

Synthesis title:

Type Approval

Category: Compliance and Law



Other Relevant Topics:

- ▶ Cameras
(Compliance and the Law)
- ▶ Drink Driving
(Compliance and the Law)
- ▶ Drug Driving
(Compliance and the Law)
- ▶ Laws & Regulations
(Compliance and the Law)
- ▶ Crime Interventions
(Compliance and the Law)

Keywords:

Type approval,
Enforcement

About the Road Safety Observatory

The Road Safety Observatory aims to provide free and easy access to independent road safety research and information for anyone working in road safety and for members of the public. It provides summaries and reviews of research on a wide range of road safety issues, along with links to original road safety research reports.

The Road Safety Observatory was created as consultations with relevant parties uncovered a strong demand for easier access to road safety research and information in a format that can be understood by both the public and professionals. This is important for identifying the casualty reduction benefits of different interventions, covering engineering programmes on infrastructure and vehicles, educational material, enforcement and the development of new policy measures.

The Road Safety Observatory was designed and developed by an Independent Programme Board consisting of key road safety organisations, including:

- ▶ Department for Transport
- ▶ The Royal Society for the Prevention of Accidents (RoSPA)
- ▶ Road Safety GB
- ▶ Parliamentary Advisory Council for Transport Safety (PACTS)
- ▶ RoadSafe
- ▶ RAC Foundation

By bringing together many of the key road safety governmental and non-governmental organisations, the Observatory hopes to provide one coherent view of key road safety evidence.

The Observatory originally existed as a standalone website, but is now an information hub on the RoSPA website which we hope makes it easy for anyone to access comprehensive reviews of road safety topics.

All of the research reviews produced for the original Road Safety Observatory were submitted to an Evidence Review Panel (which was independent of the programme Board), which reviewed and approved all the research material before it was published to ensure that the Key Facts, Summaries and Research Findings truly reflected the messages in underlying research, including where there may have been contradictions. The Panel also ensured that the papers were free from bias and independent of Government policies or the policies of the individual organisations on the Programme Board.

The Programme Board is not liable for the content of these reviews. The reviews are intended to be free from bias and independent of Government policies and the policies of the individual organisations on the Programme Board. Therefore, they may not always represent the views of all the individual organisations that comprise the Programme Board.

Please be aware that the Road Safety Observatory is not currently being updated; the research and information you will read throughout this paper has not been updated since 2017. If you have any enquiries about the Road Safety Observatory or road safety in general, please contact help@rospa.com or call **0121 248 2000**.

How do I use this paper?

This paper consists of an extensive evidence review of key research and information around a key road safety topic. The paper is split into sections to make it easy to find the level of detail you require. The sections are as follows:

Key Facts	A small number of bullet points providing the key facts about the topic, extracted from the findings of the full research review.
Summary	A short discussion of the key aspects of the topic to be aware of, research findings from the review, and how any pertinent issues can be tackled.
Methodology	A description of how the review was put together, including the dates during which the research was compiled, the search terms used to find relevant research papers, and the selection criteria used.
Key Statistics	A range of the most important figures surrounding the topic.
Research Findings	A large number of summaries of key research findings, split into relevant subtopics.
References	A list of all the research reports on which the review has been based. It includes the title, author(s), date, methodology, objectives and key findings of each report, plus a hyperlink to the report itself on its external website.

The programme board would like to extend its warm thanks and appreciation to the many people who contributed to the development of the project, including the individuals and organisations who participated in the initial consultations in 2010.

Key facts

- In the context of this synthesis, type approval is the process by which enforcement equipment is approved by the Home Office.
- This allows the equipment to be used by police forces (or safety camera partnerships), in order to record data which is admissible as evidence in prosecutions.
- Type approval provides an assurance of the technical accuracy and reliability of a traffic enforcement device and the data which it collects.
- The type approval process for enforcement equipment is rigorous and well established.
- The high-level process is the same regardless of the type of equipment for which approval is being sought.
- However, the specific tests which the equipment is subjected to will vary to suit the purpose of the equipment (e.g. drug testers and speed cameras).

Summary

Type approval is the process by which certain road enforcement equipment is approved by the Home Office for use by police forces (or safety camera partnerships), in order to record data which is admissible as evidence in prosecutions relating to speed, red traffic lights and drink and drug driving. It is a well established and rigorous process.

