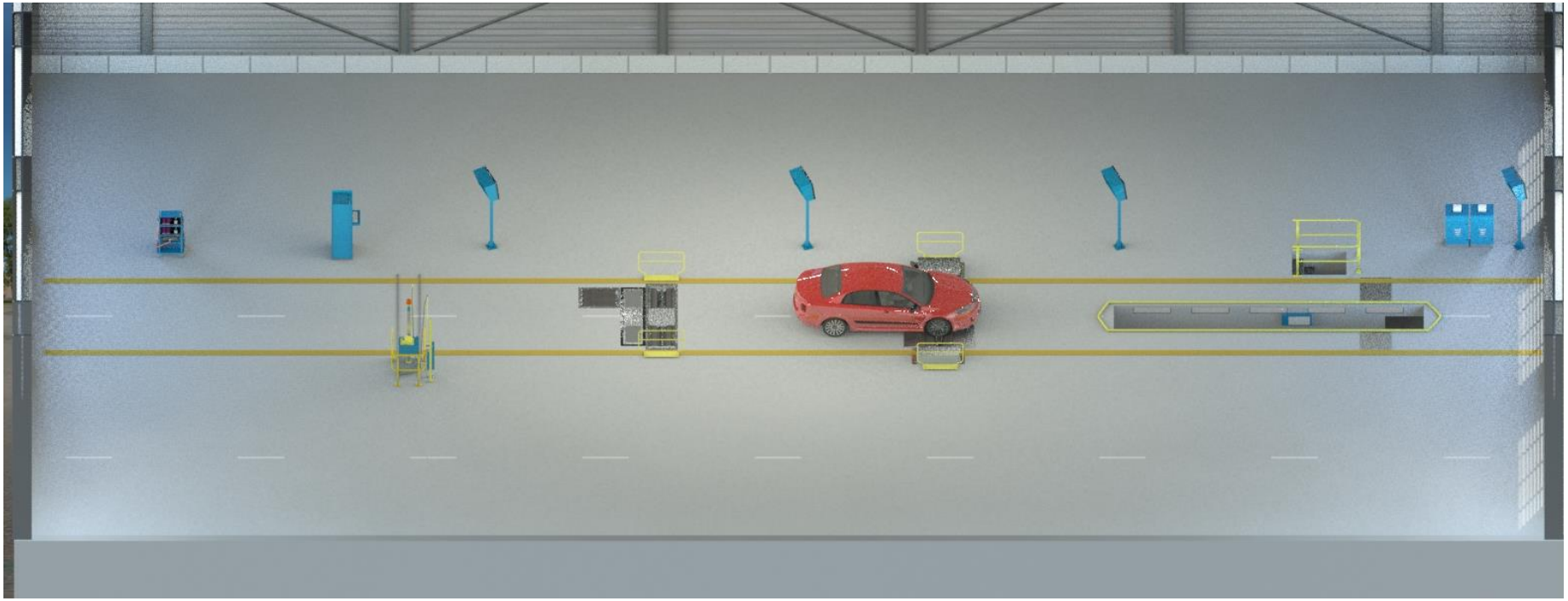


Use of emergency stop detection

Use of emergency stop detection

power cut + software trigger

