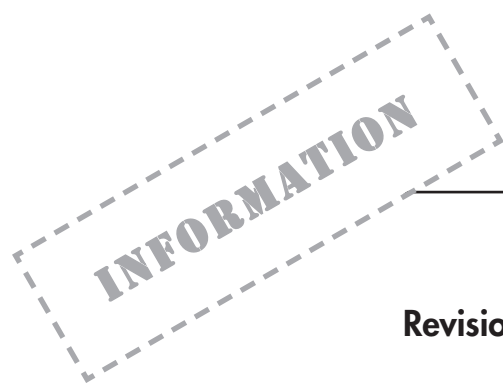


DRAFT
VOCABULARY

TC 1
(Poland)



Revision of V 1

International vocabulary of terms in legal metrology
Vocabulaire international des termes de métrologie légale

Draft submitted for CIML postal ballot on 2013.01.22

Voting closes on 2013.04.15.



ORGANISATION INTERNATIONALE
DE MÉTROLOGIE LÉGALE

INTERNATIONAL ORGANIZATION
OF LEGAL METROLOGY

**Explanatory note
to the 4th committee draft / 2nd draft of the revised version of
the *International vocabulary of terms in legal metrology***

Notes:

1) the revised version of the International vocabulary of terms in legal metrology is hereafter referred to as VIML2;

2) the current draft is circulated for comment and vote to the members and liaison organizations of OIML TC 1 and to the CIML for preliminary online ballot.

1. Documents which are being circulated herewith are:

- a) N28 Collated comments on VIML2 1DV and TC 1 Secretariat's observations;
- b) N29 VIML2 4CD/2DV Explanatory note;
- c) N30 International vocabulary of terms in legal metrology (VIML2) 4th committee draft / 2nd draft (VIML2 4CD/2DV) - Version with modifications suggested by the referees;
- d) N31 International Vocabulary of terms in legal metrology (VIML2) 4th committee draft (VIML2 4CD/2DV) - Consolidated version;
- e) N32 VIML2 4CD/2DV - Comments template.

There is also a voting form circulated to the TC 1 members although this VIML draft is simultaneously circulated to the CIML Members who will vote too.

As usual the TC 1 members are kindly requested to send their comments on this committee draft to the TC 1 Secretariat.

2. In the actual draft, modifications have been made in accordance with comments and proposals received by the TC 1 secretariat in the course of the CIML ballot.

The text of the 4CD/2DV sent herewith has two versions (N30 and N31). In the first one (N30) the mentioned modifications are shown. The new text added is printed in blue, the removed parts of the earlier text are printed in red. The other version (N31) contains a consolidated text.

3. The results of the evaluation of comments to the VIML2 1DV, which were received by the TC1 Secretariat are presented in a tabular form in N28. The observations made by the TC 1 Secretariat to each comment are given in column 7 of the table.

(In case of the comments sent by the Dutch referee, there are also comments shown which had been sent before the CIML ballot. The Secretariat's responses to those comments are printed in red. The Dutch comments sent in the course of the ballot are printed in orange and the Secretariat's responses in blue.)

4. It was the intention of the Secretariat to implement all the suggestions sent by the referees. It seems that it was in great measure successful. However there were some cases where it was not possible, e.g. when a proposal was contrary to what had been agreed upon by all the other referees or when the modifications proposed by referees were contradictory with one another.

The Secretariat also tried to keep in mind that the VIML 2 is a vocabulary and as such it should provide a possibly broad set of terms, that is a possibly exhaustive information, and not only list preferable terms.

It was assumed that the VIML must give terms and definitions common for the whole legal metrology, however not only the general terms but also some specialist terms which get broadly used. It also should provide the reader with some information about important concepts, definitions, and phenomena from the legal metrology environment (e.g. conformity assessment).

At adopting definitions it was attempted not to disregard the results of works of other OIML TCs contained in the OIML Documents, Recommendations and other publications (the full list of the terms used within OIML is given in OIML G 18).

