

Template for comments and convener's observations

Date: 2025-01-22

Document: TC7_SC4_P3_N058

Project: TC 7/SC 4/p 3

Country Code ¹	Part	Clause/ Subclause	Paragraph/ Figure/Table	Type of comment ²	Comments	Proposed change	Convener's responses
0001 BR01	1			ge	<p>The R91 CD2 still is misusing OIML D11. That document is a guide for PG to elaborate and discuss the environmental conditions. In particular item 4.1 of OIML explicitly says:</p> <p>“The applicable Recommendation <u>shall</u> specify, for each category or subcategory of measuring instruments:</p> <p>(a) expected influence factors, with rated operating and reference conditions; (b) expected disturbances and associated expected maximum intensity (limit of disturbance); (c) maximum permissible errors on type evaluation, on initial verification, in service, and on subsequent verification, as well as fault limit level, and significant durability error level (wherever applicable).”</p> <p>For example, the current version of OIML R91 does not specify the severity levels of disturbances, instead that it sends the reader to the tables of OIML D11. Although R91 specify environment classification E2 and E3 for speed meters, this is not enough to evaluate them because table 4 of OIML D11 specify more than one severity levels of disturbances for E2 and E3 environments (i.e. table 34 - RF EM fields (digital radio telephones and portable radio transceivers and table 41 load dump test)</p>	<p>Discuss the severity levels for all tests takings as starting point the levels specified in table 4 of OIML D11.</p> <p>Eliminate statements sending the reader to clauses of OIML D11, instead that discuss how it applies to the specific types of speed meters in order to eliminate any misinterpretation to the lab or manufacturer about which test is applicable or not.</p> <p>Brazil proposes to include the text and table in the annex A of this comment to try solving these problems.</p>	<p>A new table with more details on severity levels for EMC tests was included in clause 6.1 of part 2. Also, clauses 6.2, 6.3 and 6.4 of part 2 were changed to give more guidance on how to execute the tests.</p>
0002 UK	1	Title		ed	<p>The project is concerned with the “Revision of R 91: Radar equipment for the measurement of the speed of vehicles”.</p> <p>However, the title of R91 has been changed to “Traffic speed meters”.</p> <p>It will be helpful to have a statement in the Forward to explain the reasons for the change in the Recommendation’s title.</p>	<p>Add a statement in the Forward to explain the reasons for the change in the Recommendation’s title.</p>	<p>OK</p> <p>Good proposal. We have checked this with OIML and get green light to include this explanation in the “Foreword”</p>

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0003 UK	1	1.Introduction		ed	Part 5: Verification and inspection procedures (to be agreed, if needed).	Propose deleting this as only Parts 1-4 are currently be commented on.	OK Crosschecked with OIML. Removing Part 5 from introduction. It is still possible to prepare it afterwards separately and update Introduction.
0004 UK	1	3.1.6 user interface		ed	This definition in 3.1.6 is not in line with that in D031 2023E, 3.2.72 user interface interface that enables information to be interchanged between the operator and the measuring instrument or its hardware or software components, e.g. switches, keyboard, mouse, display, monitor, printer, touch-screen, software window on a screen including the software that generates it	Align with the definition in D031 2023E, 3.2.72 and include a reference to the D031 clause. user interface interface that enables information to be interchanged between the user/operator and the measuring instrument or its (hardware) components or (software) modules Note: Typical examples of user interfaces are switches, keyboard, mouse, display, monitor, printer, touchscreen,	OK, thank you for notification We will update user interface to the OIML D 31:2023
0005 PT	1	3.3		ge	A special case of moving speed meter is when it only has an ego speed meter associated with a video camera and is installed in a vehicle pursuing and filming a moving vehicle at constant distance. However, the measured speed is an average speed as it is calculated from a distance chosen by the operator. To our point of view, it is wrong to consider that this not a direct physical measurement of speed, this is estimation of speed is wrong when the speed of the pursued vehicle is zero with respect to the pursuing vehicle with the ego speed meter. Indeed, this zero relative speed is guaranteed by the continuous registered images performed by the camera associated with the displayed ego speed meter of the pursuing vehicle. Furthermore, the mode of working with "systems such as Provida and Vascar" shall be only performed with pursuing vehicle according to well established and published procedures.	1. In the "3.3 working principle" clause insert, before the sub-clause "beam width", the sub-clause "pursuing ego speed meter", with the following description: "ego speed meter associated with a video camera measuring average speed in a vehicle pursuing a vehicle at constant distant"; 2. in the sub-clause "b. Average speed measurement between two remote positions" of the "5 Categorisation of speed meters / 3. Working principle of speed measurement", insert the item "- pursuing ego speed meter"; 3. in the "6 Metrological requirements" clause, before the "6.16 Minimum requirements for rated operating conditions" sub-clause, insert the following sub-clause "Requirements specific to pursuing ego speed meters" and the following description "All the requirements specific to average speed meters (6.13) and ego speed meters (6.15.3) shall be fulfilled by the pursuing ego speed meters, when applicable."	PG MEETING DISCUSSION PURSUING SYSTEMS Main reason: Measurement principle is not satisfactory from a metrological point of view. We expect that in the future, the pursuing systems will be complemented with sensors that measure the difference speed. Then this will become a moving speed meter. By including moving speed meters, but not pursuing speed meters in R91, we promote this positive development.

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					<p>Last and not least, these speed meters are far less expensive and very more stable than the mentioned FMCW Doppler effect speed meters.</p> <p>For these reasons, they are very used by the road safety forces in Portugal, for instance, but not only. Therefore, it seems hard to forbid their use and it is a pity that the OIML R 91 new version does take these measuring systems into account</p>		<p>PG MEETING OUTCOME:</p> <p>This type of speed meter was presented at PG meeting.</p> <p>Based on the results of vote, this type of speed meters are not going to be included in the current version of OIML R 91.</p>
0006 NL	1	3.3		te	<p>In addition to 0015PT: A moving section speed meter is measuring travel time and section length (using pulses coming from a distance signal generator of the police vehicle) by operating start and stop switches and calculates the average speed of the vehicle measured. It records the procedure on video so that evidence is available.</p> <p>The ego speed is not used for that except in the case the speeding vehicle cannot be overtaken. In that case the police officer has to explain why it is a valid estimation.. To prevent operating errors the system needs to check distance between the vehicle measured and the police vehicle ($d \leq 100$ m) and forcing a minimum measuring time based on this distance. $T = (16 + 0,2 * d)$ s</p> <p>This system works well in NL.</p>	Include the proposal of PT with the additional checks (see translation of NL Regulation for wording)	<p>PG MEETING DISCUSSION</p> <p>See PT 005</p>
0007 PT	1	3.4.9	Note	ed	<p>In the expression: $v_m = v \cdot \cos(\alpha)$, the symbols of quantities speed and angle should be written in italic, as they are in the Figure 2</p>	<p>Replace: $v_m = v \cdot \cos(\alpha)$</p> <p>By: $v_m = v \cdot \cos(\alpha)$</p>	OK
0008 UK	1	3.6 Abbreviations		ed	<p>Several abbreviations used in Parts 1-4 are missing from 3.6</p> <p>For example.</p> <p>AC and DC used in Part 2, 6.2, 6.6, Pages 39 -47, etc.</p> <p>LV and VLF used in Part 2, page 46</p> <p>RF used in Part 3, page 52, 53, etc</p>	<p>Add the following abbreviations and review the entire document for other missing abbreviations.</p> <p>AC alternating current DC direct current EM electromagnetic IEC International Electrotechnical Committee ISO International Organization for Standardization LF low frequency band (30 kHz – 300 kHz)</p>	<p>OK</p> <p>Thank you for this remark.</p>

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						VLF very low frequency band (3 kHz – 30 kHz) NSFa no significant fault shall occur after the disturbance NSFd no significant fault shall occur during the disturbance RF radio frequency RH relative humidity	
0009 NL	1	5		te	Suggest to add “across the road” as classification because both doppler and range finding (or combination) should comply with across the road requirements if used as such	Add “5. Across the road (curve radius to be taken into account)	<p>PG MEETING DISCUSSION</p> <p>We think it’s a good idea to include this as a further categorization. The title of clause 6.8 mentions across-the-road speed meters (there are special requirements for them), so we think it makes perfect sense, to include this term also here.</p> <p>During the PG meeting discussion, it became evident that not everyone had the same understanding of across-the road and along-the-road speed meters. We therefore included several further changes to part 1, which hopefully help to clarify:</p> <ul style="list-style-type: none"> -Extended several definitions in section 3.4 -Section 5: added number 5 and a note. -Added reference to across-the-road speed meters in clause 6.14.