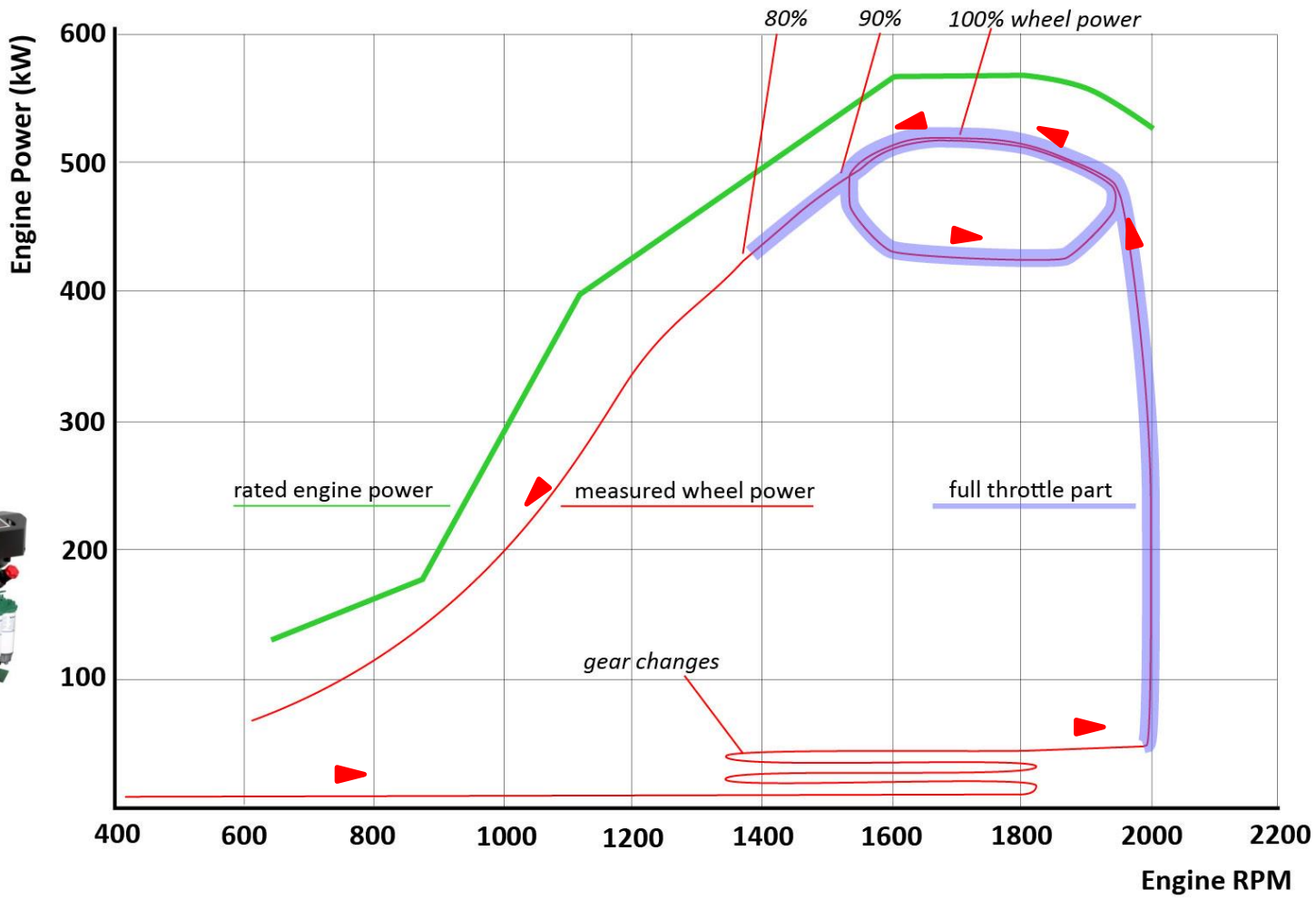
Stage 3



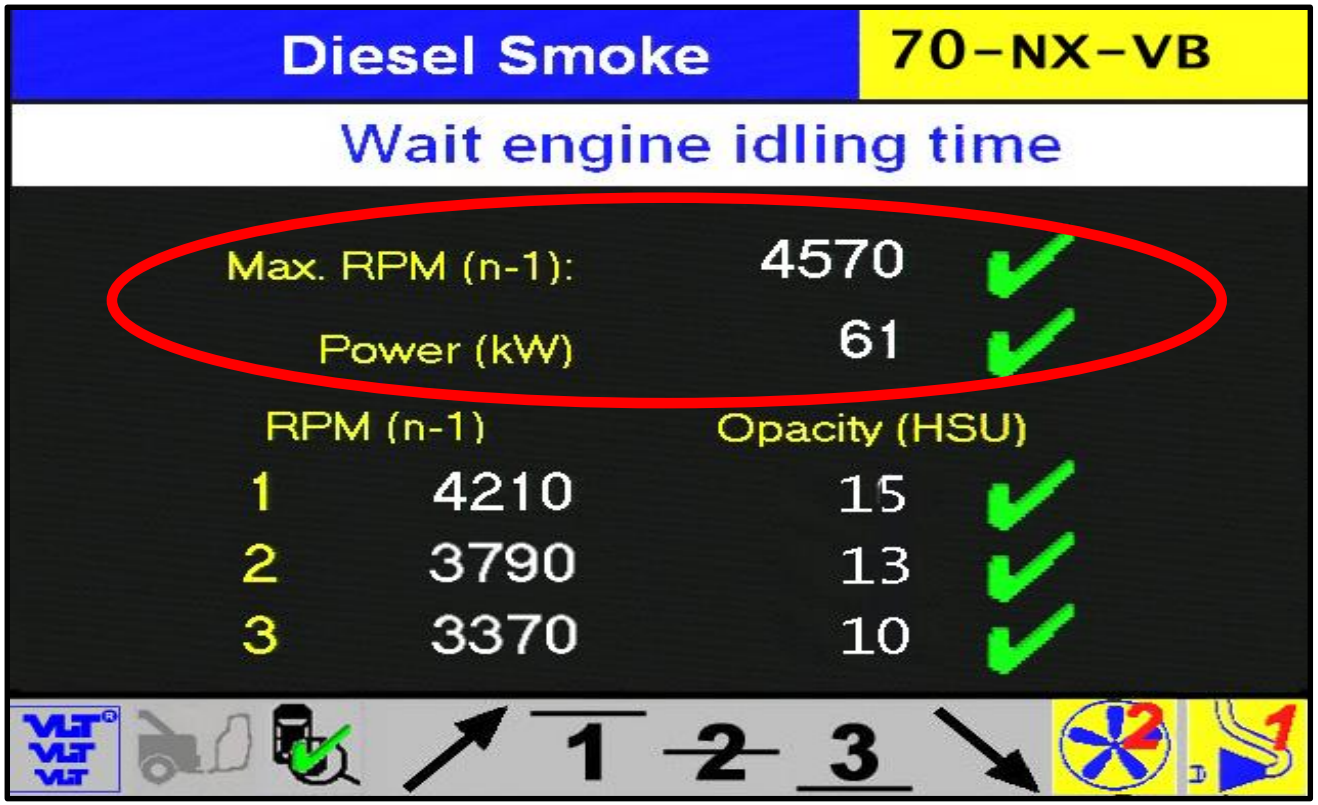
Stage 3, diesel smoke test under full load with CDST

