PREMISES AND EQUIPMENT GUIDELINES ON THE MINIMUM REQUIREMENTS FOR CVR TEST OPERATORS

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This is a version-controlled document issued in accordance with section 38 of the Road Safety Authority (Commercial Vehicle Roadworthiness) Act 2012.

Contents

1. Introduction

These guidelines are relevant for anybody who is proposing to build a new CVR testing centre or develop an existing building for this purpose. This document is also relevant for existing CVR test operators who may be planning to build a new testing centre, relocate to a new premises or renovate their existing testing centre premises. New and existing CVR test operators shall be required to meet the minimum requirements regarding the facilities and equipment detailed in this document.

CVR test operators authorised before the publication date of these guidelines who wish to renew their authorisation utilising their CVR testing centre premises authorised at the time of application, must comply with the minimum requirements specifically outlined for these testing centres in Annex A of this document.

In essence, CVR test operators must:

- Have premises and equipment that comply with all applicable requirements.
- Maintain their CVR testing centre premises and equipment to the required standards.
- Assist and cooperate at all times with the RSA and sub-contractors in respect of premises and equipment matters including without limitation, consistency checks, audits, and inspections.
- Address issues relating to premises and equipment efficiently and effectively.
- Use equipment on the test lane only for the purpose of testing vehicles.

The guidelines are issued in accordance with section 38 of the Road Safety Authority (RSA) (Commercial Vehicle Roadworthiness) Act, 2012 (as amended). The guidelines set out the minimum standards regarding the premises and equipment required for the carrying out of Commercial Vehicle Roadworthiness (CVR) tests on Heavy Commercial Vehicles/trailers (HCV), Light Commercial Vehicles (LCV) and Fast Tractors at CVR testing centres. The premises used by CVR test operators authorised by the RSA for CVR testing shall contain at least one HCV lane and one LCV lane, (excluding existing LCV or HCV only CVR testing centres). Any additional lane to be constructed as part of existing test centre modifications/expansion shall also meet the latest minimum requirements in these guidelines.

Application for authorisation as a CVR test operator, with one HCV lane and one LCV lane shall incur a fee of €8,500 as prescribed in the testing regulation S.I. No. 107 of 2013 (as amended). Any additional lane will incur a cost of €6,000 and application for renewal of authorisation will incur a cost of €500.

A CVR testing centre must be in a location, which does not cause congestion or danger (for example, near a school) as well as complying with local planning and by-laws. Adherence to this requirement will form part of the authorisation application review process.

The RSA will not authorise any premises to be used for CVR testing unless and until it is satisfied that the building and the site meets all applicable minimum requirements.

Once authorised in the relevant category, CVR test operators may carry out CVR tests on the following categories of vehicles in accordance with Regulations made under the Commercial Vehicle Roadworthiness Act, 2012.

(a) vehicles used for the carriage of passengers, with more than eight seats, excluding the driver's seat (categories M2 and M3),

(b) goods vehicles (categories N1, N2 and N3) including living vans,

(c) goods trailers (categories O3 and O4),

(d) ambulances (special purpose vehicles in category M),

(e) motor caravans first registered on or after 1 January 1980 (special purpose vehicles in category M), and

(f) wheeled tractors in category T (Optional Category).

The CVR test operator is responsible for ensuring that the premises and equipment comply with the relevant Acts, Regulations, Byelaws, Health, Safety and Welfare requirements and Health & Safety at Work Requirements.

The CVR test operator shall provide all Vehicle Test Equipment in accordance with requirements of EU Directive 2014/45/EU, S.I. 107 of 2013 (as amended) and the RSA's requirements as set out in this document and any notices issued from time to time.

2. General Requirements

2.1 Insurance Requirements

CVR test operators shall have adequate insurance cover for vehicle testing activities including cover for CoVIS equipment. The insurance provider or broker must complete a copy of the insurance declaration template in Appendix 7 and the completed form should be updated annually and be available for inspection at the CVR testing centre.

2.2 ISO 9001 Quality Control System

CVR test operators shall have in place a quality control system. Part of this system shall include a weekly audit to verify the presence, condition, and functionality of all test equipment. The audit shall be conducted by a CVR tester or by a person with responsibility for managing the CVR testing centre and the result must be entered on CoVIS. The results of these checks must be uploaded to CoVIS, and the check sheets must be retained at the CVR testing centre for inspection.

In order to obtain and/or retain an authorisation to undertake commercial vehicle roadworthiness testing, the CVR test operator must provide evidence from an accredited ISO 9001 Certification Body that the testing centre is certified in relation to ISO 9001:2015 or latest applicable version, fully incorporating the requirements of CITA Recommendation 9B. CVR test operators must notify the RSA of any major non-compliances / non-conformances reported by the testing centre's independent ISO/CITA 9B certification assessor within one working day.

3. Premises

The CVR test operator shall provide appropriate, secure, and fully serviced premises from which CVR testing shall be provided. The premises shall be a permanent, enclosed facility of sufficient size with suitable access and signage.

The CVR test operator shall provide a CVR testing centre capable of testing all categories of vehicles for which they are authorised to test, together with all necessary ancillary accommodation. Each premises shall include:

- permanent, secure buildings which are fully weatherproof, with concrete non-slip floors, and have adequate heating, lighting and ventilation and shall be designed, constructed, and certified strictly in compliance with Building Control Act 1990-2014 (as amended) and the Building Regulations at the time of construction.
- a completely separate CVR testing area.
- where a CVR testing centre is attached to another building, it must have a clearly defined physical partition between the test area and other activities on the premises. The partition must be full height from floor to ceiling and must be a robust and stable construction, built of standard materials such as concrete block work or metal cladding designed, constructed, and certified strictly in compliance with Building Control Act 1990-2014 (as amended) and the Building Regulations.
- the testing area must not be unreasonably subjected to oil contamination, exhaust fumes, noise, or other pollution from adjacent facilities.
- a drive-through facility on each test lane capable of accommodating relevant CVR Vehicles.
- the test lanes must be dedicated to vehicle testing activity and under no circumstances must they be used for any type of vehicle repairs. This does not apply in respect of tachograph calibration, speed limiter calibration or authorisation plating of vehicles.
- in general, the internal headroom clearance of each test lane shall at the minimum meet the entrance and exit door minimum height requirements.
- adequate parking spaces, access roads, and external lighting.
- the CVR testing centre shall be designed in such a manner so as to have minimal adverse impact on the environment and to provide the greatest level of utility services efficiency.
- the CVR testing centre shall have a properly equipped reception office, and a Customer waiting area with a direct view of the test area and adequate seating for all Customers.
- separate dedicated toilet facilities for customers (which are suitable for disabled persons) attached to the customer waiting area i.e., part of the permanent building structure.
- separate toilet and washing facilities shall be provided for CVR testing centre staff.

The floor of the test area must be of concrete industrial grade of suitable strength and reinforcement to accommodate the loads it will be subjected to. Use of control joints will be permitted; however,

these should be avoided where possible in the test lane area. The standard of concrete floor finishes and tolerance shall be as per I.S. EN 13670 Annex G – Guidance on Geometric Tolerances. Floor finish must be power floated to an SR1 specification.

The floor of the test lanes shall be painted or otherwise finished to provide a sealed surface to facilitate easy cleaning and must be slip resistant. Painted walkways and safety barriers should be in accordance with the requirements of Safety, Health, and Welfare at Work Act 2005 (as amended) & S.I. No. 299/2007 - Safety, Health, and Welfare at Work (General Application) Regulations 2007 (as amended).

The test area shall have sufficient lighting to facilitate the inspection of the vehicles being tested in accordance with the requirements of Safety, Health, and Welfare at Work Act 2005 (as amended) & S.I. No. 299/2007 - Safety, Health, and Welfare at Work (General Application) Regulations 2007 (as amended). The level of illumination (i.e., lux levels) and light distribution shall be adequate to enable vehicle inspection to be carried out with ease at all levels and in compliance with Health and Safety and Building Regulations. This includes underbody inspections, the sides, front and back of vehicles.

There shall be unobstructed access to the test lanes via a concrete/bitumen based or similar hard standing surfaced driveway from the site entrance to the test lane entrances and from the test lane exits to the site exit. For each vehicle or combination of vehicles undergoing test, it must be possible to drive with ease from the site entrance through the test lane and to the site exit without the need for excessive manoeuvring or without the need to reverse. The drive through of each test lane must be achievable in an easy forward movement with no risk posed to persons in the environs of the testing area that meets the requirements of Safety, Health, and Welfare at Work Act 2005 (as amended). The entrance and exit points to/from the test lanes must be designed and constructed such that an adequate area for a turning circle is provided, of sufficient radius to facilitate all vehicles to be tested in one movement.

The entrance area to the test lanes must be as level as possible. If a slope is necessary, it must be gentle and no more than 2%. The slope must be away from the building and be continuous, i.e., the finished surface must be even and not comprising of short, stepped sections joined by level sections. A step down at the entrance door will not be permitted, therefore the design of the facility will need to include necessary drainage channels to allow the continuity of surface inside and outside the building in the area of the test lane (such as adequately rated modular grated trench drains) to prevent water ingress to the building at the test lane entrances.

CVR testing centres shall have in place a layout diagram of the test area showing each test lane with each clearly marked and identified with a unique number and reference to the test categories to which each lane is designated. For example, a testing centre with one HCV lane and two LCV lanes shall have each lane named and clearly marked with references ‘HCV1, LCV1 and LCV2’ These shall also be clearly illustrated on the testing centre diagram, a copy of which shall be provided to the RSA.

3.1 CVR Testing Centre Construction and Site Layout

All CVR testing centre premises shall be designed, constructed, and certified strictly in compliance with Building Control Act 1990-2014 (as amended) and the Building Regulations at the time of construction.

3.1.1 CVR Reception, Reception Office, and Customer Waiting Area

A reception office of at least 15 square metres in size, separated from the test area shall be provided. A customer waiting area of at least 15 square metres in addition to the reception office and test area shall also be provided. The size of the customer waiting area should be appropriate to the expected volume of customers in compliance with the Building Control Act (as amended). Space shall be provided in the waiting area for a television screen (minimum size 32-inch screen), two A2 sized posters and display stands, which can be used to display information material, and Road Safety messages, as stipulated by the RSA.

There shall always be a direct view of the test lanes from the customer waiting area. Where the view of any section of a test lane is restricted, the CVR test operator shall provide additional means of viewing that section using CCTV in the customer waiting area. The size of the display monitor used for this purpose must be at a minimum 32-inch screen size and shall be operational at all times while any CVR testing is in progress.

Toilet facilities, adjacent to the waiting area with easy access and dedicated to customers, which are suitable for disabled persons shall be provided, the toilets, shall comply with the Health and Safety at work requirements.

3.1.2 HCV, LCV and Office Area layout General Dimensions

Below are the minimum dimensions for the test area, to accommodate one HCV lane and one LCV lane. Where it is proposed to install more than one vehicle lift on an LCV lane, the lane shall be of sufficient length and/or width to accommodate the additional vehicle lift(s). However, the vehicle lifts must be located so that any vehicle in the category to be tested can drive with ease through the test lane in one movement (i.e., without the need for manoeuvring or reversing) while a vehicle(s) is placed on the other vehicle lift(s).

Where a CVR test operator is planning to install an additional lift(s) on an LCV test lane, the RSA will review the merits of each application on a case-by-case basis. Any replacement or additional lift(s) must meet all the specifications regarding lifts in this document.

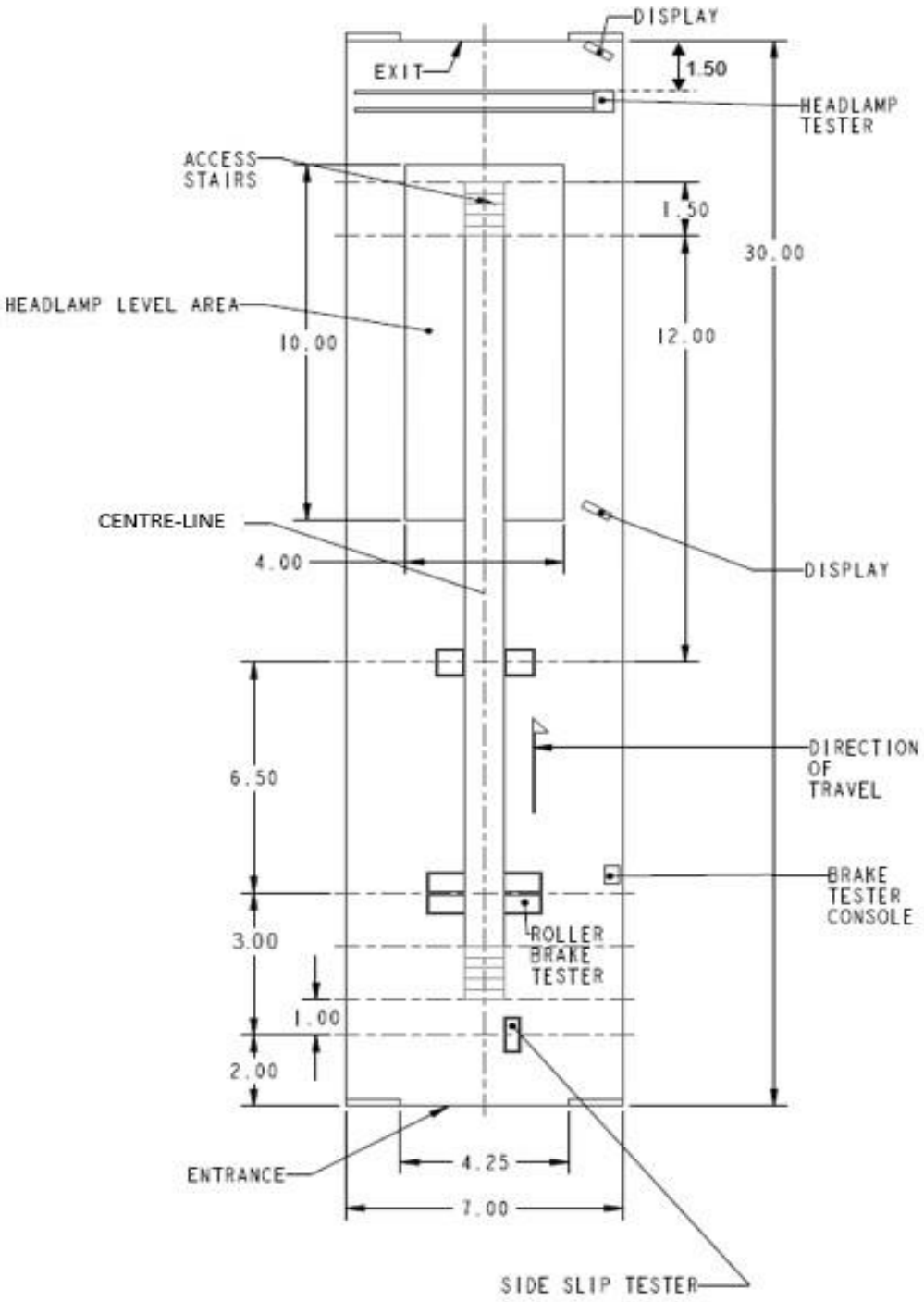
Dimensions/requirements for new CVR Testing Centres authorised on or after the date of the publication of these guidelines (including additional lanes at existing CVR testing centres approved for authorisation).

Dimensions	**HCV**	**LCV**
Internal length of lane	30m	26m
Internal width of lane	7m	6m
Length of Inspection Pit	Min 20m excluding steps	N/A
Inspection Pit width at floor level	Between 1.0m and 1.2m	N/A
Inspection Pit Depth	Between 1.4m and 1.6m	N/A
Entrance & exit door height	5m	5m
Entrance & exit door width	4.25m	4.25m
Internal headroom clearance	5m	5m
Drive through test lane	Yes	Yes

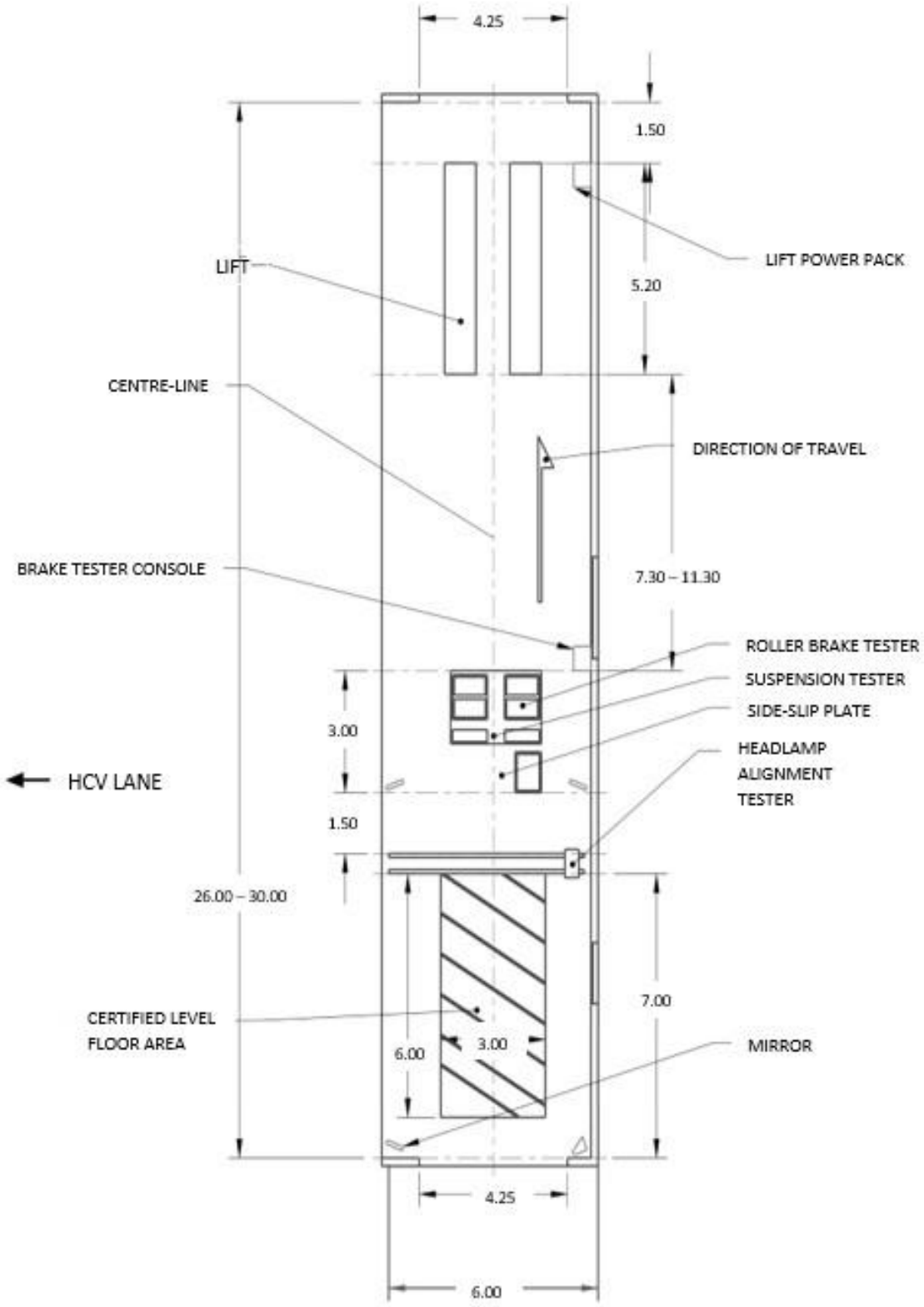
The following diagrams show a typical layout of a new CVR testing centre with one HCV lane, one LCV lane, and office area including reception and customer waiting area.

3.1.3 HCV Test Lane Layout

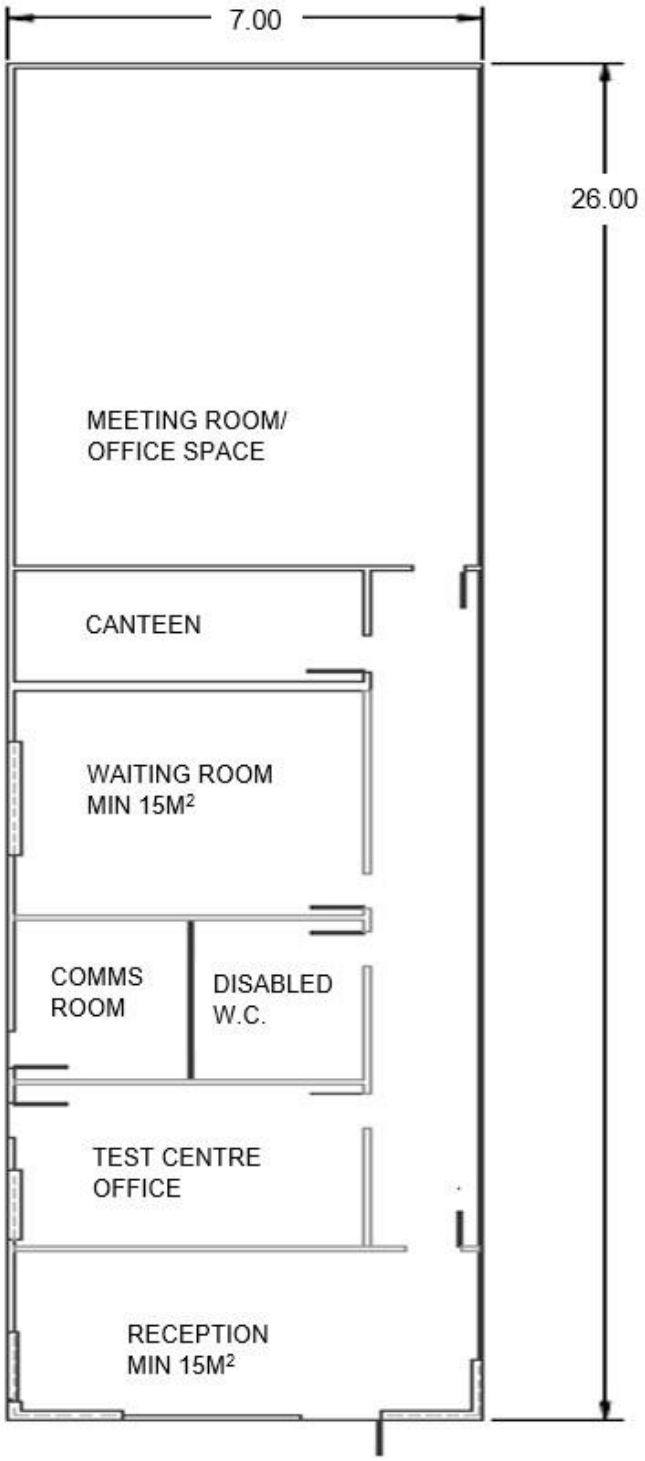
Note: Layout drawing of steps/stairs is for illustration purposes only and will vary with pit depth. Step dimensions must comply with Building Regulations.



3.1.4 LCV Test Lane Layout



3.1.5 Example of Office Area Layout, Reception & Customer Waiting Area



3.1.6 Ventilation and Fume Extraction System

The CVR test operator shall make specific provision to prevent a build-up of exhaust fumes or other noxious gases, giving due regard to the Health and Safety of Staff and vehicle presenters.

3.1.7 Parking Spaces and exterior site layout

CVR test operators shall ensure that sufficient parking spaces with concrete or bitumen-based surfaces are available adjacent to the CVR testing centre to accommodate vehicles awaiting tests including pedestrian walkways and yard markings in accordance with the Safety, Health and Welfare at Work Act 2005 (as amended). The parking and general exterior area needed for the movement of vehicles shall be arranged so that there is no undue obstruction. There shall be unobstructed access via a durable surfaced road from the site entrance to the building entrance, such that vehicles can enter and leave the site in a forward direction. The durable surface must be suitable for vehicular traffic and should be either concrete/bitumen based or similar hard standing surface.

Parking	HCV	LCV
Minimum number of spaces required per test lane (subject to planning requirements and conditions).	2	3
Dimension of spaces.	20m x 4m	7m x 3m

Each parking space must have line markings on the ground to show their location. The markings should be white or yellow in colour. The parking spaces must have signage indicating that they are reserved for CVRT customers. The signage may be either painted on the ground or mounted approximately 1.2m from the ground affixed to the back wall/fence/rigid post of the parking space.

3.1.8 Signage

The CVR test operator shall provide appropriate standardised signage to and within each CVR testing Centre (to be agreed with the RSA and the local planning authority). Signage shall be maintained in accordance with RSA branding guidelines, agreed with the RSA and repaired or replaced as soon as is practicable. Signs shall be of durable material and shall of materials and finishes that do not present a hazard for passing pedestrians in terms of protection from sharp edges.

A signpost guiding customers to the CVR testing centre must also be provided. The signpost must be positioned adjacent to the approaching roadway and be visible from oncoming traffic in both directions. Signage must also be provided to direct customers safely to the CVRT reception and customer waiting areas.

Signage must be fitted in the appropriate locations to prevent unauthorised personnel from entering the test area including the use of safety barriers as required. CVR test operators must have safety measures and controls in place to prevent customers from driving or accessing the test area using appropriate partitions or safety barriers in accordance with the Health and Safety Regulations.

All signage and content of signage shall be clearly visible at all times.

3.2 CVRT Branding

Compliance with the CVRT branding guidelines will be accepted as meeting the standards in terms of premises presentation, uniforms, and external & internal signage.

The CVRT branding guidelines also cover use of the CVRT branding for stationery and advertising. The CVRT Branding Guidelines can be found on the RSA website at www.CVRT.ie or the testing centre CVR Portal at
http://docs.cvrt.ie/cvr_docs/Public_RSA_Docs/Forms/AllItems.aspx

3.3 Customer Information Displays

The CVR testing centre shall provide space in the waiting area for a television screen (minimum size 32-inch screen), two A2 sized posters and display stands, which can be used to display information material, and Road Safety messages, as stipulated by the RSA.

