INTERNATIONAL RECOMMENDATION

OIML R 91-4

Edition 202x (E)

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Traffic speed meters

Part 4: Type evaluation report format

Cinémomètres pour la mesure de la vitesse des véhicules

Partie 4: Format du rapport d'évaluation de type

ORGANISATION INTERNATIONALE DE METROLOGIE LEGALE

INTERNATIONAL ORGANIZATION OF LEGAL METROLOGY

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Foreword

The International Organization of Legal Metrology (OIML) is a worldwide, intergovernmental organization whose primary aim is to harmonize the regulations and metrological controls applied by the national metrological services, or related organizations, of its Member States. The main categories of OIML publications are:

- **International Recommendations (OIML R),** which are model regulations that establish the metrological characteristics required of certain measuring instruments and which specify methods and equipment for checking their conformity. OIML Member States shall implement these Recommendations to the greatest possible extent;
- **International Documents (OIML D),** which are informative in nature and which are intended to harmonize and improve work in the field of legal metrology;
- **International Guides (OIML G),** which are also informative in nature and which are intended to give guidelines for the application of certain requirements to legal metrology; and
- **International Basic Publications (OIML B),** which define the operating rules of the various OIML structures and systems.

OIML Draft Recommendations, Documents and Guides are developed by Project Groups linked to Technical Committees or Subcommittees which comprise representatives from the Member States. Certain international and regional institutions also participate on a consultation basis. Cooperative agreements have been established between the OIML and certain institutions, such as ISO and the IEC, with the objective of avoiding contradictory requirements. Consequently, manufacturers and users of measuring instruments, test laboratories, etc. may simultaneously apply OIML publications and those of other institutions.

International Recommendations, Documents, Guides and Basic Publications are published in English (E) and translated into French (F) and are subject to periodic revision.

Additionally, the OIML publishes or participates in the publication of **Vocabularies (OIML V)** and periodically commissions legal metrology experts to write **Expert Reports (OIML E)**. Expert Reports are intended to provide information and advice, and are written solely from the viewpoint of their author, without the involvement of a Technical Committee or Subcommittee, nor that of the CIML. Thus, they do not necessarily represent the views of the OIML.

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OIML Publications may be downloaded from the OIML web site in the form of PDF files. Additional information on OIML Publications may be obtained from the Organization's headquarters:

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Introduction

The “Type evaluation report format”, the subject of OIML R 91-4, aims at presenting, in a standardized format, the results of the evaluation to which a type of a speed meter shall be submitted with a view to its approval.

The “Checklist” is a summary of the evaluation and examinations carried out on the instrument. It includes the conclusions of the results of the tests performed, experimental or visual checks based on the required performance criteria and associated tests in OIML R 91-1 and -2. The words or condensed sentences intend to remind the examiner of the requirements of R 91-1 and -2 without reproducing them.

All metrology services evaluating types of speed meters according to OIML R 91-1 and -2 or to national or regional regulations based on OIML R 91-1 and -2 are strongly advised to use this “Type evaluation report format”, directly or after translation into a language other than English or French. Its direct use in English or in French, or in both languages, is even more strongly recommended whenever the results of type evaluation may be transmitted by the country performing these evaluations to the approving authorities of another country, under bi- or multi-lateral cooperation agreements. In the framework of the OIML Certification System (OIML-CS), use of the “Type evaluation report format” is mandatory.

Type evaluation report

~~Explanatory notes~~

~~Symbols~~	~~Meaning~~
~~v [km/h]~~	~~Indicated speed of measured vehicle~~
~~v_{EGO} [km/h]~~	~~EGO speed of speed meter, when the speed meter is installed in a vehicle~~

Identification of the instrument

Application no.:	.....	Type designation:	.....
Identification no.:	.....	Manufacturer:	.....
Software version:	.....		
Report date:	.....		

Documentation from the manufacturer

(Record as necessary to identify the equipment under evaluation)

System or module name	Drawing number or software reference	Version	Serial no.

Manufacturer provided simulator documentation (if applicable)

System or module name	Drawing number or software reference	Version	Serial no.