The process consists of two main phases:

- Phase 1 – Police force trials of the equipment organised through the Association of Police Chief Officers (ACPO).
- Phase 2 – Laboratory tests of the equipment organised through (though not necessarily undertaken by) the Home Office's Centre for Applied Sciences and Technology (CAST).

Phase 1 trials allow for an initial assessment to be made on the equipment's suitability with regards to operational performance, without the financial and time costs associated with the more in depth laboratory tests.

Once an assessment has been carried out and the manufacturer advised on the operational suitability, phase 2 tests then run the equipment through more in depth assessments such as environmental operating limits, accuracy of results, and data integrity. These tests are defined by the Home Office, are rigorous and are standardised for all similar devices.

Results and feedback from both of these phases are then used to make a final decision on the approval of the equipment.

Once the decision is made to grant approval, a formal agreement is drawn up with the manufacturer requiring them not to modify the device in any way without prior consent.

Final sign off must be obtained by the Secretary of State at which point UK police forces are informed of the new type approval.

Methodology

Type approval is the process by which enforcement equipment is approved by the Home Office in order to record data which is admissible as evidence in prosecutions relating to speed, red traffic lights and drink/drug driving cases. It provides an independently verified assurance of the technical accuracy and reliability of an enforcement device and the data that it collects.

Please Note: This synthesis only relates to the Home Office type approval process required for enforcement equipment. Other type approval processes such as that required by the Highways Agency for road side equipment such as barriers and signs is beyond the scope of this synthesis.

This synthesis was compiled during November – December 2012.

A detailed description of the methodology used to produce this review is provided in the Methodology section of the Observatory website at <http://www.roadsafetyobservatory.com/Introduction/Methods>. The steps taken to produce this synthesis are outlined below:

- **Identification of relevant research** – searches were carried out on pre-defined research (and data) repositories. As part of the initial search some additional information sources were also consulted, which included <http://www.ingentaconnect.com> and various project archives. Search terms used to identify relevant papers included but were not limited to:
 - ‘Type approval’;
 - ‘Type approval enforcement equipment’;
 - ‘Type approval safety cameras’;
 - ‘Type approval red light cameras’;
 - ‘Type approval breath testing’; and,
 - ‘Type approval drug testing’.

A total of 11 pieces of potentially relevant research were identified. Six of these were official Home Office guidance documents.

- **Initial review of research** – primarily involved sorting the research items based on key criteria, to ensure the most relevant and effective items went forward for inclusion in this synthesis.
- **Detailed review of research** – Given the well established, rigid nature of the type approval process, only the six official guidance documents along with one official process summary document were taken forwards to be used in the synthesis. Therefore, the synthesis is based on guidance documents for drug and alcohol testing, speed meters and red light cameras.
- **Compilation of Synthesis** – The synthesis was compiled using the official guidance and process documents. Note that the entire process from identifying research to compiling the synthesis was conducted in a time bound manner.
- **Review** – the draft synthesis was subjected to extensive review by a subject matter expert, proof reader and an independent Evidence Review Panel.

Key statistics

No specific key statistics were identified during the production of this research synthesis as it relates to the step-by-step process for obtaining type approval.

Research findings

This section summarises the process which must be followed in order to apply for type approval.

Approval Process

The type approval process consists of two stages:

- Field trials amongst a number of (usually 2 or 3) UK police forces – this is organised by the ACPO Roads Policing Enforcement Technology (RPET) Committee for speed and red light devices and ACPO Police Liaison for drink and drug devices.
- Laboratory trials managed by CAST but carried out by an approved testing laboratory.

While aspects of each of these two stages will vary depending upon the equipment being tested, the process of approval will be similar for all equipment.

Initiation Phase

- In order to start the process, the manufacturer must submit their intention to seek type approval in writing to the Road Crime Section (RCS), Public Order Unit of the Home Office. This initiates phase 1 of the process.

Phase 1 – ACPO RPET Field Trials – speed and red light devices

- The manufacturer must then write to ACPO RPET informing the Secretary that they wish to submit a piece of equipment for type approval which will require field trials.
- The equipment is viewed by the Secretary and CAST. If the Secretary feels it has merit, CAST requests a technical description and Health and Safety (H&S) information.
- CAST advises the Secretary on when an adequate technical description has been obtained and whether the device is safe to present to ACPO RPET.
- The Secretary decides whether to invite the manufacturer to present the device to ACPO RPET, and if so, sends them a copy of this document and a Statement of Intent requiring return of a signed copy.
- The manufacturer presents the device to ACPO RPET and the committee decides whether to continue with the process. If so, the Secretary allocates Forces (and/or Safety Camera Partnerships in the case of speed cameras) to carry out the field tests.