3.4 Health and Safety Regulations

All CVR test operators must comply with the statutory requirements of the Safety, Health and Welfare at Work Act 2005 (No. 10 of 2005) (as amended) and all relevant statutory regulations such as Safety, Health and Welfare at Work (General Application) Regulations 2007 (S.I. No. 299 of 2007) (as amended).

Further information is available on the Health and Safety Authority website www.hsa.ie

3.5 Statutory Obligations

The CVR test operator shall comply with the relevant statutory requirements (including Directive 2014/45/EU, S.I. 347 of 2013 Commercial Vehicle Roadworthiness (Vehicle Testing) (No. 2) Regulations 2013 (as amended) and the Waste Management Act, consents, approvals, and laws relating to the premises and facilities, having regard to any relevant guidance in relation to the buildings, equipment, and other site facilities.

Where the CVR test operator proposes using materials, products, components, or equipment, which do not adhere specifically to Irish, or equivalent European Union Standards then such items shall be to at least equivalent standards.

Planning and statutory authority approvals and agreements

The CVR test operator shall be responsible for obtaining all planning approvals, fire certificates, complying with building control regulations, conducting all local authority and utility negotiations, seeking all approvals, and making any relevant appeals associated with these items.

3.6 Security

A CVR testing centre shall operate from premises that are adequately/sufficiently secure to minimise the risk of break-in or damage, considering the location and identified risk profile.

4. Information Technology

While we have no specific requirements in this regard, it would be of significant benefit if any new CVR testing centre location had access to a good quality broadband connection. This would facilitate speedy installation and operation of the CoVIS system along with having general business benefits.

4.1 Commercial Vehicle Information System (CoVIS)

The Commercial Vehicle Information System (CoVIS) is an integrated ICT system used to assist the RSA in the supervision of CVR testing centres and in ensuring that vehicle testing is carried out to a common standard. CoVIS provides CVR testing centres with many benefits including facilities for booking CVR tests, efficient capturing of CVR test results and a Customer Relationship Management (CRM) tool for CVR test customers. It is a requirement that all CVR testing centres have CoVIS installed.

Each test lane and reception office are required to have fitted software and equipment for connection to CoVIS. The software and equipment shall be installed by an RSA contractor prior to authorisation and the CVR test operator will be required to install the necessary cabling required to operate the equipment. The location of the CoVIS software and equipment will be agreed between the RSA contractor and the CVR test operator before installation. Additional CoVIS related information will be provided during the authorisation application process.

CVR test operators must ensure that they provide and maintain test equipment/software to industry standards. Test equipment that requires a connection to CoVIS must produce results in an electronic output that conforms to a secure common industry standard interface such as ASA.

All CoVIS connected test equipment must have manufacturers software that is compatible with the CoVIS system, be capable of outputting test data via hardware and software data to CoVIS via the IT protocols as set out in the equipment detailed specifications.

The test equipment and associated software must be upgraded and replaced as required. The operating system must be a supportable platform. E.g., currently Windows 10 as stipulated by Microsoft.

CVR test operators shall be required to enter into a service level agreement with the RSA approved CoVIS contractor which will enable the deployment of the CoVIS solution in order to transmit test data from test equipment/software and shall provide appropriate secure storage for CoVIS assets in accordance with the RSA minimum standards.

With regard to where vehicle testing records or documents are required to be held by a CVR test operator for inspection, where the IT system (CoVIS) allows for documents or forms to be completed or scanned and stored on the CoVIS System then this is considered acceptable as a form of record for inspection. Where the original documents are required to be available for inspection e.g., calibration certificates, these must continue to be kept in hard copy.

4.2 Automatic Number Plate Recognition (ANPR) & CCTV Cameras

Each test lane shall be fitted with one automatic number plate recognition camera (ANPR) and at least one CCTV camera. Each test area shall also have one fisheye camera fitted. The cameras shall be installed by an RSA contractor and the CVR test operator shall be required to install the necessary cabling required to operate the equipment. The cameras need to be situated in an

elevated location to ensure any equipment installed on the lane does not inhibit the view of the CCTV camera or the reading of a vehicle registration number plate by the ANPR camera.

Any reconfiguration of test lanes such as installing an additional lift on an LCV lane must be approved by the RSA in advance, as an additional CCTV camera will be required with the CVR test operator required to provide the necessary cabling to operate it.

5. Vehicle Testing Equipment Requirements

The vehicle testing equipment to be used for CVRT tests must conform with the minimum requirement specified in Annex III to Directive 2014/45/EU and relevant national legislation.

5.1 General Requirements for Vehicle Testing Equipment

The CVR test operator shall provide all Vehicle Test Equipment and Tooling in accordance with requirements of Directive 2014/45/EU and the RSA's requirements as set out in this document and any notices issued from time to time.

All vehicle testing equipment must be kept in good working order, maintained, regularly serviced, and calibrated in accordance with equipment manufacturers and the RSA requirements. All testing equipment accommodated within each CVR testing centre, shall be accurate, reliable, meet good engineering standards and incorporate the most up to date safety features.

The layout of test equipment on the test lanes shall be in accordance with the diagrams as shown in Section 3 of this document so that vehicle inspections can be carried out in sequence.

It should be noted that equipment required for vehicle roadworthiness testing will be used more extensively than equipment used for normal vehicle maintenance and therefore CVR test operators must ensure that their equipment is robust and fit for purpose.

All CoVIS connected test equipment must have the latest manufacturer software installed, be capable of outputting test data via hardware and software data to CoVIS via the IT protocols as set out in the detailed specifications.

The vehicle testing equipment and associated software must be upgraded and replaced as required.

5.2 Vehicle Testing Equipment Installation and Commissioning

The CVR test operator shall ensure that all relevant Vehicle Test Equipment installed after the date of publication of these guidelines has commissioning certification. Where required, equipment must have a current calibration certificate and is sealed, if appropriate, and retain such calibration certificates for each item of equipment on site at the CVR Testing Centre.

The process of technical and operational commissioning shall ensure that the building, services, and equipment comply with Building Control and Health and Safety Regulations and that all systems operate safely and satisfactorily. On completion of commissioning, the CVR test operator shall apply to the RSA for approval of the test lanes for use in meeting the necessary requirements.

Prior to the commencement of CVR testing, the RSA shall conduct a pre-authorisation inspection on each test lane in order to confirm that it meets equipment specifications, installation, and commissioning requirements.

5.3 Calibration Requirements for Vehicle Testing Equipment

Valid and current calibration certificates are required for each of the following test equipment. A copy of the calibration certificates shall be scanned and uploaded to CoVIS. The original hard copies of the certificates shall be stored securely at the CVR testing centre and made available for inspection when requested. The calibration status shall be shown clearly on all relevant equipment, preferably by means of suitable markers or labels, indicating at least the date of the last calibration and the date the next calibration is due.

- Roller Brake Tester (calibration required every 12 months)
- Side Slip Tester (requires calibration every 12 months)
- Suspension Tester (LCV only) (calibration required every 12 months
- Diesel Smoke Opacity Meter (calibration required every 12 months)
- Headlamp Aim Tester (calibration required every 12 months)
- Emissions Gas Analyser (calibration required every 12 months)
- Decelerometer (calibration required every 24 months)
- Air Pressure Gauge (calibration required every 12 months)
- Glass Opacity Meter (calibration every 24 months)

CVR test operators have the option to calibrate their equipment two weeks in advance of the calibration expiry date. Having the equipment calibrated two weeks in advance of the expiry date will not affect the calibration anniversary date and allows CVR test operators and calibration suppliers some flexibility in scheduling the calibration of equipment to ensure that equipment can be calibrated in advance of its calibration expiry date.

For example where equipment is calibrated within 2 weeks (14 calendar days) of its current calibration certificate expiry date, it is acceptable to start the next required calibration period from the expiry of the current calibration certificate e.g. if a roller brake tester current calibration certificate expires on 15th July 2019 and it was calibrated on the 8th of July 2019, the new calibration certificate may start on the 16th July 2019 and then not be due for calibration again until 15th July.

6. HCV Specific Vehicle Testing Equipment and Tooling Requirements

The table below sets out the minimum test equipment requirements for HCV testing.

6.1 Inspection pit (min. 20m excluding steps)	6.15 Air gauge for by-passing load sensing valve
6.2 Roller brake tester*	6.16 Adjustable pliers (20-inch)
6.3 Axle load simulator	6.17 Dial gauge with stand**
6.4 Jacking system (15t)	6.18 Instrument to check speed limitation devices**
6.5 Wheel play detector plates	6.19 Tool for pressing brake pedal
6.6 Side slip plate (unit)*	6.20 Low voltage inspection lamp
6.7 Headlamp aim tester (rails & level floor area) *	6.21 Pinch bar (1-meter length)
6.8 Class V & Class VI Mirror Check Areas	6.22. Straight edge (1-meter length) **
6.9 Diesel smoke opacity meter*	6.23 Electrical socket output tester (24v) **
6.10 Air pressure gauges (with coupling connections	6.24 Light check mirrors
6.11 Fifth wheel measuring tool**	6.25 Class IV mirror check tool**
6.12 Trailer kingpin measuring gauge/device**	6.26 Wheel chocks (4)
6.13 Equipment to check ISO7638 outputs (24v)**	
6.14 Trailer service line lifter valve check tool**	

*** Item to be connected to CoVIS.**

** Test equipment item may be shared across HCV test lanes (up to a max. of 3 HCV test lanes)

6.1 Inspection Pit

A pit for conducting vehicle underbody inspections shall be provided, the clear unobstructed working length of the pit shall be at least 20m excluding any area taken up by access steps. There shall be easy access to the pit at both ends by steps. The floor of the pit must be flat and free from any steps or trip hazards and must be slip resistant. The pit shall be well illuminated, dry, and finished to provide a sealed surface to facilitate easy cleaning. It shall be free from oil deposits, water, or combustion hazards. The inspection pit must be constructed and certified to handle a safe working load of at least 20 tonnes on a trolley jack.

6.2 Roller Brake Tester

A roller brake tester (RBT) capable of carrying out brake tests on the category of vehicles and trailers to be tested shall be provided in accordance with Directive 2014/45/EU. Consisting of a pair of roller sets mounted at floor level on the pit and located at least 6.0m to the centre line of the RBT in from the entrance door as per the layout diagram in Section 3. A level floor of 12m must be available before and after the centre line of the RBT. If a portion of the 12m approach is located outside the entrance door, a continuous slope up to a maximum of 2% in any metre will be deemed acceptable in this external area.

The RBT must be designed and mounted on the inspection pit to enable easy access for regular maintenance and the replacement and repair of parts.

The CVR test operator shall ensure that a clear and easy to understand comprehensive user manual, written in English is provided and shall be available at any time in the CVR testing centre, which shall explain how the equipment operates, including the function of each aspect of the equipment.

The CVR test operator shall ensure that a comprehensive maintenance manual/programme is provided, which highlights any key components and wear parts that may affect the accuracy of measurement values provided by the manufacturer.

The CVR test operator shall ensure that there is written evidence that the equipment has been approved to the required specification by the competent authority of a Member State of the European Union.

The CVR test operator shall ensure that the equipment has a durable asset identification mark on its exterior or its control unit showing the original manufacturer, model type, software version and serial number.

The equipment must be CE marked and comply with all applicable EU safety standards regulations.

See Appendix 2 for current specification details.

6.3 Axle Load Simulator

The RBT shall be fitted with an axle load simulator capable of applying a load of at least 8 tonnes to the axle of a vehicle or trailer. It must be possible to control the load applied on the axle to ensure that the set load on the axle does not increase while a brake test is in progress. The load simulator shall consist of at least two hydraulic rams fitted with certified anchor points and certified chains/straps. The means of controlling the load applied by the simulator must be located to protect the user from risk and provide the user with a view of the simulated load being applied.

The load simulator must be capable of applying a stable continuous load that will adjust automatically throughout the brake test process. i.e., it must relieve excess pressure and reapply to the required load simulation dynamically.

6.4 Jacking System (15t with appropriate extensions & saddles)

A power operated jacking system shall be fitted on each HCV inspection pit as per the requirements of Directive 2014/45/EU (as amended). The jack must be on a trolley platform type and be capable of moving freely on the pit between the roller brake tester and the steps at the exit end of the lane. The jack when installed in the inspection pit at its lowered position shall not be more than 50mm above the floor level. The jacking trolley platform shall be stable both longitudinally and transversely and arranged so as to ensure there is no possibility of the jack falling down or tipping over. The jack must comply with the relevant sections of S.I. No. 299/2007 - Safety, Health, and Welfare at Work (General Application) Regulations 2007 (as amended).

The jack shall be capable of lifting either one or both wheels of an axle (including low slung axles) of a vehicle for the purpose of checking the steering/suspension components and wheel bearings. The jack must have all appropriate saddles, extensions and attachments available for lifting all axles on the categories of vehicles to be tested, including an attachment to facilitate the lifting of independent suspension systems in the position recommended by vehicle manufacturers.

The total lifting capacity of the jack must be a minimum of 15 tonnes. The lift arrangement must be such as to lift the wheels clear of floor level in one movement. The use of extensions and saddles is acceptable, but the use of packing is prohibited.

The power jacking system provided must be silenced so as to meet the requirements of Safety, Health and Welfare at Work Act 2005 (as amended) & S.I. No. 299/2007 - Safety, Health and Welfare at Work (General Application) Regulations 2007 (as amended) and any exhaust must be

filtered or arranged to prevent oil deposition. Jacks must be suitable for use on beam axles and independent suspension systems.

6.5 Wheel Play Detector Plates

Wheel play detector plates (often referred to as Shaker Plates) shall be provided as per the requirements of Directive 2014/45/EU (as amended). The equipment consisting of two plates, installed equal distance each side of the central line of the inspection pit shall be of such size and distance apart that they can safely accommodate the tyres of vehicles in the category to be tested. The wheel play detectors must have a minimum axle load capacity of 15 tonnes. The wheel play detectors should be mounted at floor level on the inspection pit and located at least 6.5m to the centre line of the RBT as per the layout diagram in Section 3 of this document.

The device must be equipped with two hydraulic powered plates, which can be moved in both the longitudinal and the transversal directions.

The means of operating the plates shall be capable of being controlled from the inspection pit such that, at the same time the wheels on either side of the vehicle can be closely inspected e.g., by a portable type of hand control. Any pneumatic or hydraulic supply must be filtered to ensure reliability of the plates and an air exhaust must be filtered to avoid excessive exhaust oil deposits.

6.6 Side Slip Plate (Unit)

A side slip plate (unit) shall be located in the floor on the right-hand side as vehicles enter the lane as per the requirements of EU Directive 2014/45/EC (as amended) and prior to the RBT. The location of its centre line shall ensure that all vehicles can be driven on to the RBT, without the need for the vehicle to deviate from a straight line as they enter the HCV test lane. It must be located a minimum of 1.5m in from the entrance door. There should be a distance of at least 3m between the centre line of the side slip plate and the centre line of the RBT.

A level floor of 12m must be available before the lateral centre line of the side slip plate. If a portion of the 12m approach is located outside the entrance door, a continuous slope up to a maximum of 2% in any metre will be deemed acceptable in this external area.

The side slip plate (unit) shall be capable of accurately measuring and recording the geometry of multiple steered axles of vehicles and trailers with axle loads up to 15 tonnes. The side slip to be measured shall be at least between +/-20m/km. The surface of the side slip plate shall be robust, flat, and free of any significant changes that may affect readings.

The CVR test operator shall ensure that a clear and easy to understand comprehensive user manual, written in English is provided and shall be available at any time at the CVR testing centre, which shall explain how the equipment operates, including the function of each aspect of the equipment.

The CVR test operator shall ensure that a comprehensive maintenance manual/programme is provided, which highlights any key components and wear parts that may affect the accuracy of measurement values provided by the manufacturer.

The CVR test operator shall ensure that written evidence is provided that the equipment has been approved to the required specification by the competent authority of a Member State of the European Union.

The CVR test operator shall ensure that the equipment has a durable identification mark on its exterior or its control unit showing the original manufacturer make, model type, software version and serial number.

The equipment must be CE marked and comply with all applicable EU safety standards regulations.

See Appendix 4 for current specifications details.

6.7 Headlamp Aim Tester (rails & level floor area)

A headlamp aim tester (HAT) shall be provided as per the requirements of EU Directive 2014/45/EC (as amended). It must be mounted on two rails that the top surface is recessed at or below floor level to prevent possible distortion or damage and located in front of the certified level floor area on the test lane. Where there is a joint in the rails, the joint must be to a standard that minimises vibration of the HAT as it travels over it.

The rails shall run along the width of the certified level floor area and be of sufficient length to allow the HAT to be stowed to the side of the lane so there is adequate clearance of the driving line.

The rails shall be capable of being secured flat to the floor and level within +/- 1 mm in any metre within the testing area. The tolerance in the level area does not have to extend to the stowed position.

The rails shall be sufficiently straight perpendicular to the inspection pit to ensure that the direction alignment of the HAT is not affected at any position on the rails.

The rails shall be located on the test lane in an area that minimises any additional forces being exerted on them e.g.; they should not be located where wheel spin may occur on a vehicle exiting a brake tester.

The rails shall be mounted in concrete or steel or a combination of both. The quality of the installation must be to a standard that ensures that the rails are securely supported, and the installation is robust and durable.

Verification of alignment and/or adjustment of the rails shall be included in the annual calibration procedure.

Verification of a rail’s alignment may be required at any time, where it is suspected that the rails have become unlevel, crooked, bent, or loose, or if the floor in which they are mounted, has deteriorated after a period of use.

The CVR test operator shall ensure that a clear and easy to understand comprehensive user manual, written in English is provided and shall be available at any time in the CVR testing centre, which shall explain how the equipment operates, including the function of each aspect of the equipment.

The CVR test operator shall ensure that a comprehensive maintenance manual/programme is provided, which highlights any key components and wear parts that may affect the accuracy of measurement values provided by the manufacturer.

The CVR test operator shall ensure that there is written evidence is provided that the equipment has been approved to the required specification by the competent authority of a Member State of the European Union.

The CVR test operator shall ensure that the equipment has a durable asset identification mark on its exterior showing the original manufacturer, model type, software version and serial number.

The equipment must be CE marked and comply with all applicable EU safety standards regulations.

See Appendix 5 for current specifications details.

Certified Level Floor Area

The floor area where the vehicle stands for the headlamp aim test shall be a minimum of 10m long and 4m wide. The designated area shall be certified by a competent surveyor as complying with the Headlamp Aim Test Equipment and Floor Area Requirements as shown in Fig.1 in this subsection and specified in this document. A copy of the certificates and the measurements obtained must be submitted to the RSA during the authorisation process.

The certified floor area shall be composed of two rolling tracks, which are clearly indicated on the floor. The floor shall be a constructed of concrete to achieve the required specification.

After initial levelling or resurfacing, a laser measurement by a competent surveyor shall be undertaken. The grid lines for the measurement shall be as shown in Fig.1 in this subsection. The results shall be recorded on an AutoCad drawing provided in an Adobe PDF format or alternatively on a MS Excel spreadsheet that clearly shows in detail the certified level floor area with elevation points on 250mm x 300mm grid dated and signed by the competent surveyor.

HCV Certified Level Floor area for Headlamp Aim Test

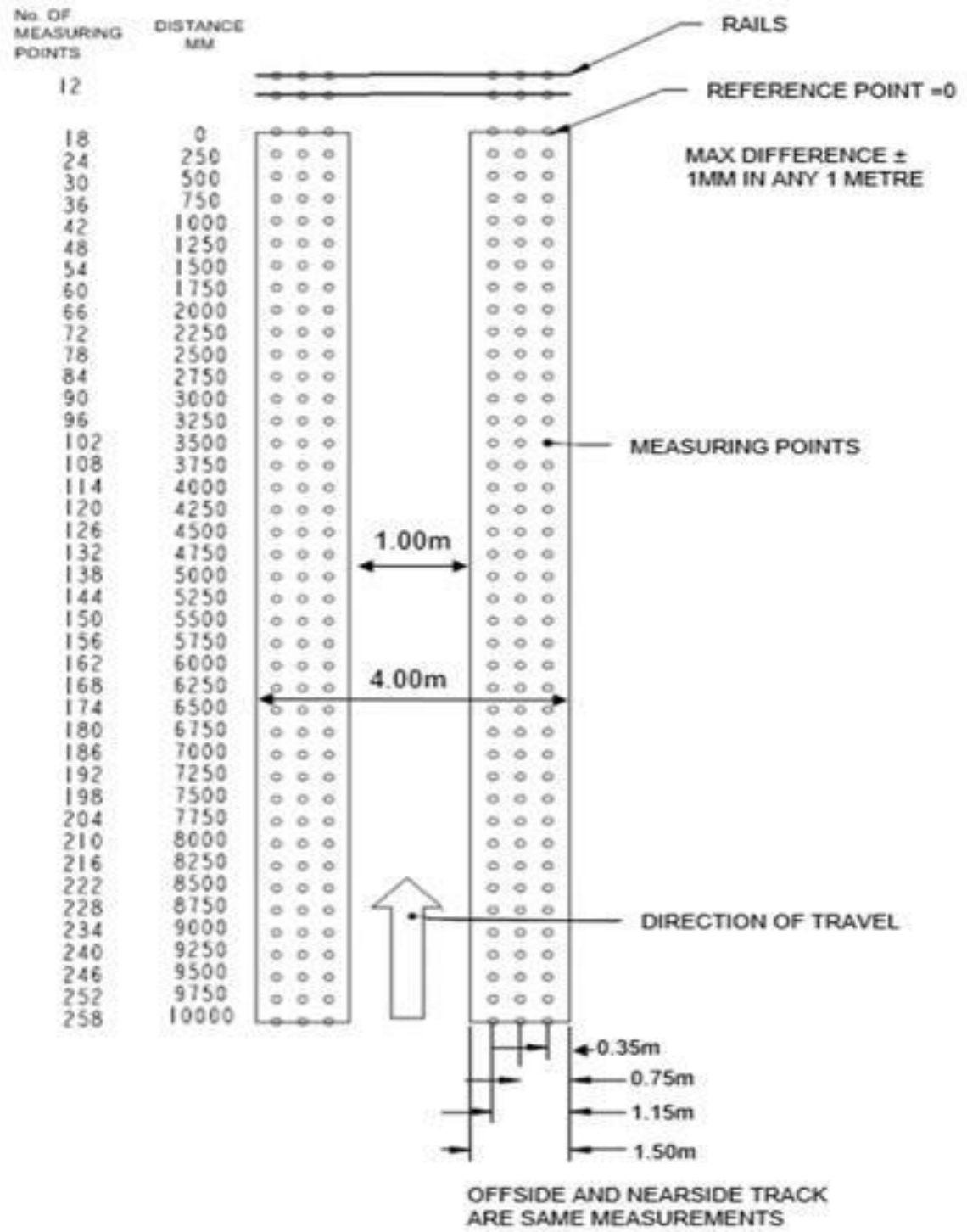


Fig. 1: showing the gridlines for measurement for HCV headlamp aim test.

6.8 Class V & Class VI Mirror Check Areas

Two inspection areas must be provided for checking the field of vision of Class V and Class VI mirrors. The inspection areas shall be clearly marked on the floor of the test lane to the dimensions shown in Figures 1 and 2 in this subsection. The areas must be painted with slip resistant materials, or clearly marked out in some other manner, i.e., using a reflective material. (The use of a moveable mat is not acceptable). The inspection areas must always be clearly visible under ambient lighting conditions.

The location of the check areas will be such that it will be possible to check Class V and Class VI mirrors on the categories of vehicles which require this test and that each mirror test carried out can be repeated in a similar manner.

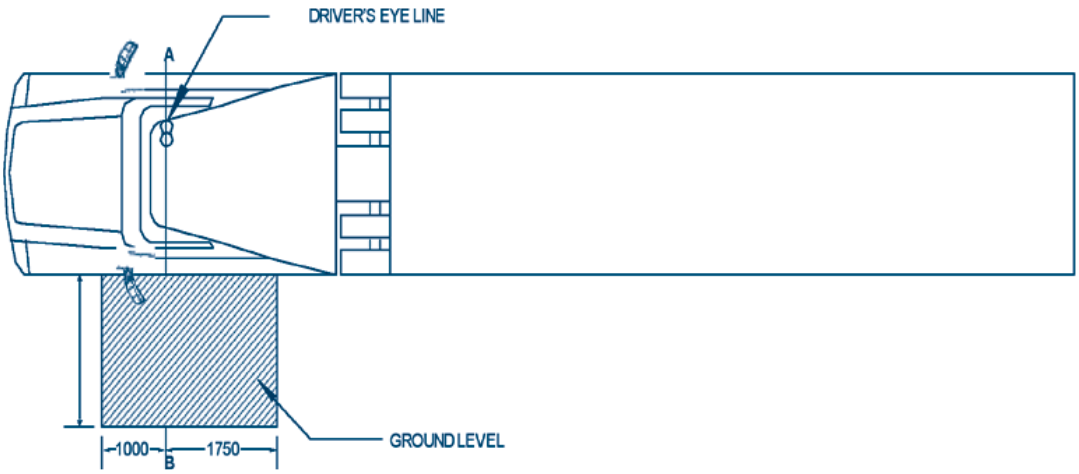


Figure 1: Field of vision of Class V close-proximity mirror. (All dimensions in millimetres).

Figure 2: Field of vision of Class VI front mirror (All dimensions in millimetres).

6.9 Diesel Smoke Opacity Meter

A diesel smoke opacity meter shall be provided that is capable of measuring smoke opacity on compression ignition engines as per the requirements of EU Directive 2014/45/EC.

The diesel smoke opacity meter test procedure shall meet the current vehicle inspection specifications for smoke meters (PTB-A-18.9).

The diesel smoke opacity meter must be able to capture the engine temperature, peak RPM and K mean value of opacity in all cases and return the values to CoVIS.