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0010 FR	1	6.1	2 nd paragraph	te	<p>It is indicated <i>"The specified speed measuring interval shall at least cover the interval from 20 km/h to 180 km/h. A greater upper limit and/or a smaller lower limit may be specified."</i></p> <p>It could be useful to specify in which document this upper and/or smaller limit should be specified (type approval certificate, operating manual for the user, documentation for type approval).</p>	Please indicate the upper and/or smaller limit of the instrument shall be specified in the documentation for type approval, the operating manual and the type approval certificate.	<p>NO</p> <p>This is required implicitly in the 8.1.1 Documentation.</p> <p>We are strongly against creating an additional note in clause 6.1 about this. It's a detail.</p> <p>Clause 8.1.1: metrological characteristics of the speed meter, it is clear that minimum and maximum specified speed is part of that.</p> <p>Part 4 (type evaluation report format): Minimum and maximum specified speed is already included on page 10.</p>
0011 FR	1	6.2	4 th paragraph	te	<p>It is indicated <i>"The manufacturer has to specify the mathematical operation used by the speed meter"</i></p> <p>It could be useful to specify this information shall be in the documentation submitted for the approval type. It is not clearly indicated in 8.1.1.</p>	Please indicate the mathematical operation shall be in the documentation for the approval type.	<p>OK</p> <p>This is required implicitly in the 8.1.1. Documentation.</p> <p>Creating additional note.</p> <p>This sentence was not formulated as a requirement for the speed meter, but for the manufacturer.</p> <p>We therefore re-formulated and extended the sentence. Now it is a requirement for the speed meter. The requirement for the manufacturer to specify the mathematical operation is now explicitly included in the last item of clause 8.1.1.</p>

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0012 NL	1	6.4 6.5 6.15.1 10 DE		ed	NL agrees it is important to state that MPE refers to the reference value. This is however already included in the definition of MPE (3.5.2) and therefore superfluous. Moreover it is not mentioned at every relevant place so one could understand it does not apply in these places.	Remove "of the reference speed value" or add it to the "a." sentences to be consistent.	OK, This issue has led to confusion already several times. So, we suggested to include a note about relative units in clause 3.5.2 and to delete "of the reference speed value" in all relevant clauses.
0013 CN	1	6.4	2	ge	The speed measurement errors of speed meters are compulsorily required to be non-positive (≤ 0 km/h) to protect the rights of drivers and prevent wrongful penalties, which is required by traffic police of China and some other minority countries. Please consider adding classification here to include the speed meters with non-positive measurement errors like sub clause 6.15.1, and indicate the class of the speed meter in the OIML certificate.	MPE for stationary measurements: Class A a. ± 3 km/h at speeds up to and including 100 km/h, and b. ± 3 % of the reference speed value at speeds above 100 km/h. Class C a. $(-6 \sim 0)$ km/h at speeds up to and including 100 km/h, and b. $(-6 \sim 0)$ % of the reference speed value at speeds above 100 km/h.	NO PG MEETING DISCUSSION The idea of OIML R 91 is to have as general as is possible requirements to establish OIML CS. Introducing classes will only complicate acceptance of OIML CS, where national requirements are present. You can still have your own classification at national level and based on the OIML CS you can accept complete type approval or partial reports from type approval. Explanation was given during PG meeting and China was satisfied with an answer.
0014 SE	1	6.5.13	5-6	ed	Referring to our comment on CD2 (0041SE). It is important to distinguish between requirements on the instrument at certification (for the manufacturer to fulfil) and in use. These last paragraphs are as we understand requirements for the instrument installed/ in use. They are of course relevant however of informative nature.	Move to 8.3 or keep here but in the form of a Note, se 6.1.	OK Probably clause 6.15.13 ... Checking CD 0041SE, we will write as notes.

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0015 NL	1	6.6 26 NL		te	The answer of the conveners is that the requirement shall not be part of R 91. The NL proposal is not a requirement, it is an acceptable solution for the existing requirement. Acceptable solutions are very useful for type evaluators and manufacturers. D 31 is using the same approach.	Add to the note "The level of certainty shall be at least equivalent to a second measurement result obtained by a different, independent measurement method with a measurement error not exceeding 10% of the actual speed. If this requirement cannot be met, the measurement result shall: - be declared invalid; or - be deleted."	PG MEETING DISCUSSION Reference to 2 CD comment 26 NL We could add the note. This note is informative and gives manufacturers and regulators useful information. Thank you for clarification. We don't have any objections.
0016 DE	1	6.6	2	te	The newly proposed text "relative to the time of speed measurement" generates a new requirement that is too restrictive, because it breaks existing (working!) measurement principles. For instance, <ul style="list-style-type: none"> What is the "time of measurement" for a laser scanner device (averaging over 30 m)? Or, in general, for fixed-distance speed meters? The original sentence was OK because it specified that the photo must be taken at a "specified moment". How that moment was defined, was left open to innovation by manufacturers, and rightfully so. For instance, in the eso/Kistler devices ES3.0 and ES8.0 used in Germany, the photo is taken when the vehicle has traveled 3 m beyond the end of measurement. The delay time, therefore, depends on speed. The "specified moment" is effectively defined as "whenever the vehicle should have reached the 3m point, based on the measured speed". Presumably, the new requirement on the timing was added to make possible a plausibility test of the measured speed. However, that possibility also exists without the new timing requirement: If the vehicle is near the intended position at the "specified moment" the speed value is plausible. No need to restrict the freedom of device operation!	Reject the proposed insertion of "relative to the time of speed measurement". This makes the paragraph read: If the speed meter records image evidence (photo or video) for the identification of vehicles, it shall record the image evidence of the measured vehicle and its surroundings at a specified moment and add it to the evidence file	OK OK this proposal can be accepted. In comment 0027 SE the proposed change was " <u>If the speed meter uses images evidence (photo or video) as a vehicle identification function</u> the speed meter shall record and save image evidence (photo or video) of the measured vehicle and its surroundings <u>to an evidence file</u> at a specified moment:-

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0017 NL	1	6.9		te	One could understand the vehicle shape may have an additional influence of the error limits of 6.4 (so 2x the error limits total). It shall remain within error limits regardless of the vehicle shape	Change to: The error limits of 6.4 shall be complied to regardless of vehicle shape, traffic density or any other possible influence.	<p>PG MEETING DISCUSSION</p> <p>We agree that this definition is clearer and serves the purpose, but it's quite an extension of its meaning by adding "traffic density and any other possible influence". We therefore also propose to change the title of the clause.</p> <p>We also added further clarifying sentences to clause 6.9 and changed the corresponding item in clause 8.1.1.</p> <p>When working on this change, we realized that in the current draft the terms influence quantity, influence factor and disturbance were not used consistently. We made this consistent by implementing changes to the following clauses: Part 1: 3.5.11, 6.5, 6.17 Part 2: 5.4, 6.5, 6.7, 6.8</p>
0018 NL	1	6.10		ed	The beam should be secondary, because otherwise a third (4 th , 5 th , ..) beam is allowed.	Change "second beam" to "secondary beam"	<p>OK</p> <p>Clear, we are changing to secondary beam.</p>
0019 NL	1	6.11		te	NL has detected laser speed meters with a secondary beam (laser diode with emitting areas)	A possible secondary beam (side lobe) emitted by the device shall not be used for measurement.	<p>PG MEETING DISCUSSION</p> <p>COMMENT cleared at the meeting. It was misunderstanding due to different approach how to observe laser beam.</p>