5. TC 1 members are requested to send the voting forms and their comments to the OIML TC 1 Secretariat before 15 April 2013. It is requested that the Comments Template (N32) be used and the referees are requested not to modify it. The referees are requested to make their comments in the same way as they did in the case of the 3CD. If changes in the 4CD/2DV text are suggested, please enclose a rationale to your proposals.

6. CIML Members (including those who are also members of TC 1) are requested to cast their vote and submit comments in the preliminary online ballot by the same deadline (15 April 2013) in the usual way.

1	2	(3)	4	5	(6)	(7)
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UK	0 Basic terms		ge		The following could be included in the vocabulary: Adjustment Calibration (as this is often confused with adjustment)	Accepted. See also the response to FR 0.
FR	0		ge/te	General comment We welcome the principal of reintroducing some definitions which were deleted from the VIM (in particular scale interval). We suggest to reintroduce a few others.	We suggest reintroducing some other terms deleted from the VIM: - adjustment (réglage in French) useful when it is necessary to characterise the means let at the disposal of the user - calibration (étalonnage in French) useful for some categories of measuring instruments.	The terms quoted by the referee, that is: - adjustment of a measuring instrument and - calibration are not deleted from the VIM. They remain therein as the entries 2.39 and 3.11 respectively. However since it seems they are felt necessary in the VIML. then they will be enclosed into the clause 0, the same way as the other terms quoted from the VIM.
UK	2		ge		The following could be included in the vocabulary: Disqualification (in the UK we disqualify/reject – hence disqualification stickers).	Accepted
UK	2		ge		The following could be included in the vocabulary: Requalification	Definition included for balloting by the TC.
BY			ed	The secondary terms should be given in roman type like		Accepted

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				as in VIM3.		
BY	A1		ed	We recommend adding number of entry for appropriate term from ISO/IEC 17000.		Accepted
FR			ge/te	General comment We have a major problem with the proposed definition for legal metrology which makes for us the draft not acceptable as such (see detailed comments on clause 1.01).	See proposal below (clause 1.01)	In the preceding drafts the TC 1 Secretariat proposed the definition which was adopted for VIML1. The TC 1 meeting decided to adopt the new definition. So far it is questioned by the French referee only.. For the time being the definition in the draft remains as it was decided by the TC 1. Please see also the responses to 1.01.
FR			ge/te	General comment The VIML should remain of general interest and should not contain definitions specific to a category of measuring instruments or too technical or complex.	Definitions related to NAWIs should be either deleted or generalised. Some definitions very complex or specific on software (in particular 6.05 and 6.06) should be deleted (they are already in D 31). Some others should be generalised (in particular 6.12 and 6.13)	The terms suggested by the referee will be deleted . As for the other suggestion it should be noted that at the stage of selection of the terms for the VIML revised edition it was considered that the VIML - contrary to OIML Recommendations and Documents - would be a publication for a very broad circle. OIML Rs and Ds sometimes are translated into

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						<p>other languages but not often. The VIML will be translated into a lot of languages and used not only by metrologists but also by specialists from other professional areas. So it seemed appropriate to introduce into it also some terms which - though characteristic of some specialistic fields of metrology - are to be used by non-metrologists (e.g. legislators). For example the terms "event" or "terminal" are so popular and can be defined in so many correct (!) ways that it seems appropriate to define them in the VIML so that it be not necessary that every technical committee or every legislator draft its definition anew.</p> <p>As regards generalization, it is not always possible and sometimes not at all.</p> <p>But in case of some selected</p>