The CVR test operator shall ensure that a clear and easy to understand comprehensive user manual, written in English is provided and shall be available at any time in the CVR testing centre, which shall explain how the equipment operates, including the RPM and engine temperature measuring devices and function of each aspect of the equipment.

The CVR test operator shall ensure that a comprehensive maintenance manual/programme is provided, which highlights any key components and wear parts that may affect the accuracy of measurement values provided by the manufacturer.

The CVR test operator shall ensure that written evidence is provided that the equipment has been approved to the required specification by the competent authority of a Member State of the European Union.

The CVR test operator shall ensure that the equipment has a durable asset identification mark on its exterior showing the original manufacturer, model type, software version and serial number.

The equipment must be CE marked and comply with all applicable EU safety standards regulations.

Note: New European Regulations for type approval of new vehicles require measurement of particle number emissions as opposed to the current opacity technique. As a result, current emissions equipment will no longer meet the future roadworthiness testing requirements, as new equipment will be required in accordance with the update and review of the Directive 2014/45/EU expected to happen by 2023. Please contact the RSA Authorisation's Team before purchasing any new or replacement diesel smoke or gas analyser emission equipment.

See Appendix 1 for current specifications details.

6.10 Air Pressure Gauges with coupling Connections

At least two air pressure gauges with appropriate fittings shall be provided. The gauges must be capable of checking the outlet pressure of the brake hose couplings on towing vehicles. The gauges shall be capable of registering pressures up to 12 bar and must be calibrated annually.

6.11 Fifth Wheel Measuring Tool (50mm & 88.9mm Pins)

A tool must be available for checking wear in fifth wheel assemblies. This tool may be in the form of unworn fifth wheel trailer pins (to fit both sizes of pins, 50mm and 88.9mm) fitted with an extension T-bar approximately 2m long. An adaptor may be used to bring the 50mm pin up to 88.9mm. The size and the weight to be lifted should be within the recommended individual lifting capacity of a person in accordance with the HSA guidelines.

6.12 Trailer Kingpin Measuring Gauge/Device

A measurement gauge/device is required for use for measuring wear of up to 3 mm in trailer kingpins. A micrometre or Vernier gauge is also acceptable for this purpose.

6.13 Equipment to Check ISO7638 Connector Outputs (24v)

Equipment to check outputs of the ISO 7638 connector on towing vehicles is required for use. A test plug for checking ABS/EBS systems on trailers is required for use.

6.14 Trailer Service Line Coupling Tester (operation of valve-lifter)

A device to check the correct operation of the self-sealing valve fitted on the service line coupling of a trailer or semi-trailer is required for use.

6.15 Air Gauge/device for By-Passing Load Sensing Valve

An air gauge or similar device graduated in psi and bar must be provided to by-pass the load sensing valve on unladen vehicles/trailers with air suspension to simulate a load during a brake test, where necessary.

6.16 Adjustable Pliers (20-inch)

A 20-inch adjustable pliers to check the wear tolerance on steering joints during CVR tests shall be required for use.

6.17 Dial Gauge & Stand

A dial gauge mounted on a stand is required for use for checking wear tolerances on steering joints and kingpins. The gauge must have a minimum range of 0 - 5mm in graduations no larger than 0.01mm.

6.18 Instrument to Check Speed Limitation Devices

An approved instrument is required for use to check the settings of speed limitation devices on vehicles fitted with analogue tachographs.

6.19 Tool for Pressing Brake Pedal

A tool is required for use to press the brake pedal on a vehicle so the brake pipes and hoses may be examined for leaks and bulges with the system under pressure.

6.20 Low Voltage Inspection Lamp

A low voltage type inspection lamp is required for use, (at least one lamp per test lane). Portable LED rechargeable light units shall also be acceptable if they are of a suitable specifications and brightness for use in automotive inspections. The lamp shall be in line with the requirements of Safety, Health, and Welfare at Work Act 2005 (as amended) & S.I. No. 299/2007 - Safety, Health, and Welfare at Work (General Application) Regulations 2007 (as amended).

6.21 Pinch Bar (1-metre length)

A pinch bar 1m (minimum) in length is required for use, at least one pinch bar per HCV lane is required to facilitate the checking of steering and suspension components on vehicles/trailers.

6.22 Straight Edge (1 metre length)

A straight edge 1m in length is required for use, to verify the wear tolerance of rubbing plates on semi-trailers. A spirit level, 1 metre in length will be acceptable.

6.23 Electrical Socket Output Tester (24v)

A device is required for use for checking the outputs of a 24V 7-pin N type electric connector with sufficient load resistance to operate the outputs on towing vehicles. This may be a dedicated light tester device or a trailer board.

6.24 Light Check Mirrors

Light check mirrors are required, located in appropriate positions around the test lane to facilitate the testing of the lights on vehicles by the CVR tester while seated in the driving seat of the vehicle being tested. These shall be convex mirrors of a minimum size of 300mm in diameter. See lane layout diagrams in section 3 for positions throughout the test lane.

6.25 Class IV Mirror Check Tool

A tool for checking the radius of curvature of Class IV mirrors (wide angled) is required for use as outlined in the HCV tester manual and as shown below.

6.26 Wheel Chocks (4)

Four-wheel chocks per test lane are required for use, to prevent the vehicle from moving while being tested with the parking brake released.

7. LCV Lane Specific Vehicle Testing Equipment

7.1 Vehicle Inspection lift (5T)	7.8. Wheel play detector plates
7.2 Roller brake tester (capable of testing permanent 4WD vehicles) *	7.9. Low voltage inspection lamp
7.3 Jacking system (2.8t)	7.10 Electrical socket output tester (12v) **
7.4 Suspension tester*	7.11 Wheel chocks (2)
7.5 Side slip plate/unit*	7.12 Light check mirrors
7.6 Headlamp aim tester*(rails & level floor area)	7.13 Pinch bar (0.6m length)
7.7 Diesel smoke meter*	

***Item to be connected to CoVIS.**

** Test equipment item can be shared across LCV test lanes (up to a max. of 3 LCV test lanes)

7.1 Vehicle Inspection Lift (5.0t)

A wheel supporting platform lift (not centre post type) or a vehicle scissor lift, shall be provided with 2 platforms each at least 5.2m in length by at least 630mm wide. The platform surfaces must be capable of being raised at least 1.4m from the floor and shall rest on steel stops when lowered.

There shall be at least 800mm, but not more than 840mm between the inner edges of the platforms and at least 2.1m between the outer edges. Any upstands or safety guard rails must not be more than 25mm high.

Wheel play detector plates shall be located at the front end of the platforms. The minimum distance from the centre of the wheel play detector plates to the rear roll off safety devices with the lift in the raised position shall be 4.73m. Where recommended by the lift manufacturer, bracing bars or cross-members shall be fitted to connect the two platforms together for the purposes of minimising the lateral forces exerted by the play detector plates.

The vehicle inspection lift shall be fitted with the appropriate jacking system running along rails for the full length of the inner edges of the platforms. The jacking system must be capable of accessing the lifting points of the vehicle when the vehicle is positioned in the play detectors.

The lift shall have a safe working load (SWL) of at least 5,000kg certified and marked in accordance with EN 1493:2010 and the EU Machinery Directive 2006/42/EC or equivalent specification. The lift must be designed, constructed, and commissioned in its entirety in accordance with EN 1493 (latest version) or equivalent standard. The design should include (but not be limited to) the main supporting structure and associated mechanisms, wheel play detector plates, cross members or bracing for structural integrity, jacking system and safety systems

The lift shall be located in a recess flush with the floor, certified large enough (in plain view) to accept the platforms and posts, as defined in EN 1493:2010.

Where a vehicle scissor lift is used there shall be clear access between the platforms, i.e., scissors must be located underneath the platforms rather than between them.

The vehicle inspection lift shall be so located that there is adequate clearance at each end of the lift platforms to cater for the overhang of a vehicle and that there is a clear height of at least 4.9m measured above the fully lowered lift platforms over an area 7m x 4m located symmetrically directly above the lift.

There shall be adequate clearance at the sides of the lift platform to enable the CVR tester to view the sides of the vehicle and to open its doors to gain access to the inside of the vehicle when it is on the lift.

The lift shall be located so that a vehicle can be manoeuvred into a position where it can be driven on and/or off the lift, as appropriate, without difficulty within a reasonable time and not nearer than 1.50m to the exit door and or partition wall of the test lane.

The lift shall be fitted with an adequate lighting system that can be adjusted to suitably illuminate the underside of the vehicle to facilitate inspection in all lighting conditions.

There shall be confirmation, in writing by a competent person that the vehicle inspection lift complies with all current safety standards (e.g., protection against pinching and shearing and roll off safety devices), it must be maintained as per the manufacturer`s instructions.

7.2 Roller Brake Tester

A roller brake tester (RBT) capable of carrying out brake tests on vehicles up to and including vehicles of 3,500kg design gross weight shall be provided. The RBT shall consist of a pair of roller sets mounted at floor level on the lane and located at least 4.0m in from the test lane entrance door. A level floor of 7m must be available before and after the lateral centre line of the RBT. If a portion of the 7m approach is located outside the entrance door, a continuous slope up to a maximum of 2% in any metre will be deemed acceptable in this external area.

The RBT must be capable of testing permanent four-wheel drive vehicles, the capability of accepting an axle load of up to 2,600kg and the capacity to drive the rollers and record a minimum peak value of 12KN.

The CVR test operator shall ensure that a clear and easy to understand comprehensive user manual, written in English is provided and shall be available at any time in the CVR testing centre, which shall explain how the equipment operates, including the function of each aspect of the equipment.

The CVR test operator shall ensure that a comprehensive maintenance manual/programme is provided, which highlights any key components and wear parts that may affect the accuracy of measurement values provided by the manufacturer.

The CVR test operator shall ensure that written evidence is provided that the equipment has been approved to the required specification by the competent authority of a Member State of the European Union.

The CVR test operator shall ensure that the equipment has a durable asset identification mark on its exterior showing the original manufacturer, model type, software version and serial number.

The equipment must be CE marked and comply with all applicable EU safety standards regulations.

See Appendix 3 for current specifications details.

7.3 Jacking System (2.8t)

A power operated jacking system shall be provided on each vehicle inspection lift, capable of lifting simultaneously both wheels of the front or rear axle of a vehicle. The lift arrangement must be such as to lift the wheels clear of the floor level in one movement.

The jack must also be capable of lifting the axles of vehicles fitted with independent suspension systems in the position recommended by the vehicle manufacturer to check the condition of steering and suspension components.

The lifting capacity of the jacking system must be a minimum of 2.8 tonnes. The use of extensions and saddles is acceptable.

The power jacking system provided must be silenced to meet the requirements of Safety, Health and Welfare at Work Act 2005 (as amended) & S.I. No. 299/2007 - Safety, Health and Welfare at Work (General Application) Regulations 2007 (as amended) and any exhaust must be filtered or arranged to prevent oil deposition. Jacks must be suitable for use on beam axles and independent suspension systems.

7.4 Suspension Tester

A suspension tester shall be provided on each LCV test lane and must be capable of carrying out suspension tests on all light commercial vehicles up to and including vehicles of 3.5 tonnes design gross weight (DGVW) and axle loads of up to 2,600kg.

The suspension tester shall be located not nearer than 3.5m to the entrance door of the test lane and located before the roller brake tester and the underbody inspection (lift) areas. It must be possible for vehicles to be driven on and off the suspension tester without difficulty.

The suspension tester shall consist of a pair of test plates mounted in one unit at floor level the vehicle shall be predominantly level when any axle is placed on the suspension tester.

It is expected that the manufacturer of the Suspension Tester is the same manufacturer of the corresponding roller brake tester, and they are integrated with the same host PC and controlled by the same test equipment software. This is for the purposes of calculating brake efficiency and performance based on the static weight of a vehicle as recorded by the suspension tester.

The suspension testers shall be capable of measuring the damping efficiency of the vehicle and the vehicle's performance imbalance across each axle.

The inspection criteria applied in the evaluation of the damping efficiency shall be that established and adopted by the European Garages Equipment Association (EGEA) and/or International Motor Vehicle Inspection Committee (CITA) or recognised by the European Commission. The method of measurement shall be adaptable to comply with future European directives without an equipment hardware change required.

The CVR test operator shall ensure that a clear and easy to understand comprehensive user manual, written in English is provided and shall be available at any time in the CVR testing centre, which shall explain how it operates, including the function of each aspect of the equipment.

The CVR test operator shall ensure that a comprehensive maintenance manual/programme is provided, which highlights any key components and wear parts that may affect the accuracy of measurement values provided by the manufacturer.

The CVR test operator shall ensure that written evidence is provided that the equipment has been approved to the required specification by the competent authority of a Member State of the European Union.

The CVR test operator shall ensure that the equipment has a durable asset identification mark on its exterior showing the original manufacturer, model type, software version and serial number.

The equipment must be CE marked and comply with all applicable EU safety standards regulations.

Note: At present the method of suspension testing is not stipulated and may be any of the Eusama / Boge / Phase shift methods. Once a pilot programme is completed in the NCT, the results will determine a single method of suspension testing for use in CVRT in the future. The suspension tester specification attached will be updated once the pilot programme is completed.

See Appendix 6 for current specifications details.

7.5 Side Slip Plate (Unit)

A side slip plate (unit) shall be located in the floor on the right-hand side as vehicles enter the test lane and before the suspension tester as per the requirements of Directive 2014/45/EU. The centre line of the side slip plate shall be on the same centre line as the suspension tester pad to allow for the vehicle not to have to deviate from a straight line as it moves over the equipment. The side slip plate must be located a minimum of 1.5m away from the entrance door.

A level floor of 7m must be available before and after the lateral centre line of the side slip plate. If a portion of the 7m approach is located outside the entrance door, a continuous slope up to a maximum of 2% in any metre will be deemed acceptable in this external area.

The side slip plate shall be capable of accurately measuring and recording the steering geometry of front and rear axles of light commercial vehicles with a design gross vehicle weight up to 3,500kg and axle load up to 2,600kg. The side slip to be measured shall be between +/-20m/km. The surface of the side slip plate shall be flat and free of any significant changes that may affect readings.

The CVR test operator shall ensure that a clear and easy to understand comprehensive user manual, written in English is provided and shall be available at any time in the CVR testing centre, which shall explain how it operates, including the function of each aspect of the equipment.

The CVR test operator shall ensure that a comprehensive maintenance manual/programme is provided, which highlights any key components and wear parts that may affect the accuracy of measurement values provided by the manufacturer.

The CVR test operator shall ensure that written evidence is provided that the equipment has been approved to the required specification by the competent authority of a Member State of the European Union.

The CVR test operator shall ensure that the equipment has a durable asset identification mark on its exterior showing the original manufacturer, model type, software version and serial number.

The equipment must be CE marked and comply with all applicable EU safety standards regulations.

See Appendix 4 for current specifications details.

7.6 Headlight Aim Tester (rails & level floor area)

A headlamp aim tester (HAT) shall be provided as per the requirements of Directive 2014/45/EU (as amended). It must be mounted on two rails so that the top surface is recessed at or below floor level to prevent possible distortion or damage and located in front of the certified level floor area on the test lane. Where there is a joint in the rails, the joint must be to a standard that minimises vibration of the HAT as it travels over it.

The rails shall run along the width of the certified level floor area and be of sufficient length to allow the HAT to be stowed to the side of the lane so there is adequate clearance of the driving line.

The rails shall be capable of being secured flat to the floor and level within +/- 1 mm in any metre within the testing area. The tolerance in the level area does not have to extend to the stowed position.

The rails shall be located on the test lane in an area that minimises any additional forces being exerted on them e.g., they should not be located where wheel spin may occur on a vehicle exiting a brake tester.

The rails shall be mounted in concrete or steel or a combination of both. The quality of the installation must be to a standard that ensures that the rails are securely supported, and the installation is robust and durable.

Verification of alignment and/or adjustment of the rails shall be included in the annual calibration procedure.

Verification of a rail's alignment may be required at any time, where it is suspected that the rails have become unlevel, crooked, bent, or loose, or if the floor in which they are mounted, has deteriorated after a period of use.

The CVR test operator shall ensure that a clear and easy to understand comprehensive user manual, written in English is provided and shall be available at any time in the CVR testing centre, which shall explain how it operates, including the function of each aspect of the equipment.

The CVR test operator shall ensure that a comprehensive maintenance manual/programme is provided, which highlights any key components and wear parts that may affect the accuracy of measurement values provided by the manufacturer.

The CVR test operator shall ensure that written evidence is provided that the equipment has been approved to the required specification by the competent authority of a Member State of the European Union.

The CVR test operator shall ensure that the equipment has a durable asset identification mark on its exterior showing the original manufacturer, model type, software version and serial number.

The equipment must be CE marked and comply with all applicable EU safety standards regulations.

See Appendix 5 for current specifications details.

Certified Level Floor Area

The floor area where the vehicle stands for the headlamp aim test shall be a minimum of 6m long and 3m wide. The designated area shall be certified by a competent surveyor as complying with the Headlamp Aim Test Equipment and Floor Area Requirements as shown in Fig.1 in this subsection and specified in this document. A copy of the certificates and the measurements obtained must be submitted to the RSA during the authorisation process.

The certified floor area shall be composed of two rolling tracks, which are clearly indicated on the floor. The floor shall be a constructed of concrete to achieve the required specification.

After initial levelling or resurfacing, a laser measurement by a competent surveyor shall be undertaken. The grid lines for the measurement shall be as shown in Fig.1 in this subsection. The results shall be recorded on an AutoCad drawing provided in an Adobe PDF format or alternatively on a MS Excel spreadsheet that clearly shows in detail the certified level floor area with elevation points on 250mm x 250mm grid dated and signed by the competent surveyor.

LCV Certified Level Floor Area for Headlamp Aim Test

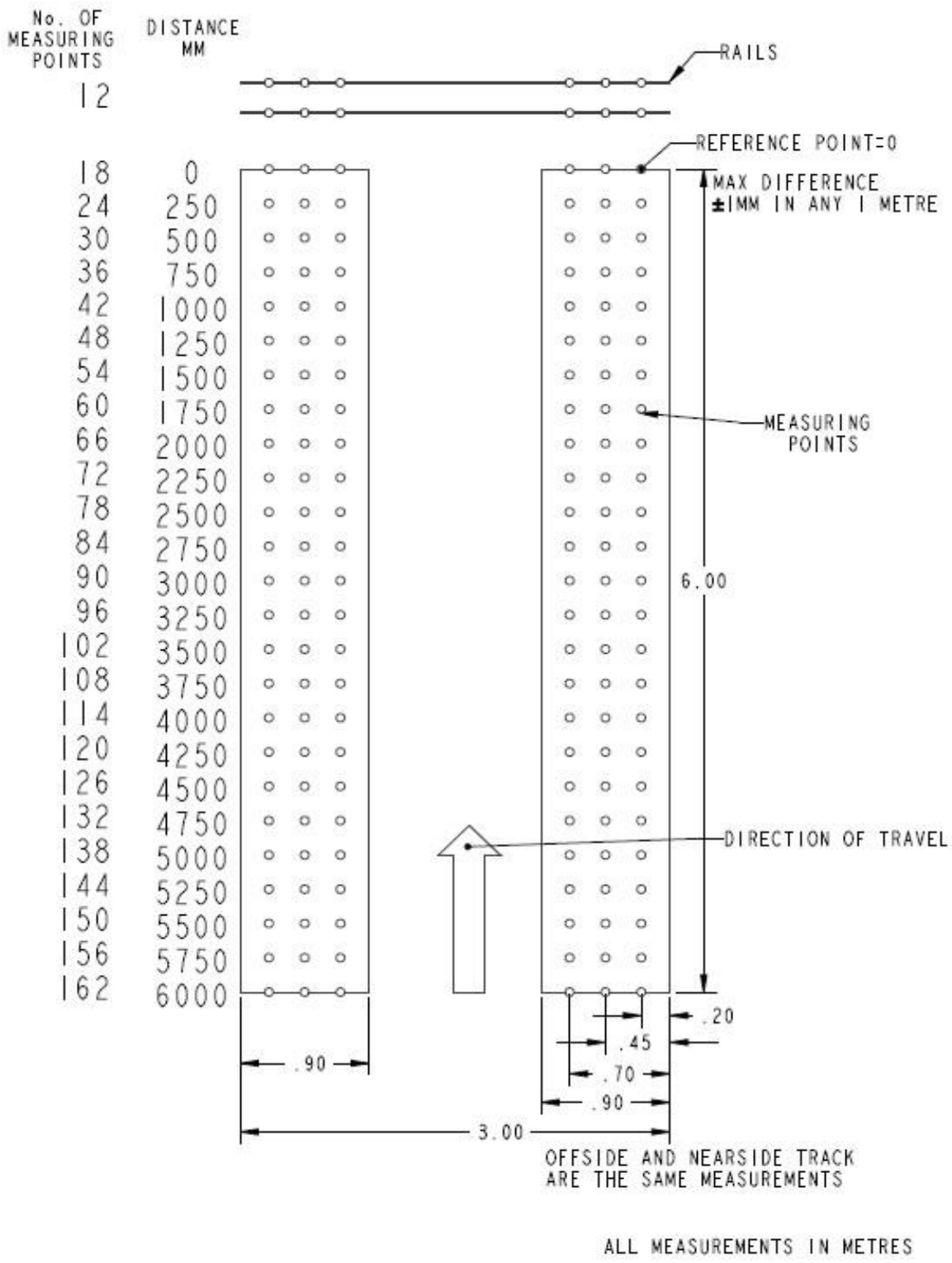


Fig. 1: LCV Certified level floor area diagram

7.7 Diesel Smoke Opacity Meter

A diesel smoke opacity meter shall be provided that is capable of measuring smoke opacity on compression ignition engines as per the requirements of EU Directive 2014/45/EC.

The diesel smoke opacity meter test procedure shall meet the current vehicle inspection specifications for smoke meters (PTB-A- 18.9)

The diesel smoke opacity meter must be able to capture the engine temperature, peak RPM and K mean value of opacity in all cases and return the values to CoVIS.

The CVR test operator shall ensure that a clear and easy to understand comprehensive user manual, written in English is provided and shall be available at any time in the CVR testing centre, which shall explain how it operates, including the RPM and engine temperature measuring devices and function of each aspect of the equipment.

The CVR test operator shall ensure that a comprehensive maintenance manual/programme is provided, which highlights any key components and wear parts that may affect the accuracy of measurement values provided by the manufacturer.

The CVR test operator shall ensure that written evidence is provided that the equipment has been approved to the required specification by the competent authority of a Member State of the European Union.

The CVR test operator shall ensure that the equipment has a durable asset identification mark on its exterior showing the original manufacturer, model type, software version and serial number.

The equipment must be CE marked and comply with all applicable EU safety standards regulations.

Note: New European Regulations for type approval of new vehicles require measurement of particle number emissions as opposed to the current opacity technique. As a result, current emissions equipment will no longer meet the future roadworthiness testing requirements, as new equipment will be required in accordance with the update and review of the Directive 2014/45/EU expected to happen by 2023. Please contact the RSA Authorisation's Team before purchasing any new or replacement diesel smoke or gas analyser emission equipment.

See Appendix 1 for current specifications details.

7.8 Wheel Play Detector Plates

Wheel play detector plates are required (often referred to as Shaker Plates) as per the requirements of EU Directive 2014/45/EC consisting of two plates, located on the front end of each lift platform and shall be of such size that they can safely accommodate the tyres on the front axle of light commercial vehicles. The plates must be permanently secured to the platforms but must not reduce the minimum clearance between the inner edges on the lift platforms.

The device must be equipped with two hydraulic powered plates, capable of being independently operated. One of the plates shall have the ability to move in both the longitudinal and the transversal directions and another plate shall provide a turning movement of the steered front axle or have the ability to move in the transversal directions, a minimum of six movements.

The plates shall be capable of exerting a minimum lateral force of 5kn across the range of movements. The minimum movement of the plates in the longitudinal and the transversal directions shall be 75mm where applicable.

The wheel play detector plates shall be capable of checking steering and suspension components on commercial vehicles with axle loads up to 2,600kg.

The movement of the plates must be controllable by the operator equipped with a pre-set operation mode from the remote control from under the lift, such that, at the same time all steering and suspension components on the front and rear of the vehicle can be closely inspected e.g., by a portable type of hand control.

The hand control should have a press and hold function to ensure the plates move over and back repeatedly until the button is released. Ideally the hand control should be wireless and have an OEM robust protective rubber cover that can sustain being repeatedly dropped on the floor.

Any hydraulic supply must be filtered to ensure reliability of the plates and must be filtered to avoid excessive exhaust oil deposits.

7.9 Low Voltage Inspection Lamp

A low voltage type inspection lamp shall be provided, (at least one lamp per test lane) and be in line with the requirements of Safety, Health, and Welfare at Work Act 2005 (as amended) & S.I. No. 299/2007 - Safety, Health, and Welfare at Work (General Application) Regulations 2007 (as amended).

Portable LED rechargeable light units shall also be acceptable if they are of a suitable specifications and illumination levels for use in automotive inspections.

7.10 Electrical Socket Output Tester (12v)

A device shall be provided for checking the outputs of 12V 7-pin & 13-pin connectors with sufficient load resistance to operate the outputs on electrical socket on vehicles fitted with towing couplings. This may be a dedicated light tester device or a trailer light board.

7.11 Wheel Chocks (2)

Wheel chocks (2) per each LCV test lane shall be provided for use, to prevent the vehicle being tested from moving while being tested with the parking brake released.

7.12 Light Check Mirrors

Light check mirrors shall be provided in appropriate positions around the test lane to facilitate the testing of the lights on vehicles by the CVR tester while seated in the driving seat of the vehicle being tested.

These shall be convex mirrors of a minimum size of 300mm in diameter. See section 3 LCV lane layout diagram for location of check mirrors.