Improvement of the PTI

Controlled
test cycle on CDST

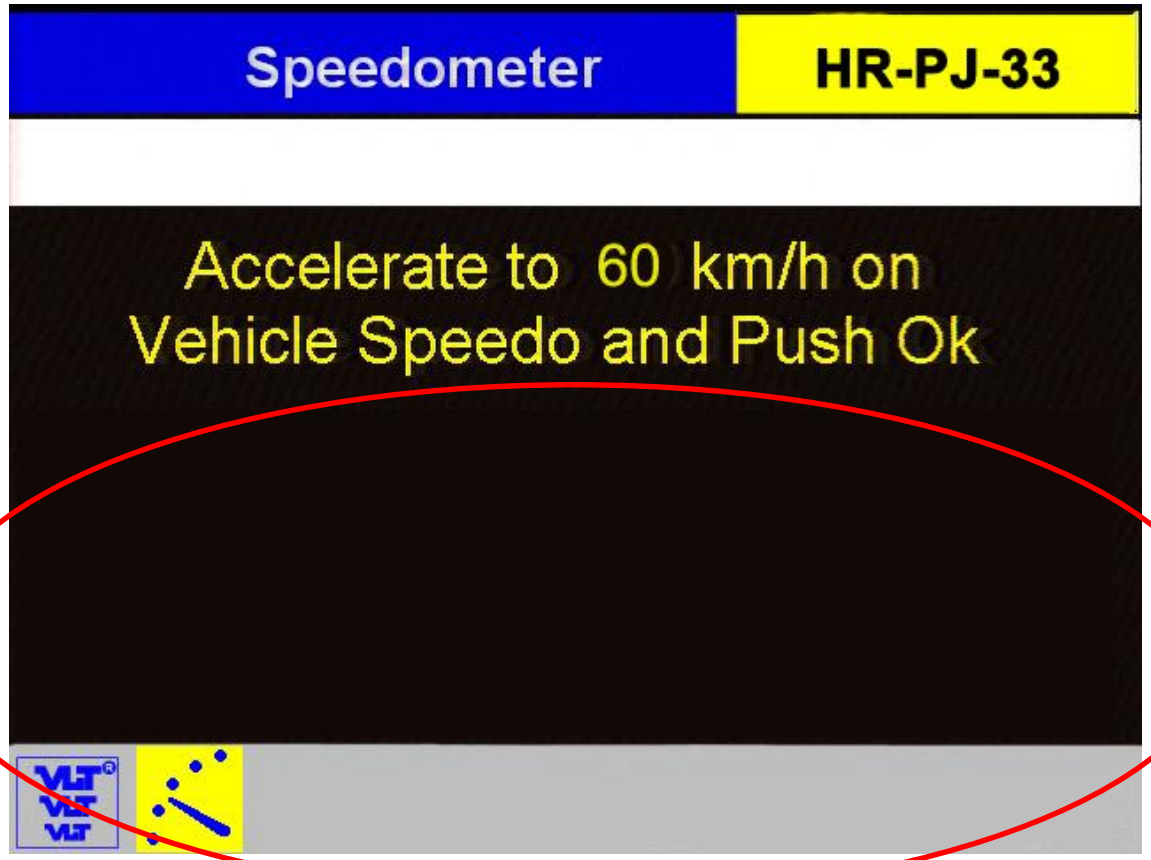


Checks on engine rpm and power



Speedometer test on CDST

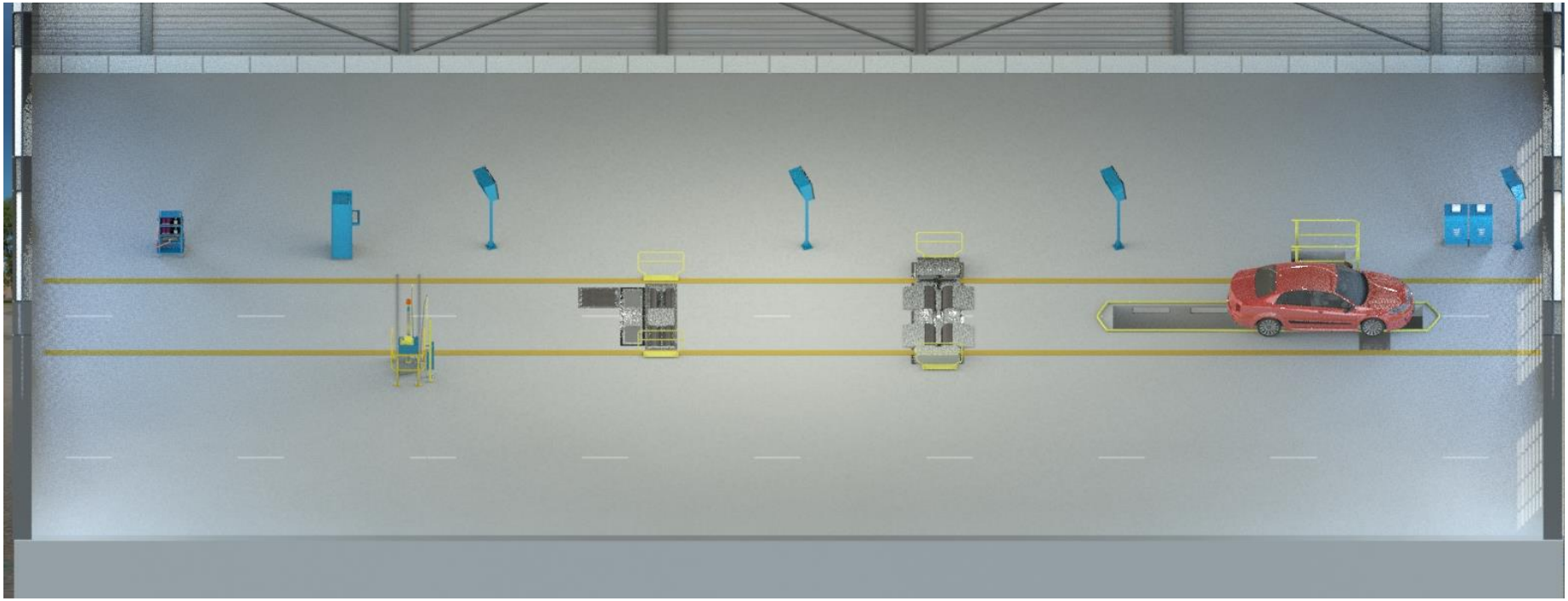
No actual speed indication
at speedometer test