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						<p>terms, if a term is enclosed in terminology section of 15 – 20 Rs or Ds then perhaps it should be enclosed in the VIML too. Not for the sake of its frequent use itself but for the sake of its obvious usability.</p> <p>It is important indeed that the vocabulary be a consistent whole and not a number of terms but, on the other hand, it should not be something like an OIML document which differs from the other ones in that that it is dedicated exclusively to the most general matters of legal metrology.</p>
NL	0.03		gen.	<p>error (of indication) “value of the indication of a measuring instrument minus a reference quantity value” ----- error (from V2-200 2.16) “measured quantity value minus a reference quantity value” ----- This 3CD : 0.14 indication</p>	<p>Consider as one term and thus delete the brackets in the term, so reading: “error of indication”</p> <p>Further consider deletion of “value of” in the beginning of the definition, resulting in:</p> <p>error of indication</p> <p>indication of a measuring instrument minus a</p>	<p>Partly accepted. Term “indication” was transferred to the place directly before “error (of indication)”. Thus it was possible to use “indication” in the definition discussed here. As regards the adopted form of the term “error (of indication)” it is one term. Brackets indicate</p>

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DE	0.05 maximum permissible error		ed		Include the widely used abbreviation “mpe”	Accepted
DE	0.06 intrinsic error		ge/te	Delete “intrinsic error”. To use the real description “error of a measuring instrument (determined) under reference conditions” is much clearer for the respective reader and allows thus an easier understanding. The current VIM does not know such an error as well. And the explanation that this term is used in other Recommendations is no reason for leaving it in the vocabulary.	Delete “intrinsic error”.	Not accepted. Inclusion has previously been agreed
NL	0.06		gen.	intrinsic error “error of a measuring instrument, determined under reference conditions” If it were the intension to enable the substitution of term 0.03 while including the part between brackets then this would result in : (value of) the quantity value provided by a measuring instrument or a measuring system of a measuring instrument minus a reference quantity value of a(the) quantity value determined under reference conditions Which is not completely correct If it were the intension to enable the substitution of term 0.03 excluding the part between brackets then this would result in : measured quantity value minus a reference quantity value of a measuring instrument, determined under reference conditions Which also is not formulated correct	when replaced by: intrinsic error error of indication determined under reference conditions The deletion when substituted results in: “the quantity value provided by a measuring instrument or a measuring system of a measuring instrument minus a reference quantity value of the quantity value determined under reference conditions” The response by the convener is not adequate for the following reasons: The argument of maintaining the definition for the reason that it has often been applied in the past is not valid because such approach would prevent	Noted. There are at least 20 OIML publications where the wording: “error of a measuring instrument” is adopted. Twenty cases compared to the remaining few mean a vast majority. So it seemed appropriate to keep the prevalent version of the term. Definition amended accordingly. It was not the secretariat's intention to maintain “the

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				(Although deleted from the V2-200 as source still OIML D11 (2004) could be mentioned	<p>any improvements or corrections. Moreover it has been accepted by CIML that in principle the VIML terminology will be dominant in future. This requires utmost attention on formulating definitions such that substituting defined terms will not lead to weird or incorrect sentences.</p> <p>intrinsic error error (of indication) determined under reference conditions</p> <p>or</p> <p>intrinsic error error determined under reference conditions</p> <p>The comment from CH on this term is different but the suggested modification would also solve this problem detected.</p>	definition for the reason that it has often been applied in the past". It was the secretariat's conviction that there is a sort of consensus among the technical committees as regards the definition of "intrinsic error". The definition has been utilised until recently by many committees in their publications (e.g. D 31:2008 – adopted in 2008).
NL	0.09	notes and examples	edit.	<p>Although copied from the V2-200 these notes are both introducing confusion</p> <p>Note 2 is rather introduced in order not to conflict with the IEC vocabulary. It is not of additional value in the VIML and the reference to the IEC clause is specified stable only up to the year 2013.</p>	<p>Suggest deleting Note 2 which is not relevant</p> <hr/> <p>No further comments</p>	<p>Noted. It should rather be said that the entry in question was "quoted from V 2-200" and not "copied". So it cannot be modified.</p> <p>Noted</p>