7.13 Pinch Bar (0.6-meter length)

A pinch bar 0.6m (minimum) in length shall be provided, at least one pinch bar per LCV test lane is required to facilitate the checking of suspension ball joints on vehicles.

8. Vehicle Testing Equipment Common to both HCV & LCV Lanes

8.1 Fume extraction system	8.8 Feeler blades
8.2 Emissions gas analyser	8.9 Corrosion assessment tool
8.3 Decelerometer*	8.10 Vehicle technical data*
8.4 Glass opacity meter	8.11 On board diagnostic (OBD) scan tool*
8.5 Tyre inflation equipment	8.12 Device to Detect Gas Leakages
8.6 Tyre tread depth gauge*	8.13 Equipment to record Vehicle underbody inspections*
8.7 Digital Vernier callipers	

***Item to be connected to CoVIS.**

Note: Tyre tread depth gauge minimum requirement is one per test lane

8.1 Fume Extraction System

A fume extraction system shall be installed on each test lane, to help prevent a build-up of exhaust fumes or other noxious gases, and to minimise the risks of adverse effects on the Health and Safety of CVR testers, other staff, and customers.

It must be equipped with appropriate hoses/connections to enable the system to be connected to the exhaust tail pipes of vehicles at the point where the emissions test is being conducted. There is no requirement for the equipment to reach all parts of the lane.

8.2 Emissions Gas Analyser

An emissions 4 gas analyser shall be provided which is capable of measuring the CO (carbon monoxide), HC (hydrocarbons), CO2 (carbon dioxide) and lambda values of exhaust gases of petrol engine vehicles, to the method of test and standards set out in (Directive 2004/22/EC) Directive 2014/45//EU as amended and approved to the requirements of OIML Class O. The gas analyser must be capable of measuring emissions up to and including Euro 6.

The emissions gas analyser shall be capable of operating in the following ranges:

(a) RPM 100-7500 1/min

(b) CO 0-10% vol

(c) HC 0-10,000 ppm

(d) Lambda 0.4-4.0

The exhaust gas analyser shall have a durable identification mark on its exterior or its control unit showing the make, model, and serial number.

Note: Emission standards have changed in recent years and the current equipment may no longer meet the future roadworthiness testing requirements, as new equipment may be required in accordance with the update and review of the EU directive 2014/45/EU expected to happen by 2023. Please contact the RSA Authorisation's Team before purchasing any new or replacement diesel smoke or gas analyser emission equipment.

8.3 Decelerometer

An electronic type decelerometer shall be available for brake tests where the use of a roller brake tester is not appropriate for the vehicle. The unit shall be capable of measuring the rate of change in the speed of a moving vehicle during deceleration and capable of measuring brake pedal force. The unit shall be compatible with the types of vehicles presenting at CVR testing centres.

The decelerometer shall include the following features:

- Be self-levelling.
- Capable of automatically sensing the direction of travel.
- Shall have a pedal adapter.
- Capable of linking in to the CoVIS system for uploading the results of the test.
- Capable of measuring peak and mean fully developed deceleration (MFDD), test speed, stopping distance, time to stop.
- Capable of measuring Maximum pedal force.
- Capable of measuring distance travelled.
- Capable of measuring Braking times (start, end duration)
- The report of the brake test results shall include, at minimum, the following information:
    - Date & time of test
    - Vehicle registration number
    - Test speed in KPH; and
    - Brake efficiency (in percent)
- Be accurate to within +/- 3% with respect to braking deceleration.

The decelerometer shall be capable of measurement in accordance with ISO/TR 13487 (Road Vehicles: Brake Systems and Equipment). A decelerometer unit that is integrated to the Onboard Diagnostic Scan Tool shall also be an acceptable proposal for consideration by the RSA provided it meets the requirements of both devices set out by the RSA.

Note: Detailed specifications for this equipment will be provided at a later stage. Please contact the RSA Authorisation's Team before purchasing a new decelerometer.

8.4 Glass Opacity Meter

A portable glass opacity meter shall be available for use, which is capable of measuring the transparency of automotive glass in motor vehicles.

The unit shall be capable of testing all automotive window surfaces on the range of vehicles expected to be presented for a CVR Test, including the front windscreen and front side windows, measuring the amount of light received and converting to a percentage of light transmission.

The unit shall be of a type employing a precision light source, dual magnetic probes with a fixed light beam or equivalent technology. Light meters shall be of a type that has been approved by at least one other Member State of the European Union.

The units shall be capable of measuring within a range of 0 to 100% with a resolution of, at minimum, 0.25%. The unit shall be accurate to +/- 3%. The unit shall be suitable for reliable use in a roadworthiness test centre environment.

8.5 Tyre Inflation & Pressure Gauge Equipment

At least one tyre inflation tool and one tyre pressure gauge integrated into one unit shall be provided. The equipment must be capable of inflating tyres on vehicles to the manufacturer`s recommendations. The equipment must be capable of checking and pressurising tyres to at least 8.2 bar (120p.s.i.)

8.6 Tyre Tread Depth Gauge Device

A tyre tread depth gauge shall be provided on each test lane. The gauge may have a digital readout or a clearly marked scale in mm to one decimal place.

Each test lane shall also be equipped with at least one Tyre Tread Depth Device. The unit shall have a digital display that presents tread depth. The units shall be capable of transmitting the results to CoVIS.

The unit is required to have the following properties:

- Measurement range of 0-10mm
- Resolution 0.1mm
- Accuracy 0.1mm

Note: Detailed specifications for this equipment will be provided at a later stage and the Authority will then advise of the required implementation date.

8.7 Digital Vernier Callipers

A digital Vernier callipers shall be available. The unit shall comply with the following requirements:

- Stainless steel construction
- Digital display screen
- Zero calibration switch
- Measurement Range: 0 - 150mm
- Minimum Resolution: 0.1 mm
- Accuracy: 0.03mm
- Comply with ISO 13385-1:2011.

8.8 Feeler Blades

A set of feeler blades shall be available for use with a minimum range of 0.1 mm to 1.00mm.

8.9 Corrosion Assessment Tool

A Corrosion Assessment tool shall be available for use for checking corrosion on vehicles. This should incorporate a light plastic hammer and scraper suitable for checking the condition of the chassis, bodywork, brake pipes etc.

8.10 Vehicle Technical Data

CVR test operators shall ensure that their CVR testers have access to vehicle data in the test area to check relevant information for vehicles being tested. This should be achieved by the use of a real-time vehicle data reference system or through the use of the internet. CVR testers shall have the ability to access information on at least the following items:

- vehicle identification number location.
- maximum RPM values and operating temperatures for diesel engines.
- data on ABS / EBS warning light sequences.
- data on air bag warning light sequences.

Note: The European Commission implemented regulation EU2019/621 on 17 April 2019. This regulation is related to the technical information that vehicle manufacturers are required to provide and which is necessary for roadworthiness testing. The details on how this technical information will be available for CVR test operators to access will be provided at a later stage.

8.11 On Board Diagnostic (OBD) Scan Tool (20 May 2023)

Under the requirements of the Directive 2014/45/EU the OBD scan tool requirements from 20 May 2023. The device shall be provided to connect to the electronic vehicle interface, i.e., an onboard diagnostic (OBD) scan tool. The device shall be the standalone reader type. Data transmission to CoVIS shall be required.

The devices shall be capable of reading and transmitting data from the electronic control unit (ECU) of all brands and models compatible with OBD that would be expected to present for vehicle testing.

The OBD scan tool unit shall be efficient at connecting to the vehicle's OBD interface and retrieving data from the vehicles to OBD I and OBD II specifications, including EOBD fault codes (diagnostic trouble codes) and real time data including ADAS functions and be capable of accessing manufacturer (vehicle) specific ECU parameters.

Note: Detailed specifications for this equipment will be provided at later stage.

8.12 Device to Detect Gas Leakage (1 January 2023)

Under the requirements of the Directive 2014/45/EU, a device to detect gas leakage on vehicles powered by LPG/CNG/LNG shall be available for use if such vehicles are tested.

Note: Detailed specification for this equipment will be provided at a later date.

8.13 Equipment to Record Vehicle Underbody Inspections

Equipment to record vehicle underbody inspections during CVR tests shall be provided.

Note: Detailed specification for this equipment will be provided at a later date.

9. Vehicle Testing Equipment for Fast Tractors

9.1 Decelerometer (with printout facility) *	9.5 15mm hook & eye type coupling gauge
9.2 Parking brake assessment slope	9.6 Electrical socket output tester (12v)
9.3 Equipment to check ISO7638 outputs (12v)	9.7 Category 2 & 3 lift arm balls
9.4 Hydraulic pressure gauge	9.8 Gauge to measure wear on hook type coupling

***Item to connect to CoVIS.**

9.1 Decelerometer (with printout facility)

A decelerometer shall be provided for checking the efficiency of the service brake by measuring the rate of deceleration from a specified speed until the vehicle comes to rest. Refer to Item 3 in common equipment section for requirements.

Note: Detailed specifications for this equipment will be provided at a later stage. Please contact the RSA Authorisation's Team before purchasing a new decelerometer.

9.2 Parking Brake Assessment Slope

A slope shall be provided for assessing the performance of the parking brake on Fast Tractors. The slope shall be of a gradient of 16 per cent (9.09 degrees), with an acceptable tolerance of +/- 25mm for every 500mm. The slope shall be capable of accommodating vehicles with a wheelbase of not less than 5.0 metres and a width of not less than 3.5 metres such that the entire vehicle (i.e., all axles) can be parked safely on the sloped surface.

For example, if the slope length is 7.00m, the raised end of the slope should be 1.11m higher than the non-raised end of the slope to give the required gradient, assuming that slope is located on a level area – see Figure 1 in this section.

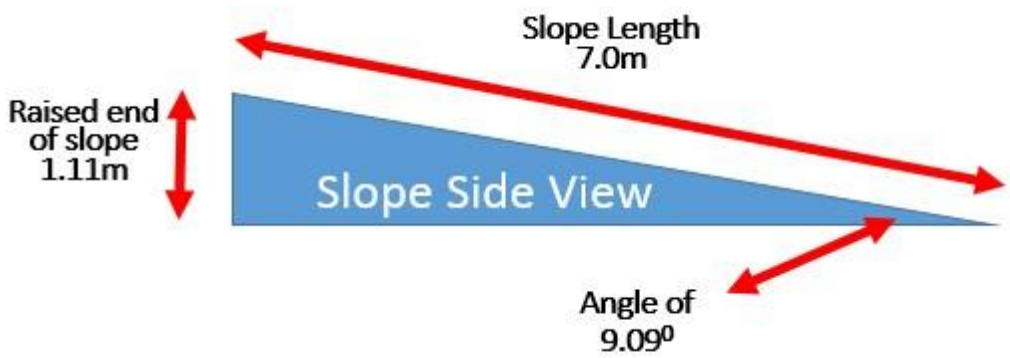


Figure 1 Example of slope calculations (not to scale)

There shall be sufficient clearance around the vehicle when positioned on the slope to ensure adequate health and safety provisions are in place for the protection of vehicle testing personnel. This would include adequate guarding to provide for fall protection.

The test area need not be under cover but the surface of the platform where the wheels of the Fast Tractor may be in contact shall have sufficient grip to ensure that locked wheels of the Fast Tractor will not slip down the slope, even under adverse weather conditions.

The slope shall be capable of accommodating the weight of a Fast Tractor of not less than 18 tonnes, but the design of the slope should also incorporate a sufficient margin of safety in its construction.

Note: This description is intended only to outline the configuration of a parking brake test slope to test fast tractors. Safe construction and operation of such a test slope and the potential risks associated with building and using such a test slope are outside the scope of this document. Test centres should take their own expert advice as necessary as regards the safe construction and safe operation in practice of any test slope.

9.3 Equipment to Check ISO7638-2 Connector Outputs (12v)

Equipment to check the outputs of the ISO7638-2 connector on fast tractors fitted with EBS systems. shall be provided.

Note: This test equipment is in addition to the HCV equipment required for checking 24v outputs of the ISO 7638 connector on towing vehicles.

9.4 Hydraulic Pressure Gauge

A hydraulic pressure gauge with hose and appropriate attachment shall be provided to check the outlet pressure of the brake hose coupling on fast tractors. The gauge shall be capable of registering a pressure up to 200 bar (approx. 3000 PSI) at a minimum and be provided with a yearly certificate of calibration.

9.5 Hook & Eye Type Coupling Gauge

A gauge shall be provided for assessing the level of wear between the hook and the keeper plate on a hook & eye type coupling fitted to a fast tractor. The gauge should be a metal plate, at least 100mm long by 40 mm wide, with an exact thickness of 15 mm and fitted with a handle for ease of use.

9.6 Electrical Socket Output Tester (12v)

A device shall be provided for checking the outputs of a 12V 7-pin N electrical socket on fast tractors. This may be a dedicated light tester device or a trailer light board.

9.7 Category 2 & 3 Lift Arm Balls

At least one category 2 and one category 3 lift arm balls shall be provided for assessing the level of wear on lift arms fitted on fast tractors. The ball should be fitted on bars for ease of use.

9.8 Gauge to Measure Wear on a Hook Type Coupling

A gauge shall be provided for assessing the level of wear on the hook part of a hook & eye type coupling fitted on a fast tractor. A suitable spanner to the appropriate dimensions is also acceptable.

Annex A

The details in this section are **specific to existing CVR test operators applying to renew their authorisations**, including LCV & HCV only testing centres.

CVR test operators, who are seeking to renew their authorisation utilising their existing testing premises, shall meet the minimum dimensions required for testing centres in place since 2004 as detailed below.

CVR test operators shall meet all other requirements in these guidelines, including any relevant improvements recommended in the strategic review of CVR testing conducted in 2019, as detailed below.

Any proposed additional or relocated test lane at existing premises shall be required to meet the latest minimum requirements for a new CVR testing centre. Also, where a CVR test operator is proposing to relocate to another testing premises, the premises used shall be required to meet the latest minimum requirements for a new CVR testing centre.

Standards for CVR testing centre lanes where the CVR test operator is applying for a renewal of authorisation using the premises and facilities authorised at the time of application.

Dimensions	HCV	LCV
Internal length of lane	24m	18m (1)
Internal width of lane	6m	4.25m
Length of Inspection Pit	Min 20m excluding steps	N/A
Inspection Pit width at floor level	Between 0.85m and 1.25m	N/A
Inspection Pit Depth	Between 1.35m and 1.65m	N/A
Entrance & exit door height	4.8m	3.2m
Entrance & exit door width	4.25m	3.5m
Internal headroom clearance	4.8m	3.5m
Drive through test lane	Yes	Yes
Internal headroom clearance over Vehicle Lift	N/A	4.9m

(1) The minimum length of an LCV lane shall be determined by the requirement to have a dedicated certified level floor area for the headlamp aim test, the area required for the side slip plate, suspension tester and the roller brake tester and the area required for the lift. The estimated minimum length required to accommodate the spacing of all this equipment will be approximately 18m.

(2) Where the Authority is satisfied that the CVR testing centre is, and will continue to be, an appropriate and adequate facility for the purposes of carrying out CVR testing tolerances of no more than 5% may be permitted on no more than two of the measurable dimensions listed above. This does not apply to the drive through requirement.

Entrance to test lanes requirement

The entrance area to the test lanes must be as level as possible. If a slope is necessary, it must be gentle and 3% or less. However, if it is not possible to achieve a 3% slope this can be increased to a maximum of 5%. The slope must be away from the building and be continuous, i.e., it must be flat and not comprise of short, stepped sections joined by level sections.

Where there is a requirement in the guidelines for a specific length of level floor area to be available before certain test equipment, it is acceptable if a portion of this level is located outside the lane entrance door and meets the slope requirement as detailed above.

Customer View of Test Area

Where it is not possible to have a direct view of the test lanes from the customer waiting area, the use of CCTV for this purpose is acceptable. The size of the display monitor in the customer waiting area must be at a minimum 32-inch screen size. CCTV shall be operational and in use while any CVR testing is in progress.

Layout of Equipment

Test lane equipment must be laid out with at least 1m between the inside of a wall, an entrance or exit door and vehicle lift platforms.

Decelerometer

Detailed specifications for this equipment will be provided at a later stage. Until this specification is available, existing non-electronic decelerometers will be acceptable until advised otherwise. Please contact the RSA Authorisation's Team before purchasing a new decelerometer.

Tyre Tread Depth Gauge

A tyre tread depth gauge shall be provided on each test lane. The gauge may have a digital readout or a clearly marked scale in mm to one decimal place.

Vehicle Technical Data (Diesel Data Charts)

CVR test operators shall ensure that their CVR testers have access to vehicle data in the test area to check relevant information for vehicles being tested. For vehicles first registered up to 2018, a Diesel Data Chart may be used. For vehicles first registered on or after 2019, this should be achieved by the use of a real-time vehicle data reference system or through the use of the internet. CVR testers shall have the ability to access information on at least the following items:

- vehicle identification number location
- maximum RPM values and operating temperatures for diesel engines
- data on ABS / EBS warning light sequences
- data on air bag warning light sequences.

Summary of improvements recommended in the strategic review of CVR testing conducted in 2019 are as follows:

- All HCV & LCV lanes shall be required to have a drive through facility.
- All HCV pits must be 20m in length excluding steps.

- CVR test operators will be required to upgrade and improve the standard of their premises where necessary, including the customer waiting area.
- All LCV lanes will be required to have a lift for vehicle underbody inspections, the use of pits will no longer be acceptable for this purpose.
- CVR test operators will be required to refresh equipment where additional functionality becomes available/required or to replace equipment which does not meet requirements or due to condition. Introduction of improved maintenance regime for equipment
- A clearly defined physical partition between the CVR testing lanes from all other activities on the premises. The partition must be full height from floor to ceiling, be a robust and stable construction.
- The use of the lift on the LCV lane as the certified level floor area for the headlamp aim test will no longer be acceptable. A separate certified level floor area must be provided on each test lane.

Standard of Premises

- The premises shall be fully weatherproof and maintained to industry standard. The external and internal signage must comply with the CVRT branding guidelines. The branding guidelines are located on the testing centre portal.
- The premises shall have a properly equipped reception office and customer waiting are and be of sufficient size to accommodate the expected volume of customers. The waiting area shall have adequate seating for customers and with a view of test lanes. Space shall be provided in the customer waiting area for an RSA stand to display relevant information material and Road Safety messages.
- Separate dedicated toilet facilities for customers shall be provided, attached to the customer waiting area (toilets must be suitable for disabled persons)
- Separate toilet and washing facilities shall be provided for CVR testing centre staff.
- The floor of the test area shall be painted or otherwise finished to provide a sealed surface to facilitate easy cleaning and must be slip resistant. The test area must be clean and free of any equipment not connected with CVR testing.
- The test lanes shall have sufficient lighting to facilitate the inspection of all categories of vehicles being tested. The level of illumination and light distribution shall be adequate to enable vehicle inspections to be carried out with ease at all levels, in compliance with Health and Safety and Building Regulations.
- There shall be unobstructed access to the test lanes via a concrete/bitumen based or similar hard standing surfaced driveway from the site entrance to the test lane entrances and from the test lane exits to the site exit.

Appendix 1– Diesel Smoke Opacity Meter Specifications (DSOMS)

Definition and terms;

A free acceleration – from idle, with no load on the engine, where the engine is accelerated against its own inertia by depressing the throttle pedal quickly and continuously (in less than one second) but not violently, so as to obtain maximum delivery.

Trigger – the smoke meter recognises that a free acceleration is in progress and commences recording of the peak opacity achieved for a set period of time.

EOBD - (European On-Board Diagnostics) European regulations which are the equivalent of OBD-II, with the same SAE J1962 diagnostic link connector and signal protocols being used.

Zero check- the smoke chamber is checked and reset if necessary to ensure it has a value of 0.00 m-1 prior to the first free acceleration in the test procedure

Section 1.

1.1 General overview

(a) A Diesel Smoke Opacity Meter shall be provided that is capable of measuring smoke opacity as per the requirements of EU Directive 2014/45/EC.

(b) The Diesel Smoke Opacity Meter test procedure shall meet the current vehicle inspection specifications for smoke meters (MOT/08/19/01 3rd revision 2007). See Appendix 1 for a summary of requirements.

(c) The smoke tester must connect to a PC running software capable of outputting test data to CoVIS via the protocols as set out in Section 3 below.

(d) The smoke meter must be able to capture the engine temperature, peak RPM and K mean value of opacity in all cases and return the values to CoVIS

Section 2.

2.1 General Specification

The Diesel Smoke Opacity Meter shall have the capacity to;

(a) Include an internal clock and calendar.

(b) Detect a free acceleration automatically.

(c) Record RPM in real time.

(d) Record Engine temperature.

(e) Connect an appropriate exhaust sampling probe.

(f) Apply the correct test procedure to each vehicle type and category.

(g) Operate and produce a print-out independent of CoVIS.

(h) Clearly display the user screen showing prompts and readings for the duration of the test.

(i) Operate correctly without any disturbance or interference from other radio frequencies and electromagnetic fields that are experienced in the test centre environment.

(j) Notify the user at maintenance intervals and manage its maintenance log.

2.2 Clock and calendar

The clock and calendar in the meter must have the following features;

(a) EU format - dd/mm/yyyy and hh.mm.

(b) Adjustable by user.

(c) Summer / wintertime adjustment.

(d) 24-hour clock standard format.

2.3 Free Acceleration Detection Requirements

A free acceleration trigger shall be induced by any of the following;

(a) Minimum peak RPM (minimum accepted is twice the idle speed).

(b) Smoke temperature increase in the measuring chamber.

(c) Smoke pressure increase in the measuring chamber.

Also:

(d) On detecting a free acceleration, the maximum opacity reading shall be recorded for the duration of the free acceleration.

NOTE - A trigger that is induced manually or by a change in opacity is not acceptable.

2.4 RPM Real Time Recording

(a) An RPM measuring device as recommended by the manufacturer that is capable of measuring real time RPM on all vehicles, where no detectable delay or interference is observed must be connected to the meter.

(b) An on-board diagnostic interface to EOBD standard must be provided that is capable of detecting RPM on vehicles that are EOBD Compatible.

2.5 Engine Temperature Recording

(a) The Diesel Smoke Opacity Unit will have a temperature measuring device connected that is capable of measuring engine temperature on HCV and LCV Vehicles in degrees Celsius.

(b) Where a device detects temperature using the engine oil (oil probe), it shall be capable of being inserted via the dipstick on LCV and HCV vehicles. It shall be adjustable in length so as to match the dipstick length.

(c) Where such an oil probe is used, the operator shall be prompted to remove the oil probe once conditioning has been achieved prior to commencing free accelerations.

(d) An On-board Diagnostic interface to EOBD standard must be provided that is capable of detecting engine temperature on vehicles that are EOBD Compatible.

2.6 Exhaust Sampling Probes:

The Exhaust sample probe(s) shall;

(a) Have, where applicable, the appropriate exhaust sample probe for each vehicle class and exhaust pipes of various shapes, sizes, outlet angles and positions. You must be able to position the sample probe effectively central in the exhaust pipe to the flow of exhaust gas in straight tailpipes and those with bends close to the tailpipe outlet.

(b) Have a durable clamping device that ensures the probe is securely attached for the duration of the test. The device must be easy and quick to attach and disconnect such as a spring-loaded clamp.

(c) Maintain an effective path from exhaust to the measurement chamber that does not impede the flow of gases and will not allow any significant loss in the air pressure, temperature, and opacity of the sample.

(d) For use on HCV - have a provision to reach vertical stack or central exit exhausts with a probe that meets the Smoke Meter Manufacturers specification and where the probe can be inserted by the vehicle tester from a safe position.

(e) Adjust timings in the test procedure that suit various exhaust probe pipe lengths used for the test e.g., a different sampling time or probe infill time may be required on different types of vehicles.

(f) Ensure the length of exhaust probe and max temperature tolerance is to manufacturer's specification only. Any modifications to the probes /extensions must be approved by the equipment manufacturer.

2.7 Test procedures

(a) Vehicle type shall fall into two categories HCV or LCV and appropriate infill and sample timings shall adjust accordingly.

(b) The smoke meter must be capable of dealing with the various test procedures for each category and vehicle type as set out in the relevant testers' manual.

(c) Carry out a zero check and reset, if necessary, prior to commencing initial free acceleration.

(d) Check for any zero-point drift that may have occurred during the complete test procedure. Excess of 0.1m-1 or +/-5% of the arithmetic mean or whichever is greater shall display an error and no result.

(e) Automatically stop the test sequence if the measured value of the first acceleration is less than or equal to the fast pass smoke limit and produce a pass result – for any greater value the test shall continue on up to the maximum 6 accelerations.

(f) Automatically stop the test sequence if the measured value of the first acceleration is greater than or equal to 9.99m-1 and evaluate the value with a fail result.

(g) Pass / fail shall correspond to the limits applied by the RSA as per the vehicle tester's manual.

2.8 Standalone operation

The smoke meter shall have the capability to;

(a) Operate independent of CoVIS

(b) Store the test report on the local PC and make accessible for future review

(c) Produce a printed report (see Section 7 for details)

2.9 Smoke meter display and location

Where the vehicle tester is positioned in the standard driving position;

(a) There shall be a clear and uninhibited view of the Diesel Smoke Opacity Meter screen, particularly in poor light conditions or bright sun light.

(b) There shall be no requirement to acknowledge prompts after conditioning has completed and the last request for a free acceleration in the test procedure.

(c) The Diesel Smoke Opacity Meter controls/keyboard that are not shared between lanes shall be located on the driver's side.

(d) When the smoke meter is installed, it must not inhibit overview of the CCTV camera or the reading of the number plate by the ANPR camera.

NOTE; Detail on equipment layout may be found in the Premises and Equipment Guidelines.

2.10 Environmental conditions and disturbances:

The Diesel Smoke Opacity Meter shall operate correctly and be to a durable standard that;

(a) It is designed to have a minimum working life of 5 years in a test centre environment (this excludes any peripherals that are considered wear parts e.g., RPM pick up, oil temperature probes etc.)