Identification of the instrument (continued)

Application no.:	.....	Type designation:	.....
Identification no.:	.....	Manufacturer:	.....
Software version:	.....		
Report date:	.....		

Simulator function (summary) (if applicable)

(Simulator description and drawings, block diagram, etc. should be attached to the report if available)

Identification of the instrument (continued)

Application no.:	.....	Type designation:	.....
Identification no.:	.....	Manufacturer:	.....
Software version:	.....		
Report date:	.....		

Description or other information pertaining to identification of the instrument (components, interfaces, configuration). Attach photograph, diagrams or drawings if available:

Describe, using point form, the measurement technology used:

General information concerning the type

Application no.: ..... Manufacturer: .....

Type designation: ..... Applicant: .....

Instrument category: .....

Testing on: ☐ Complete instrument ☐ Module*

Categori~~s~~zation of speed meter	
Mode of use	
Principle of installation	
Working principle	
Triggering and camera	
Compensation for cosine error	

Rated operating conditions		
	Minimum	**Maximum**
Speed measurement		
- Speed measurement [km/h]		
- EGO speed measurement [km/h], if applicable		
Vehicle identification		
- Distance to vehicle [m], if applicable		
- Angle to vehicle [~~deg~~°], if applicable		
- Number of vehicles ~~[/]~~, if applicable		
Temperature		
- Operating temperature [°C]		
- Storage temperature [°C]		
Power supply		
- Voltage [V]		

Evaluation period: .....

Date of report: .....

Observer: .....

* The test equipment (simulator or part of a complete instrument) connected to the module shall be defined in the test form(s) used

General information concerning the type (continued)

Application no.:	.....	Manufacturer:	.....
Type designation:	.....	Applicant:	.....
Instrument category:	.....		

Testing on: ☐ Complete instrument ☐ Module*

Use this space to indicate additional remarks and/or information: connecting equipment, interfaces and sensors, choice of the manufacturer regarding protection and specific speed meter requirements etc.

Indications and controls

Describe, using point form, all indications and controls of the instrument (such as wired or wireless communication with the instrument, installation, ready indication, error codes).:

Evidence file

Describe, using point form, evidence file for measurement (type of file, encryption, content, storage, retrieval, authentication):

Checking facility

Describe, using point form, checking facility (automatic and/or manual triggering, outcomes):

Alignment and aiming device

Describe, using point form, alignment procedure and use of aiming device, if applicable:

Test interface

Describe, using point form, test interface (access, parameters

Software

Describe, using point form, the means used to protect legally relevant software in the instrument and indicate the version of the software present at the time of testing and how to verify this version number:

Sealing

Describe, using point form, the physical and electronic seals (e.g. audit trails) used to protect the metrological characteristics of the instrument, and how to access them. Also describe any remote access abilities available and how these are sealed:

* The test equipment (simulator or part of a complete instrument) connected to the module shall be defined in the test form(s) used

Configuration for type evaluation

Application no.:	.....	Type designation:	.....
Report date:	.....	Manufacturer:	.....

Use this space for additional information relating to equipment configuration, interfaces, data rates, protection options, additional devices and additional software for the instrument and/or simulator to support type evaluation.

Selection of sample(s)

Application no.:	.....	Type designation:	.....
Report date:	.....	Manufacturer:	.....

Use this space for additional information relating to the justification for the selection of sample(s), in particular in case of a family of instruments or modules or if specific requirements are mentioned in OIML R 91-1 and -2. (if applicable)

Adjustments or modifications

Application no.:	.....	Type designation:	.....
Report date:	.....	Manufacturer:	.....

Use this space for additional information relating to the identification of any authorized and agreed upon adjustments or modifications made to the sample or samples during the evaluation.

Summary of test report(s)

Use the table below to summarize the test report(s) used to support the type evaluation:

Test Report Number	Issued by	Remarks*

* Use this column to record if the test report was issued:

- under the OIML Basic Certificate System, the OIML Mutual Acceptance Arrangement (MAA) or the OIML Certification System Scheme A or B. Where the test report was used as the basis for issuing an existing OIML Certificate, the relevant OIML Certificate Number should be noted.
- by a Manufacturer Test Laboratory (MTL).
- under the scope of ISO/IEC 17025 accreditation.