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DE	1.01 legal metrology	note 2	te		Include an aim for “traceability” – e.g. “to national standards” or “to the SI”	Accepted
NL	1.03		edit.	plural or singular ?	No further comments	Accepted.. Singular.
FR	1.04 and 1.05		te	<p>We do not see clearly the distinction between the two definitions. Moreover the National responsible body is also designated by law or by the government.</p> <p>Please clarify: May they be the same body? Which body is above when they are different? Is the reference to National responsible body in 2.21 more appropriate than to National Authority?</p>		<p>The definitions specify the responsibilities <u>without prejudice</u> as regards the national metrological infrastructure. They indicate need of bodies responsible for :</p> <ol style="list-style-type: none"> 1) developing and /or enforcing laws or regulations regarding legal metrological control, 2) specified legal metrology activities. <p>Neither of the definitions lays down how the national metrology infrastructure should be arranged.</p> <p>Please cf. B10:2011 3.2, R021:2007 2.1.3 As for the clarity of the distinction between the two</p>

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						definitions it has not been questioned during the inquiries made by TC 1. As for the reference in 2.21 it is appropriate.
DE	1.05 metrological authority		te	It would be helpful for the reader to give an example of "specified legal metrology activities".		Accepted. There will be a reference to 2.01 added to the entry 1.05.
NL	2.01		edit.	the <i>whole</i> of legal metrology activities suggest slight amendment	the whole area of legal metrology activities It is unclear whether the response of the convener supports the NL comment or not. We consider use of the formulation "whole area" merely a grammatical improvement.	Noted. The meaning of "the whole" is definitely different from "the whole area". It is not clear why the amendment is believed necessary. "whole" means: 1. all the parts, elements, etc, of a thing 2. an assemblage of parts viewed together as a unit 3. a thing complete in itself 4. as a whole considered altogether; completely 5. on the whole a. taking all things into consideration b. in general

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						(Cf. Collins English Dictionary - Complete & Unabridged 10th Edition 2009) Adding the word “area” in the definition changes the meaning. It is something else then the grammatical change. So the question remains why it is necessary to change the term 2.01.
UK	2.01			Metrological expertise (or should it be metrological expert)?		Noted. There are a few meanings of the word “expertise”. One of them is: “expert advice or opinion” and it was used in the definitions 2.01 and 2.04. See also the explanation to NL 2.04
NL	2.04		gen.	metrological expertise all the operations for the purpose of examining and....	metrological expertise expertise needed to perform all the operations for the purpose of examining and....	Noted. There are a few meanings of word “expertise”. E.g.: - expert advice or opinion, - skill or knowledge in a particular area, - the knowledge or skill of an expert,

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					<p>The comment seems misinterpreted by the convener while the comment is meant to indicate that the grammar is incorrect and need to be amended.</p> <p>The response of the secretariat only supports the NL comment, while it confirms that “expertise” does not concern “operations” but concerns “the knowledge and skills needed to perform operations”.</p> <p>Please completely delete the term or amend the definition to:</p> <p>metrological expertise</p> <p>expertise needed to perform all the operations for the purpose of examining and....</p>	<p>- the skill, knowledge, judgment, etc. of an expert. In the VIML1 and the VIML2 drafts it is spoken about “operations” which make a part of legal metrological control. Two of the above mentioned meanings correspond to it.</p> <p>The term “metrological expertise” which was used in VIML 1 there are three "kinds" of legal metrological control:</p> <ul style="list-style-type: none"> - legal control of measuring instruments (type approval, verification) [i.e. activities], - metrological supervision [which also means activities] and - metrological expertise [which means: operations, i.e. activities which are performed by

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						<p>experts and result in a formal document in which expert's advice or opinion is stated].</p> <p>The above meaning of the term "metrological expertise" is coherent with the meaning of the two remaining terms (legal control of m. i. and metrological supervision): legal metrological control activities comprise <u>three kinds of activities</u> and not two kinds of activities and <u>expert's training, skills, experience</u>.</p> <p>The referee seems to consider one of the mentioned meaning of "expertise" (i.e. "skill, experience") only, while dictionaries give more than one meaning of the word in question.</p> <p>Example:</p> <p><u>expertise</u></p>