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							Introduced beam width and how to mathematically determine beam width. Added notes to definition (clause 3.3.6) also requirement in clause 6.11 Added requirement for magnification scope.
0020 NL	1	6.12		te	The case of 2 loops is that the loop is not a “point”, it is an area. So you can have more detection points as shown in the graph in the convenors reply. However the current text is sufficient	No change	OK, thank you for this and comment at 2 CD.
0021 NL	1	6.12		te	The use of uncertainty is not correct here. The maximum permissible error in the distance between detection points (or areas) is 0,5%. The uncertainty when measuring the distance shall be 0,1% (1/5 of 0,5%).	The distance between detection points (or areas) has a maximum permissible error of $\pm 0,5 \%$. It shall be determined with an uncertainty not more than $\pm 0.1 \%$.	PG MEETING DISCUSSION PG MEETING OUTCOME: We don't think it is appropriate to include the uncertainty of measurement in part 1 of R91 (after all it is about requirements for the speed meters). We therefore made an alternative proposal as discussed during PG meeting.
0022 DE	1	6.12	1	te	The new sentence at the beginning, about the requirement of using at least three detection points, might have several unintended consequences. For instance: <ul style="list-style-type: none"> Average speed control (3.3.4) also is a fixed-distance speed meter (3.3.3). But there are only two detection points used (and necessary) in that method! How about “moving” applications, like a video pursuit system? One way of operation is by choosing one (!) fixed distance and timing the transit. 	Remove the new sentence, or make sure that whatever will be written there does not break average speed control and video pursuit systems	PG MEETING DISCUSSION PERSUING SYSTEM We don't agree with this comment. Average speed controls can be covered by "if only two detections points are used, by other appropriate means".

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							<p>Pursuit systems are not covered by R91 (maybe we should make this more explicit and also discuss this during PG meeting?).</p> <p>PG MEETING OUTCOME - voting regarding pursuing speed meters</p> <p>See, also 005 PT, 0006 NL</p>
0023 NL	1	6.13		te	Average speed meters do not need 2 primary time sources, it is a possibility. Some systems use NTP. Even in this case redundancy is needed.	Add acceptable solutions in 6.20	<p>OK</p> <p>We have noticed this in the last edition of The Netherlands legislation for metering device for police</p> <p>- 6.13 corrected to: "Time synchronisation between detection fields shall be achieved and maintained"</p> <p>- Note added to clause 6.20</p> <p>We agree that there are also other possibilities to maintain synchronisation than two independent time sources. We have noticed on the market solution with calibration of internal timer.</p>
0024 NL	1	6.13		te	There needs to be a MPE for time measurement. NL has 0,3%, sometimes limiting minimum section length. Possibly to be added after 6.5	Add "MPE for time measurement is 0,3%." (or 0,2% equal to doppler radar)	<p>PG MEETING DISCUSSION</p> <p>We are aware that you can compensate MPEs for time with the greater distance.</p>

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							<p>We suggest to avoid MPEs for time. Let observe a general MPEs for speed in km/h.</p> <p>19.09.2024: As discussed during PG meeting, an MPE for time was introduced.</p>
0025 FR	1	6.14		te	<p>The requirement <i>"All the requirements specific to fixed-distance speed meters (see clause 6.12) shall be fulfilled by image based speed meters"</i> has been added.</p> <p>We do not know image-based speed meters but are requirements for fixed-distance speed meters sufficient? Why are requirements of 6.8 not useful (for example) ?</p>	<p>Please explain why image-based speed meters shall comply only with the requirements for fixed-distance speed meters.</p>	<p>PG MEETING DISCUSSION</p> <p>The best answer is your question: "We do not know image-based speed meters but are requirements for fixed-distance speed meters sufficient?"</p> <p>Honestly, we don't know how to formulate exact requirements, because there is not enough experience at the moment. We are aware of only system, which got type approval at METAS.</p> <p>There is still an option to add addendum later on.</p> <p>We suggest to leave the requirements as they are and adopt them later on.</p> <p>Requirements of 6.8 hold also for image-based speed meters, because they are mostly used across-the-road (i.e. they compensate for measurement angle)!</p>

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							<p>During the PG meeting discussion, it became evident that not everyone had the same understanding of across-the road and along-the-road speed meters. We therefore included several further changes to part 1, which hopefully help to clarify. These are listed in the answer to comment 0009 NL.</p> <p>In particular, we have added a reference to clause 6.8 in this clause and also included image-based speed meters as an example in clause 3.4.11. Thank you for pointing that out.</p>
0026 CN	1	6.15.1	2	ge	The same as above	<p>MPE for moving measurements:</p> <p>Class A</p> <p>a. ± 3 km/h at speeds up to and including 100 km/h, and</p> <p>b. ± 3 % of the reference speed value at speeds above 100 km/h.</p> <p>Class B</p> <p>c. ± 7 km/h at speeds up to and including 100 km/h, and</p> <p>d. ± 7 % of the reference speed value at speeds above 100 km/h.</p> <p>Class C</p> <p>a. (-6~0) km/h at speeds up to and including 100 km/h, and</p> <p>b. (-6~0) % of the reference speed value at speeds above 100 km/h.</p> <p>Class D</p> <p>a. (-14~0) km/h at speeds up to and including 100 km/h, and</p> <p>b. (-14~0) % of the reference speed value at speeds above 100 km/h.</p>	<p>PG MEETING DISCUSSION</p> <p>See CN 0013</p> <p>Explanation was given at the meeting and China agreed to our explanation.</p>

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0027 FR	1	6.15.3	Last paragraph	ed	We propose to add comas after legislation and tyre to make the sentence easier to read.	Replace by <i>"Depending on national legislation, after changing a tyre, the verification is no longer valid."</i>	OK
0028 DE	1	6.15.3	Last paragraph	ed	Add a comma after "legislation", to avoid ambiguity	Depending on national legislation, ...	OK
0029 NL	1	6.16	45PT	ed	Octave is not an SI unit or derived unit. It is a ratio quantity (1 octave = frequency * 2) In IEC octave is always used in full. It is also allowed to use SI units in full (second, Volt, etc)	Keep octave	OK Keeping octave
0030 KR	1	6.16	Table 1	ed	Rated interval of Point E is mathematically incorrectly expressed.	$U_{nom} - U_{nom} \times 15\%$ to $U_{nom} + U_{nom} \times 10\%$	OK
0031 KR	1	6.16	Table 1	ed	Rated interval of Point F is mathematically incorrectly expressed	$f_{nom} - f_{nom} \times 2\%$ to $f_{nom} + f_{nom} \times 2\%$	OK
0032 DE	1	6.17.1	Paragraph after the a-b-c-list	ed	Two language changes	... inside their own proprietary cabinet... ... identified as a part of the speed meter.	OK
0033 BR02	1	6.17.3		te	<p>According with D11, table 3:</p> <ul style="list-style-type: none"> - E1 is for instruments used in residential, commercial and light industrial environment - E2 is for instruments used in industrial buildings; and - E3 is for instruments powered by a battery of a vehicle <p>It is understandable to use E2 as a first step to define the electromagnetic environmental class for speed meters, but actually they are used outdoor any building, therefore some disturbances should be applied with higher severity levels than class E2.</p> <p>As an example consider the surge test. Because speed meters can be installed in rural areas at the top of post with cables greater than 30 m, we believe that severity level class 3 does not cover the real environment where fixed speed meters will be installed. Instead that, class 4 looks to be more adequate.</p>	<p>Review and discuss all disturbance severity levels according to the installation categories of speed meters.</p> <p>Specific aspects of each tests need to be discussed too (i.e. number of ESD, dwell times for RF fields immunity tests, repetition frequencies for EFT bursts, etc.)</p>	<p>PG MEETING DISCUSSION</p> <p>A new table with more details on severity levels for EMC tests was included in clause 6.1 of part 2. Also, clauses 6.2, 6.3 and 6.4 of part 2 were changed to give more guidance on how to execute the tests.</p>