(b) It maintains its accuracy whilst in service – subject to the manufacturer's maintenance and service schedule.

(c) It will not emit any radio interference or radio disturbance that may interfere with any other test equipment in the test centre.

(d) It will not allow any disturbance to be experienced from electromagnetic fields in the test centre, including the RPM and oil temperature instrumentation.

(e) Should an interference arise at a test centre with other test equipment, the onus is with the equipment provider who most recently installed the offending equipment to resolve the issue.

(f) A result will return as “void” should a test fail to complete due to a disturbance or interruption – example battery failure on mobile units or mechanical shock. This unsuccessful test will not return to CoVIS. The smoke test will have to recommence at the start of the procedure.

(g) The battery life on a mobile unit shall have the capacity to complete at least two successive full HCV Tests with maximum free accelerations without a requirement to charge between tests.

2.11 Maintenance and cleaning

(a) The accuracy of the Diesel Smoke Opacity Meter shall be verified at least once every week. The unit shall be prevented from operating if the verification is not carried out or is out of the manufacturer’s tolerance.

(b) The service intervals shall be, at a minimum, set to the manufacturer’s recommendation and shall display the information and status clearly to the operator showing how many days are remaining.

(c) The machine shall notify the user if the chamber or the optics require cleaning between service intervals and prevent further use until issue is resolved.

Section 3.

3.1 Connection to CoVIS

(a) A host PC must be provided to communicate between the smoke tester and CoVIS. This PC must be capable of communicating to CoVIS via ASA network standard on a network i.e., requires a network card dedicated to communicating with CoVIS or the centre’s LAN.

(b) The PC must have the date and times set to match the CoVIS Admin Computer.

(c) The date and time format must be set to a standard Irish date\time format and time zone.

(d) There shall be no firewalls or firewall rules preventing data from transferring to\from ASA Network.

(e) The Diesel Smoke Opacity Meter or its host must have the capability to receive test orders transmitted by CoVIS and return test results to CoVIS using the ASA network secure common industry standard interface - see example in **Section 9**.

(f) The Diesel Smoke Opacity Meter shall have the capacity to electronically transmit test measurement values for peak RPM (measured in revolutions per minute) at the instance of recording peak opacity - see the highlighted content in **Section 9**.

(g) The Diesel Smoke Opacity Meter shall have the capacity to electronically transmit a test measurement values of the engine temperature achieved (measured in °C) prior to the initial free acceleration - see the highlighted content in **Section 9.**

(h) The Diesel Smoke Opacity Meter must be capable of returning the mean value of opacity, based on the rules set out in **Section 9.**

(i) The unit of opacity returned will contain the calculated mean value in K m-1. (1/m).

(j) The Diesel Smoke Opacity Meter must provide a start date / time for each test.

(k) The Diesel Smoke Opacity Meter must provide an end date / time for each test.

(l) The Diesel Smoke Opacity Meter must provide the serial number of the equipment used for each test.

3.2 Input Test order detail from CoVIS

(a) Use the standard ASA network requirements input data.

(b) CoVIS sends the following for all test orders:

(i) Order type id.
(ii) Order Description.
(iii) Reg No.
(iv) EU Vehicle Category.
(v) Date of first registration.
(vi) No Axles.
(vii) Fuel Type.

(c) The Smoke Meter must be capable of receiving data inputs from CoVIS and altering the test procedure based on date of first registration and fuel type received.

Section 4.

4.1 Documentation/Identification

(a) The Diesel Smoke Opacity Meter shall have a durable identification mark on its exterior or its control unit showing the make, model, and serial number.

(b) The manufacturer of the Diesel Smoke Opacity Meter shall provide a clear and easy to understand user manual, written in English and available at any time to the test centre, which shall explain how it operates and the function of each aspect of the unit including the RPM and engine temperature measuring devices.

(c) The manufacturer of the Smoke Opacity Meter shall provide a recommended "maintenance procedure".

Note; Valid and current calibration certificates shall be scanned and uploaded to CoVIS. An original hard copy shall be stored securely and made accessible for inspection for 12 months.

Section 5.

5.1 Calibration of Smoke Opacity Meter and engine observation devices

(a) The calibration service provider, as part of their quality programme, shall adhere to the CITA 9B Quality Requirements (see Section 8).

(b) The manufacturer of the Diesel Smoke Opacity Meter shall, if requested, provide a technical handbook in English with a description of the calibration technology for review.

(c) The calibration procedure shall match the manufacturer's recommendation.

(d) For an initial set up, the installer shall provide a calibration certificate.

(e) A competent person shall calibrate the equipment every 12 months, or more frequently if required, using equipment to a standard specified by the manufacturer.

(f) The temperature measuring device shall be capable of measuring engine temperature with an accuracy of +/- 5% relative and equivalent to an indicated oil temperature of up to at least 90° C and suitable for HCV and LCV vehicles – details on how this is verified must be documented.

(g) The engine speed (RPM) measuring device shall be capable of measuring engine speed with an accuracy of +/- 5% relative and equivalent to an indicated stable RPM of approximately 2000 rpm for an uninterrupted sampling time of 10 seconds. The reaction time to a change in RPM shall be <=500ms and suitable for HCV and LCV vehicles – details on how this is verified must be documented.

(h) A condition report will be carried out by a competent person at 12-month intervals or if the unit is potentially damaged in any way (it may be carried out at time of calibration).

Particular attention shall be made to the following and noted;

(i) Cabling for RPM and engine temperature measuring devices are not excessively twisted, damaged, or frayed.

(i) Connection points are not worn and are securely plugged in.

(ii) 230V electric supply cabling meets current Irish electrical safety standards.

(iii) Exhaust probe meets manufacturer's specification for LCV testing (where appropriate).

(iv) Exhaust probe meets manufacturer's specification for HCV testing (where appropriate).

(v) Hose length and internal diameter meets manufacturer's specification.

(vi) Hose is continuous from probe to measuring head and is free of pipe joiners and repairs.

(vii) Probe and hose are free of carbon build up internally.

(viii) Hose connections to the probe and the opacity measuring head are sufficiently secure and sealed ensuring there is no leakage of the smoke sample taken during the test.

(ix) Time and date is in EU format and synchronised to the nearest minute with the central CoVIS computer.

Section 6.

Smoke Test Procedure and Calculations of Mean Value (ref; Directive 2014/45/EU) Limits are subject to change by the RSA in line with the Directive.

Where the date of first registration of the vehicle is *prior to* 1st July 2008

There are two categories with different limits;

- Turbo: max limit mean value of 3.0 k m-1
- Non-Turbo: max limit mean value of 2.5 k m-1

Testing rules;

- There must be at least one pre-test blow out acceleration.
- There must be at least three free accelerations with a maximum of six allowed.
- Test is concluded and passed on the mean value of the last three valid accelerations if the value is below the category limit.
- In the case of HCV testing a gap of at least 10 seconds between the release of the accelerator and the prompt to carry out the next acceleration from idle is required.

Where the date of first registration of the vehicle is *on or after* 1st July 2008

There is only one category with a max limit of 1.5 k mean

Testing rules;

- There must be at least one Pre-test blow out acceleration.
- There must be at least one free acceleration and six is the maximum allowed.
- Test is concluded and passed on less than three valid accelerations if reading is below 1.5 k m-1.
- Test is aborted and failed on first valid acceleration if reading exceeds 9.99 k m-1.
- Where no valid mean value has been achieved a ‘void’ result will be returned.
- In the case of HCV testing a gap of at least 10 seconds between the release of the accelerator and the prompt to carry out the next acceleration from idle is required.

Section 7

Printout report
Key Points;

(a) The test values on the printout report must match the data values returned to ASA network for CoVIS i.e., where a K mean value is calculated and presented with two decimal places.

(b) The K mean value will be rounded down to two decimal places.

(c) The printout shall display the Peak Engine Speed in RPM.

(d) The printout shall display the Engine Temperature in Degrees Celsius.

(e) The printout shall display the Calculated K mean Value in m-1 set to 2 decimal places.

(f) The RBT shall have the capability to operate independent of CoVIS and produce a printed report.

The Printout must include at minimum the following details on the report.

- Test Centre Details – Name / Address / Centre number.
- Completion time and date of test – dd/mm/yyyy - hh/mm.
- Vehicle Registration – Registration Number.
- Date of First Registration.
- Vehicle category – HCV or LCV.
- Test Category - Turbo / Non-Turbo / Fast Pass.
- Engine temperature - °C.
- Peak RPM - max engine RPM.
- K mean value – measured in m-1 set to 2 decimal places.
- Test limit applied - value in 0.00.
- Outcome of the test – Pass / Fail / Void / Aborted.
- Provision for CVR tester's signature and tester number issued by the Authority.

Section 8
CITA 9B Quality Requirements Covering Calibration.

8.1 Calibration

8.1.1 The inspection body shall ensure that there are proper arrangements to adequately control and calibrate vehicle inspection equipment before and during use, in order to ensure its accuracy, its conformity to the relevant requirements and its continued suitability and to provide confidence in decisions based on measurements.

8.1.2 The calibration procedures, sometimes known as calibration programmes, shall define the calibration processes, their environmental conditions, their frequency, the acceptance criteria, and the action to be taken when the results are found unsatisfactory and/or inadequate.

8.1.3 Quality relevant vehicle inspection equipment shall be calibrated before first use and at least at the following frequencies during in-service use ***or at other frequencies as prescribed in national regulations*:**

NOTE; All calibration frequencies mentioned in the CITA requirements have been omitted from this Appendix as they are superseded by the prescribed calibration frequencies outlined in the Premises & Equipment Guidelines.

8.1.4 Calibration shall be done, where appropriate, against certified equipment having a known and traceable relationship to internationally or nationally recognised standards. Where no such standards exist, the basis used for calibration shall be fully documented, according to the equipment manufacturer's recommendation, if any.

8.1.5 If vehicle inspection equipment is found to be out of calibration or there are any other systematic errors, the validity of the vehicle inspection results since the date of last calibration shall be reassessed. If there was any relevant non-conformity, the vehicle inspection body shall, as soon as practicable inform the owners/keepers of the affected vehicles and invite them immediately for reinspection, making it clear that there will be no charge for the inspection.

8.1.6 The calibration status shall be shown clearly on relevant vehicle inspection equipment, preferably by means of suitable markers or labels, indicating at least the date of the last calibration and the date the next calibration is due.

8.1.7 Reference measurement standards held by the inspection body shall be used for calibration only and not for other purposes. Only competent bodies who can provide traceability to international or national measurement standards shall calibrate reference measurement standards.

8.1.8 The inspection body shall keep records of all calibrations performed.

Section 9

Sample XML Stream sent to CoVIS from ASA Network.
Note: The highlighted content in the sample below shows the minimum fields required.

- The data must be returned to ASA Network in the correct format.
- All XML must be valid or will be rejected.
- The sample file contains results for 3 gas blasts.
- XML should output all raw data including decimal values.
- The results must relate to the test Order ID received from CoVIS.
- The registration number is not read when processing the results.
- All values highlighted below must be returned.
- Results are matched to the test order id sent to the manufacturer.
- Only the calculated Mean value for Opacity is taken.

SAMPLE ONLY

```
<?xml version="1.0" encoding="ISO-8859-1" standalone="no" ?>
<!DOCTYPE RESULTS SYSTEM "awnres.dtd">
<!-- Created 07.08.2014 15:48:11 with AWNX32.dll Version 1.6.0 Build 45 -->

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    <RESULTSHEADER>
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      <REGULATION>GERMAN</REGULATION>
      <LANGUAGE>GERMAN</LANGUAGE>
    </COUNTRY>
    <CUSTOMER>
      <!-- Kundeninformation -->
      <NAME> </NAME>
      <ADDRESS>ROSKEEDA

ROSMUC</ADDRESS>
      <ZIP>N1</ZIP>
      <CITY></CITY>
      <TEL>00</TEL>
      <FAX></FAX>
      <CUSTNO></CUSTNO>
      <ORDER>650003511</ORDER>
      <EMAIL></EMAIL>
    </CUSTOMER>
    <VEHICLE>
      <IDENT>
        <!-- Fahrzeuginformation -->
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        <MANUFACTURER>VolkZwagen</MANUFACTURER>
        <MODEL>CUDDY</MODEL>
        <KEY2></KEY2>
        <KEY3></KEY3>
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        <FUEL1>DIESEL</FUEL1>
        <EMISSIONCODE></EMISSIONCODE>
        <PRODUCTIONDATE></PRODUCTIONDATE>
      </IDENT>
      <DATA>
        <ODOMETER></ODOMETER>
        <DIESEL_GT_35>--</DIESEL_GT_35>
        <REGISTRATION_DATE>22/03/2005</REGISTRATION_DATE>
      </DATA>
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</TITLE>      <HEADER>
      <EQUIPMENT TYPE="CONTROL">
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```
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        <VERSION>V 6.00/1.8.GB Leitfaden --</VERSION>
      </EQUIPMENT>
      <EQUIPMENT TYPE="SMOKE">
        <TITLE>Abgastester</TITLE>
        <MANUFACTURER>xxxx</MANUFACTURER>


        <MODEL>xxxxxx</MODEL>
        <VERSION> V 1.00/1  c</VERSION>

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        </EQUIPMENT>
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      15:48</START_TEST>
        <END_TEST>07/08/2014
      15:48</END_TEST>
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        <NAME></NAME>
      </RESPONSIBLE_OPERATOR>
      <OPERATOR>
        <NAME>optimuso hara</NAME>
      </OPERATOR>
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        <REGULATION>Ireland</REGULATION>
        <LANGUAGE>English</LANGUAGE>
      </COUNTRY>
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    <SECTION OBJECT="REPAIRED_DEFECTS">
      <TITLE>Behobene
Mängel</TITLE>
<DEFECT
OBJECT="NONE">
        <TITLE>Keine Reparatur</TITLE>
        <MEAS OBJECT="NONE">
          <TITLE>Sichtprüfung ok</TITLE>
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        </MEAS>
      </DEFECT>
    </SECTION>
    <SECTION OBJECT="DEFECTS">
      <TITLE>Mängel</TITLE>
      <MEAS OBJECT="REPAIRED_DEFECTS_NO5">
<TITLE>Mängel nach Nr.5 der AU-Richtlinie, die behoben wurden Mängel-Nr.813 der HU-
Richtlinie:
</TITLE>
```

```
        <VALUE RESULT="1" SOURCE="HAND">i.O.</VALUE>
      </MEAS>
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</TITLE>
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      <TITLE>Konditionierung</TITLE>
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        <TITLE>Öltemperatur</TITLE>
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      </MEAS>
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        <TITLE>Leerlaufdrehzahl</TITLE>
        <VALUE UNIT="rpm" RESULT="3" LOWLIM1="500" HIGHLIM1="1200">820</VALUE>
</MEAS>
      <MEAS OBJECT="CUTOFF_SPEED">
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        <VALUE UNIT="rpm" RESULT="3" LOWLIM1="2250"
HIGHLIM1="6500">3500</VALUE>
      </MEAS>
      <MEAS OBJECT="CLEANING_GAS_BLASTS">
        <TITLE>Anzahl Konditionierungsgasstöße</TITLE>
        <VALUE>0</VALUE>
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        <MEAS OBJECT="CONDITIONING">
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        </MEAS>
      </SUMMARY>
    </SECTION>
    <SECTION OBJECT="GAS_BLAST">
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      <MEAS OBJECT="PROBE">
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      </MEAS>
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          <TITLE>Trübung</TITLE>
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```
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        <MEAS OBJECT="CUTOFF_SPEED">
          <TITLE>Abregeldrehzahl</TITLE>
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HIGHLIM1="6500">3500</VALUE>
        </MEAS>
        <MEAS OBJECT="ACCEL_TIME">
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          </MEAS>

</SUMMARY>
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        <SUMMARY>
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</SUMMARY>
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        <SUMMARY>
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        </SUMMARY>
      </STEP>
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      </MEAS>
      <MEAS OBJECT="OPACITY">
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</MEAS>
      <SUMMARY>
        <MEAS OBJECT="GAS_BLAST">
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          <VALUE RESULT="3">n.i.o.</VALUE>
        </MEAS>
      </SUMMARY>
    </SECTION>
    <SUMMARY>
      <TITLE>Gesamtergebnis</TITLE>
      <MEAS OBJECT="SMOKE">
        <TITLE>Abgasuntersuchung</TITLE>
        <VALUE RESULT="1">bestanden</VALUE>
      </MEAS>
      <MEAS OBJECT="PERMISSION">
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    </SUMMARY>
</RESULT>
</RESULTS>
```

Appendix 2- HCV Roller Brake Tester Specification (HRBTS)

Section 1

1.1 General overview

The roller brake tester must be capable of carrying out brake tests on all Heavy Commercial Vehicles (HCV's). It must connect to a PC running software capable of outputting test data to CoVIS via the agreed protocols as set out in Section 9 of this specification.

The Roller Brake Tester (RBT) shall;

(a) Consist of a pair of roller sets mounted at floor level.

(b) Have the capability of accepting an axle load of 15,000kg.

(c) Have the capacity to drive the rollers and record a minimum peak value of 4,000kgf.

(d) Have the capacity of recording Service Brake Performance and Parking Brake performance separately.

(e) Be capable of distinguishing the different EU vehicle category types.

(f) Have the capacity to operate and produce a printout of test reports independent of CoVIS. (For printout criteria see Section 14)

(g) Be free of any disturbance from radio frequencies and electromagnetic fields.

(h) Operate reliably in all conditions likely to be encountered within the vehicle testing environment. The equipment recessed in the floor shall meet a weatherproof rating of IP42 or higher.

(i) Have the display and a user interface positioned on the driver's side (right side in the driving direction) and ensure the vehicle tester, for all axles being tested, has an unobstructed line of sight and a clear view when in the driving position. The display must have adequate visibility of the readings during the test procedure, particularly in poor light conditions or bright sun light.

(j) Have the option of a wireless mobile display available.

(k) Ignore a test measurement value that is not part of the intended brake test e.g., when an axle is entering or exiting the RBT.

(l) Not commence a new vehicle test without clearing any existing measurements.

(m) Detect and ignore negative brake readings.

(n) Meet current health and safety regulations and RECI standards on its installation.

(o) The RBT and its controls, when installed, must not inhibit overview of the CCTV camera or the reading of the number plate due to use of ANPR.

NOTE; Detail on the equipment layout is found in the Premises and Equipment Guidelines.

1.2 Brake Performance Calculation

The RBT must be capable of recording the static weight of each axle of the vehicle as presented. It shall be capable of measuring and recording brake performance simultaneously against;

(a) Design Gross Vehicle Weight (DGVW) using axle load simulation (present system).

(b) Air pressure applied using values from at least 3 sensors fitted to the vehicle (extrapolation).

(c) Pedal Force values applied.

(d) EU type approval brake curves.

(e) Brake reference values (values supplied by vehicle manufacturer).

(f) Brake force as a percentage of the presented static vehicle weight.

Also

(g) The RBT printout report shall have the capability of including all of the above measurement values for the purposes of evaluating the brake performance of the vehicle.

(h) Pass / fail criteria must correspond to the limits applied by the RSA, and stored within CoVIS, for brake performance and imbalance on each axle.

NOTE; Point (b) and (c) can be supplied as a retro fit. The RBT shall have the capability to communicate with the additional equipment at the initial installation of the RBT.

Section 2.

2.1 Roller Set drive motor control system

NOTE; HCV roller set drive motors must only start under the control of the tester and will not start up automatically. It is recommended that the installation of a pit safety device is considered to prevent the roller sets from starting inadvertently while personal are in the pit.

The roller sets shall have;

(a) A means of preventing either roller set operating unless both left and right wheel sets are correctly located in the RBT, except following calibration in which case it shall be operated by the authorised RBT technician only.

(b) The ability to be driven separately or simultaneously.

(c) A means of manually stopping both roller sets from the remote control and from the console when correctly occupied by an axle i.e., if you press the stop button for either roller then both rollers shall stop.

(d) An automatic means of stopping either roller set individually when the tyre to roller slip reaches a pre-set limit in the range 20% to 30%.

(e) An emergency stop function that is triggered from any emergency stop device located within the HCV test lane – see Section 12 for further detail.

(f) A means to detect if a brake is applied on start-up of the roller set and switch off drive motors to prevent possible tyre damage.

2.2 Slip Conditions

(a) The slip value remains below the limit throughout the full range of brake force.

(b) A tyre to roller slip of 20% is when the surface speed of the vehicle wheel / tyre equals 80% of the surface speed of the RBT rollers.

(c) When both roller sets are running simultaneously and one-wheel locks out, the RBT shall have the capability to stop the other wheel from rotating and record the readings at that instance.

Section 3.

3.1 User Controls

NOTE: Automatic operation of a RBT is **not permitted.**

The user controls / remote control shall be;

(a) Manually operated.

(b) Suitably identified in English or with acceptable intuitive symbols.

(c) Capable of starting the roller sets independently or simultaneously.

(d) Capable of stopping the RBT.

(e) Capable of being operated from the vehicle driving seat by remote control.

(f) Suitable secondary operating controls shall be available on the console, or equivalent.

(g) Capable of selecting which axle number is on the RBT; if a fixed test procedure is not applied.

(h) The wireless remote control shall operate consistently and reliably at any stage of the test procedure and shall communicate by radio signals. . Should the distance between the receiver and the transmitter (remote control) exceed the useable range an additional receiver must be installed that is located at a closer range and mounted to the same standard.

(i) The unit shall be resistant to spurious signals from other sources.

(j) On installation of the RBT or its accessories, if it is found to be creating an interference with existing test equipment, where no issue was found prior to the introduction of the new equipment, the onus is on the new equipment supplier to provide an alternative means of communication (channel/ frequency change etc.) that avoids such interference

(k) A system shall be in place to ensure that each unit is dedicated to operating only one RBT when two or more are used in close proximity.

(l) Safe and convenient storage shall be provided for the remote-control unit when not in use.

In addition, there shall be:

(m) A visual indication for the user on the display console showing;

(i) When each roller set is in operation, and

(ii) If the RBT has a bi-directional facility, whether the roller sets are operating in 'forward' or 'reverse' direction.

(n) No access to the end user to switch on the automatic start up facility i.e., an automatic facility should not be accessible by the end user.

Section 4.

4.1 Roller specification

The rollers shall have;

(a) A surface coating, such as a plastic corundum, that is durable and not likely to cause undue tyre damage i.e., a metal mesh or metal weld splatter is not acceptable.

(b) A roller to tyre co-efficient of friction of not less than 60% in wet conditions.

(c) The following dimensions:

(i) Minimum outer diameter 200mm

(ii) Minimum length of 1000mm (of the cylinder)

(iii) Not greater than 500mm between roller centres

(iv) Not greater than 880mm between inner ends of high friction surfaces of left / right rollers.

(v) Not less than 2,800mm between outer ends of high friction surfaces of left / right rollers.

(vi) When running, a constant surface speed in the range 2 to 5.5km/h.

NOTE: The speed of the rollers shall remain within the specified range throughout the full range of brake force.

Section 5.

5.1 Roller Set Specification - Mechanical

The Roller set shall have an integrated weighing mechanism and its mechanical design shall have;

(a) A drive system capable of a 150% of the max torque applied.

(b) A slip bar mechanism that monitors wheel / tyre rotation speed and occupation of roller set. The slip bar must have a sufficient range to ensure it can operate from all tyres usually fitted to a vehicle tested in the HCV test lane.

(c) CE approved guards, in particular chain and sprocket guards

(d) A raised roller on the rear designed to maximise the lateral force applied by the wheel.

(e) A lowered roller on the front to assist in drive out and ensure vehicle is predominantly level when an axle is in the roller set.

Section 6.

6.1 Roller set Specification - features

The roller set shall have the following features;

(a) A drive out assistance in the form of a speed limiting or a locking mechanism of the roller.

(b) Soft start control of the drive motors.

(c) Permanent four-wheel drive capability using the single wheel counter rotation method

Section 7.

7.1 Brake Force Display

The brake force display shall:

(a) Indicate in units of kilogram force (kgf).

(b) Indicate the brake force individually for each wheel on an axle.

(c) Be analogue and sufficiently sensitive to show the variations in brake force caused by excessive drum ovality or disc run out.

(d) Include an additional digital display of brake force which shall be of a size that is readable from the vehicle driving position.

NOTE: If the brake force is displayed on traditional dials, an additional digital display of brake force is required.

(e) Have the means to display brake force values over two ranges:

(i) Low range – max brake force value in the range 600 to 800kgf

(ii) High range – max brake force value in the range 3500 to 4500kgf

(f) Indicate individually for each roller set when a wheel lock occurs.

(g) Retain the maximum brake force values shown until either the display is manually reset, or the rollers are restarted.

(h) Have a provision for the brake force unit to be displayed in Kilo Newton (KN) by a software setting if a TV/Computer monitor is used to display the values.

Section 8.

8.1 Brake Efficiency and Imbalance

The RBT shall calculate and display the value of;

(a) Brake efficiency, calculated from the total brake force and expressed as a percentage of the plated weight/DGVW or static presented weight and imbalance of brake force between the left and right wheels on an axle, expressed as a percentage of the higher brake force. There shall be a provision to enter the appropriate weight into the RBT performance calculator prior to the test.

(b) The RBT is equipped with a device for indicating maximum brake imbalance it shall:
   (i) be inhibited when both left and right brake forces are 40kgf or less,
   (ii) (ii)function when one or both brake forces exceed 40kgf and one brake force is less than 70% of the other, and display the numerical difference between left and right brake forces as a percentage of the higher brake force, i.e.

$$\text{Imbalance (\%)} = \frac{\text{high force} - \text{low force}}{\text{high force}} \times 100.$$

Section 9.

9.1 Connection to CoVIS

(a) The host PC must be capable of connecting to the CoVIS network via the internal test centre network or directly to the CoVIS LAN.