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						<p>1. Expert advice or opinion. 2. Skill or knowledge in a particular area</p> <p>The American Heritage® Dictionary of the English Language, Fourth Edition copyright ©2000 by Houghton Mifflin Company. Updated in 2009. Published by Houghton Mifflin Company.</p> <p>In VIML 1 – quite correctly and in accordance with dictionary – “metrological expertise” means something else than it is suggested by the referee: not “skills, proficiency” but operations performed by an expert resulting in his formal opinion.</p> <p>Since, however, this meaning of the word “expertise” seems unacceptable for the referee than the secretariat proposes:</p>

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						<p>1) to delete entry 2.04 and</p> <p>2) to substitute definition 2.04 for the third bullet point under 2.01</p> <p>3) the entry 3.03 will be deleted and the numbering clause 3 amended respectively.</p>
DE	2.04 metrological expertise, see 3.03 as well		ge/te	<p>“expertise” is usually used in another sense. This leads to the question what for do we need this definition – it is only used for the definition of “metrology expertise certificate”(3.03).</p> <p>Delete the term (and 3.03 respectively) or find another, more suitable term as for example “inspection” or “examination”. The definition of “inspection” given in A1.12 is not really far from the one for “expertise” given here.</p>	Delete the term (and 3.03 respectively) or find another, more suitable term as for example “inspection” or “examination”.	<p>Please see the response to the comment NL 2.04.</p> <p>The term “metrological expertise” was necessary for explanation of 2.01 first of all. Some referees do not see need of the term “metrological expertise”.</p> <p>The terms “inspection” and “examination” have different meaning and extension than “expertise”. There is also another risk of using “inspection” in this case. “Inspection” is used in so many meanings in metrology, accreditation and quality assurance that using</p>

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						it here can contribute to reader's confusion.
DE	2.05 type evaluation, note 2		te	If the definition of type evaluation is, that <i>conformity assessment procedures</i> are used for it, thus indeed "there are countries and economies where <i>conformity assessment procedures</i> are employed for type evaluation". Please delete note 2 or find another definition of "type evaluation".	Please delete note 2 or find another definition of "type evaluation".	Accepted..
FR	2.05		te	We do not understand the meaning of the note 2.		Please see the response to the comment DE 2.05.
FR	2.09		te	Two first cases in the note : Modifications of vital parts are alteration of the type. It is very difficult to indicate in few words what constitute modifications which result in a new type and then justify the withdrawal of the type approval.		It is indeed so. Also the TC 1 members did not suggest any modifications. That is why the definition from VIML 1 remains unchanged.
FR	2.11		te	Preliminary examination examination of a measuring instrument either to partial requirements or before certain elements of the measuring instrument are installed as part of the verification procedure The new proposed definition is not wrong but we consider that the former was better descriptive for the part "partial examination of certain elements of a measuring instrument".		A result of the TC 1 meeting was the following record: " partial examination of a certain elements of a measuring instrument either to partial requirements or of which verification will be completed at the place of installation or an examination carried out before certain elements of the measuring instrument are fitted installed as part of the verification procedure"

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						which shows how the consensus within the committee was achieved; “certain elements” were deliberately rejected.
SK	2.17 recognition of verification				We suggest to align the end of this definition with the end of the definition in 2.08 recognition of type approval by adding words “without...”.	Accepted
BY	2.18		ed		We recommend excepting the note to entry 2.18 to avoid confusion between concepts from a different field of knowledge.	Noted. The note was deliberately added to avoid confusion. The VIML reader is thus informed: “There are other similar terms and definitions, for example the one in ISO 3534. In OIML we decided to use our own definition.”
DE	2.18 inspection by sampling		te	Possibly, when using this method it has to be distinguished between the inspection of new and used instruments. If this method is used for verification of instruments in use, it should be assured, that the conditions of use of the respective instruments (e.g. water quality for water meters) are as well comparable (homogeneous) within the lot. Please add a respective note.	Please add a respective note.	Accepted