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					Another example: The RF electromagnetic fields tests (tables 32 to 34 of OIML D11); in this approach there is not clear what severity level have to be applied for a fixed speed meter. Should be 3 or 4?		
0034 FR	1	6.17.3	a.	ed	The word "main" shall not have a "s".	Delete the "s"	NO The word "mains" has always plural form. We even corrected to "the mains". https://dictionary.cambridge.org/dictionary/english/main s
0035 NL	1	6.18.1		te	The fault limit shall be 1 km/h. The absolute part of the error limits is quite commonly used in OIML Recommendations. Consider the case where there is a shift of 1.5 km/h due to the disturbance. If simulated at 125 km/h it passes and at 100 km/h it fails. A shift is a common effect of EM disturbances. Simulating exactly 100 km/h might be difficult or not preferable (if the modulation frequency corresponds to 100 km/h)	Change to: "The fault limit value for stationary speed meters and moving speed meters in stationary mode is : ± 1 km/h	PG MEETING DISCUSSION We have little experience. This could be an option, something to be discussed. OK, accepted as discussed during meeting. We have defined: A fault limit value of ± 1 km/h shall apply for stationary speed meters and moving speed meters in stationary mode. For ego speed meters, a fault limit value of ± 0.5 km/h shall apply.
0036 FR	1	6.19		te	The durability part requires that the requirements of §6.1 to 6.17.1 to be respected over time. For example, 6.11 gives specific requirements for range-finding based speed meters. Does it mean the manufacturer shall test these requirements over time? Is necessary to test these requirements periodically?	Please clarify the requirements for durability.	PG MEETING DISCUSSION EXPLAIN DURABILTY AT PG MEETING.

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Project: TC 7/SC 4/p 3

Country Code ¹	Part	Clause/ Subclause	Paragraph/ Figure/Table	Type of comment ²	Comments	Proposed change	Convener's responses
							<p>The “durability” idea comes from MID – “Directive 2014/32/E”</p> <p><i>5. Durability</i></p> <p><i>A measuring instrument shall be designed to maintain an adequate stability of its metrological characteristics over a period of time estimated by the manufacturer, provided that it is properly installed, maintained and used according to the manufacturer’s instruction when in the environmental conditions for which it is intended</i></p> <p>It is impossible to prove it during the type approval. But it allows possibility to revoke type approval certificate, if you find out later on during the use and exploitation of speed meter that it does not fulfil the requirements stated by the manufacturer.</p> <p>For example, it cannot fulfill MPEs requirement for 12 month verification period without some kind of adjustment of sensor.</p>

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							18.09.2024: No, tests by manufacturer are not required. This clause is about the requirement and does not say anything about how to test the requirement. The verifications should be made in such a way that it is noticed if this requirement is not met. Typically, the tests during verifications are less detailed than during type approval. The exact nature of the tests during verification is outside the scope of this R91 (verifications are within national competence).
0037 FR	1	6.19		te	The durability part requires that the requirements of §6.1 to 6.17.1 to be respected over time. This could be too restrictive, in particular if the same MPE as for initial verification are used. Some speed meters could be used for decades. The sentence has been completed with « or the requirements according to national legislation are met ». Is this part about the national legislation could be to maintain for example MPE for in-service inspection between verifications? With the sentence on “national legislation”, we understand the requirement will depend on the country.	Please clarify the requirements for durability.	PG MEETING DISCUSSION See explanation above. It is a tool to revoke type approval certificate. 18.09.2024: According to our experience, this is not too restrictive. We have specified the durability period to at least 24 months, following the discussion during PG meeting.
0038 NL	1	6.19		te	An estimation is not sufficient and might be too optimistic. It should be a substantiation.	Replace “estimated by ...” with “substantiated by ...”	OK We agree, this is much better word to fit the purpose. It is also better than “stated”.

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0039 SE	1	6.19	3	ed	This is informative text.	Should be in the form of a Note, see 6.1	OK
0040 DE	1	6.19	End of 1st par.	ed	Language	...subsequent verifications, or as specified by national legislation.	OK Inserted comma. 18.09.2024: With the new version of first sentence, this change becomes obsolete.
0041 DE	1	6.19	End of 2nd par.	ed	Add a note	Note: This period must be at least as long as the verification period (if defined by national legislation).	OK 18.09.2024: With the new version of first sentence, this change becomes obsolete.
0042 NL	1	6.19	Last line	te	Should the verification period be shorter than the period of time substantiated by the manufacturer.	Add to the end of the sentence: "and shall be shorter than the period of time substantiated by the manufacturer."	OK 18.09.2024: With the new version of first sentence, this change becomes obsolete.
0043 NL	1	6.20		te	Suggest to add a note (or annex) with examples of possible errors (these are real life examples)	Examples (of errors): - Stationary section speed meter synchronised with GPS receivers: if 1 of the receivers has an error or is jammed, a time difference between the entry and exit can occur: large measurement error possible (this is a real world example) - Detector speed meter with 2 piezo cables: moped front wheel jumps over 1 st cable then rear wheel touches 1 st cable and then front wheel touches 2 nd cable , time interval between 1 st and 2 nd cable is very short -> very high speed with photo (real world example). With a 3 rd cable this would have been a wrong measurement or detected with secondary speed measurement	OK Very good proposal. We added a more detailed note.
0044 FR	1	7.1.1		te	The « <i>highest level of metrological protection</i> » is not clear.	Please clarify what is the requirement « <i>highest level of metrological protection in order that any party affected can have confidence in the result of the speed measurement</i> ».	PG MEETING DISCUSSION Originally this phrase is coming from MID [Directive 2014/32/EU] to amplify the importance this requirement.

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Country Code ¹	Part	Clause/ Subclause	Paragraph/ Figure/Table	Type of comment ²	Comments	Proposed change	Convener's responses
							<p>We could include this at PG MEETING #3</p> <p>18.09.2024: This is indeed a vague requirement and describes the general principle. What this means in concrete terms, is already clarified in further clauses of section 7 and 8. The manufacturer has to document the security measures for metrological protection in the type approval documentation. We have added a corresponding sentence to clause 8.1.1.</p>
0045 SE	1	7.3	2	ed	This is informative text.	"National regulations can prescribe a different list of items." Should be in the form of a note, se 6.1	OK
0046 DE	1	7.3	Item g	ed	Language	... of the speed meter,	OK
0047 DE	1	7.3	Item i	ed	Language	..., if the speed meter can cover...	OK
0048 DE	1	7.3	Item l	ed	Language	Indication whether the measurement was...	OK
0049 NL	1	7.5		te	For speed or time simulation the frequency source shall be independent to avoid not detecting faults because the source is the same	Add wording reflecting this	18.09.2024: OK added wording in clause 7.5.
0050 NL	1	7.5		te	For the speed or time simulation needs to comply with MPE of 6.5 b even if the simulated speed is below 100 km/h. This to prevent a low simulated speed would allow for higher tolerance. For example MPE 1 km/h at 50 km/h would mean 2% at 100 km/h.	Add "The simulation has to comply with MPE in 6.5 b. even if the simulated speed is below 100 km/h. Note: a simulated speed of 50 km/h needs to be within 0,5 km/h. An MPE of 1 km/h at 50 km/h would mean a deviation of 2% at 100 km/h would be allowed.	18.09.2024: OK added shorter version of this in clause 7.5. We don't think a special note is necessary.