Improvement of the PTI

Aircon-test: not only temperature, but also air flow measurement

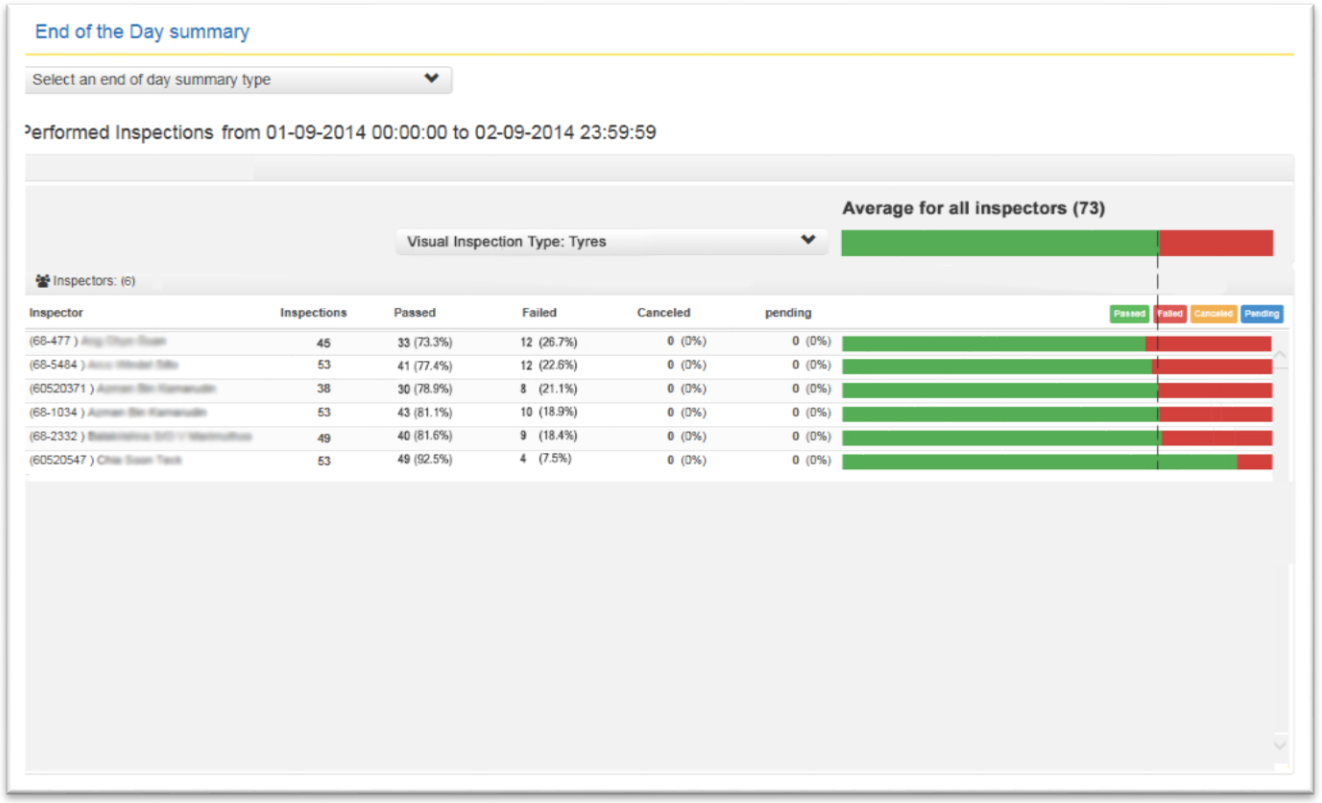
Stage 4



Inspector identification with RFID tag

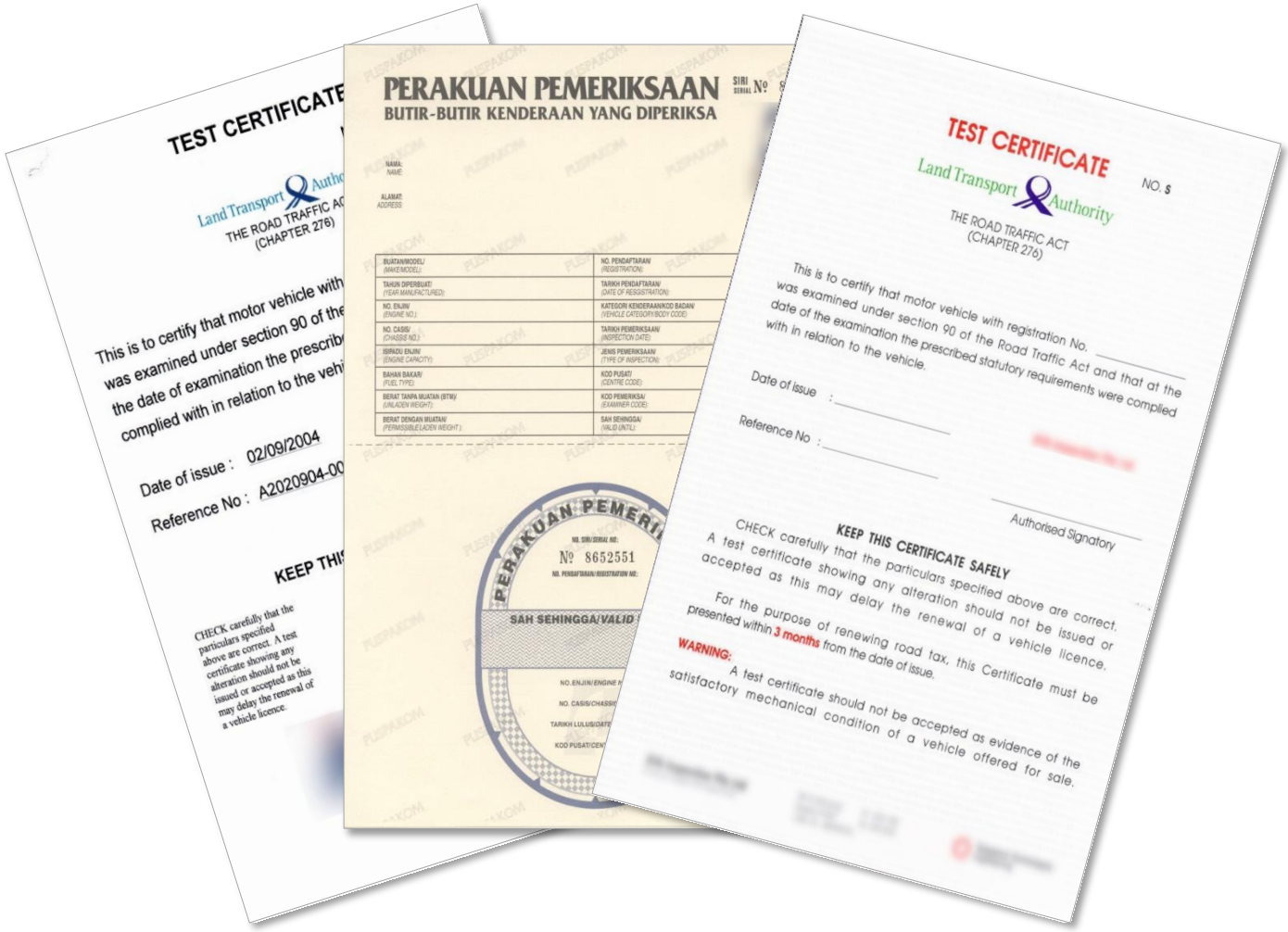
Improvement of the PTI

Comparison of test results between inspectors



Improvement of the PTI

Test lane output
fraud sensitive documents



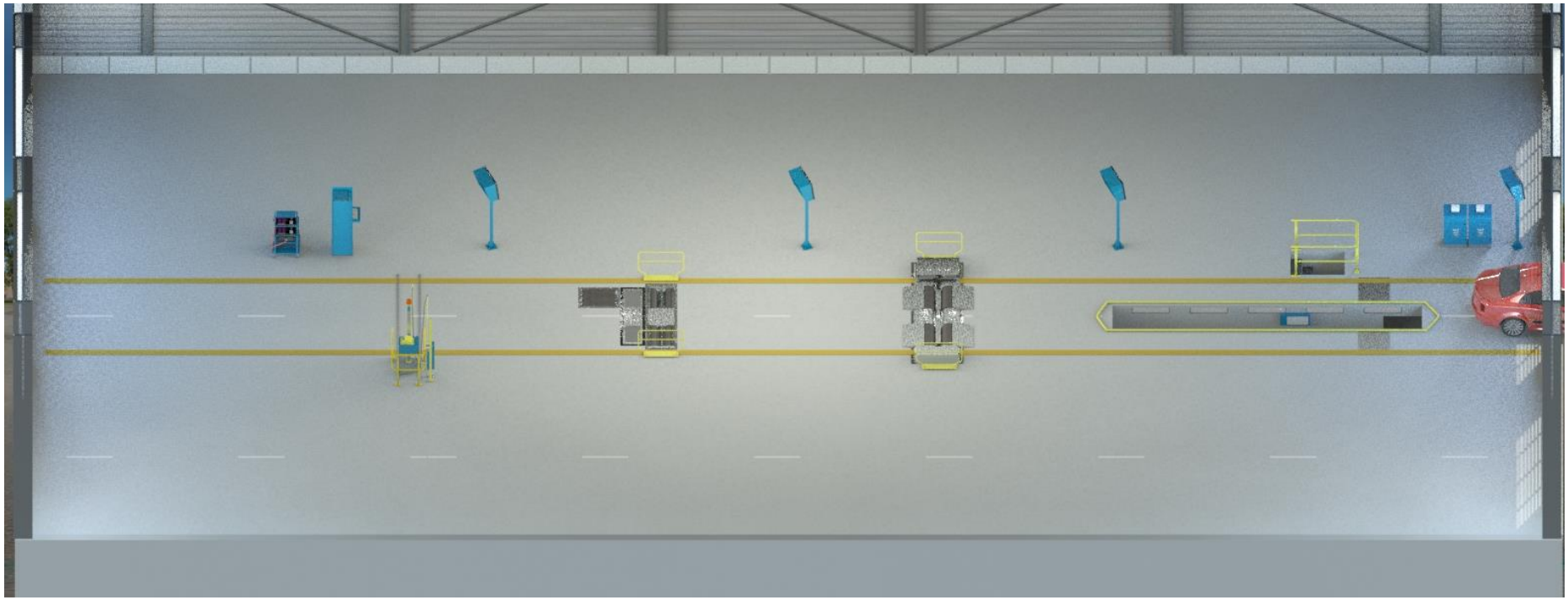
Improvement of the PTI

Lockable printer cabinet

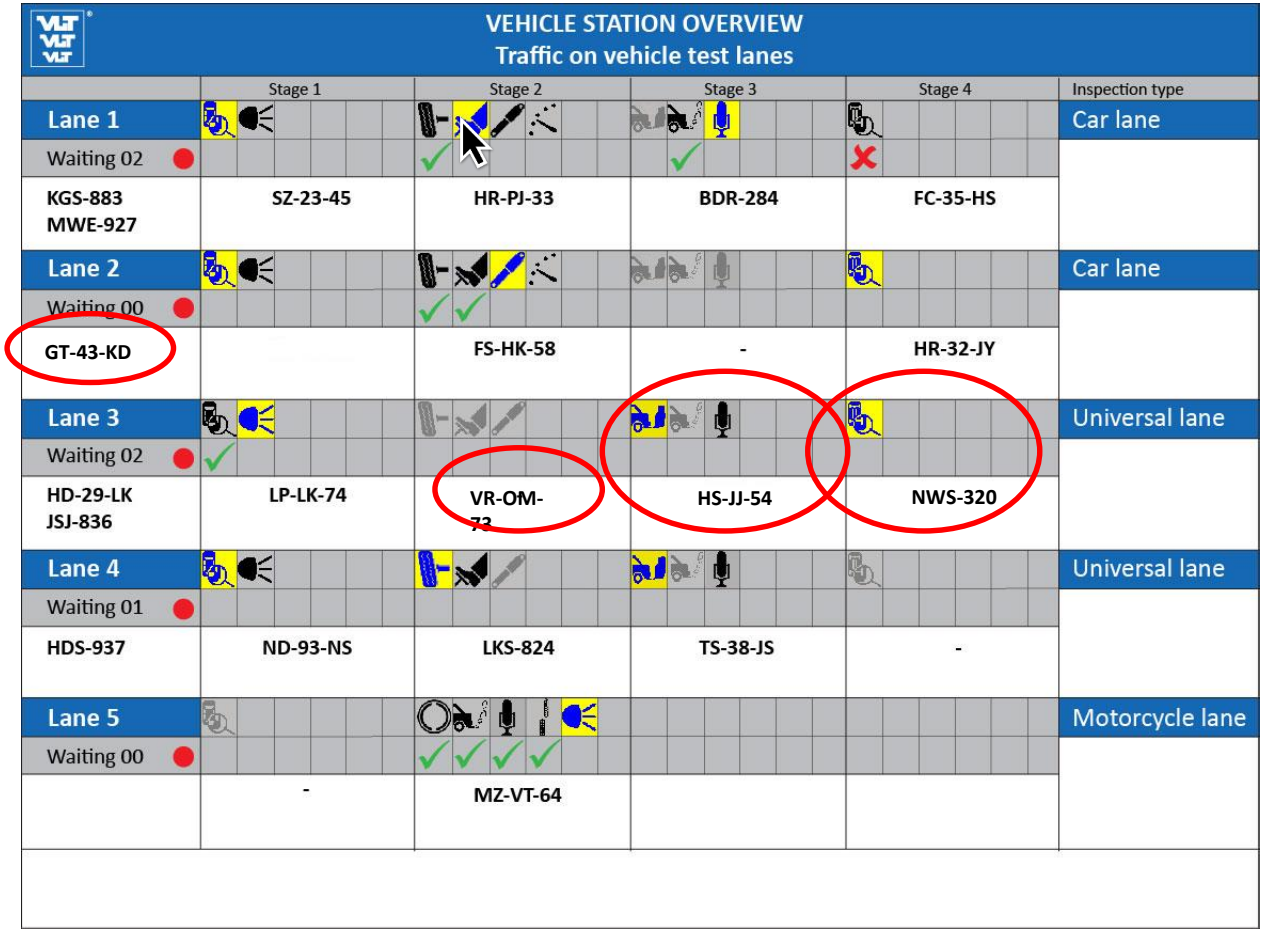
test certificates

test reports

End of inspection



Station overview screen
for station manager



Station overview screen with real-time test lane overview screen

Thank you for your attention.

Please feel free to contact us for detailed information.

Van Leeuwen Test Systems B.V.

Nieuwe Donk 18,
4879 AC Etten-Leur, The Netherlands
Tel. +31(0)76 502 9911, Fax +31(0)76 501 6731
E-mail: sales@vltest.com

Workshop C2

Presentation 4

Confirming Safety of Electric and Hybrid Electric Vehicles

Hannes Bloder

AVL DiTEST, Austria

Workshop C2

Presentation 5

DIGITAL PTI (PTI 2.0) – INNOVATIVE APPROACH

Antonio Multari

Technical Expert Emissions at CITA and Vice Chairman of WG Diagnostics & Emissions at ASA and Sales Director Export, MAHA, Germany