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DE	3.03 metrological expertise certificate, see 2.04 as well		te/ed	As noted concerning 2.04 the term “expertise” is widely used in another sense. Thus what is described here is an examination report/certificate. As the VIM describes “verification” as “NOTE 4 Verification in legal metrology, as defined in VIML[53], and in conformity assessment in general, pertains to the examination and marking and/or issuing of a verification certificate for a measuring system.”, this seems to be reasonable. Please change 3.03 (and 2.04 respectively) into “metrological examination certificate” or as proposed in the comment to 2.04 into “metrological inspection certificate”.	Please change 3.03 (and 2.04 respectively) into “metrological examination certificate” or as proposed in the comment to 2.04 into “metrological inspection certificate”.	Please see the response to NL 2.04 and DE 2.04. “Metrological examination” is performed for various purposes and depending upon the purpose an appropriate certificate can be issued, which has its own name. “Metrology examination” itself is a self – explanatory term and does not need a definition. The same explanation can be given for “metrological inspection” .
FR	3.04 and 3.06		ge	Harmonise the appropriate wording - document stating that a measuring instrument was found not to comply or no longer to comply with the relevant statutory requirements - mark applied to a measuring instrument in a conspicuous manner to indicate that the measuring instrument does not comply with the statutory requirements and obliterating the previously applied verification mark		It must be noted that “rejection notice” (VIML 1, 3.04) expresses the result of verification and states <u>what was found</u> by the verification officer. “Rejection mark” <u>informs about the actual condition of the instrument</u> . Then the role of the document and of the mark in question needn’t necessarily be the same.

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FR	3.05 and 3.06		te	The verification mark and the rejection mark should be both applied in the same manner conspicuous or not. If it is considered that it could be not the case, a comment on the difference would be welcome.		Accepted. The definitions are quoted after VIML 1 and so far have never been questioned. It was probably felt that in case of “rejection mark” the necessity of its application in “a conspicuous manner” was required to alert users that that the instrument did not meet requirements. In case of “verification mark” there is no need to alert the users. Since, however, it is felt now that the mentioned marks should be applied in the same manner, the definition of verification mark will be modified accordingly.
NL	4.01		edit.	category of instruments identification or classification of instruments according to ... amend in line with 4.02	category of instruments identifiable or classifiable group of instruments according to ... No adequate response from the secretariat. The amendment is mainly a grammatical correction needed, however this involves also the	Noted. The secretariat however suggests: category of instruments identifiable or classifiable set of instruments according to ... “clas-si-fied” means “adj. 1. Arranged in classes or

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					<p>implementation of a word like “collection” or “set”</p> <p>so instead of introducing “group”:</p> <p>category of instruments</p> <p>identifiable or classifiable set of instruments according to ...</p>	<p>categories 2. ...” so when substituting it to the definition proposed by the referee we would obtain:</p> <p>“category of instruments identifiable or arrangeable in classes or categories set of instruments according to ...” which does not seem correct (grammatically either).</p>
FR	4.02, 4.04, 4.05 and 4.06		ge	In 4.02, 4.04 and 4.05 we use metrological and technical performance requirements which is not ideal because some requirements do not refer to performance but may refer to functionalities. In 4.06 we use metrological properties .		The three mentioned definitions are quoted after OIML B 3 Edition 2011 (E) which was <u>adopted by the CIML</u> a few months ago. So it seems that there is a consensus within the CIML as regards the wording of these definition.
NL	4.03		gen.	<p>metrologically relevant attribute of any device, instrument, function or software that influences the measurement result or any other primary indication</p> <p>This definition (copied from OIML R 21 2.1.4) cannot be a substitute of the term, while the definition concerns a <u>property</u> of an object and the term concerns a <u>qualification</u> (of the property)</p>	<p>Delete or amend the definition for the term, or amend the term</p> <p>e.g.:</p> <p>restrict definition to: “being of influence to the measurement result or any other primary indication” <i>or instead</i></p> <p>add “attribute” to the term.</p>	<p>Noted. This term is being included in the VIML for the first time.</p> <p>It appears in a few OIML publications. Its definition has been adopted in the actual wording by the TC1 meeting. So it plausible to keep it as it is.</p>

