



Tástáil Ródacmhainneachta um Fheithiclí Tráchtála
Commercial Vehicle Roadworthiness Testing

RSA Notice 37/2014

Date: 16th July, 2014

To: CVR Test Operator

Headlamp Aim Tester Specification for CVR Test Operators

The purpose of this document is to clarify and supplement the requirements of the Headlamp Aim Tester (HAT) as outlined in the Premises and Equipment Guidelines for CVR Test Operators (March 2013 – Version 1). The requirements for the Headlamp Aim Stage “standing area” remains the same and are as stated in the Premises and Equipment Guidelines for CVR Test Operators (March 2013 – Version 1).

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.

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. 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 e.g. by the use of a Fresnel Lens.

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 as adjustment, either vertical or horizontal.
- 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.
- A fixed camera using image sensors with the ability to read standard and modern type headlamp bulbs, including LED / HID must be fitted, such as a CMOS camera or equipment using technology with equivalent capabilities.
- 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 RSA. This should include both above and below 850mm categories.

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 Appendix 1 below).
- 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.

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.

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.

Appendix 1 - XML file as specified by CoVIS

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