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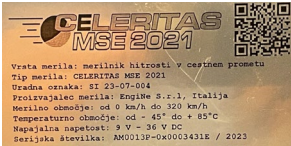
Country Code ¹	Part	Clause/ Subclause	Paragraph/ Figure/Table	Type of comment ²	Comments	Proposed change	Convener's responses
0051 NL	1	7.6		te	Add a requirement that the correct alignment shall be visible on the recorded image (for example the vanishing point shall be in a certain area)	Add: "It shall be possible to check the correct alignment on the recorded images, for example that the vanishing point shall be in a defined area.	OK Good comment, especially for the new mobile point speed meters with separate camera and antenna. Adding a general requirement: <i>It shall be possible to check the correct alignment of the speed meter during and after the measurement.</i> Some system are using inclinometers in camera and antenna and have visual aids like reference line. This can be done before, during or after the measurement. Added a note with possible solutions.
0052 FR	1	7.10.2	5 th paragraph	ed	We propose to remove the double negation to make the sentence easier to read.	Replace by " <i>Non-documented functions shall not exist.</i> "	OK Thank you – removed double negation. It sounds perfect in Slavic languages, but terrible at German and Roman languages.
0053 SE	1	7.11		te	We believe that is a lot of information to be visibly available without tools. Due to technical development the units become smaller and there are limitations on available space. Who is the receiver of the information? When is the information needed? Is it necessary or only good to have?	Revert to CD2 and allow for the possibility of digital markings such as for example QR codes.	NO, The QR marking can be added additionally to existing text. This is already common practice.

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							<p>The goal of legal metrology is that markings are easy to read in all conditions without any special tools or smartphones.</p> <p>For QR code you need a smart phone and “right” environmental conditions.</p> <p>Picture: MSE 2021</p>  <p>Vrsta merila: merilnik hitrosti v cestnem prometu Tip merila: CELEBRITAS MSE 2021 Uradna oznaka: SI 23-07-004 Proizvajalec merila: EnginE s.p.l., Italija Merilno območje: od 0 km/h do 320 km/h Temperaturno območje: od - 45° do + 85°C Napajalna napetost: 9 V ~ 36 V DC Serijska številka: AM0013P-0x0003431E / 2023</p>
0054 JP	1	7.11	1 st para.	ed.	There is a typo. “temper-evident label”	Correct it to ‘temper-evident label”	OK It should be tamper-evident Thank you ...
0055 NL	1	7.12		te	Suggest to add some more lines	Add: i checks before or during measurement j. significance (meaning) of checking result k. description of (error) messages l. information for correct interpretation of result	OK We accept this comment and additional lines.
0056 SE	1	8		ed	“prescription” is only used here	Consider to change it into “regulation” or “provision”.	OK
0057 FR	1	8.2.3	a.	ed	There is e problem with a reference “error! Ref source not found”	Correct the reference.	OK Deleted reference.
0058 NL	1	9		ed	VIML has a 2022 Edition (check terminology), IEC 60825 is not used	Update [1] , delete [4]	OK Updated
0059 FR	2	4.4		te	The number of tests has been following several comments including ours. But this value is not justified. Is this number sufficient, in particular to have representative results for each scenario (departing or approaching vehicle, speeds, curve, overtaking vehicles...) ? The number of tests shall give “statistical confidence”. For example, it seems 100 is low to check all scenarios.	Please discuss on the number of the tests and choose a value adapted for all scenarios.	PG MEETING DISCUSSION Field vs. laboratory testing. How many tests.

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							<p>As discussed during PG meeting we don't think the given numbers should be such, that it is sufficient in all cases. It is written that larger numbers might be necessary. This is true in particular for new technologies.</p> <p>Also, these measurements from the field tests will be complemented by laboratory tests.</p> <p>NOTE: Requirement is talking about minimum number of test – “at least”.</p>
0060 FR	2	4.9	a.	te	<p>The convenors agreed with our comment on the tests on the field to check the metrological performance of the instrument outside the legal speed interval. “Preferably” has been added in particular because they equal results could be achieved in the laboratory with simulator. How a simulator could test all conditions (weather, vehicle flow, overtaking vehicles,...).? We think that tests in laboratory are not sufficient for legal proceedings.</p>	<p>The metrological performance of the DUT outside the legal speed interval up to the maximum speed range shall be tested by: a. performing field measurements in a protected environment.</p>	<p>PG MEETING DISCUSSION</p> <p>See 0059 FR</p> <p>18.09.2024: During the PG meeting, the concerns of FR were not raised by any other PG member. During the PG meeting it became evident, that the title and content of this clause was not clear to everyone. We therefore propose a change, which is clearer.</p>

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							Changed wording and title to "4.9 Testing at speeds above the legal limit up to the maximum specified speed"
0061 NL	2	5.1	1 st sentence	te	NL repeats that simulation in laboratory is not optional. It may be performed by partial simulation (for example doppler signal generation) but for example speed linearity is crucial and needed for verification as well. This cannot be replaced by field testing.	Change to: "Metrological laboratory tests are used to test, in a reproducible and safe environment, ...	PG MEETING DISCUSSION OK, we agree to the proposal.
0062 KR	2	5.2	4 th paragraph	ed	Percent symbol shall be separated with the value.	0.25 %	OK
0063 NL	2	5.3	Title	te	Dynamic performance test shall not be optional In laboratory situations can be simulated that are very difficult to realize in field tests	Delete (optional)	PG MEETING DISCUSSION OK, we agree to the proposal. See 0061 NL
0064 NL	2	5.4	1 st par a.	te	Some speed meters have a fixed measuring angle.	Change to: "a. a constant nominal measuring angle (if applicable)	OK We cover with this option now: 0°, 18°, 20° and 22° angles ...
0065 NL	2	5.4	2 nd par	te	Rounding cannot be compensated because for example the internal speed could be 99,5 when simulating 101,0 km/h and displaying 100 km/h. Internal 99,5 km/h would be a fail.	Delete "or the rounding shall be compensated"	OK We understand the issue, deleting after or.

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							<p>0065 NL: Only now we realized that there is a contradiction of Part 1 clause 6.3 " The indicated integer speed value shall be the relevant speed value used in all metrological controls." And Part 2 clause 5.4 (2nd part): "For the evaluation of errors of indication, the high-resolution speed values from the test interface of the EUT shall be used".</p> <p>We suggest to solve this contradiction by additions to clauses 6.3, 6.4, 6.5 and also 6.15.1, 6.15.3 and 6.18.1 of part 1. Also changes to clause 5.4 of part 2 were necessary.</p>
0066 KR	2	5.4	c.	ed	The number 2 indicating a square is not indicated with a superscript.	0 m/s ²	OK
0067 DE	2	5.4	Item c	ed	Typo	The „2“ should be an exponent	OK
0068 NL	2	5.4	Title	te	Speed linearity shall not be optional	Delete (optional)	PG MEETING DISCUSSION OK, we agree to the proposal.
0069 NL	2	5.5	Title	ed	Distance linearity shall not be optional	Delete (optional)	PG MEETING DISCUSSION OK, we agree to the proposal.
0070 NL	2	5.6		te	Angle linearity shall not be optional	Delete (optional)	PG MEETING DISCUSSION OK, we agree to the proposal.
0071 BR03	2	6		te	In this section appear:	Consider the following sentence:	They have a point here.