- The Secretary writes to the manufacturer informing them of the decision and, if the device has been accepted, asking them to contact CAST and provide all technical documentation, H&S information, user manuals and statement of modes of use to be tested as required by CAST.
- When CAST have received adequate documentation, it will inform the Secretary and provide advice on any particular aspects to test.
- User trials are designed to assess the suitability of the device for use under operational conditions.
- The selected Forces conduct tests in accordance with ACPO RPET guidance and send the Secretary a test report when completed.
- The Secretary circulates the test reports for consideration at the next RPET meeting.
- The ACPO RPET committee considers the set of reports and decides whether the Police Service would like the Home Office to proceed with type approval.
- The Secretary writes to CAST with the formal decision.

Phase 2 – Home Office Laboratory Tests

- CAST obtains full technical documentation including software sources, circuit diagrams, layouts and parts lists (as applicable) for the equipment.
- The manufacturer then submits the equipment to be tested to one of the Home Office approved test houses for technical testing against the requirements specified in CAST handbooks. Manufacturers or their approved agents are expected to bear the full costs of the test laboratory's evaluation work.
- Testing covers a range of areas which will vary depending on the type of equipment being tested but will cover Categories such as:
 - Operational Requirements:
 - Display operation;
 - Test signals; and,
 - Sensor systems.
 - Constructional Requirements:
 - Power supply;
 - Installation requirements; and,
 - Loop configuration.
 - Performance Requirements:
 - Environmental operating ranges;
 - Electromagnetic immunity;
 - Response to physical interference;
 - Software validation; and,
 - Accuracy.

- A copy of the test house report is submitted to CAST. When CAST are content all necessary tests have been satisfactorily completed, they recommend type approval to the RCS in the Public Order Unit of the Policing, Policy and Operations Directorate (PPOD).
- RCS prepare a formal agreement with the manufacturer which requires them not to modify the device in question in any way without the prior approval of the Secretary of State. The manufacturer shall also agree:
 - To ensure that the type and serial number of each device is clearly identified by an indelible marking;
 - To ensure that the serial number is unique to each device and that each device is numbered consecutively;
 - To ensure that any repair or calibration facility relating to the device is open to inspection;
 - Supply free of charge to the Secretary of State a full circuit diagram of the device with all the circuit components clearly indicated; and if required,
 - To supply a device free of charge to the Secretary of State. The Secretary of State shall not be responsible for any damage caused to the device whilst it is in his possession.
- This agreement must be signed by the manufacturer prior to the Home Secretary signing the formal type-approval document.
- RCS prepare the necessary legal documentation and submit the Approval for Minister's signature.
- The RCS informs police forces of the type approval.

How effective?

Not applicable

Gaps in the research

Not applicable

References

Department for Transport research and statistics

Not applicable

Other works

Title: Preliminary Drug Testing Devices
Author / organisation: Home Office Forensic Science Service Date: 2010 Format: Pdf Link: http://www.homeoffice.gov.uk/publications/police/road-traffic-documents/drug-testing-devices/drug-testing-devices-guide?view=Binary Free / priced: Free
Objectives: To describe the technical requirements in order to achieve type approval for new Preliminary Drug Testing Devices for police use in the UK.
Methodology: The document summarises the procedure which must be followed by equipment manufacturers.
Key findings: <ul style="list-style-type: none">• Drug screening tests for a wide range of transport operatives were introduced into Great Britain in July 2003 as part of the Railway and Transport Safety Act 2003. The primary legislation dealing with drug driving offences is the Road Traffic Act 1988.• This legislation requires that Preliminary Drug Testing Devices be of a type-approved by the Secretary of State for the Home Department. In this context the definition of a drug is very wide and includes any substance other than alcohol that may affect a person's ability to operate transport safely.• This Guide contains a description of the technical requirements to be met for consideration of type-approval for new Preliminary Drug Testing Devices for police use in Great Britain.• It is intended to be a reference for manufacturers wishing to develop new devices.• The document contains details concerning the construction of Preliminary Drug Testing Devices, their operation and the methods for testing prior to submission to the Secretary of State for the Home Department for consideration for type-approval.• This is a functional requirement for products that may be manufactured by any process.
Themes: Type approval, Drug testing.
Comments: Performance and procedural requirements rather than a research document.