(b) The RBT and its host must have the capability to receive test orders transmitted by CoVIS and return test results to CoVIS using the ASA network secure common industry standard interface (see example in Section 16).

9.2 Outputs required for CoVIS

(a) The RBT shall have the capacity to electronically transmit maximum test measurement values for the following;

   (i) Left and right service brakes on each axle
   (ii) Left and right parking brakes on the applicable axle/s
   (iii) Left and right secondary brakes on the applicable axle/s
   (iv) Left and right disk\drum ovality on each axle
   (v) Axle number Static\Presented Weight of each axle
   (vi) Pedal force applied on each axle test
   (vii) A minimum 3 pressure sensor values for each axle test

(b) It must transmit the measurement values.

(c) The unit of brake force and pedal force measurement returned will contain the value in kgf.

(d) The unit of static weight in Kilograms

(e) The pressure in Bar

(f) The ovality in percent %

(g) The RBT must provide a start date/time for each test.

(h) The RBT must provide an end date/time for each test.

(i) The RBT must provide the Serial Number of the Equipment used for each test.

NOTE; Further detail is shown in **Section 16**.

9.3 Input Test order detail from CoVIS

Use the standard ASA Network requirements input data.

(a) CoVIS sends the following for all test orders:

(i) Order type id
(ii) Order Description
(iii) Reg No,
(iv) EU Vehicle Category
(v) Date of first registration
(vi) No Axles
(vii) Fuel Type

Section 10.

10.1 Documentation/Identification

(a) The RBT shall have a durable identification mark on its exterior or its control unit showing the make, model, and serial number.

(b) The manufacturer of the RBT shall provide a clear and easy to understand user manual, written in English and available at any time to the test centre, which shall explain how it operates, including the function of each aspect of the RBT.

(c) The manufacturer of the RBT shall provide a recommended "maintenance procedure". It shall highlight key components and wear parts that affect the accuracy of measurement values.

Section 11.

11.1 Calibration

(a) The Calibration service provider, as part of their quality programme, shall adhere to the CITA 9B Quality Requirements (see **Section 15).**

11.2 Brake Force Measurement and verification – key points

The calibration procedure shall:

(a) Be capable of checking brake force accuracy at the following values;

(i) Low range: 0, 100, 200, 400 and 600/800kgf.

(ii) High range: 0, 1200/1500, 2000/2500 and 4000kgf.

(b) If the brake force measurement is displayed on a VDU, the accuracy of the brake force measurement shall be judged against the digital values.

(c) Traditional dials shall indicate the same values (if applicable).

NOTE: if the calibration device is certified in Kilo Newton (KN) the calibration on the VDU must also be in KN for the duration of the calibration and/or verification procedure. In this case the dials shall not be used as part of the calibration procedure.

11.3 Calibration equipment and mechanical check

(a) All component parts of the calibration device, including any weights, shall be individually marked with an identity number. Each calibration device produced shall require its own certificate.

(b) If the certificate or any other relevant document produced for the calibration device is not in English, the applicant shall make available a translation into English.

(c) When the static calibration has been completed, with the RBT in ‘calibration mode and with NO vehicle in the rollers, the rollers shall be rotated, and the brake force displayed should not exceed 25 kgf. If this increase in friction is over 25kgf, the following items should be further examined;

(i) Drive train mechanism

(ii) Failing roller bearing

(iii) Bent roller or drive shaft

(iv) Roller chain

(d) The RBT brake force readings shall be accurate to within;

(i) +/-3 kgf of the true value from zero up to and including 100 kgf.

(ii) +/-3 per cent of the true value for all readings above 100 kgf.

(e) The RBT brake force calibration device shall be accurate to within;

(i) +/-0.3 kgf of the true value from zero up to and including 100 kgf.

(ii) +/-0.3 per cent of the true value for all readings above 100 kgf.

11.4 Weight Calibration

The calibration equipment shall:

(a) Be capable of checking mass axle weight up to minimum 5% of the end range value of the RBT. If the weight measurement is displayed on a VDU, the accuracy of the weight measurement shall be judged against the digital values. Traditional dials shall indicate the same values (if applicable)

(b) Have a method and operational accuracy that is certified and traceable to a national physical standard.

Also;

(c) All component parts of the calibration device, including any mobile weight scale handset, shall be individually marked with an identity number to enable all parts to be kept together as a set or as according to the certificate requirements. The certificate shall relate to the set and each calibration device produced shall require its own certificate.

(d) If the certificate or any other relevant document produced for the calibration device is not in English, the applicant shall make available a translation into English.

(e) When the static calibration has been completed, a drive on test of the target weight axle used in calibration in normal operating mode shall verify the weight readings.

(f) The RBT weigh scales readings shall be accurate to within:

  (i) +/-3 kg of the true value from zero up to and including 100 kg.

  (ii) +/-3 per cent of the true value for all readings between 200 and 3000kg.

(g) The RBT weigh scales calibration device shall be accurate to within:

  (i) +/-0.3 kg of the true value from zero up to and including 100 kg.

  (ii) +/-0.3 per cent of the true value for all readings above 100 kg.

11.5 Calibration – key points

(a) The manufacturer of the RBT shall, if requested, provide a technical handbook in English with a description of the calibration technology for review by the Authority.

(b) The calibration procedure shall match the manufacturer's recommendation.

(c) For an initial set up, the installer shall provide a calibration certificate.

(d) A person with recognised training of the RBT shall calibrate the equipment every 12 months, or more frequently if required, using calibration equipment as specified by the RBT manufacturer.

(e) A condition report shall be completed by a person with recognised training of the RBT and shall be carried out at 12-month intervals or if the RBT is potentially damaged in any way - see Section 13

(f) Valid and current calibration certificates shall be scanned and uploaded to CoVIS. An original hard copy shall be stored securely and made accessible for inspection for 12 months.

Section 12

Emergency Stop Device

Important – The installation of all emergency stop devices must meet with all Health and Safety regulations and must also comply with all the equipment manufacturers' requirements.

Note: In addition to these requirements, the Authority recommends that, where appropriate, the installation of useful and appropriately located emergency stop devices that enhance the safety of personnel working within the test centre.

Function
In the event of an emergency there should be EU approved emergency stop device(s) with means of cutting the power supply to the motors on both sets of rollers if the function alleviates the level of danger should an emergency incident arise.

Basic Requirements of an Emergency Stop Device

- Where required, equipment must be fitted with emergency stop(s) to enable actual or impending danger to be averted quickly as possible, unless an emergency stop device would not lessen the risk.
- The emergency stop device must be clearly identifiable, clearly visible, and quickly accessible.
- The emergency stop function must be available and operational at all times, regardless of the operating mode.
- Disengaging the emergency stop device must not restart the machinery but only permit restarting.
- Emergency stop devices must be a back-up to other safeguarding measures.

Routine checks and maintenance
In the case of the emergency stop devices, frequent inspections should be considered part of the formal equipment routine inspection and testing process to ensure that they will operate in an actual emergency situation.

Recommended Minimum key points for compilation of a Condition report on a RBT
Particular attention shall be made to the following and noted;

Rollers;

- The high friction coating is not flat and smooth due to wear.
- The high friction coating is evenly applied particularly in the case of local patching.
- A bare metal patch in the high friction area does not exceed 20% of the contact surface area of any given tyre.

- The roller is perfectly cylindrical and free of dents.
- Bearing mounts bolts are tight.
- Roller bearings are smooth and running free with no play in shaft or vibration.
- Bearing sets are greased or adequately lubricated.

Drive train;

- Sprocket teeth are not excessively worn, bent, or broken.
- All sprocket retention bolts are present and are sufficiently tightened.
- Chain links are all present and in good condition.
- Chain is tensioned correctly.
- Chain is adequately greased but not over greased, such that it is accumulating dirt.
- Chain tensioning mechanism is in good condition (where applicable).

Drive motor and gearbox:

- Cooling fins on motor are cleared of dirt.
- Bearing mounts on motor/ gearbox are tight.
- Bearings are smooth and running free with no play in shaft or vibration.
- Bearing sets are greased or adequately lubricated.
- Drive sprocket not excessively worn, bent, or broken.
- Drive sprocket aligned with chain tensioner and roller sprockets.

Electrical instrumentation and control unit:

- Emergency stop devices are operating correctly and are accessible.
- Strain gauge is in good condition and is correctly positioned. Detectable play is within manufacturer's specification.
- Slip bar sensors are not damaged and have adequate clearance.
- Cables are neatly strapped and clear of moving mechanical parts.
- All junction boxes are clean and dry, in good condition and lids closed with adequate screws.
- Cable Ducting/conduit in good condition and mounted correctly.
- Cable glands are tight
- Remote control casing is in good condition and battery life is adequate for uninterrupted vehicle testing
- Correct time and date (EU format) is noted on RBT host PC. Reference against CoVIS PC.
- Automatic summertime adjustment is set and configured for local Irish time and settings.

Mechanical – roller set:

- No detectable rocking present in the roller set load cell mounting points.
- Plates/guards are not damaged or missing and all bolts retaining them are present and tight.
- Slip bar spins smoothly and freely, with no detectable vibration or play in the bearings.
- Slip bar is not damaged or bent – bar does not rotate off centre.
- Travel mechanism of slip bar operates evenly and smoothly.
- Spring / gas strut on slip bar travel mechanism operates in the full range. End stops are in good condition.
- Free of obstruction (or excessive dirt and debris) surrounding the roller set pit that may affect the free movement of the suspended roller set and in turn the accuracy of the weight readings.

NOTE; These are minimum key points for compilation of a condition report. Any other check recommended by the Equipment manufacturer should be included.

Section 14

Printout report

Key Points;

(a) The test values on the printout report must match the data values returned to ASA Network for CoVIS i.e., where a value is calculated and presented with no decimal places.

(b) The value will be rounded down to no decimal place.

(c) The Printout shall display the brake force in units of Kilogram force (KGF).

(d) The Printout shall display the weight in kilograms (KG).

(e) The Printout report shall have the capacity to change the printed brake force unit to Kilo newton (Kn) by means of a software setting.

(f) The RBT shall have the capability to operate independent of CoVIS and produce a Printed report.

The Printout must include at minimum the following details on the report:

- Test Centre Details – Name / Address / Centre number.
- Completion Time and date of test – dd/mm/yyyy - hh/mm.
- Duration of Brake Test - minutes and seconds.
- Vehicle Registration – Registration.
- Vehicle category – HCV or LCV.
- Vehicle odometer reading – odometer reading.
- Detail requirements for each axle.

- Axle weight – KG.
- Max Service brake force Left – KGF.
- Max Service brake force Right – KGF.
- Max Parking brake force Left –KGF (if applicable).
- Max Parking brake force Right – KGF (if applicable).
- Ovality of Disk / drum Left - %
- Ovality of Disk / drum Right - %
- Road friction left –KGF.
- Road friction Right –KGF.
- Wheel lock out occurrence left – LOCKOUT.
- Wheel lock out occurrence right – LOCKOUT.
- Pedal force applied – KGF.
- Air Pressure P1 brake actuator– Bar.
- Air Pressure P2 max guaranteed– Bar.
- Air Pressure P3 Yellow Line Min – Bar.
- Test limit applied and presentation of results for each axle.
- Outcome of the test – Pass /Fail / Void / Aborted.
- Provision for CVR tester's signature and Tester Number issued by the Authority.

P1. Is the air pressure that corresponds to the measured brake force taken at the test point nearest the brake chamber- no load sensing or pressure reduction valve shall be between the two points.

P2. Is the maximum air pressure which the vehicle manufacturer guarantees will always be available. It may be defined differently but is always the pressure to which the brake forces are extrapolated.

P3. Service Line. Taken at the trailer coupling test point.

Section 15
CITA 9B Quality Requirements Covering Calibration

15.1 Calibration

15.1.1 The inspection body shall ensure that there are proper arrangements to adequately control and calibrate vehicle inspection equipment before and during use, in order to ensure its accuracy, its conformity to the relevant requirements and its continued suitability and to provide confidence in decisions based on measurements.

15.1.2 The calibration procedures, sometimes known as calibration programmes, shall define the calibration processes, their environmental conditions, their frequency, the acceptance criteria, and the action to be taken when the results are found unsatisfactory and/or inadequate.

15.1.3 Quality relevant vehicle inspection equipment shall be calibrated before first use and at least at the following frequencies during in-service use **or *at other frequencies as prescribed in national regulations*:**

NOTE; All calibration frequencies mentioned in the CITA requirements have been omitted from this Appendix as they are superseded by the prescribed calibration frequencies outlined in the Premises & Equipment Guidelines.

15.1.4 Calibration shall be done, where appropriate, against certified equipment having a known and traceable relationship to internationally or nationally recognised standards. Where no such standards exist, the basis used for calibration shall be fully documented, according to the equipment manufacturer's recommendation, if any.

15.1.5 If vehicle inspection equipment is found to be out of calibration or there are any other systematic errors, the validity of the vehicle inspection results since the date of last calibration shall be reassessed. If there was any relevant non-conformity, the vehicle inspection body shall, as soon as practicable inform the owners/keepers of the affected vehicles and invite them immediately for reinspection, making it clear that there will be no charge for the inspection.

15.1.6 The calibration status shall be shown clearly on relevant vehicle inspection equipment, preferably by means of suitable markers or labels, indicating at least the date of the last calibration and the date the next calibration is due.

15.1.7 Reference measurement standards held by the inspection body shall be used for calibration only and not for other purposes. Only competent bodies who can provide traceability to international or national measurement standards shall calibrate reference measurement standards.

15.1.8 The inspection body shall keep records of all calibrations performed.

Section 16

Sample XML Stream sent to CoVIS from ASA Network

Note: The highlighted content in the sample below shows the minimum fields required for Axle 1 only.

- The data must be returned to ASA Network in the correct format.
- All XML must be valid or will be rejected.
- The sample file contains results for a 4-axle vehicle.
- XML should output all raw data including decimal values.
- The results must relate to the test Order ID received from CoVIS.
- The registration number is not read when processing the results

SAMPLE ONLY

```
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<!-- Created 30.10.2014 09:29:55 with AWNX32.dll Version 1.2.1 Build 28 -->

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Appendix 3 – LCV Roller Brake Tester Specifications (LRBTS)

Section 1

1.1 General overview

The roller brake tester must be capable of carrying out brake tests on all light commercial vehicles up to and including vehicles of 3,500kg design gross vehicle weight. It must connect to a PC running software capable of outputting test data to CoVIS via the agreed protocols as set out in Section 9 of this specification.

The Roller Brake Tester (RBT) shall;

(a) Consist of a pair of roller sets mounted at floor level (either separate or in a combined chassis is acceptable).

(b) Have the capability of accepting an axle load of up to 2,800kg.

(c) Be capable of weighing each axle of the vehicle in order to establish the total weight of the vehicle as presented (this will not be required where the axle weight is captured by the suspension tester).

(d) Have the capacity to drive the rollers and record a minimum peak value of 12KN per roller set.

(e) Have the Capacity to record Service Brake Performance and Parking Brake performance.

(f) Have the capacity to operate and produce a printout of test reports independent of CoVIS (for printout criteria see Section 14)

(g) Not be susceptible to any disturbance from radio frequencies and electromagnetic fields.

(h) Operate reliably in all conditions likely to be encountered within the vehicle testing environment.

(i) Have the display and a user interface positioned on the driver's side (right side in the driving direction) and ensure the vehicle tester, for all axles being tested, has an unobstructed line of sight and a clear view when in the driving position. The display must have adequate visibility of the readings during the test procedure, particularly in poor light conditions or bright sun light.

(j) Ignore a test measurement that is not part of the intended brake test e.g., when an axle is entering or exiting the RBT.

(k) Not commence a new test without clearing any existing measurements.

(l) Detect and ignore negative brake readings.

(m) Record the maximum valid brake value achieved.

(n) Meet current health and safety regulations and RECI standards on its installation.

(o) Be capable of measuring and recording brake performance simultaneously against pedal force values applied.

(p) Have a printout report capable of including the pedal force value applied for the purposes of evaluating the brake performance of the vehicle.

(q) When installed, must not inhibit overview of the CCTV camera or the reading of the number plate due to use of ANPR.

NOTE; Detail on equipment location is found in the Premises and Equipment Guidelines.

Section 2

2.1 Roller Set drive motor control system

LCV roller set drive motors may start under the following conditions.

(a) A means to detect if a brake is applied on start-up of the roller set and switch off drive motors to prevent sudden ejection of vehicle and/or possible tyre damage.

(b) A means of manually stopping both roller sets when correctly occupied by an axle i.e., if the stop button is pressed on the remote control for either roller set then both roller sets shall stop.

(c) An emergency stop function that cuts power to drive motors and that is triggered from any emergency stop device located within the LCV test lane – see Section 12 for further detail.

(d) An automatic means of stopping either roller set individually when the tyre to roller slip reaches a pre-set limit in the range 20% to 30%.

(e) A means of preventing either roller set operating unless both left and right wheel sets are correctly located in the RBT, except following calibration in which case it shall be operated by the authorised RBT technician only.

A RBT may have automatic start up enabled when;

(f) The brake testing area prevents any access to the underside of vehicle when a brake test is in progress e.g., where a vehicle is located over a pit during a brake test, an automatic start up is not permitted.

(g) A delay on start up for a minimum of 3 seconds when condition (e) is met.

NOTE: If (f) and (g) conditions are not met the RBT **must not** have automatic start up enabled

2.2 Slip Conditions

(a) The slip value remains below the limit throughout the full range of brake force, and if variations occur in the power supply, the means of stopping the roller set shall include actual measurement of the speed of the sensing roller and the speed of the motor/drive roller train.
(b) A tyre to roller slip of 20% is when the surface speed of the vehicle wheel equals 80% of the surface speed of the RBT rollers.

(c) When both roller sets are running simultaneously and one of the wheel locks out, the RBT shall stop the other wheel from rotating and record the readings at that instance.

Section 3

3.1 User Controls

The user controls / remote control shall be:

(a) Manually operated if conditions (f) and (g) in section 2 are not met for roller start up.

(b) Suitably identified in English or with acceptable intuitive symbols.

(c) Capable of starting the roller sets independently or simultaneously.

(d) Capable of stopping the RBT.

(e) Capable of being operated from the vehicle driving seat by remote control.

(f) Suitable secondary operating controls shall be available on the console, or equivalent.

(g) The wireless remote control shall operate consistently and reliably at any stage of the test procedure and shall communicate by radio signals. Should the distance between the receiver and the transmitter (remote control) exceed the useable range an additional receiver must be installed that is located at a closer range and mounted to the same standard.

(h) The unit shall be resistant to spurious signals from other sources.

(i) On installation of the RBT or its accessories, if it is found to be creating an interference with existing test equipment, where no issue was found prior to the introduction of the new equipment, the onus is on the new equipment to provide an alternative means of communication (channel/ frequency change etc.) that avoids such interference.

(j) A system shall be in place to ensure that each unit is dedicated to operating only one RBT when two or more are used in close proximity.

(k) Provision for safe and convenient storage shall be provided for the remote-control unit when not in use.

In addition, there shall be:

(l) A visual indication for the user on the display console showing:

  (i) When each roller set is in operation, and

  (ii) If the RBT has a bi-directional facility, whether the roller sets are operating in ‘forward’ or ‘reverse’ direction.

(m) Where there is a restriction on automatic operation of the RBT, a durable notice stating ‘RBT shall NOT be used in automatic mode for vehicle testing’ should be displayed.

Section 4

4.1 Roller specification

The rollers shall have;

(a) A surface coating, such as a plastic corundum, that is durable and not likely to cause undue tyre damage i.e., a metal mesh or metal weld splatter is not acceptable.

(b) A roller to tyre co-efficient of friction of not less than 60% in wet conditions.

(c) A constant surface speed in the range 2 to 5.5 km/h.

(d) The following dimensions:

(i) Minimum outer diameter 180mm.

(ii) Minimum length of 890mm (of the cylinder).

(iii) Not greater than 500mm between roller centres.

(iv) Not greater than 880mm between inner ends of the high friction surfaces of the left and right rollers.

(v) Not less than 2600mm between outer ends of the high friction surfaces of the left and right rollers.

NOTE: The speed of the rollers shall remain within the specified range throughout the full range of brake force.

Section 5

5.1 Roller Set specification - Mechanical and Floor installation

The Roller set shall be securely installed in the ground flush to the finish floor. The outer top edge of the RBT perimeter shall not be lower than the finished floor or protrude more than 15mm. No part of the RBT shall protrude more than 50mm of the surrounding finished floor. In the case where the weight of the axle is not determined by the suspension tester the RBT shall float freely within the floor frame suspended by a load cell mechanism. Its mechanical design shall have;

(a) A drive system capable of a 150% of the max torque applied.

(b) A slip bar mechanism that monitors wheel rotation speed and occupation of roller set. The slip bar must have a sufficient range to ensure it can operate from all tyres usually fitted to a vehicle tested in the LCV test lane.

(c) CE approved guards, in particular chain and sprocket guards

Section 6

6.1 Roller set Specification - features

The roller set shall have the following features;

(a) A drive out assistance in the form of a speed limiting or a locking mechanism of the roller.

(b) Soft start control of the drive motors.

(c) Permanent four-wheel drive capability using the single wheel counter rotation method – automatic start up is not permitted when using this facility

Section 7

7.1 Brake Force Display Unit The brake force display shall;

(a) Indicate in units of kilogram force (kgf).

(b) Indicate the brake force individually for each wheel on an axle.

(c) Be analogue and sufficiently sensitive to show the variations in brake force caused by excessive drum ovality or disc run out.

(d) Include a digital display of brake force which shall be of a size that is readable from the vehicle driving position.

(e) Have the means to display max brake force value not less than 1200kgf.

(f) Have:

(i) 10kgf dial graduations from zero up to and including 240kgf.

(ii) 20kgf dial graduations from 240kgf up to and including 800kgf.

(iii) 50kgf dial graduations from 800kgf and above.

(g) Indicate individually for each roller set when a wheel lock occurs.

(h) Retain the maximum brake force values until either the indication is manually reset, or the rollers are restarted.

(i) Have a provision for the brake force unit to be displayed in Kilo Newton (KN) by a software setting if a TV/Computer monitor is used to display the values.

Section 8

8.1 Brake Efficiency, Imbalance, Evaluation
The RBT shall calculate and display the value of:

(a) Brake efficiency, calculated from the total brake force and expressed as a percentage of the static vehicle weight presented.

(b) If the RBT is equipped with a device for indicating maximum brake imbalance it shall;

(i) be inhibited when both left and right brake forces are 25kgf or less,

(ii) function when one or both brake forces exceed 25kgf and display the numerical difference between left and right brake forces as a percentage of the higher brake force, i.e.

$$\text{Imbalance (\%)} = \frac{\text{high force} - \text{low force}}{\text{high force}} \times 100.$$

(c) Pass / fail limits must correspond to the limits applied by the Authority and stored within CoVIS for brake performance and imbalance on each axle for each category and for overall performance.

Section 9

9.1 Connection to CoVIS

(a) The host PC must be capable of connecting to the CoVIS network via the internal test centre network or directly to the CoVIS LAN.

(b) The RBT and its host must have the capability to receive test orders transmitted by CoVIS and return test results to CoVIS using the ASA network secure common industry standard interface (see example in **Section 16**).

9.2 Outputs required for CoVIS

(a) The RBT shall have the capacity to electronically transmit maximum test measurement values for the following;

(i) Left and right service brakes on each axle.

(ii) Left and right parking brakes on the applicable axle/s.

(iii) Static presented weight of each axle.

(iv) Left and right ovality of disk / drum on each axle.

(v) Pedal force applied on each axle test.

(b) It must transmit specific measurement values i.e.; a calculated result is not acceptable.

(c) The unit of brake force and pedal force measurement returned will contain the value in kgf or as otherwise agreed.

(d) The unit of static weight in Kilograms.

(e) The RBT must provide a start date/time for each test.

(f) The RBT must provide an end date/time for each test.

(g) The RBT must provide the serial number of the equipment used for each test.

NOTE; Further detail is shown in Section 16.

9.3 Input Test order detail from CoVIS

Use the standard ASA Network requirements input data.

(a) CoVIS sends the following for all test orders:

(i) Order type id
(ii) Order Description
(iii) Reg No,
(iv) EU Vehicle Category
(v) Date of first registration
(vi) No Axles
(vii) Fuel Type

Section 10

10.1 Documentation/Identification

(a) The RBT shall have a durable identification mark on its exterior or its control unit showing the make, model, and serial number.

(b) The manufacturer of the RBT shall provide a clear and easy to understand user manual, written in English and available at any time to the test centre, which shall explain how it operates, including the function of each aspect of the RBT.

(c) The manufacturer of the RBT shall provide a recommended "maintenance procedure". It shall highlight key components and wear parts that affect the accuracy of measurement values.

Section 11

11.1 Calibration

The Calibration service provider, as part of their quality programme, shall adhere to the CITA 9B Quality Requirements (see **Section 15**).

11.2 Brake Force Measurement.

The calibration equipment shall:

(a) Be capable of checking brake force accuracy at the following values: Low range: 0, 100, 200, 400, 600, 800, 1200 kgf

(b) If the brake force measurement is displayed on a VDU, the accuracy of the brake force measurement shall be judged against the digital values.

(c) If traditional dials are used, they should correspond to the digital values and be included as part of the calibration process.
Also;

(d) All component parts of the calibration device, including any weights, shall be individually marked with an identity number. Each calibration device produced shall require its own certificate.

(e) If the certificate or any other relevant document produced for the calibration device is not in English, the applicant shall make available a translation into English.

(f) When the static calibration has been completed, to assess the level of torque required to rotate each roller set drive train mechanism, including any unexpected cause of increased friction such as a failing roller bearing or a bent shaft, the following test shall be carried out:

(i) With the RBT in 'calibration mode' and with no vehicle in the rollers, the rollers shall be rotated, and the brake force displayed shall not exceed 25 kgf.

(g) The RBT brake force readings shall be accurate to within;

(i) +/-3 kgf of the true value from zero up to and including 100 kgf.

(ii) +/-3 per cent of the true value for all readings between 100 and 2000 kgf.

(h) The RBT brake force calibration device shall be accurate to within;

(i) +/-0.3 kgf of the true value from zero up to and including 100 kgf.

(ii) +/-0.3 per cent of the true value for all readings above 100 kgf.

NOTE – If the Calibration Equipment is certified to calibrate in KN then the verification of accuracy shall be in KN.

11.3 Weight Calibration

(Where the weight is determined from the integrated suspension tester the following does not apply).

The calibration equipment shall:

(a) Be capable of checking mass axle weight up to minimum 30% of the end range value of the RBT. If the Weight measurement is displayed on a VDU, the accuracy of the weight measurement shall be judged against the digital values. Traditional dials shall indicate the same values (if applicable).

(b) Have a method and operational accuracy that is certified and traceable to a national physical standard.

Also;

(c) All component parts of the calibration device, including any mobile weight scale handset, shall be individually marked with an identity number to enable all parts to be kept together as a set. The certificate shall relate to the set and each calibration device produced shall require its own certificate.

(d) If the certificate or any other relevant document produced for the calibration device is not in English, the applicant shall make available a translation into English.

(e) When the static calibration has been completed, a drive on of the target weight axle used in calibration in normal operating mode shall verify the weight readings.

(f) The RBT weigh scales readings shall be accurate to within;

(i) +/-3 kg of the true value from zero up to and including 100 kg.

(ii) +/-3 per cent of the true value for all readings between 200-2000 kg.

(g) The RBT weigh scales calibration device shall be accurate to within;

(i) +/-0.3 kg of the true value from zero up to and including 100 kg.

(ii) +/-0.3 per cent of the true value for all readings above 100 up to 600 kg.

11.4 Calibration – Key Points

(a) The manufacturer of the RBT shall, if requested, provide a technical handbook in English with a description of the calibration technology for review by the Authority.

(b) The calibration procedure shall match the manufacturer's recommendation.

(c) For an initial set up, the installer shall provide a calibration certificate.

(d) A person with recognised training of the RBT shall calibrate the equipment every 12 months, or more frequently if required, using calibration equipment as specified by the RBT manufacturer.

(e) A condition report shall be completed by a person with recognised training of the RBT. See **Section 13**.

(f) A condition report on the RBT shall be carried out at 12-month intervals or if the RBT is potentially damaged in any way. See **Section 13**.

NOTE: Valid and current calibration certificates shall be scanned and uploaded to CoVIS. An original hard copy shall be stored securely and made accessible for inspection for 12 months.

Section12

Emergency Stop Device

Important – The installation of all emergency stop devices must meet with all Health and Safety regulations and must also comply with all the equipment manufacturers' requirements.

In addition to these requirements, the Authority recommends that, where appropriate, the installation of useful and appropriately located emergency stop devices that enhance the safety of personnel working within the test centre.

Function
In the event of an emergency there should be EU approved emergency stop device(s) with means of cutting the power supply to the motors on both sets of rollers if the function alleviates the level of danger should an emergency incident arise.

Basic Requirements of an Emergency Stop Device

- Where required, equipment must be fitted with emergency stop(s) to enable actual or impending danger to be averted quickly as possible, unless an emergency stop device would not lessen the risk.
- The emergency stop device must be clearly identifiable, clearly visible, and quickly accessible.
- The emergency stop function must be available and operational at all times, regardless of the operating mode.
- Disengaging the emergency stop device must not restart the machinery but only permit restarting.
- Emergency stop devices must be a back-up to other safeguarding measures.

Routine checks and maintenance

In the case of the emergency stop devices, frequent inspections should be considered part of the formal equipment routine inspection and testing process to ensure that they will operate in an actual emergency situation.

Section 13

Recommended Minimum key points for compilation of a Condition report on an RBT

Particular attention shall be made to the following and noted;

Rollers;

- The high friction coating is not flat and smooth due to wear.
- The high friction coating is evenly applied particularly in the case of local patching.
- A bare metal patch in the high friction area does not exceed 20% of the contact surface area of any given tyre.
- The roller is perfectly cylindrical and free of dents.
- Bearing mounts bolts are tight.
- Roller bearings are smooth and running free with no play in shaft or vibration.
- Bearing sets are greased or adequately lubricated.

Drive train;

- Sprocket teeth are not excessively worn, bent, or broken.
- All Sprocket bolts present and are sufficiently tightened.
- Chain links are all present and in good condition.
- Chain is adequately tensioned.
- Chain is adequately greased but not over greased that it is accumulating dirt.
- Chain tensioning mechanism is in good condition (where applicable).

Drive motor and gearbox

- Cooling fins on motor are cleared of dirt.
- Bearing mounts on motor/ gearbox are tight.
- Bearings are smooth and running free with no play in shaft or vibration.
- Bearing sets are greased or adequately lubricated.
- Drive sprocket not excessively worn, bent, or broken.
- Drive Sprocket aligned with chain tensioner and roller sprockets.

Electrical instrumentation and control unit

- Emergency stop devices are operating correctly and are accessible. (See Section 12).
- Strain gauge is in good condition and is correctly positioned. Detectable play is within manufacturer's specification.
- Slip bar sensors are not damaged and have adequate clearance.
- Cables are neatly strapped and clear of moving mechanical parts.
- All junction boxes are clean and dry, in good condition and lids closed with adequate screws.
- Cable Ducting/conduit in good condition and mounted correctly.
- Cable glands are tight.
- Remote control casing is in good condition and battery life is adequate for uninterrupted vehicle testing.
- Correct time and date (EU format) is noted on RBT host PC. Reference against CoVIS PC.
- Automatic summertime adjustment is set and configured for local Irish time and settings.

Mechanical – roller set

- No detectable rocking present in the roller set load cell mounting points (where applicable).
- Plates/guards are not bent and all bolts retaining them are present and tight.
- Slip bar spins smooth and free – no detectable vibration or play in the bearings.
- Slip bar is not damaged or bent – bar does not rotate off centre.
- Travel mechanism of slip bar operates evenly and smoothly.
- Spring / gas strut on slip bar travel mechanism operates in the full range. End stops are in good condition.
- Free of obstruction (or excessive dirt and debris) surrounding the roller set pit that may affect the free movement of the suspended roller set and in turn the accuracy of the weight readings (where applicable).

NOTE; These are recommended minimum key points for compilation of a condition report. Any other check recommended by the equipment manufacturer should be included.

Section 14

Printout report

Key Points;

- The test values on the printout report must match the data values returned to ASA Network for CoVIS i.e., where a value is calculated and presented with no decimal places.
- The value will be rounded down to no decimal place.
- The printout shall display the brake force in units of kilogram force (KGF).
- The printout shall display the weight in kilograms (KG).
- The printout report shall have the capacity to change the printed brake force unit to Kilo newton (Kn) by means of a software setting.
- The RBT shall have the capability to operate independent of CoVIS and produce a printed report.

The Printout must include at minimum the following details on the report.

- Test Centre Details – Name / Address / Centre number
- Completion Time and date of test – dd/mm/yyyy - hh/mm
- Vehicle Registration – Registration
- Vehicle odometer reading – odometer reading
- Detail requirements for each axle
- Axle weight - KG
- Max Service brake force Left - KGF
- Max Service brake force Right - KGF
- Max Parking brake force Left –KGF (where applicable)
- Max Parking brake force Right – KGF (where applicable).
- Road friction left - KGF
- Road friction right - KGF
- Wheel lock out occurrence left - LOCKOUT
- Wheel lock out occurrence right – LOCKOUT
- Pedal force applied – KGF
- Test limit applied and presentation of performance results for each axle and brake type - %. Outcome of the test – Pass / Fail / Void / Aborted
- Provision for CVRT testers' signature and Tester Number issued by the RSA.

Section 15
CITA 9B Quality Requirements Covering Calibration

15.1 Calibration

15.1.1 The inspection body shall ensure that there are proper arrangements to adequately control and calibrate vehicle inspection equipment before and during use, in order to ensure its accuracy, its conformity to the relevant requirements and its continued suitability and to provide confidence in decisions based on measurements.

15.1.2 The calibration procedures, sometimes known as calibration programmes, shall define the calibration processes, their environmental conditions, their frequency, the acceptance criteria, and the action to be taken when the results are found unsatisfactory and/or inadequate.

15.1.3 Quality relevant vehicle inspection equipment shall be calibrated before first use and at least at the following frequencies during in-service use **or *at other frequencies as prescribed in national regulations*:**

NOTE; All calibration frequencies mentioned in the CITA requirements have been omitted from this Appendix as they are superseded by the prescribed calibration frequencies outlined in the Premises & Equipment Guidelines.

15.1.4 Calibration shall be done, where appropriate, against certified equipment having a known and traceable relationship to internationally or nationally recognised standards. Where no such standards exist, the basis used for calibration shall be fully documented, according to the equipment manufacturer's recommendation, if any.

15.1.5 If vehicle inspection equipment is found to be out of calibration or there are any other systematic errors, the validity of the vehicle inspection results since the date of last calibration shall be reassessed. If there was any relevant non-conformity, the vehicle inspection body shall, as soon as practicable inform the owners/keepers of the affected vehicles and invite them immediately for reinspection, making it clear that there will be no charge for the inspection.

15.1.6 The calibration status shall be shown clearly on relevant vehicle inspection equipment, preferably by means of suitable markers or labels, indicating at least the date of the last calibration and the date the next calibration is due.

15.1.7 Reference measurement standards held by the inspection body shall be used for calibration only and not for other purposes. Only competent bodies who can provide traceability to international or national measurement standards shall calibrate reference measurement standards.

15.1.8 The inspection body shall keep records of all calibrations performed.

Section 16

Sample XML Stream sent to CoVIS from ASA Network

Note: The highlighted content in the sample below shows the minimum fields required.

- The data must be returned to ASA Network in the correct format.
- All XML must be valid or will be rejected.
- The sample file contains results for a 2-axle vehicle.
- The XML should output all raw data including decimal values.
- The results must relate to the test Order ID received from CoVIS.
- The registration number is not read when processing the results.

SAMPLE ONLY