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					<p>“Details about the tests which go beyond those defined in OIML D 11 [1], clauses 9 – 14 shall be done according to <u>the test levels specified by the manufacturer.</u>”</p> <p>This is unacceptable for legal metrology authorities</p>	<p>Details about the tests which go beyond those defined in OIML D 11 [1], clauses 9 – 14 shall be done according to <u>the legal metrology authority of the country.</u></p>	<p>It is logical that after the review of documentation and sample are set according to testing authority.</p> <p>Changed and added sentence to:” shall be done according to the test levels specified by the manufacturer in the documentation for type approval but checked and finally approved by testing laboratory by overiewing documentation and sample of the speed meter.”</p> <p>Please check.</p>
0072 BR04	2	6		te	Specific conditions for some disturbance tests should be added	Consider the suggestion of Annex B of this comment	Related to BR001
0073 FR	2	6		te	<p>As explained in our previous comments, it is not sufficient to only make reference to OIML D11 to realize tests. As clause 9.2.1 of OIML D11:2013 establish that OIML Recommendation shall in all cases describe: - the manner in which the instrument shall be tested, and - The allowed changes in the performance of the EUT. If severity levels or conditions of tests are not totally described, we fear that the tests will not be realized with the same manner; it will not be possible to use the report by another issuing authority. It would be a problem to implement harmonized tests in procedures for OIML-CS.</p> <p>The manner in which the instrument shall be tested needs to be clearly defined by R91. For examples: for RF electromagnetic fields test, shall be each frequency tested or is it possible to test by scanning the frequencies ?, which speed is tested for all test (always the same speeds, how many repetition...) ? What is the test sequence? Is a pre-conditioning</p>	<p>Reproduce some part of the tables of OIML D11 or give more information in order to describe the manner in which the instrument has to be tested in this part.</p>	<p>PG MEETING DISCUSSION</p> <p>See answer to comment 0001 BR.</p>

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					condition needed or not?.....These questions are only as examples. See OIML R126 for example.		
0074 NL	2	6.1	Table 1# 5	te	NL repeats that speed meters can be used in condensing environments (for example installed in a vehicle). Therefore Damp heat cyclic is an influence factor. (same applies to taximeters) Please note that Part 1, Table 1 specifies condensing as rated operating condition.	Change "Evaluation to "I" and "MPE"	OK We agree with this, because all mobile speed enforcement and integrated speed meters can be exposed in this condition.
0075 UK	2	6.3, 6.4		ed	"Error! Reference source not found."	Correct to clause 5.4.	OK Thank you ...
0076 NL	2	6.4		te	Additional to comment on Part 1, 6.18.1: 100 km/h is recommended, not mandatory. 150 km/h would be allowed. Also suggest to add different speed if modulation corresponds to 100 km/h	After "... 100 km/h" add: (unless the modulation frequency corresponds to 100 km/h, then a speed with >20% difference from the modulation frequency shall be used)	OK PG MEETING DISCUSSION 18.09.2024: The discussion during the PG meeting helped to understand this comment. We added a slightly different version of the sentence to clause 6.4.
0077 NL	2	7.1	b.	te	The antenna pattern shall also be used to detect side lobes	Change to "antenna pattern to determine beam width, secondary beams and angles of the measurement beam	OK Good point.
0078 NL	2	7.2	c.	te	To cover for secondary beams and divergence	Change to "the beam width, secondary beams and relevant characteristics of the field of view (divergence etc)."	OK Good point
0079 NL	2	7.2	e.	te	Also for range finding speed meters curve radius is relevant (as NL has seen in practice)	Add: "e. influence of curve radius."	OK YES we agree. Added proposed point.
0080 BR05	3			ge	According to item G.7.8.3.1-2 of OIML D30, the test reports should not have a statement of conformity (pass/fail). Statement of conformity is a responsibility of the Issuing authority and therefore should be in Part 4 instead of part 3.	Delete statement of conformity from tests reports. Text from OIML D30: OIML Guidance to Section 7.8.3.1 (G.7.8.3.1-1 and G.7.8.3.1-2) G.7.8.3.1-1 This Guidance is related to 7.8.3.1 b). See G.7.8.6.1-1. G.7.8.3.1-2 This Guidance is related to 7.8.3.1 d). Opinions and interpretations related to the	NO Crosschecked the comment with OIML and recently published OIML R document. Part 3 document can have pass/fail option for different test point.

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						conformance of the instrument with the relevant OIML Recommendation are not allowed in OIML test reports . The OIML Issuing Authority is solely responsible for drawing conclusions on the conformance of the instrument with the relevant requirements (e.g. OIML Recommendation).	The statement and opinion about conformity is limited to PART 4.
0081 BR06	3			ge	Test report format have very few information regarding the specific conditions of the tests and therefore will be difficult to evaluate.	Include in the test reports more details about the conditions in which the test was conducted (i.e. dwell time, number or discharges, number of surges, angles, repetition rates, etc.)	NO It is up to laboratory to state additional information and quantities values, which are important to trace back or re-establish condition during the testing or measurement process ... After all this is also one of the requirements of ISO 17025 accredited laboratories to have such practice. It would be impossible task to fit part 3 templates to all possible methods, measurement equipment and simulators ...
0082 NL	3			ge	NL used page numbers on the bottom of the pages (no clauses present)		NO Sorry, this out of our scope and mission. We are using the template, which was provided by OIML and we are not going to change it.

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Country Code ¹	Part	Clause/ Subclause	Paragraph/ Figure/Table	Type of comment ²	Comments	Proposed change	Convener's responses
							<p>You can send suggestion to OIML to change a general template.</p> <p>You can also ask, if you can use page numbers at bottom, when you apply for OIML CS.</p>
0083 UK	3			ed	Clause numbering is missing from Part 3.	Add clause numbering to the test report. This will make cross-referencing to all parts of the Recommendation easier	<p>CONFUSING COMMENT</p> <p>Where?</p> <p>Otherwise, there is a cross reference to OIML R 91-2 at every topic.</p> <p>We are sorry, but we don't understand what do you want.</p>
0084 KR	3	General information concerning the type	Table (Rated operating conditions)	ed	The unit symbol of "Angle to vehicle" is not proper.	[°]	OK
0085 KR	3	General information concerning the type	Table (Rated operating conditions)	ed	The unit symbol of "Number of vehicles" is not proper. According to the SI brochure, the unit is 1 (one). It may be omitted, but not expressed as [/].	[1] or delete the whole bracket.	OK
0086 KR	3	General information concerning the type	Table (Rated operating conditions)	ed	The unit symbols for operating temperature and storage temperature are missing.	[°C]	OK
0087 NL	3	Page 16		ed	It is not clear if the text below (for example) Indications and controls can be replaced by the description	If it can be replaced make the replaceable text italic and add text in the Introduction (page 9): "Text in <i>italic</i> should be replaced by the relevant information."	The sentence on the page 16 just describe what you should do there. You can remove it or leave it.

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Country Code ¹	Part	Clause/ Subclause	Paragraph/ Figure/Table	Type of comment ²	Comments	Proposed change	Convener's responses
							I would also advice, that you check with your colleagues who are already reporting for OIML CS, how to fill OIML reports.
0088 PT	3	Page 22 Statistical analysis of errors (optional) (R 91-2, 4.7)	Results	ed	In the first table, the subscript of the symbol v_{REF} should not be in italic. Furthermore, to be coherent with the table of the Results in “Dynamic performance test (optional) (OIML R 91-2, 5.3)”, p. 24, the subscript should be written in normal letters not in capital letters. In the second table, the symbol of the quantities speed and stand deviations should be written in italic	Replace: v_{REF} v_m and σ By: v_{ref} v_m and σ	OK
0089 PT	3	Page 24 Dynamic performance test (optional) (OIML R 91-2, 5.3)	Results	ed	In the second table, the subscript of the symbol v_{REF} should not be in italic, neither in capital letter to be coherent with the symbol of the same table: a_{ref} . The explanatory notes should be updated accordingly in TC7_SC4_P3_N045 and TC7_SC4_P3_N046.	Replace: v_{REF} By: v_{ref}	OK
0090 PT	3	Page 25 Speed linearity test (optional) (OIML R 91-2, 5.4)	Results	ed	In the table, the subscript of the symbol v_{REF} should not be in italic, neither in capital letter to be coherent with the table of the Results in “Dynamic performance test (optional) (OIML R 91-2, 5.3)”, p. 24. The explanatory notes should be updated accordingly in TC7_SC4_P3_N045 and TC7_SC4_P3_N046.	Replace: v_{REF} By: v_{ref}	OK
0091 NL	3	Page 26	Title	ed	Changed in Part 2	Delete (optional)	OK
0092 PT	3	Page 26 Distance linearity test (optional) (OIML R 91-2, 5.5)	Results	ed	In the table, the subscript of the symbol d_{REF} should not be in italic, neither in capital letter to be coherent with the table of the Results in “Dynamic performance test (optional) (OIML R 91-2, 5.3)”, p. 24. The explanatory notes should be updated accordingly in TC7_SC4_P3_N045 and TC7_SC4_P3_N046.	Replace: d_{REF} By: d_{ref}	OK
0093	3	Page 27	Title	ed	Changed in Part 2	Delete (optional)	OK