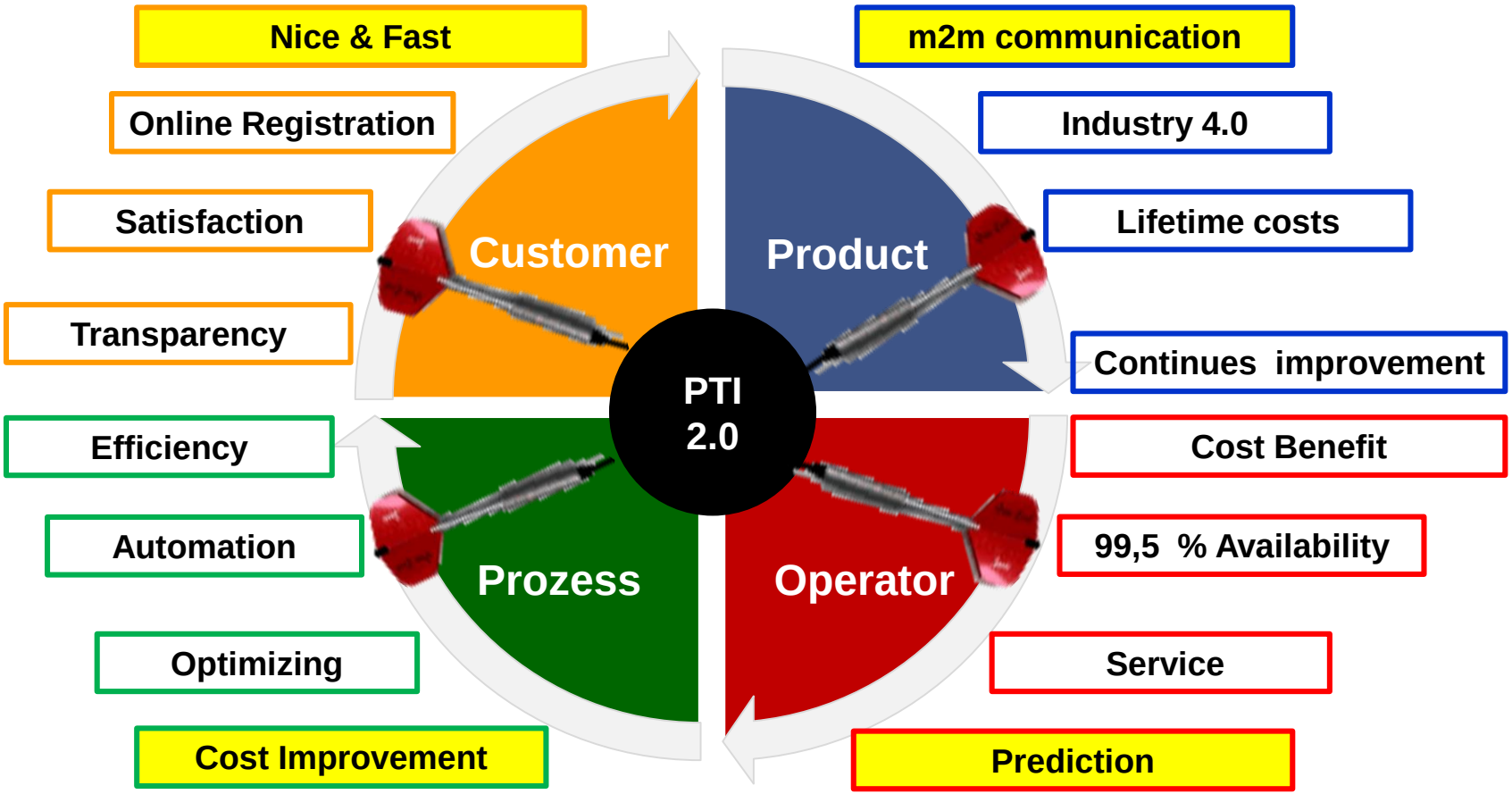
Inspection Procedures and Methods

Digital PTI (PTI 2.0) - Innovative Approach

**By Antonio Multari, Technical Expert Emissions at CITA
and Vice Chairman of WG Diagnostic & Emissions at ASA
and Sales Director Export at MAHA**

Digital PTI (PTI 2.0) - Innovative Approach

Digital PTI (PTI 2.0) - Innovative Approach

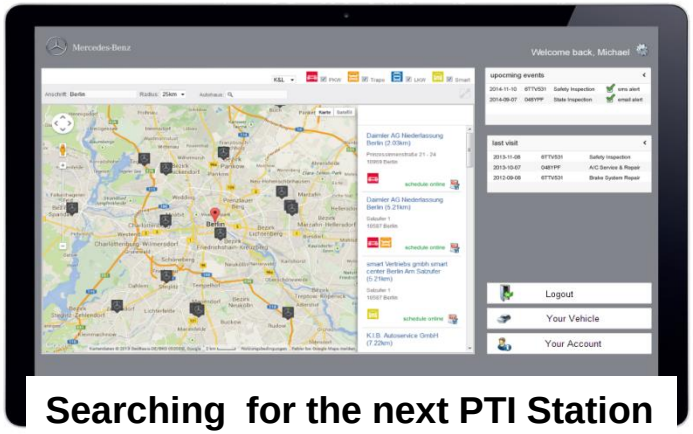


Digital PTI (PTI 2.0) - Innovative Approach

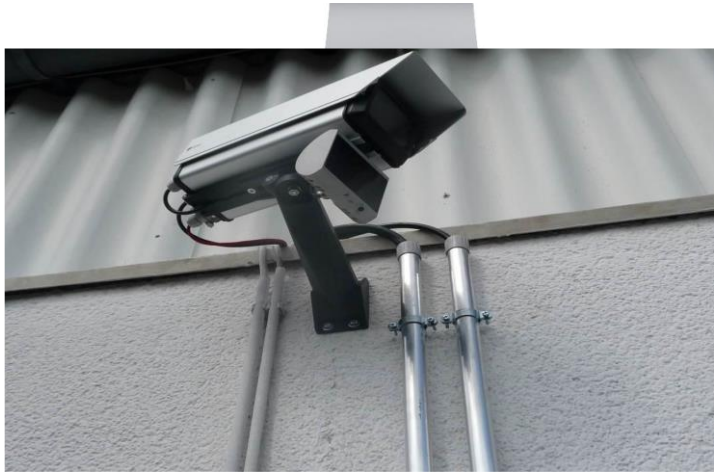
1. **Vehicle identification (e.g. online registration, license plate reading, RFID,…**
2. **Tire depth measurement**
3. **Body scan**
4. **OBD**
5. **Online data evaluation (e.g. tire-rim combination)**
6. **Visualization via tablet, smartphone, …**
7. **Paperless documentation**
8. **Prediction of results**

Digital PTI (PTI 2.0) - Innovative Approach

1. Vehicle identification (e.g. online registration, license plate reading, RFID,…



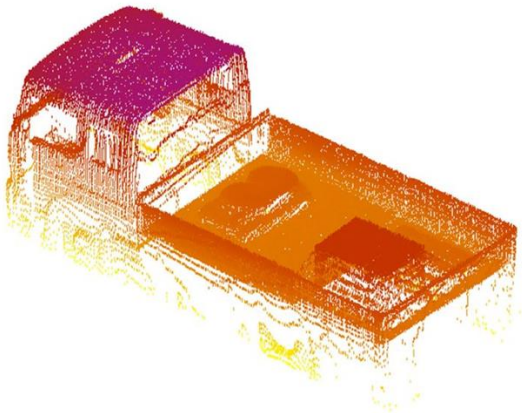
Searching for the next PTI Station

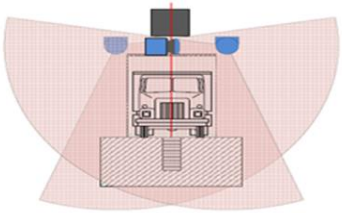


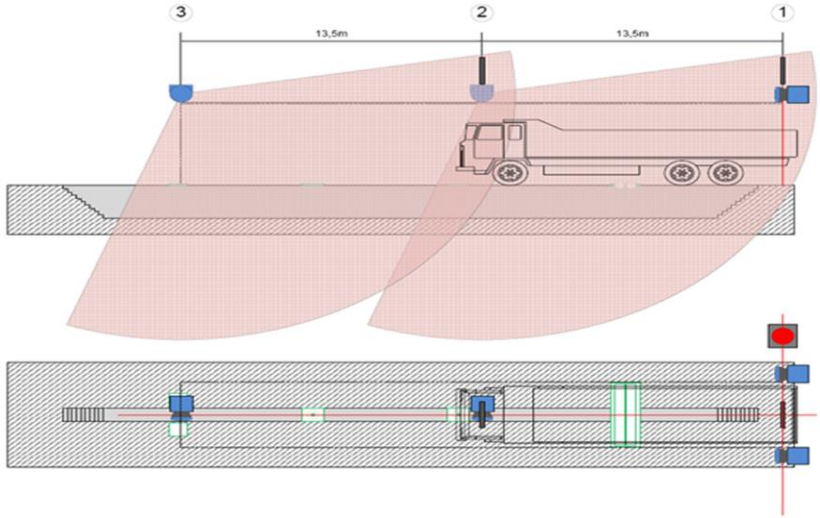
2. Tire depth measurement

3. Body scan


Messwerte Fahrzeugkonturvermessung
Länge 18750 [mm]
Breite 2990 [mm]
Höhe 3930 [mm]