```
<?xml version="1.0" encoding="ISO-8859-1" standalone="no" ?>
<!DOCTYPE RESULTS SYSTEM "awnres.dtd">
<!-- Created 24.10.2014 15:16:26 with AWNX32.dll Version 2.0.0 Build 50 -->

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<RESULTSHEADER>
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      <REGULATION>GERMAN</REGULATION>
      <LANGUAGE>GERMAN</LANGUAGE>
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      <NAME> </NAME>
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      </DATA>
    </VEHICLE>
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        <MODEL>B67/60/70</MODEL>
        <SERIAL_NO>2014003</SERIAL_NO>
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Appendix 4 – Steering Side Slip Unit/Plate Specification (SSSU)

Section 1

1.1 General overview

(a) The Steering Side Slip Plate/Unit (side slip unit) must provide a value for distance of deviation in metres per kilometre (m/Km) per axle and return values for each axle to CoVIS.

(b) The side slip unit shall return a negative value when pushed left and when pushed right it shall return a positive value.

(c) The range of the side slip unit to be measured shall be at minimum 0 - 20 m/Km for either direction. The sampling plate or equivalent device shall record 1000mm of uninterrupted travel of the vehicle. The side slip unit shall record the maximum reading taken over the full sample of travel.

(d) The side slip unit should be capable of connection to CoVIS. It must connect to a PC running software capable of outputting test data to CoVIS via the protocols as set out in section 3.

(e) The side slip unit shall have the capacity to operate and produce a printout and electronically file test results independent of CoVIS. A sample printout report listing the minimum detail required is shown in Section 6.

1.2 Location of and specification of LCV Steering Side Slip Unit

(a) The side slip unit shall be capable of accurately measuring the geometry of front and rear axles of light commercial vehicles with GVW up to 3,500kg and an axle load of up to 2,800kg. It shall be located on the right-hand side of the of the test lane drive line (as a vehicle drives through the test lane) before the suspension tester.

(b) The centre line of the side slip unit shall be on the same centre line as the suspension test pad on the right-hand side of the test lane.

(c) The approach and exit of the side slip unit shall be level and comply with Premises & Equipment Guidelines specifications. The surface shall be flat and free of any significant changes that may affect readings on the side slip unit.

(d) The area on the corresponding left hand side of the test lane shall have a surface equally as flat as the sampling plate side slip unit. It shall be level with the side slip unit plate to minimise camber.

(e) On exiting the side slip unit, the surface shall be flat and free of obstruction or test equipment for 0.2 metres.

Section 2

2.1 Location and specification of HCV Side Slip Unit

(a) The side slip unit shall be capable of accurately measuring and recording the geometry of multiple axles of HCVs with axle loads up to 15,000kg, as nominated by the vehicle inspector.

(b) The side slip unit shall be located on the right side of the of the test lane (as a vehicle drives through the lane).

(c) The location of the side slip unit centre line shall ensure all vehicles tested on the HCV lane shall be facilitated, and the HCV tester is not forced to deviate from the test lane centre line to accommodate a correct drive over of the side slip unit.

(d) The location of the side slip unit shall comply with the Premises & Equipment Guidelines. The surface shall be flat and free of any significant changes that may affect readings on the side slip unit. Particular attention should be made in relation to the distance between the side slip unit and the brake tester roller set.

(e) The area on the corresponding left side of the test lane shall have a surface equally as flat as the side slip unit sampling plate. It shall be level with the sampling plate to minimise camber.

(f) On exiting the side slip unit, the surface shall be flat and free of obstruction or test equipment for a distance that complies with the requirements in the Premises & Equipment Guidelines.

Section 3

3.1 Connection to CoVIS

(a) The side slip unit host PC must be capable of connecting to the CoVIS network via the internal test centre network.

(b) This PC must be capable of communicating to CoVIS via ASA Network Standard on a network i.e., requires a network card dedicated to communicating with CoVIS or the centre's LAN.

(c) The host PC date and time format must be set to a standard Irish date/time format and time zone. These must be set to the correct time as displayed on the CoVIS admin computer.

(d) There must be no firewalls or firewall rules preventing data from transferring to\from ASA Network.

3.2 Communication with CoVIS

(a) The side slip unit and its host must have the capability to receive test orders transmitted by CoVIS and return test results to CoVIS using the ASA network secure common industry standard interface (see example in **Section 8**).

(b) The unit of measurement returned will contain the value in meters per kilometre (m/Km). The value returned can be either negative or positive to indicate the direction of the deviation. It must transmit the actual measurement value of each axle, a pass / fail result is not acceptable.

(c) The side slip unit must be capable of providing separate values for each axle on a vehicle and labelling each measurement with the axle number.

(d) The side slip unit must provide a start date & time for each test.

(e) The side slip unit must provide an end date & time for each test.

(f) The side slip unit must provide the Serial Number of the equipment used for each test.

(g) The input data shall comply with ASA Network input data requirements. It shall include;

- Order type id
- Order description
- Vehicle registration number
- EU Vehicle Category
- Date of first registration
- Number of axles

Section 4

4.1 Documentation/Identification

(a) The side slip unit shall have a durable identification mark on its exterior or its control unit showing the make, model, and serial number.

(b) The manufacturer of the side slip unit shall provide a clear and easy to understand user manual, written in English and available at any time to the test centre, which shall explain how it operates, including the function of each aspect of the side slip unit.

(c) The manufacturer of the side slip unit shall provide a recommended "maintenance procedure".

Section 5

5.1 Calibration

(a) The Calibration service provider, as part of their quality programme, shall adhere to the CITA 9B Quality Requirements (see Section 7).

(b) The manufacturer of the side slip unit shall, if requested, provide a technical handbook in English with a description of the calibration technology for review by the RSA.
(c) The calibration procedure shall match the manufacturer's recommendation. (d) For an initial set up, the installer shall provide a calibration certificate.

(d) A competent person shall calibrate the side slip unit every 12 months, or more frequently if required, using calibration equipment as specified by the side slip unit manufacturer

5.2 Condition

(a) A condition report on the side slip unit shall be completed by a competent person. It may be carried out at time of calibration.

(b) A condition report shall be carried out at 12-month intervals or if the side slip unit is potentially damaged in any way e.g., excessive lateral force causing incorrect play in the plate or if the base is insecure in the floor.

(c) Particular attention shall be made to the following and noted;

- With a max axle load on the plate, the plate shall only move freely in a lateral direction left and right perpendicular to the driving direction of the vehicle.
- Detectable play in the plate other than the plate's natural vertical movement, due to a vehicle load, and the lateral direction movement.
- The effect of corrosion or excessive wear on the side slip unit.
- The side slip unit plate shall have equal resistance for left and right lateral movement.
- After a lateral movement has occurred the side slip unit plate shall promptly return to its centre position.
- Bearings and roller tracks should be free of dirt, corrosion, and water ingress. Sliding mechanism should be sufficiently lubricated.
- Correct time and date (EU format) is noted on measurement device controller.

5.3 Settings

(a) Pass / fail limits set in the side slip unit must correspond to the limits applied by the RSA for left and right deviation on each axle as per the relevant Vehicle Tester's Manual.

(b) Local Settings and variables that affect the outcome of the readings shall be uniform for each make/ model type.

NOTE - Valid and current calibration certificates shall be issued to the test centre for scanning and uploading to CoVIS. An original hard copy shall be stored securely and made accessible for inspection for 12 months.

Section 6

Printout Report

The side slip unit shall have the capability to operate independent of CoVIS and produce a printed report that must include, at a minimum, the following details on the report. The test values on the printout report must match the data values returned to ASA Network for CoVIS i.e., where a value is calculated and presented with no decimal places, the value will be rounded down to no decimal place.

- Test Centre Details – Name / Address / Centre number
- Completion Time and date of test – dd/mm/yyyy - hh/mm
- Vehicle Registration – Registration
- Vehicle odometer reading – odometer reading
- Detail requirements for each axle
- Axle number
- Maximum deviation of axle
- Direction of deviation - left / right (+ /- also acceptable to indicate direction)
- Test limit applied and presentation of performance results for each axle
- Outcome of the test – Pass / Fail / Void / Aborted
- Provision for CVRT testers' signature and tester number issued by the RSA.

Section 7
CITA 9B Quality Requirements Covering Calibration

7.1 Calibration

7.1.1 The inspection body shall ensure that there are proper arrangements to adequately control and calibrate vehicle inspection equipment before and during use, in order to ensure its accuracy, its conformity to the relevant requirements and its continued suitability and to provide confidence in decisions based on measurements.

7.1.2 The calibration procedures, sometimes known as calibration programmes, shall define the calibration processes, their environmental conditions, their frequency, the acceptance criteria and the action to be taken when the results are found unsatisfactory and/or inadequate.

7.1.3 Quality relevant vehicle inspection equipment shall be calibrated before first use and at least at the following frequencies during in-service use ***or at other frequencies as prescribed in national regulations*:**

NOTE; All calibration frequencies mentioned in the CITA requirements have been omitted from this Appendix as they are superseded by the prescribed calibration frequencies outlined in the *Premises & Equipment Guidelines.*

7.1.4 Calibration shall be done, where appropriate, against certified equipment having a known and traceable relationship to internationally or nationally recognised standards. Where no such standards exist, the basis used for calibration shall be fully documented, according to the equipment manufacturer's recommendation, if any.

7.1.5 If vehicle inspection equipment is found to be out of calibration or there are any other systematic errors, the validity of the vehicle inspection results since the date of last calibration shall be reassessed. If there was any relevant non-conformity, the vehicle inspection body shall, as soon as practicable

inform the owners/keepers of the affected vehicles and invite them immediately for reinspection, making it clear that there will be no charge for the inspection.

7.1.6 The calibration status shall be shown clearly on relevant vehicle inspection equipment, preferably by means of suitable markers or labels, indicating at least the date of the last calibration and the date the next calibration is due.

7.1.7 Reference measurement standards held by the inspection body shall be used for calibration only and not for other purposes. Only competent bodies who can provide traceability to international or national measurement standards shall calibrate reference measurement standards.

7.1.8 The inspection body shall keep records of all calibrations performed.

Section 8

Sample XML Stream sent to CoVIS from ASA Network

Note: The highlighted content in the sample below shows the minimum output fields required.

- The data must be returned to ASA Network in the correct format ■ All XML must be valid or will be rejected.
- The sample file contains results for a 2-axle vehicle.
- Should output all raw data including decimal values.
- The results must relate to the test Order ID received from CoVIS.
- The registration number is not read when processing the results.