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Country Code ¹	Part	Clause/ Subclause	Paragraph/ Figure/Table	Type of comment ²	Comments	Proposed change	Convener's responses
NL							
0094 PT	3	Page 27 Angle linearity test (optional) (OIML R 91-2, 5.6)	Results	ed	In the table, the subscript of the symbol a_{ref} should not be in italic. The explanatory notes should be updated accordingly in TC7_SC4_P3_N045 and TC7_SC4_P3_N046.	Replace: a_{ref} By: a_{ref}	OK
0095 NL	3	Page 28	Title	ed	Changed in Part 2	Delete (optional)	OK
0096 PT	3	Page 28 Influence factor and disturbance tests (OIML R 91-2, 6)	Results,in pages 28 up to 61	ed	In the table, the subscript of the symbol v_{REF} should not be in italic, neither in capital letter to be coherent with the table of the Results in "Dynamic performance test (optional) (OIML R 91-2, 5.3)", p. 24. The explanatory notes should be updated accordingly in TC7_SC4_P3_N045 and TC7_SC4_P3_N046.	Replace: v_{REF} By: v_{ref}	OK
0097 NL	3	Page 29	Title	ed	Changed in Part 2	Delete (optional)	OK
0098 NL	3	Page 30 ..		ed	Propose to list the reference to D 11 above "Results:"	Move "Results:" below "Reference to OIML D 11:2013 .."	OK
0099 NL	3	Page 30 ..	Condtion	ed	Propose to delete reference to D 11. It is not necessary.	Change to "Maximum permissible error defined in clause OIML R91-1, 6.4 and the linearity error limit defined in OIML R91-1, 6.5 are respected during the presence of the influence factor."	OK
0100 NL	3	Page 35	Condtion	ed	Influence factor, so text equal to Cold (operating)	Change to "Maximum permissible error defined in clause OIML R91-1, 6.4 and the linearity error limit defined in OIML R91-1, 6.5 are respected during the presence of the influence factor."	OK
0101 NL	3	Page 40	Results	ed	Only random vibration is examined (in Part 1 defined)	Delete "Reference to OIML D 11:2013, clause 16" and the table below	OK
0102 NL	3	Page 42..64, 67	Results table	ed	In the results table a column(s) with the conditions (test levels) shall be on the left (instead of measurement No.)	Change the column Measurement No. to column(s) with test conditions	Changed completer Part 3 according to Netherlands proposal.
0103 PT	3	Page 63 Acceleration test (OIML R 91-2, 6.7)	Results,	ed	In the table, the subscript of the symbol v_{REF} should not be in italic, neither in capital letter to be coherent with the table of the Results in "Dynamic performance test (optional) (OIML R 91-2, 5.3)", p. 24.	Replace: v_{REF} By: v_{ref}	OK

Template for comments and convener's observations

Date: 2025-01-22

Document: TC7_SC4_P3_N058

Project: TC 7/SC 4/p 3

Country Code ¹	Part	Clause/ Subclause	Paragraph/ Figure/Table	Type of comment ²	Comments	Proposed change	Convener's responses
					The explanatory notes should be updated accordingly in TC7_SC4_P3_N045 and TC7_SC4_P3_N046.		
0104 PT	3	Page 64 Further disturbance tests (OIML R 91-2, 6.8)	Results,	ed	In the table, the subscript of the symbol v_{REF} should not be in italic, neither in capital letter to be coherent with the table of the Results in “Dynamic performance test (optional) (OIML R 91-2, 5.3)”, p. 24. The explanatory notes should be updated accordingly in TC7_SC4_P3_N045 and TC7_SC4_P3_N046.	Replace: v_{REF} By: v_{ref}	OK
0105 PT	3	Page 74 Moving metrological field test (OIML R 91-2, 7.7.1)	Results,	ed	In the table, the subscript of the symbol v_{REF} should not be in italic, neither in capital letter to be coherent with the table of the Results in “Dynamic performance test (optional) (OIML R 91-2, 5.3)”, p. 24. The explanatory notes should be updated accordingly in TC7_SC4_P3_N045 and TC7_SC4_P3_N046.	Replace: v_{REF} By: v_{ref}	OK
0106 PT	3	Page 75 Metrological field test of the ego speed meter (OIML R 91-2, 7.7.2)	Results,	ed	In the table, the subscripts of the symbols v_{EGO} v_{REF} should not be in italic, neither in capital letter to be coherent with the table of the Results in “Dynamic performance test (optional) (OIML R 91-2, 5.3)”, p. 24. The explanatory notes should be updated accordingly in TC7_SC4_P3_N045 and TC7_SC4_P3_N046.	Replace: v_{EGO} and v_{REF} By: v_{ego} and v_{ref} , respectively	OK
0107 PT	3	Page 76 Traffic simulation for moving speed meters (OIML R 91-2, 7.7.3)	Results,	ed	In the tables, the subscript of the symbol v_{REF} should not be in italic, neither in capital letter to be coherent with the table of the Results in “Dynamic performance test (optional) (OIML R 91-2, 5.3)”, p. 24. The explanatory notes should be updated accordingly in TC7_SC4_P3_N045 and TC7_SC4_P3_N046.	Replace: v_{REF} By: v_{ref}	OK
0108 NL	3	Page 83, 84		ed	On these pages Pass and Fail are used where in Part 4 Passed and Failed are used.	Change Pass and Fail to Passed and Failed	OK
0109 NL	4			ge	NL used page numbers on the bottom of the pages (no clauses present)		No Please see 0082 NL.

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Date: 2025-01-22

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Project: TC 7/SC 4/p 3

Country Code ¹	Part	Clause/ Subclause	Paragraph/ Figure/Table	Type of comment ²	Comments	Proposed change	Convener's responses
0110 KR	4	General information concerning the type	Table (Rated operating conditions)	ed	The unit symbol of "Angle to vehicle" is not proper.	[°]	OK
0111 KR	4	General information concerning the type	Table (Rated operating conditions)	ed	The unit symbol of "Number of vehicles" is not proper. According to the SI brochure, the unit is 1 (one). It may be omitted, but not expressed as [/].	[1] or delete the whole bracket.	OK
0112 KR	4	General information concerning the type	Table (Rated operating conditions)	ed	The unit symbols for operating temperature and storage temperature are missing.	[°C]	OK
0113 NL	4	Page 6		ed	The Symbols are not used in the document.	Delete Page 6 or explain how to fill-in the checklist	OK But keeping page 6 to have the same form as the OIML template.
0114 UK	4	Page 77, Software examination (OIML R 91-2, 8)		ed	This section should be labelled an Annex	Insert as Annex A Software examination (OIML R 91-2, 8) (normative)	Comment probably related to Part 3 instead to Part 4 We don't see benefits to make a separate annex, because nowadays all speed meters are software based and the software usually plays the most significant role during the measurement. If software testing is done externally, it is always possible to refer in those points to external software report.

Template for comments and convener's observations

Date: 2025-01-22

Document: TC7_SC4_P3_N058

Project: TC 7/SC 4/p 3

Country Code ¹	Part	Clause/ Subclause	Paragraph/ Figure/Table	Type of comment ²	Comments	Proposed change	Convener's responses
0115 UK	4	Page 80, Specification and separation of legally relevant parts and specification of interfaces		ed		Insert as Annex B (normative) Specification and separation of legally relevant parts and specification of interfaces	Comment probably related to Part 3 instead to Part 4 See comment 0114 UK.
0116 IR	Z				No comment at this stage		OK
0117 RU	Z				No comment at this stage		OK
0118 US	Z.all			ge	<p>The US has reviewed the 2.1CD package of OIML R91for "Traffic Speed Meters."</p> <p>We thank the Convenors for their efforts on resolving the international comments received on the 2CD package.</p> <p>We look forward to participating in the Project Group meeting that is currently scheduled for 09 Sept 2024. We hope that all remaining important/technical issues on R91 can be discussed at this meeting. We further hope that solutions that are acceptable to all countries can be found, maximum consensus can be achieved, and that we can move to the next phase of this project.</p>		<p>OK</p> <p>Thank you for your feedback.</p>

Insert the next text before Section 6.18.1 of OIML R91-1

6.18 Disturbances

6.18.1 How to exercise the speed meter during disturbance tests

6.18.1.1 General Conditions

During the disturbance tests, the speed meter will be energized with nominal voltage and according to the installation conditions stipulated by the manufacturer.