Title: The ACPO Roads Policing Traffic Enforcement Technology Committee (ACPO RPET) & Home Office Type Approval Process
Author / organisation: (Home Office) Date: 2009 Format: Pdf Link: http://www.homeoffice.gov.uk/about-us/freedom-of-information/released-information1/foi-archive-research1/19936-LTI20.20-app-test-scenario/19936-LTI20.20-app-test-sc?view=Binary
Free / priced: Free
Objectives: To outline the type approval process.
Methodology: The document summarises the procedure which must be followed to obtain type approval.
Key Findings: <ul style="list-style-type: none"> • The document describes the steps which need to be taken and the approval required at each step in order for a piece of equipment to receive type approval
Themes: Type approval process
Comments: Step-by step guide to the approval process

Title: Automatic Distance/Time Speedmeter Handbook (Second Edition) Provisional
Author / organisation: Dr S R Lewis (Home Office Scientific Development Branch) Date: 2005 Format: Pdf Link: http://www.homeoffice.gov.uk/about-us/freedom-of-information/released-information1/foi-archive-research1/20653-RedFusion-Auto-Speed/20653-RedFusion-Auto-Speed?view=Binary
Free / priced: Free
Objectives: To describe the technical requirements in order to achieve type approval for new Distance/Speedmeter Devices for police use in the UK.
Methodology: The document summarises the procedure which must be followed by equipment manufacturers.
Key Findings: <ul style="list-style-type: none"> • Road traffic law now facilitates the introduction of new methods of speed detection, especially those that permit automatic and unattended detection by using a camera to record the offending motorist. • This is one of a series of handbooks which contain a description of the technical requirements to be met for consideration of type-approval of certain types of speedmeter which are prescribed devices for the purposes of the road traffic legislation. • The handbooks are intended to be a reference for manufacturers wishing to develop or sell existing products to the police service in Great Britain. • The handbooks contain not only a list of technical requirements but also guidance on methods of measurement, construction requirements and the procedures to be followed in seeking type approval.

<ul style="list-style-type: none"> • This handbook covers speedmeters which automatically measure average speed from the time taken to travel between two positions a known distance apart.
Themes: Type approval, Distance/Time Speedmeters, Average speed cameras.
Comments: Performance and procedural requirements rather than a research document.

Title: The Speedmeter Handbook (Fourth Edition)
Author / organisation: Dr S R Lewis (Home Office Scientific Development Branch)
Date: 2005
Format: Pdf
Link: http://webarchive.nationalarchives.gov.uk/20100413151441/http://scienceandresearch.homeoffice.gov.uk/hosdb/publications/road-policing-publications/15-05-Speedmeter-Handbook12835.pdf?view=Binary
Free / priced: Free
Objectives: To describe the technical requirements in order to achieve type approval for new Speedmeter Devices for police use in the UK.
Methodology: The document summarises the procedure which must be followed by equipment manufacturers.
Key Findings: <ul style="list-style-type: none"> • Type approval has been necessary for radar speedmeters since 1984, but the approval procedures previously covered only hand-held and across-the-road models, which were neither capable of taking photographs nor of operating unattended. • This handbook contains a description of the technical requirements to be met for consideration of type approval of certain types of speedmeter which are prescribed devices for the purposes of the road traffic legislation. • The handbook is intended to be a reference for manufacturers wishing to develop or sell existing products to the Police Service in Great Britain. • The handbook contains not only a list of technical requirements but also guidance on methods of measurement, and the procedures to be followed in seeking type approval. • The opportunity has been taken to reassess the technical parameters and to expand the requirements to cover the use of photography and video to permit automatic and unattended operation. Speedmeters using road surface sensors have also been included. • Amongst other updates, the fourth edition of the handbook includes amendments to the requirements for over-the-road radar speedmeters that will be operated on motorways with active traffic management where the hard shoulder is temporarily used as a running lane.
Themes: Type approval, Speedmeters
Comments: Performance and procedural requirements rather than a research document.