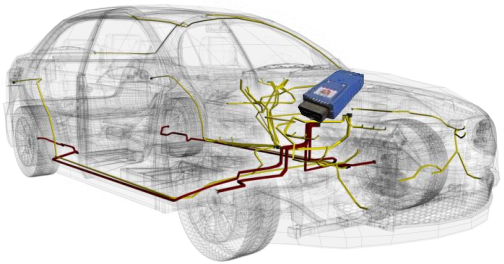


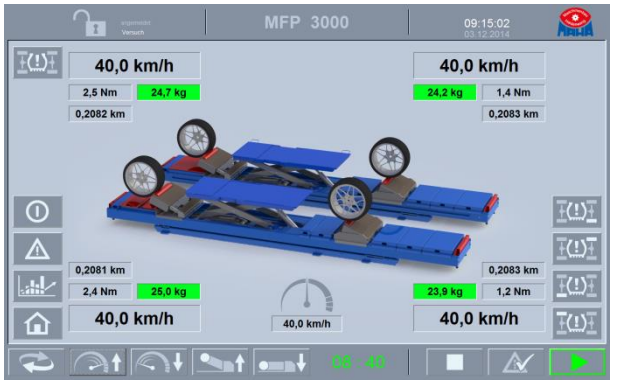


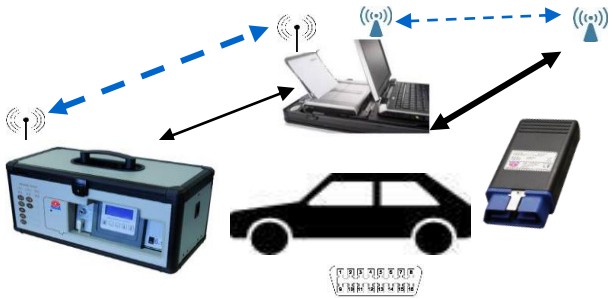

3
2
1
13,5m
13,5m

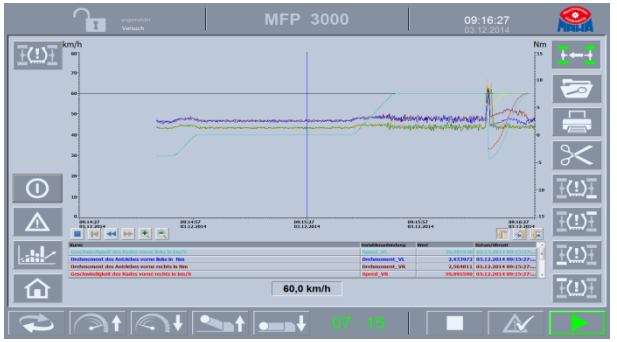
Digital PTI (PTI 2.0) - Innovative Approach