The equipment under test (EST) must be tested with a speed simulator that allows the determination of the measurement error during the tests. This simulator must be provided by the manufacturer and must perform at least the following tasks:

- Provide to the speed meter the input quantity (pulses, frequencies, etc.) corresponding to a simulated speed.
- Allow to configure at least five values of simulated speeds.
- Simulate the passage of vehicles in a repetitive manner.

The manufacturer must provide the appropriate cables to be connected each interface of the EUT during the disturbance tests. Such cables must have a minimum length of 3 m.

The following tests apply according to the power supply source:

Table X – Applicable disturbance tests for speed meters

Disturbance applicable test	Severity level for AC powered instruments	Severity level for DC powered instruments	Severity level for vehicle DC powered instruments
DC mains voltage variation	N/A	1 ^(a)	N/A
Ripple on DC mains power	N/A	1	N/A
AC mains voltage variation	1	N/A	N/A
AC mains frequency variation	1	N/A	N/A
DC mains voltage dips, short interruptions and (short term) voltage variations	N/A	1 ^(b)	N/A
AC mains voltage dips, short interruptions and reductions	3	N/A	N/A
AC mains frequency harmonics	3	N/A	N/A
VLF and LF disturbances on AC and DC mains	2	N/A	N/A
Bursts (transients) on AC and DC mains	3	3 ^{(c)(d)}	N/A
Surges on AC and DC mains power lines	4 ^(e)	3 ^{(c)(d)}	N/A
Bursts (transients) on signal, data and control lines	3 ^(f)	3 ^(f)	N/A
Surges on signal, data and control lines	3 ^(f)	3 ^(f)	N/A
AC mains power frequency electromagnetic field	5 ^(e)	N/A	N/A
Conducted (common mode) currents generated by RF EM fields	3	N/A	N/A
RF EM fields (general origin)	3	3	3
RF EM fields (digital radio telephones and portable radio transceivers) ^(g)	3	3	3
Electrostatic discharges ^(h)	3	3	3
Voltage variations of a road vehicle battery	N/A	N/A	C or F ⁽ⁱ⁾
Electrical transient conduction along supply lines of external 12 V and 24 V batteries	N/A	N/A	IV
Electrical transient conduction via lines other than supply lines for external 12 V and 24 V batteries	N/A	N/A	IV
Battery voltage variations during cranking	N/A	N/A	I+III
Load dump test	N/A	N/A	A or B

Disturbance applicable test	Severity level for AC powered instruments	Severity level for DC powered instruments	Severity level for vehicle DC powered instruments
Notes: (a) This test must be done at the operative DC voltage limits declared by the manufacturer (b) For speed meters connected to a dedicated DC power source which is not used for other equipment in the installation this test is not applicable. (c) When the manufacturer provides a dedicated AC/DC power source, the instrument must be tested as AC powered instrument. However, if the distance between such power source and the instrument is greater than 3 m (for burst) or 10 m (for surge) then the disturbance has to be applied in the DC input of the instrument. (d) Applicable only when the typical distance between the DC power source and the instrument is greater than 3 m (for burst) or 10 m (for surge). (e) For fixed speed meters installed outdoor in poles, otherwise use level 3 for surge or level 4 for magnetic field. (f) For fixed speed meters installed outdoor where the cables between the components of the speed meters (cameras, indicating display, illuminator, etc.) are running outdoor this tests have to be applied in the such cables only when the distance between the components are greater than 3 m (for bursts) or 10 m for (Surge) (g) National authorities can specify higher severity levels and frequencies according to local regulations. (h) Not applicable for fixed speed meters installed outdoor. (i) Code C for 12 V vehicle batteries and code F for 24 V vehicle batteries.			

Table 4 Test method selection based on classification of electromagnetic environment

Test level index for class			Table	Description
E1	E2	E3		
1	1	n/a	18	DC mains voltage variation
n/a	1	n/a	19	Ripple on DC mains power
1	1	n/a	20	AC mains voltage variation
1	1	n/a	21	AC mains frequency variation
n/a	1	n/a	22	DC mains voltage dips, short interruptions and (short term) voltage variations
1	2	n/a	23	AC mains voltage dips, short interruptions and reductions
2 or 3 ⁽¹⁾	3	n/a	24	AC mains frequency harmonics
2	2	n/a	25	VLF and LF disturbances on AC and DC mains
2	3	n/a	26	Bursts (transients) on AC and DC mains
3	3	n/a	27	Surges on AC and DC mains power lines
2	3	2	28	Bursts (transients) on signal, data and control lines
3	3	2	29	Surges on signal, data and control lines
4	5	n/a	30	AC mains power frequency electromagnetic field
2	3	3	31	Conducted (common mode) currents generated by RF EM fields
3	3	3	33	RF EM fields (general origin)
3 or 4 ⁽²⁾	3 or 4 ⁽²⁾	3 or 4 ⁽²⁾	34	RF EM fields (digital radio telephones and portable radio transceivers)
3	3	3	35	Electrostatic discharges
n/a	n/a	C or F	37	Voltage variations of a road vehicle battery
n/a	n/a	IV	38	Electrical transient conduction along supply lines of external 12 V and 24 V batteries
n/a	n/a	IV	39	Electrical transient conduction via lines other than supply lines for external 12 V and 24 V batteries
n/a	n/a	I+III	40	Battery voltage variations during cranking
n/a	n/a	I+II	41	Load dump test

⁽¹⁾ See 8.4.2.5

⁽²⁾ See 8.4.2.10

ANNEX B – Add specific test conditions for disturbance tests

- **Electrostatic discharges:** 10 discharges at each polarity with a time between discharges of 10 s. For direct electrostatic discharges by the air all the lower test voltages including the specified test level have to be applied.
- **Radiated electromagnetic fields:** Minimum dwell time = 3 s.
- **Conducted electromagnetic fields:** Minimum dwell time = 3 s.
- **Surge:**
For AC-powered instruments, at least 3 positive pulses and 3 negative pulses shall be applied at angles of 0°, 90°, 180° and 270° (i.e. 6 pulses at each phase angle of the supply voltage).
For DC-powered instruments, at least 3 positive pulses and 3 negative pulses shall be applied asynchronously.
The repetition rate shall be 1 pulse per minute.
All the lower test voltages including the specified test level have to be applied (i.e. For severity level 4, at the AC power port it should be applied ± 0.5 kV, ± 1.0 , ± 2.0 and 4.0 kV).
- **Electrical Fast Transients:** The disturbance must be applied during 60 s in each polarity with both repetition rates of 5 kHz and 100 kHz.
- **Voltage dips and short interruptions AC:**
The manufacturer must specify in the instruction manual the nominal voltage of the EUT, taking this value as the reference voltage and when a nominal voltage range is specified (V_{nom}^{min} and V_{nom}^{max} ; do not confuse with the operative limits), the difference between the upper and lower limits of the nominal voltage range specified by the manufacturer ($\Delta V = V_{nom}^{max} - V_{nom}^{min}$) must be calculated. The reference voltage for this test must be chosen according to the following criteria:
 - a) If $\Delta V \leq 0,2 \cdot V_{nom}^{min}$ then the reference voltage will be the lower limit of the range (V_{nom}^{min}).
 - b) In any other case, the test must be performed twice, taking as the reference voltage, first the upper limit and then the lower limit or vice versa.