Title: Type Approval Procedures for Breath Alcohol Screening Devices
Author / organisation: Home Office and Forensic Science Service
Date: 2004
Format: Pdf
Link: http://www.homeoffice.gov.uk/publications/police/road-traffic-documents/breathalcoholcreening.pdf?view=Binary
Free / priced: Free
Objectives: To describe the technical requirements in order to achieve type approval for new Breath Alcohol Screening Devices for police use in the UK.
Methodology: The document summarises the procedure which must be followed by equipment manufacturers.
<p>Key Findings:</p> <ul style="list-style-type: none"> • Breath alcohol testing was introduced into the UK in October 1967 with the Road Safety Act 1967. This has been replaced by the Road Traffic Act 1988. • Similar provisions covering other modes of transport are included in the Transport and Works Act 1992 and the Railways and Transport Safety Act 2003. • All three acts require Breath Alcohol Screening Devices to be type approved by the Secretary of State. • This document contains a description of the technical requirements to be met for consideration for type approval for new Breath Alcohol Screening Devices for police use in the UK. • It is intended to be a reference for manufacturers wishing to develop new devices. • The document contains details concerning the construction of Breath Alcohol Screening Devices, their operation and methods of testing prior to submission to the Secretary of State for type approval consideration. • Any appropriate technology capable of providing the functionality required in this guide may be suitable. • The document contains information on the requirements relating to the following aspects of operation: <ul style="list-style-type: none"> ○ General Considerations in the design of the product (e.g. safety of device etc) ○ Technical specifications (e.g. required accuracy, measuring range and the type of display) ○ Meteorological characteristics (accuracy of results at different operating temperatures) • The document appendices cover the detailed tests/trials that the equipment must pass before type approval can be given.
Themes: Type approval, Breath Alcohol Screening
Comments: Performance and procedural requirements rather than a research document.

<p>Title: The Traffic Light Camera Handbook (Second Edition) Provisional</p> <p>Author / organisation: Dr S R Lewis (Police Scientific Development Branch)</p> <p>Date: 2004</p> <p>Format: Pdf</p> <p>Link: http://webarchive.nationalarchives.gov.uk/20100413151441/http://scienceandresearch.homeoffice.gov.uk/hosdb/publications/road-policing-publications/56-04-Traffic-Light-Camer12835.pdf?view=Binary</p> <p>Free / priced: Free</p>
<p>Objectives: To describe the technical requirements in order to achieve type approval for new Traffic Light Cameras for police use in the UK.</p>
<p>Methodology: The document summarises the procedure which must be followed by equipment manufacturers.</p>
<p>Key Findings:</p> <ul style="list-style-type: none"> • Changes to road traffic law will facilitate the introduction of new methods of traffic law enforcement especially those that permit automatic and unattended detection by using a camera to record the offending motorist. • The handbook contains a description of the technical requirements to be met for consideration of type-approval of traffic light cameras and associated equipment which are intended to photograph automatically vehicles which do not stop when traffic signals are red. • Type-approval will be required when such prescribed devices are used for law enforcement. • The handbook is intended to be a reference for manufacturers wishing to develop or sell existing products to the police service in Great Britain. • The handbook contains not only a list of technical requirements but also guidance on the procedures to be followed in seeking type-approval. • The second edition adds requirements for combined traffic light and speed cameras, interfacing with traffic signals that use LED (Light Emitting Diode) arrays and use for enforcing signals at level crossings. • The required accuracy for any displayed speed data has been revised in line with changes in the latest edition of the Speedmeter Handbook.
<p>Themes: Type approval, Red Light Cameras</p>
<p>Comments: Performance and procedural requirements rather than a research document.</p>

Title: Manual Distance/Time Speedmeter Handbook
Author / organisation: Dr S R Lewis (Police Scientific Development Branch)
Date: 2004
Format: Pdf
Link: http://webarchive.nationalarchives.gov.uk/20100413151441/http://scienceandresearch.homeoffice.gov.uk/hosdb/publications/road-policing-publications/55-04-Manual-Distance-Tim12835.pdf?view=Binary
Free / priced: Free
Objectives: To describe the technical requirements in order to achieve type approval for new Manual Speedmeters for police use in the UK.
Methodology: The document summarises the procedure which must be followed by equipment manufacturers.
Key Findings: <ul style="list-style-type: none"> • This is one of a series of handbooks which contain a description of the technical requirements to be met for consideration of type-approval of certain types of speedmeter which are prescribed devices for the purposes of the road traffic legislation. • The handbooks are intended to be a reference for manufacturers wishing to develop or sell existing products to the police service in Great Britain. • The handbooks contain not only a list of technical requirements but also guidance on methods of measurement, and the procedures to be followed in seeking type-approval. • This handbook covers speedmeters that are manually operated to measure average speed from measurements of the time taken to travel between two positions and measurements of the distance between them. • They can also be used to measure the average speed of the vehicle in which the speedmeter is installed to infer the average speed of the vehicle it is following.
Themes: Type approval, Manual speed cameras
Comments: Performance and procedural requirements rather than a research document.

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