

More safety in road traffic with DLG-approved technology



**FULL TEST
MANUFACTURER
PRODUCT**

DLG Test Report 0000

Testing Camera Monitor Systems

Two-stage modular tests according to the requirements of the German Federal Transport Gazette (Bundesverkehrsblatt)

Extended visibility for more safety in road traffic

On vehicles with front-mounted implements and a front-end dimension of more than 3.5 m, the field of view is restricted for the vehicle operator. Visibility to the left and right restricted by hedges, walls or buildings can lead to cross traffic being seen too late at intersections and junctions. Serious accidents can be the result. Suitable camera monitor systems are a practical solution here. Their suitability is proven with a test of the camera monitor system and the installation on the vehicle or the front-mounted implement. The basis for this is the recommendation by the German Federal Ministry of Transport and Digital Infrastructure published in the German Federal Transport Gazette (Bundesverkehrsblatt) of 15/12/2016. In order to also obtain the DLG APPROVED quality mark, the components are subjected to extensive tests by users.

If a distance of 3.5 m between the front end of the mounted equipment and the centre of the steering wheel is exceeded, measures must be taken to compensate the resulting restriction of the field of view (Data Sheet for Mounted Implements – Federal Transport Gazette of 27/11/2009). As a result, an accompanying person is required as a signaller. This practice endangers the signaller and can hardly be realised during daily work in agriculture. Technical measures in the form of suitable visual support for the driver can provide relief in this case.



Direct view to the left



Indirect view to the left via the monitor with a camera mounted at the front

DLG-approved camera monitor systems

The range of available camera monitor systems is enormous. However, only tested systems meet the necessary requirements for being used in road traffic as compensation for an impaired field of view.



On a DLG-approved camera monitor system, two cameras mounted on the vehicle or on the front attachment are used. The required field of view to the side is shown on one or two monitor(s) inside the cab. This ensures that – even on vehicles with an extended front-end length – the cross traffic at intersections or junctions can be reliably recognised by the vehicle operator.

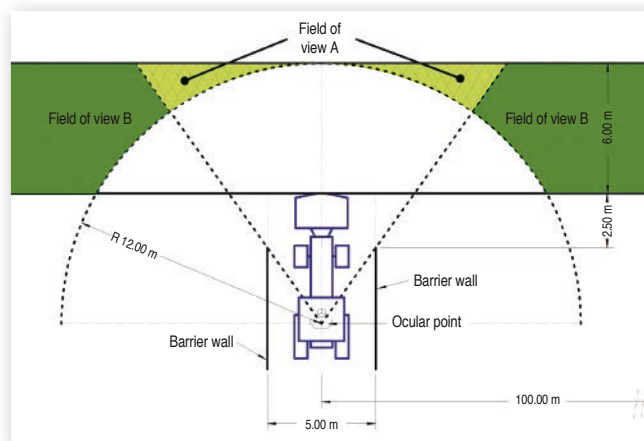
The signaller otherwise required can be eliminated with a tested camera monitor system, provided the recommendations of the German Federal Transport Gazette are met. Camera monitor systems which have been awarded the DLG APPROVED quality mark from 2017 meet the legal requirements for road traffic tightened in 2016.

Two-stage modular test set-up

With the DLG APPROVED FULL TEST – the DLG usability test on all aspects of the product – manufacturers subject themselves to a comprehensive practical test of their camera monitor systems.

The test frame for front-end camera monitor systems ensures legally compliant use according to the recommendation of the German Federal Transport Gazette.

The test is divided into an assessment of the actual camera monitor system and its installation and adaptation to the respective vehicle or front-mounted implement.



Part A: Type test of components

Camera

- Resistance to climatic and environmental influences
- Resistance to vibrations

Monitor

- Minimum diagonal screen measurement
- Laterally correct display
- Anti-reflection display
- Resistance to vibrations

Entire system

- Electromagnetic compatibility
- Signal delay
- Optical resolution
- Blooming test
- Minimum display size

Part B: Type test of attachment on vehicle or front-mounted implement

Technical tests

- Field of view to side
- Mechanical durability
- Fulfilment of special requirements for use in winter service

Handling and installation

- Camera and connection cable
- Monitor installation

Current test reports at www.DLG-test.de

DLG APPROVED FULL TEST

The DLG APPROVED FULL TEST quality mark is also awarded as part of the test of camera monitor systems. To obtain this seal, camera monitor systems must successfully pass the type test of the components (Part A) and the type test of the attachment on the vehicle (Part B).



The DLG APPROVED quality mark and the related DLG test report provide you with an informative expert opinion and a powerful instrument for your marketing mix. 80 % of the farmers consider quality marks to be relevant decision-making aids for investments. This is linked to an extensive range of cross-media services for your success with sales partners and customers. The quality mark is valid for five years from the date of awarding.

Technical service for vehicle type tests

The DLG Test Center Technology and Farm Inputs is designated at the German Federal Motor Vehicle and Transport Authority (KBA) as a technical service for vehicle type tests, e.g. according to UN ECE-R 46. The DLG prepares technical reports which can be used in the approval procedures for required attachment approvals.



Further DLG tests and services

- Designated technical service by the German Federal Motor Vehicle and Transport Authority (KBA)
- Test of camera monitor systems according to UN ECE-R 46
- Steering system tests
- AEF ISOBUS certification
- DAkkS accredited test laboratory according to standard EN ISO/IEC 17025
- German OECD test facility for tractor codes 2 to 10
- Strength and safety testing (e.g. roll-over protection systems of tractors, forestry and earth-moving machines, commercial vehicle cabs according to UN ECE-R 29, seat belt anchorage system according to UN ECE-R 14, rear underride protection according to UN ECE-R 58)
- Fatigue life testing
- Material testing (e.g. tensile strength, abrasion, chemical resistance, weathering and resistance to light)
- Testing of tarpaulins and protective aprons according to ISO 17103
- Performance measurements on engines, power take-offs, hydraulic systems and entire vehicles
- Tractive power measuring vehicles for flexible loading with static and dynamic load profiles including recording of fuel and AdBlue consumption
- Seat vibration measurements according to traffic regulations (EU) 1322/2014 on a hydro-pulse test bed or on a test track standardised according to ISO 5008
- Support for partial or entire vehicle homologation

Information: www.DLG.org · Contact: Tech@DLG.org

DLG Test Center Technology and Farm Inputs

DLG has been testing and awarding certifications to agricultural machinery and farm inputs for over 130 years. In fact, we are one of the leading agricultural institutes to test and certify tractors, machines and utility vehicles for field and on-farm use, including farm inputs as well as forestry, municipal and garden equipment. As such, the Test Center at Groß-Umstadt generates valid information for machine users helping them to make knowledgeable purchase decisions and good use of the product. Up to now, this information has been made available to the public in more than 4,000 test reports that give farmers clear guidance on tractors and implements, livestock housing installations and udder hygiene products.

At the same time, DLG tests offer manufacturers the opportunity to view their products through the critical eye of their users: DLG tested products comply with stringent, up-to-date standards that meet user demands and take into account the manufacturers' production standards. The test methods, test profiles and standards are developed by unbiased and independent test commissions and are based on the application of state-of-the-art test techniques and facilities.

Apart from applying DLG standards in its tests, the DLG Test Center also offers extensive testing services as a part of test approval seeking procedures in compliance with relevant standards and regulations, but also with individual quality assessment programmes and customer-specific R&D requirements.



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