SAMPLE ONLY

```
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Appendix 5 – Headlight Aim Tester Specification (HAT)

Section 1

1.1 General overview

The Headlamp Aim Tester (HAT) shall comply with the requirements of Directive 2014/45/EU (as amended). The equipment must be mounted on two rails with the top surface recessed at or below floor level to prevent possible distortion or damage and located in front of the certified level floor area as per the test lane(s) layout in the Premises and Equipment Guidelines.

1.2 HAT Rails

- The HAT shall operate on rails at all times.
- The rail set shall consist of two rails. One for the front and one for the rear.
- The rails shall run from the testing area to the stowed position of the HAT.
- The stowed position shall have adequate clearance of the driving line.
- The rails shall be capable of being secured flat and level within +/- 1 mm in any metre within the testing area. The tolerance in the level area does not have to extend to the stowed position.
- The rails shall be sufficiently straight to ensure that the direction alignment of the HAT is not affected at any position on the rail.
- Where it is possible to drive a vehicle over the rail, the rails shall be recessed into the floor to prevent possible distortion or damage.
- The rails shall be located on the test lane in an area that minimises any additional forces being exerted on them e.g.; they should not be located where wheel spin may occur on a vehicle exiting a brake tester.
- The rails shall be mounted in concrete or steel or a combination of both. The quality of the installation must be to a standard that ensures that the rails are fully supported, and the installation is durable.
- Where there is a joint in the rails, the joint must be to a standard that minimises vibration of the HAT as it travels over it.
- Verification of alignment and/or adjustment of the rails shall be included in the annual calibration procedure.
- Verification of a rail's alignment may be required at any time, where it is suspected that the rails have become unlevel, crooked, bent or loose, or if the floor in which they are mounted, has deteriorated after a period of use.

1.3 Lens Assembly

- The lens assembly shall be adjustable vertically on a rigid rotatable pillar so that the centre of the lens can be set to any height between 250mm and 1220mm above the light test area floor. (Where the HAT is used for testing fast tractors, it shall be capable of being set to a height above 1220mm) It shall be capable of holding the set position until it is intentionally adjusted by the user.

- The mounting for the lens assembly must ensure smooth running with a rigid vertical guidance system.
- The rotatable pillar shall be of extruded metal (or of construction with a similar rigidity) with a formed vertical guidance track that shall be a component of the lens assembly guidance system. It shall rotate smoothly and be mounted within a rigid mechanism to ensure that the alignment of the lens assembly with respect to the vehicle is not affected by movement of the HAT along the rails, within the testing area.
- A counterweight mechanism shall be integrated into the pillar to ensure the aligning process of the lens assembly in the vertical adjustment is a single touch movement so as not to affect the rotation adjustment.
- A laser alignment head shall be fitted to enable the HAT to be accurately aligned with the longitudinal axis of the vehicle. The mechanism must be adjustable only with tools suitable for use in the calibration process. Accuracy of this alignment must be checked at least annually or at intervals recommended by the equipment provider.
- The apparatus shall have the necessary adjustable components to compensate for the effect of any wear. Particularly the alignment laser, vertical guidance mechanism, rotation mounting and carriage axles. It shall not be possible to change this adjustment without tools.
- The lens assembly shall be capable of rotating in the horizontal plane and when correctly aligned it shall be capable of holding the set position until it is intentionally adjusted by the user.
- The lens shall be to a standard that the quality of the image on the aiming screen matches the image projected on a distant aiming screen, as outlined in ISO10604.
- The lens shall be capable of retaining the standard of the image at variable focal lengths created by differing headlamp system designs by the use of a Fresnel Lens only.

1.4 Aiming Screen

- The aiming screen shall be positively located within the HAT and adjustable only with tools that may be necessary during calibration. Attachment by adhesive is not acceptable.
- The aiming screen should, at minimum, be marked at its centre point. The centre point may be marked by crosshairs or a single dot that does not affect accuracy or ability of the image sensors reading.

1.5 Camera specification

- A fixed camera using image sensors with the ability to read ECE, SAE and European low beam images
- The Camera shall have the capability of capturing the image that is Illuminated from, but not limited to xenon, halogen bi-elliptical, LED and matrix using a CMOS camera or equipment using technology with equivalent capabilities.
- The Camera shall be controlled, and the image processed using tablet-based technology.
- In the event that the camera is unable to process an image of an EU approved headlight a solution shall be provided by the manufacturer. This may be in the form of a software update.
- All HATs must be supported by the equipment manufacturer while in use including having any software updates as recommended by the manufacturer. This may include any updates that

may be required to ensure it is capable of capturing all low beam images from EU approved headlights in that period

- The measured range of the pitch and direction cover at a minimum, + 2% to - 6% in pitch and + / - 10% in direction.
- The HAT must have the ability to read up to 200 lux light intensity (125 K Candela).
- Measurement values must be repeatable to within an accuracy of +/- 0.1% in pitch and +/- 0.2% in direction.
- The HAT must be set up for measuring right hand drive headlamps i.e., for vehicles that drive on the left-hand side of the road. The pass / fail limits applied by the HAT should match the limits applied by the Authority. This should include both above and below 850mm categories.

1.6 Reports and Settings

- The HAT unit shall retain its default settings on start up to “European Left-hand Traffic”
- The HAT unit shall be capable of operating independent of the CoVIS system as a standalone unit and providing a printout report via the host PC. See Section 5.

Section 2

2.1 Connection to CoVIS

- Where a HAT cannot directly receive test orders from CoVIS, a host PC must be provided to communicate between the HAT and CoVIS.
- The HAT or its host must have the capability to receive test orders transmitted by CoVIS and return test results to CoVIS using a secure common industry standard interface such as the ASA network (see example in Appendix 1 below).
- The HAT shall have the capacity to electronically transmit test measurement values for both pitch and direction in gradient percent (%) i.e., it must transmit the actual measurement values and not just a calculated result.
- The HAT must be capable of providing separate values for Dipped Beam, Main Beam / Auxiliary and Fog Lights for both left and right lights.
- The measurement returned must provide a value for Pitch and Direction for Dipped Beam, Main Beam / Auxiliary Lights, and a value only for pitch on Fog Lights.
- The HAT or its host PC must have the capability to send test result back to CoVIS using a secure common industry standard interface such as the ASA network (see example in Section 6).
- The unit of measurement returned will contain the value in % and comply with measurements as set out in ISO 10604 and its amendments.
- The HAT must provide a start and end date / time for each test.
- The HAT must provide the Serial Number of the Equipment used for each test.
- Limits must be set to at least 1 decimal place for pitch and direction in a percentage unit.

Section 3

3.1 Documentation/Identification

- The HAT shall have a durable identification mark on the exterior showing the make, model, and serial number.
- The manufacturer of the HAT shall provide a clear and easy to understand user manual, written in English and available at any time to the test centre, which shall explain how it operates, including the function of each aspect of the HAT.
- The manufacturer of the HAT shall provide a recommended maintenance procedure.

Section 4

4.1 Calibration of HAT

- The manufacturer of the HAT shall, if requested, provide a technical handbook in English with a description of the calibration technology for review by the RSA.
- The calibration procedure shall match the manufacturer's recommendation. ■ For an initial set up, the installer shall provide a calibration certificate.
- A competent person shall calibrate the equipment every 12 months, or more frequently if required, using calibration equipment as specified by the HAT manufacturer.
- A condition report on the HAT shall be carried out at 12-month intervals (this can be combined with calibration) or if the HAT is potentially damaged in any way e.g., struck by a vehicle or knocked over.
- Calibration certificates shall be scanned and uploaded to CoVIS and kept for at least 1 year.

Section 5

Printout report Key Points;

(a) The test values on the printout report must match the data values returned to ASA network for CoVIS.

(b) The printout shall display the vertical and horizontal values in a percentage unit.

(c) The printout shall display values for the left hand (nearside) and the right hand (offside) head lights.

(d) The printout shall display all images taken during the test for the different types of lights example low beam and fog lights

The Printout must include at minimum the following details on the report.

- Test Centre Details – Name / Address / Centre number.
- Completion time and date of test – dd/mm/yyyy - hh/mm.
- Vehicle Registration – Registration Number.
- Values for vertical and horizontal direction of each light type captured.
- Where a light is unable to be captured, the values returned will show a dotted line or n/a clearly showing that it is unable to capture a value.
- Test limit applied - value in percent.
- Outcome of the test – Pass / Fail / Void / Aborted.
- Provision for CVR tester's signature and tester number issued by the Authority.

Section 6 - XML file as specified by CoVIS

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Appendix 6 – Suspension Tester Specification (STS)

IMPORTANT NOTICE

At present, all suspension performance test equipment in the CVRT network is based on three different measuring principles, namely the Boge, Theta or the Eusama principle. In the interest of uniformity and to improve consistency, it is the intention of the Authority to introduce a uniform measuring method for all suspension testers, based on the **Damping Ratio According to Lehr`s** Principle. The introduction of this new method will be dependent on the outcome of successful pilot testing on suspension testers using this new principle. The results will determine a single method of suspension testing for use in CVRT in the future. Existing test equipment may require modification to adopt the new principle.

Whilst the Suspension Tester Specification, as set out below, can be met using any of the afore mentioned methods, it would be preferable that any new suspension testers, purchased from now on, should also be capable of being adapted to use the Lehr principle. The impact of such a change should be discussed with your equipment supplier.

Section 1

1.1 General overview

The Suspension Tester must be capable of carrying out suspension tests on all light commercial vehicles up to and including vehicles of 3,500kg DGVW. It must connect to a PC running software capable of outputting test data to CoVIS via the agreed protocols as set out in **Section 2.**

It is expected that the manufacturer of the Suspension Tester is the same manufacturer of the corresponding roller brake tester, and they are integrated with the same host PC and controlled by the same test equipment software. This is for the purposes of calculating the brake performance based on the static weight recorded by the suspension tester.

The Suspension Test Unit shall;

(a) Be based on the resonance principle with vertical oscillating base excitation.

(b) Be capable of measuring overall suspension performance of each wheel and the imbalance of each axle.

(c) Be capable of measuring the static weight of each axle.

(d) Have the capability of measuring the weight of an axle load up to 2,800kg and testing the suspension performance of a wheelset weighing up to 1400kg.

(e) Prevent the excitation of a plate until both plates are occupied correctly by the wheel sets on an axle.

(f) Delay automatic start up by a minimum 3 seconds after correct occupation (if applicable).

(g) Have the capacity to operate and produce a printout of test results independent of CoVIS. (For printout criteria see Section 5).

(h) Not be susceptible to any disturbance from Radio Frequencies and Electromagnetic fields.

(i) Operate reliably in all conditions likely to be encountered within the vehicle testing environment. It shall meet a weatherproof rating of IP42 or above.

(j) Consist of a pair of test plates mounted in one unit at floor level – the vehicle shall be predominantly level when any axle is on the suspension tester.

(k) Have marker bars located on the front and rear of both the left and right test plates for the purpose of assisting in locating the wheel correctly.

(l) Be suitably located in the floor to avoid the requirement of retaining the brake on the vehicle for the purposes of preventing it from rolling off the suspension tester or keeping it centred on the plate. This must accommodate all LCV wheelbase lengths.

(m) Have the display and a user interface positioned on the driver's side (right side in the driving direction) and ensure the vehicle tester, for all axles being tested, has an unobstructed line of sight and a clear view when in the driving position. The display must have adequate visibility of the readings during the test procedure, particularly in poor light conditions or bright sun light.

(n) Not commence a new vehicle test without clearing any existing measurements.

(o) Meet current health and safety regulations and RECI standards on its installation.

(p) When installed, the unit must not inhibit the view of the CCTV camera, or the reading of the number plate as required by the ANPR camera.

NOTE; Detail on the equipment layout is available in the Premises and Equipment Guidelines.

Section 2

2.1 Connection to CoVIS

(a) The suspension tester host PC must be capable of connecting to the CoVIS network via the internal test centre network.

(b) This PC shall be capable of communicating to CoVIS via ASA Network Standard on a network i.e., requires a network card dedicated to communicating with CoVIS or the centre's LAN.

(c) The host PC date and time format shall be set to a standard Irish date/time format and time zone. These must be set to the correct time.

(d) There shall be no firewalls or firewall rules preventing data from transferring to\from ASA Network.

2.2 Communication with CoVIS

(a) The suspension tester and its host must have the capability to receive test orders transmitted by CoVIS and return test results to CoVIS using the ASA Network secure common industry standard interface (see example in **Section 8**).

(b) The Suspension Tester shall have the capacity to electronically transmit test measurement values for both left and right wheels i.e., it must transmit the actual measurement values and not just a calculated result. See Section 8 where there is a sample of the output required – ref the highlighted content only.

(c) The unit of measurement must return applicable values for the left and right of each wheel.

(d) The suspension tester must be capable of providing separate values for each axle on a vehicle and labelling each measurement with the axle number.

(e) The suspension tester must provide a Start date & time for each test.

(f) The suspension tester must provide an End date & time for each test.

(g) The suspension tester must provide the Serial Number of the equipment used for each test.

2.3 Input Test order detail from COVIS

The input data shall comply with ASA Network input data requirements.

It shall include;

(a) Order type id.

(b) Order Description.

(c) Vehicle Registration Number.

(d) EU Vehicle Category.

(e) Date of first registration.

(f) Number of Axles

Section 3

3.1 Documentation/Identification

(a) The Suspension Tester shall have a durable identification mark on its exterior or its control unit showing the make, model, and serial number.

(b) The manufacturer of the Suspension Tester shall provide a clear and easy to understand user manual, written in English and available at any time to the test centre, which shall explain how it operates, including the function of each aspect of the Suspension Tester.

(c) The manufacturer of the Suspension Tester shall provide a recommended "Maintenance Procedure".

Section 4

4.1 Variables and Settings

(a) Pass / fail limits set in the Suspension Tester must correspond to the limits applied by the Authority and stored within CoVIS, for suspension performance and imbalance on each axle as per the relevant Vehicle Tester Manual.

(b) Local Settings and variables that affect the outcome of the readings shall be uniform for each make/ model type.

4.2 Calibration of the Suspension Tester

The Calibration service provider, as part of their quality programme, shall adhere to the CITA 9B Quality Requirements (see Section 7).

(a) The manufacturer of the Suspension Tester shall, on request, provide a technical handbook in English describing the calibration technology for review by the Authority.

(b) A person with recognised training from the manufacturer of the Suspension Tester shall calibrate the equipment every 12 months, or more frequently if required, using calibration equipment as specified by the manufacturer guidelines.

(c) A condition report shall be completed by a person with recognised training from the manufacturer of the Suspension Tester.

(d) A condition report on the Suspension Test shall be carried out at 12-month intervals or if the Suspension Test is potentially damaged in any way e.g., exiting of Test Plate when vibration motor has not come to a complete stop.

(e) The calibration procedure shall match the manufacturer’s recommendation. (f) For an initial set up, the installer shall provide a calibration certificate.

Note 1: All component parts of the calibration device kit, including any venire calliper, shall be individually marked with an identity number to enable all parts to be kept together as a set. The certificate shall relate to the set and each calibration device produced shall require its own certificate.

Note 2: If the certificate or any other relevant document produced for the calibration device is not in English, the applicant shall make available a translation into English.

Note 3: When the static calibration has been completed, to assess the linearity and stability of deviation, including any unexpected cause of increased friction such as a failing bearing or loose spring, the final check procedure – dynamic observation shall be carried out – please see **Section 6** of the condition report.

4.2 Weight; Calibration Equipment

The Calibration service provider, as part of their quality programme, shall adhere to the CITA 9B Quality Requirements (see Section 7).

Where the weight is determined from the integrated suspension tester the following applies.

The calibration equipment shall be capable of checking mass axle weight up to minimum 35% of the end range value of the suspension tester e.g.,35% of 2,800kg = 980kg. If the weight measurement is displayed on a VDU, the accuracy of the weight measurement shall be judged against the digital values. Traditional dials shall indicate the same values (if applicable)

(a) All component parts of the calibration device, including any mobile weight scale handset, shall be individually marked with an identity number to enable all parts to be kept together as a set. The certificate shall relate to the set and each calibration device produced shall require its own certificate.

(b) If the certificate or any other relevant document produced for the calibration device is not in English, the applicant shall make available a translation into English.

(c) When the static calibration has been completed, a drive-on of the target weight axle used in calibration in normal operating mode shall verify the weight readings.

(d) The method of obtaining the target weight shall ensure the vehicle weight distribution is retained for the actual weight calibration.

Accuracy

(e) The weighing scales readings shall be accurate to within:
  (i) +/-3 kg of the true value from zero up to and including 100 kg.
  (ii) +/-3 per cent of the true value for all readings between 200-2000 kg.

(f) The weighing scales calibration device shall be accurate to within:
  (i) +/-0.3 kg of the true value from zero up to and including 100 kg.
  (ii) +/-0.3 per cent of the true value for all readings above 100 up to 600 kg.

Note; Valid and current calibration certificates shall be scanned and uploaded to CoVIS. An original hard copy shall be stored securely and made accessible for inspection.

Section 5

Printout Report
The Suspension Tester shall have the capability to operate independent of CoVIS and produce a printed report that must include at minimum the following details on the report. The test values on the printout report must match the data values returned to ASA Network for CoVIS i.e., where a value is calculated and presented with no decimal places, the value will be rounded down to no decimal place.

The Printout must include at minimum the following details on the report

- Test centre details – Name / Address / Centre number.
- Completion date and time of test – dd/mm/yyyy - hh/mm.
- Vehicle registration number.
- Vehicle odometer reading.
- Detail requirements for each axle.
- Damping value left wheel.
- Damping value right wheel.
- Axle Imbalance. - %.
- Static wheel weight left – Kg.
- Static wheel weight right -Kg.
- Total Axle Static Weight. – Kg.
- Total Vehicle Weight.
- Test limits applied and presentation of performance results for each wheel.
- Test limits applied and presentation of imbalance calculated for each axle -%.
- Outcome of the test – Pass / Fail / Void / Aborted.
- Provision for CVRT testers' signature and tester number as issued by the Authority.

Section 6

Condition Report
Recommended minimum key points for compilation of a condition report on a Suspension Tester.

Particular attention shall be made to the following and noted;

- The effect of corrosion or excessive wear on the Suspension Tester.
- Vertical travel mechanism for each test plate operates smoothly with no detectable play or mechanical vibration that may affect the accuracy of the readings.
- All moving joints/bearings are sufficiently lubricated.
- No detectable rocking present in the chassis.

- Cover plates/guards are not damaged or missing and all bolts retaining them are present and tight.
- Test plates are secured to vertical travel mechanism. Travel mechanism has no abnormal noise or vibration for each plate when in normal operation.
- Cables are neatly strapped and clear of moving mechanical parts
- All junction boxes are clean and dry, in good condition and lids closed with adequate screws
- Cable ducting/conduit in good condition and mounted correctly
- Cable glands are tight
- Correct time and date (EU format) is noted on measurement device controller
- Automatic summertime adjustment is set and configured for local Irish time and settings

Final check - dynamic observation
With the Suspension Tester in normal operating mode carry out the following process.

(a) Drive the front axle onto the test unit. Allow test to run and note measurement values. Note the values for left and right.

(b) Repeat three times and note the consistency in the results.

(c) If it is safe to do so (e.g., it may not be safe in the case of an inspection pit) reverse the vehicle onto the suspension tester and again using the front axle, repeat step 1 & 2.

(d) Compare that the results taken the forward driving direction test for left and right have swapped around when the reverse direction tests are carried out.

These are minimum key points for compilation of a condition report. Any other check recommended by the equipment manufacturer should be included.

Section 7 CITA 9B Quality Requirements Covering Calibration

7.1 Calibration

7.1.1 The inspection body shall ensure that there are proper arrangements to adequately control and calibrate vehicle inspection equipment before and during use, in order to ensure its accuracy, its conformity to the relevant requirements and its continued suitability and to provide confidence in decisions based on measurements.

7.1.2 The calibration procedures, sometimes known as calibration programmes, shall define the calibration processes, their environmental conditions, their frequency, the acceptance criteria, and the action to be taken when the results are found unsatisfactory and / or inadequate.

7.1.3 Quality relevant vehicle inspection equipment shall be calibrated before first use and at least at the following frequencies during in-service use ***or at other frequencies as prescribed in national regulations*:**

NOTE; All calibration frequencies mentioned in the CITA requirements have been omitted from this Appendix as they are superseded by the prescribed calibration frequencies outlined in the Premises & Equipment Guidelines.

7.1.4 Calibration shall be done, where appropriate, against certified equipment having a known and traceable relationship to internationally or nationally recognised standards. Where no such standards exist, the basis used for calibration shall be fully documented, according to the equipment manufacturer's recommendation, if any.

7.1.5 If vehicle inspection equipment is found to be out of calibration or there are any other systematic errors, the validity of the vehicle inspection results since the date of last calibration shall be re-assessed. If there was any relevant non-conformity, the vehicle inspection body shall, as soon as practicable inform the owners / keepers of the affected vehicles and invite them immediately for re-inspection, making it clear that there will be no charge for the inspection.

7.1.6 The calibration status shall be shown clearly on relevant vehicle inspection equipment, preferably by means of suitable markers or labels, indicating at least the date of the last calibration and the date the next calibration is due.

7.1.7 Reference measurement standards held by the inspection body shall be used for calibration only and not for other purposes. Only competent bodies who can provide traceability to international or national measurement standards shall calibrate reference measurement standards.

7.1.8 The inspection body shall keep records of all calibrations performed.

Section 8

Sample XML Stream sent to CoVIS from ASA Network

Note: The highlighted content in the sample below shows the minimum fields required.

- The data must be returned to ASA Network in the correct format.
- All XML must be valid or will be rejected.
- The sample file contains results for a 2-axle vehicle.
- The XML should output all raw data including decimal values.
- The results must relate to the test Order ID received from CoVIS.
- The registration number is not read when processing the results.

SAMPLE ONLY

```
<?xml version="1.0" encoding="ISO-8859-1" standalone="no" ?>
<!DOCTYPE RESULTS SYSTEM "awnres.dtd">
<!-- Created 24.10.2014 15:16:26 with AWNX32.dll Version 2.0.0 Build 50 -->

<RESULTS>
   <RESULTSHEADER>
      <COUNTRY>
         <REGULATION>GERMAN</REGULATION>
         <LANGUAGE>GERMAN</LANGUAGE>
      </COUNTRY>
      <CUSTOMER>
         <NAME> </NAME>
         <ADDRESS>DOWNINGS NTH

PROSPEROUS</ADDRESS>
         <ZIP>N1</ZIP>
         <CITY>NAAS</CITY>
         <ORDER>1170001494/10</ORDER>
      </CUSTOMER>
      <VEHICLE>
         <IDENT>
            <REGISTRATION>95-KX-2149</REGISTRATION>
            <MANUFACTURER>Toxota</MANUFACTURER>
            <MODEL>HILU</MODEL>
            <VIN>JT131LXXA409037921</VIN>
         </IDENT>
         <DATA>

            <ODOMETER>173202</ODOMETER>
         </DATA>
      </VEHICLE>
   </RESULTSHEADER>
   <RESULT OBJECT="SUSPENSION">
      <TITLE>Fahrwerktest</TITLE>
      <HEADER>
         <EQUIPMENT TYPE="SUSPENSION">
            <TITLE>Fahrwerktest</TITLE>

            <MANUFACTURER>SAXON</MANUFACTURER>
            <MODEL>FW67/70</MODEL>
            <SERIAL_NO>2014003</SERIAL_NO>
            <VERSION>2.0.1.5</VERSION>
         </EQUIPMENT>
         <START_TEST>24.10.2014 15:15:22</START_TEST>
         <END_TEST>24.10.2014 15:16:26</END_TEST>
      </HEADER>
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<SECTION OBJECT="SUSPENSION" AXLE="1">
<TITLE>Achse 1</TITLE>
<MEAS OBJECT="ROAD_HOLDING" LOC="LEFT">
<TITLE>Bodenhaftung links</TITLE>
<VALUE UNIT="%" FORMAT="NUM">32</VALUE>
</MEAS>
<MEAS OBJECT="WHEEL_WEIGHT_DYN" LOC="LEFT">
<TITLE>Radlast links</TITLE>
<VALUE UNIT="kg" FORMAT="NUM">364</VALUE>
</MEAS>
<MEAS OBJECT="RESONANCE_FREQUENCY" LOC="LEFT">
<TITLE>Resonanzfrequenz links</TITLE>
<VALUE UNIT="Hz" FORMAT="NUM">13.29</VALUE>
</MEAS>
<MEAS OBJECT="ROAD_HOLDING" LOC="RIGHT"> <TITLE>Bodenhaftung rechts</TITLE>
<VALUE UNIT="%" FORMAT="NUM">31</VALUE>
</MEAS>
<MEAS OBJECT="WHEEL_WEIGHT_DYN" LOC="RIGHT">
<TITLE>Radlast rechts</TITLE>
<VALUE UNIT="kg" FORMAT="NUM">380</VALUE>
</MEAS>
<MEAS OBJECT="RESONANCE_FREQUENCY" LOC="RIGHT">
<TITLE>Resonanzfrequenz rechts</TITLE>
<VALUE UNIT="Hz" FORMAT="NUM">13.88</VALUE>
</MEAS>
<MEAS OBJECT="ROAD_HOLDING">
<TITLE>Bodenhaftung, Differenz</TITLE>
<VALUE UNIT="%" FORMAT="NUM" TYPE="DELTA">3</VALUE>
</MEAS>
<MEAS OBJECT="AXLE_WEIGHT">
<TITLE>Achsgewicht</TITLE>
<VALUE UNIT="kg">1013</VALUE>
</MEAS>
</SECTION>
<SECTION OBJECT="SUSPENSION" AXLE="2">
<TITLE>Achse 2</TITLE>
<MEAS OBJECT="ROAD_HOLDING" LOC="LEFT">
<TITLE>Bodenhaftung links</TITLE>
<VALUE UNIT="%" FORMAT="NUM">32</VALUE>
</MEAS>
<MEAS OBJECT="WHEEL_WEIGHT_DYN" LOC="LEFT">
<TITLE>Radlast links</TITLE>
<VALUE UNIT="kg" FORMAT="NUM">364</VALUE>
</MEAS>
<MEAS OBJECT="RESONANCE_FREQUENCY" LOC="LEFT">
<TITLE>Resonanzfrequenz links</TITLE>
<VALUE UNIT="Hz" FORMAT="NUM">13.29</VALUE>
</MEAS>
```

```
        <MEAS OBJECT="ROAD_HOLDING" LOC="RIGHT">
          <TITLE>Bodenhaftung rechts</TITLE>
          <VALUE UNIT="%" FORMAT="NUM">31</VALUE>
        </MEAS>
        <MEAS OBJECT="WHEEL_WEIGHT_DYN" LOC="RIGHT">
          <TITLE>Radlast rechts</TITLE>
          <VALUE UNIT="kg" FORMAT="NUM">380</VALUE>
        </MEAS>
        <MEAS OBJECT="RESONANCE_FREQUENCY" LOC="RIGHT">
          <TITLE>Resonanzfrequenz rechts</TITLE>
          <VALUE UNIT="Hz" FORMAT="NUM">13.88</VALUE>
        </MEAS>
        <MEAS OBJECT="ROAD_HOLDING">
          <TITLE>Bodenhaftung, Differenz</TITLE>
          <VALUE UNIT="%" FORMAT="NUM" TYPE="DELTA">3</VALUE>
        </MEAS>
        <MEAS OBJECT="AXLE_WEIGHT">
          <TITLE>Achsgewicht</TITLE>
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        </MEAS>
      </SECTION>
    </RESULT>
</RESULTS>
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Appendix 7 – Insurance Requirements

Insurance

CVR test operators shall have adequate insurance cover for vehicle testing activities including CoVIS. (See Insurance Declaration below for full list of insurance requirements). This can be confirmed with written confirmation from the insurance broker and shall include:

Property Damage Insurances: [Appropriate limit will differ for each testing centre]

- Loss or damage to insured's physical assets caused by fire or other specified perils.
- Insurance for Buildings – whether owned or required under any relevant lease agreements.
- Insurance for Contents – contents of testing centre.

Business Interruption: [Appropriate limit will differ for each testing centre dependent on turnover]

- Loss following interruption to the business due to damage to property caused by fire or other specified perils.
- Increased Cost of Working: additional expenditure necessarily incurred as a result of a specified peril.
- Rent Payable / Receivable: financial loss incurred due to a continuing obligation under lease to pay rent or a restriction from receiving rent on a premise under lease that has been damaged by a specified peril.

Computer/CoVIS equipment: [Appropriate limit will differ for each testing centre dependent on replacement cost]

- Loss or damage to computer and ancillary equipment caused by a specified peril. CoVIS Equipment must be specifically covered and noted on the insurance schedule. The amount of cover required depends on the number of test lanes and the test centre location and is calculated as follows:

  Location Greater Dublin area – €16,641 for a single test lane

  Location – rest of the country - €17,273 for a single test lane

  The value for each additional test lane is €6,597 per lane.

Total insured value for a test centre based on HCV and/or LCV lane quantity as follows:

Number of Lanes	Greater Dublin area	Regional
1	€16,641	€17,273
2	€23,238	€23,870
3	€29,835	€30,467
4	€36,432	€37,064
5	€43,029	€43,661
6	€49,626	€50,258

Note: The CoVIS equipment insurance cover must be in place before it's installation.
Please see attached Insurance Checklist which can be completed by Insurance provider or broker.

Insurance Declaration

Test Centre Name: _____

Test Centre Address: _____

Relevant Policy No(s): _____ and _____

Period of Cover: From _____ to _____ (insert dates)

Insurance Cover in Place

Type of Insurance	Specified Amount	Notes	In Place and Valid? - Yes / No
Property Damage	No amount specified by RSA	Cover should be sufficient for Test Centre buildings and contents	
Business Interruption	No amount specified by RSA	Loss following interruption to the business following damage by fire or other incident. May include cover for rent payable	
Computer / CoVIS	Amount specified depending on number of lanes and location	For 1 test lane in Dublin= €16,641 / 1 test lane in regions = €17,273 / €6,597 per any additional lane.	
Employers Liability	€13m & must include indemnity to RSA	Covers the legal liability for bodily injury to employees or disease contracted by them arising in the course of their employment in the business.	
Public Liability	€6.5m & must include indemnity to RSA	Covers legal liability resulting from accidental bodily injury to any third party person or loss of or damage to their property arising in connection with the business	
Engineering	No amount specified	Usually a separate policy covering engineering inspections and insurance cover for breakdown / explosion /sudden and unforeseen damage to plant /	
Professional Indemnity / Defective workmanship	€2.6m	Covers claims arising from negligent act, error or omission in the course of professional services provided. **NOTE**: Some test centres may only require Defective workmanship – it is not compulsory to have both PI and Defective Workmanship	

Declaration

I _____ (Name of person) from _____ (Name of Insurance Co or Broker)

hereby declare that _____ (Name of CVR Test Centre) has insurance cover in place for the specified amounts in relation to the items **listed and checked** above.

Signature _____ Date _____

Company Stamp: _____

Údaras Um Shábháilteacht Ar Bhóithre
Road Safety Authority

Teach Chluain Fearta, Sráid Bhríde, Baile Locha Riach,
Co.na Gaillimhe.

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