Summary of appraisal of test data (where applicable)

Use this space to record the appraisal of test data [reference OIML-CS PD-05 and PD-07]:

Requirement	Check if yes	Remarks (provide information)
Correct method has been used		
Test data from acceptable testing facility		
Testing facility capable of performing the testing		
(accredited or peer assessed)		
Test report provided in OIML format		
Test performed against OIML R 91 (versions)		
Results acceptable for all the tests performed		
Further information/clarification needed		

If there is more than one test report, indicate in the remarks if the answers are not the same for all test reports by referring to the test report number from the previous table.

Corrective actions required

Issue identified	Details of corrective action required

Summary of the checklist

For each test, the “Summary of the checklist” below and the “Checklist” in clause 1 shall be completed according to this example:

	Passed	Failed
When the instrument has passed the test:	X	
When the instrument has failed the test:		X
When the test is not applicable:	/	/

Summary of the checklist:

Requirement	Passed	Failed	Remarks
Metrological requirements R 91-1 clause 6			
Technical requirements R 91-1 clause 7			
Metrological controls R 91-1 clause 8			
Test procedures R 91-2			
Overall result			

Application no.:	.....	Type designation:	.....
Report date:	.....	Manufacturer:	.....

Use this page to detail remarks from the summary of the checklist

Checklist

Application no.: ..... Type designation: .....

Report date: ..... Manufacturer: .....

Serial no.: ....

Date: ..... Observer .....

Requirement (R 91-1)		Passed	Failed	Remarks
4	**Unit of measurement**			
5	**Categorisation of speed meters**			
6	**Metrological requirements**			
6.1	Measuring intervals			
6.2	Indicated speed value			
6.3	Metrologically relevant speed value			
6.4	MPE for stationary measurements			
6.5	Linearity error limit for stationary measurements			
6.6	Certainty of vehicle identification			
6.7	Indicated distance and angle values			
6.8	Requirements specific to across-the-road speed meters			
6.9	M~~Vehicle shape related m~~easurement error under influence quantities			
6.10	Requirements specific to Doppler-radar based speed meters			
6.11	Requirements specific to range-finding based speed meters			
6.12	Requirements specific to fixed-distance speed meters			
6.13	Requirements specific to average speed meters			
6.14	Requirements specific to image-based speed meters			
6.15	Requirements specific to moving speed meters			
6.15.1	MPE for moving measurements			
6.15.2	Stationary mode			
6.15.3	Ego speed meter			
6.16	Minimum requirements for rated operating conditions			
6.17	Rated operating conditions			
6.17.1	Climatic environment classification~~tests levels~~			
6.17.2	Mechanical environment~~tests~~ classification~~levels~~			
6.17.3	Electromagnetic environment~~tests~~ classification~~levels~~			
6.18	Disturbances			
6.18.1	Fault limit value			
6.18.2	Acceptable significant faults			
6.18.3	Other causes of significant faults			
6.18.4	Reaction to disturbances			
6.19	Durability			
6.20	Redundancy of the measuring process			
6.21	Presumption of compliance			
7	**Technical requirements**			
7.1	General principles			
7.1.1	High level metrological protection			
7.1.2	Intended use			
7.1.3	Possibility to carry out examinations and tests			
7.1.4	Protection against fraud and misuse			

Requirement (R 91-1)		Passed	Failed	Remarks
7.1.5	Protection of the measurement, software and parameters			
7.2	Indication of measurement results			
7.2.1	Availability of the result of a manual measurement			
7.2.2	Availability of the result of automatic measurement			
7.3	Evidence file			
7.4	Storing evidence files			
7.5	Checking facilities			
7.6	Alignment parameters of mobile speed meters			
7.7	Aiming device			
7.8	Modes			
7.8.1	Enforcement mode			
7.8.2	Test mode			
7.9	Test interface			
7.10	Software			
7.10.1	Software identification			
7.10.2	Fraud protection			
7.11	Inscriptions – descriptive markings			
7.12	Manual			
7.13	Sealing			
7.14	Verification marks			

Result:

Pass ☐ Fail ☐

Use this page to detail remarks from the checklist