4. ECSS (OBD PTI Tool)



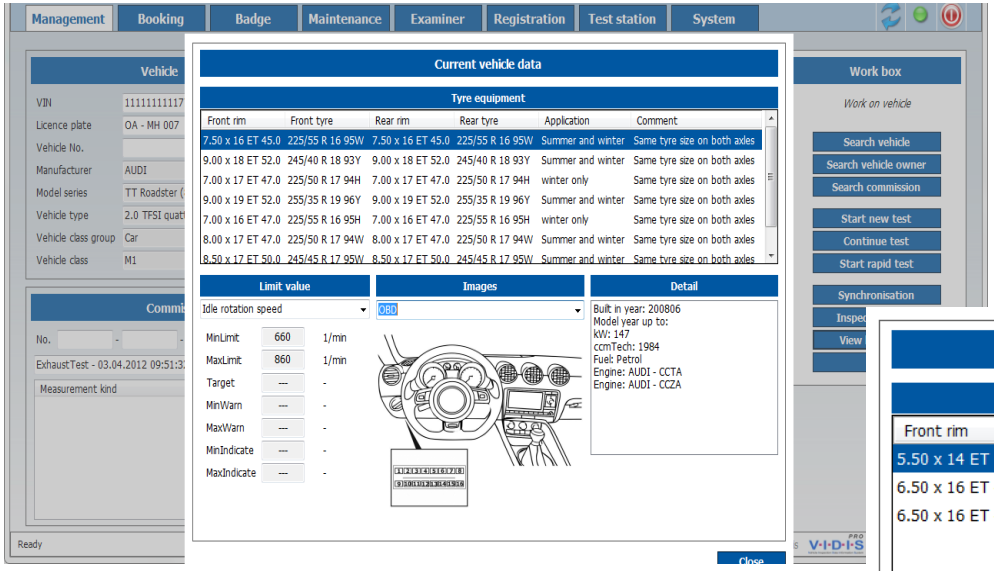


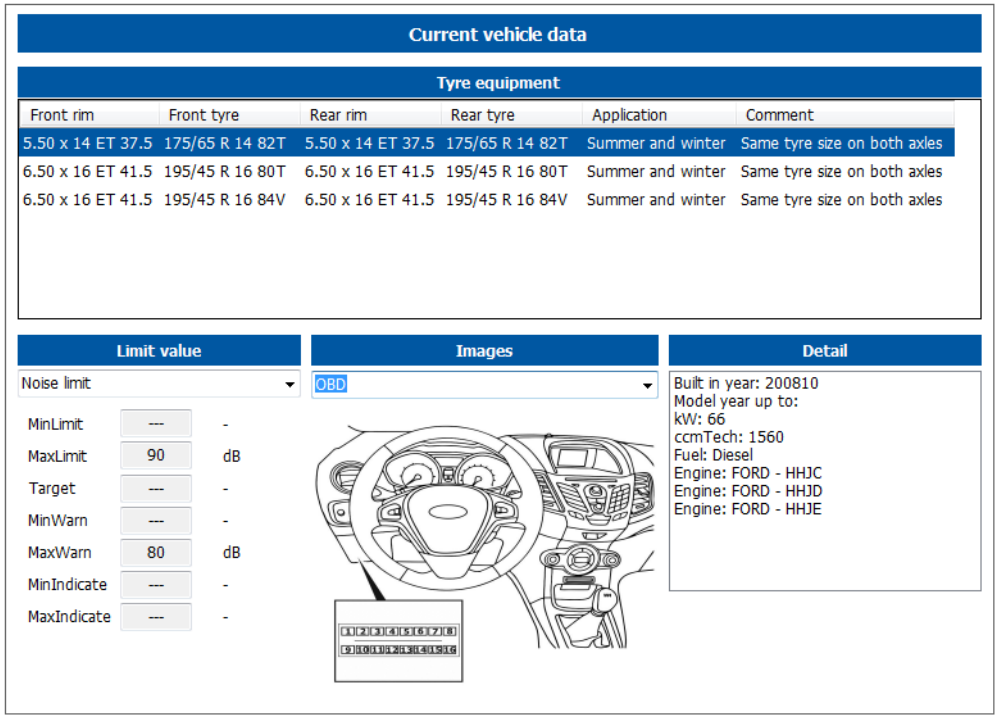




Digital PTI (PTI 2.0) - Innovative Approach

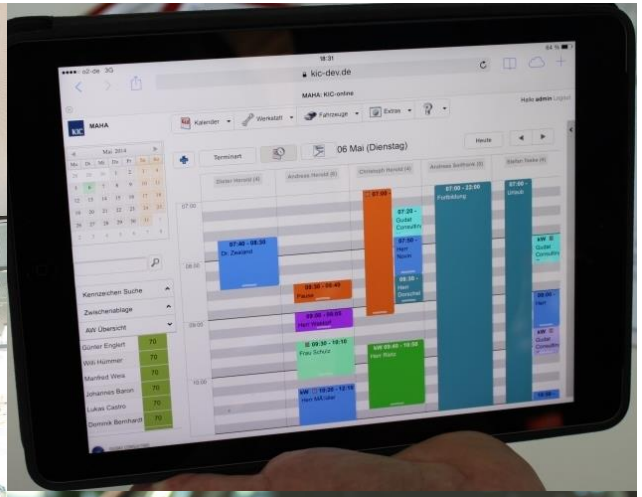
5. Online data evaluation (e.g. tire-rim combination)

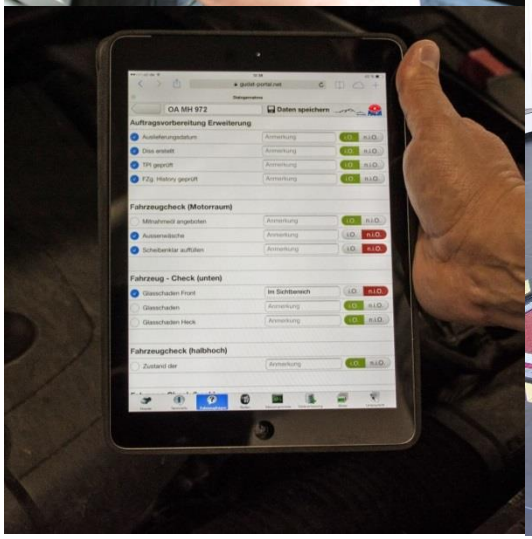


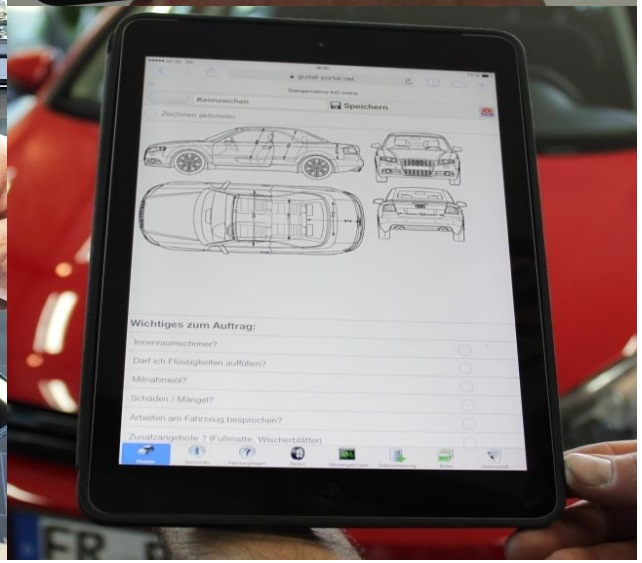


6. Visualization via tablet, smartphone,

7. Paperless documentation







8. Prediction of results

A

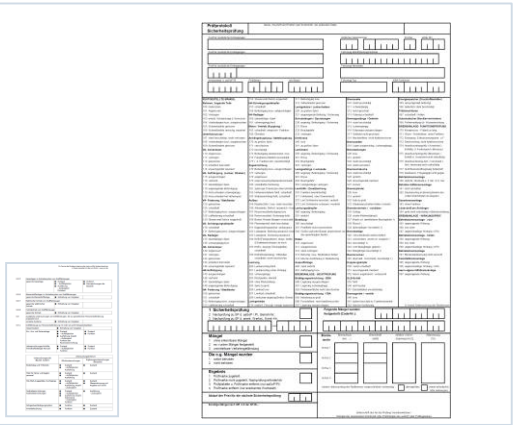
Vehicle Specific Data

Angaben zur Erstellung einer Fahrleistungsstatistik

8.4.1.1	Zur Erstellung einer Fahrleistungsstatistik für Deutschland übermittelt die Zentrale Stelle die bei den HU festgestellten und nachfolgend aufgeführten Daten der einzelnen Fahrzeuge halbjährlich dem Kraftfahrt-Bundesamt:
8.4.1.1.1	vierstellige KBA-Herstellerschlüsselnummer,
8.4.1.1.2	dreistellige KBA-Typschlüsselnummer,
8.4.1.1.3	drei- oder fünfstellige Versionsvariantenschlüsselnummer,
8.4.1.1.4	vierstellige Fahrzeugklasse und -aufbauart,
8.4.1.1.5	Monat und Jahr der Erstzulassung,
8.4.1.1.6	Monat und Jahr der HU,
8.4.1.1.7	Stand des Wegstreckenzählers bei Kraftfahrzeugen und, soweit vorhanden, bei Anhängern.
8.4.1.2	Soweit technische Daten zum vorgeführten Fahrzeug aus den Schlüsselnummern nicht abgeleitet werden können, dürfen durch die Zentrale Stelle folgende zusätzliche Angaben übermittelt werden:
8.4.1.2.1	zulässige Gesamtmasse (kg),
8.4.1.2.2	Nennleistung (kW),
8.4.1.2.3	Hubvolumen (cm^3),
8.4.1.2.4	Höchstgeschwindigkeit (km/h),
8.4.1.2.5	Energie- und Antriebsart,
8.4.1.2.6	Emissionsklasse.

B

PTI Repport



Data Base for future prediction on PTI

Digital PTI (PTI 2.0) - Innovative Approach

- **Resume**

Questions Now ???

Thank you !!!

By Antonio Multari, Technical Expert Emissions at CITA and Vice Chairman of WG Diagnostic & Emissions at ASA and Sales Director Export at MAHA