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					The approach of the convener is not in line with the CIML decisions that VIML definitions should prevail and in principle be mandatory. Especially when introduced for the first time there is no hampering argument for correction of the term.	The secretariat, however considers "metrologically relevant" a property that is attributed, although admittedly, the term cannot be correctly substituted by the definition.
FR	4.03		te	The definition of primary indication in the VIML would be welcome. See OIML R 117 for instance.		Accepted. The definition (amended) from R 117, that is: " Primary indications indication (displayed, printed or memorized) subject to legal metrology control."- will be added to the VIML draft text (5.xx).
FR	4.03, 4.08 and 4.10		ge	At least harmonise the wording. But we wonder on the necessity of these three definitions when subject to legal control (used in 4.08) may be simply used and don't need definition. Example: 4.11 type-specific parameter parameter subject to legal control with a value that		These terms appear quite often and are defined in a number of OIML publications. It means that the definitions are necessary. These terms are common for various fields of measurement so it is right to include them in the VIML.

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				depends on the type of instrument only		Most of professional terms can be substituted by using their definitions. One of the guiding principles of the revision of VIML 1 is not to limit its contents to an absolutely indispensable terminological minimum but - in case of terms which relate to general aspects of legal metrology and which more frequently occur in publications (in particular in OIML publications) – to propose their definitions and make them available for use in single form by all the committees and legal metrology bodies. However it is not the intention of TC 1 to obtrude them upon the users. The “vocabulary” by definition provides the reader with extended information.
SK	4.07 legally controlled measuring			This term also represents category of measuring instruments which are subject to metrological control, e.g. there exist lists of legally controlled measuring instruments in particular countries. We suggest to add a		Noted. The definition says that “the legally controlled measuring instrument” means something else than

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	instrument			note stating this fact.		"the measuring instrument subject to legal control".
NL	4.08		gen.	<p>legally relevant part of a measuring instrument, device or software subject to legal control</p> <p>This definition (copied from OIML R 21 2.1.5) cannot be a substitute of the term, while the definition concerns an object and the term concerns a qualification in general.</p>	<p>Delete or amend the definition for the term, or amend the term e.g. restrict definition to: "subject to legal control" or add "part" to the term.</p> <hr/> <p>Same response as to 4.03.</p>	<p>See the response to 4.03.</p>
FR	4.10		ge	<p><i>Note</i> The following types of legally relevant parameters can be distinguished: type-specific parameters and device-specific parameters.</p> <p>The note is not necessary because of the two following definitions.</p>		<p>Noted. The note seems necessary. It informs that the defined term covers two "subterms exactly". Otherwise it might be assumed that there are quite a few "subterms", not only the two defined under 4.11 and 4.12.</p>
FR	4.14		te	Measuring instrument acceptable for verification measuring instrument of an approved type, or one that meets statutory requirements and may be exempt from type approval	We would prefer: measuring instrument of an approved type, or one exempt from type approval that meets statutory requirements	The secretariat does not consider the proposed wording is not better than the actual one. Please pay attention that the end of the proposed definition may be unclear to other readers: "... type approval that meets statutory requirements "

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SK	4.14 measuring instrument acceptable for verification			In the case of instruments subject to type approval, the type approval is the necessary condition for acceptance of the instrument for verification. In other case the instrument may be submitted to verification directly. Acceptance for verification does not mean that instrument meets statutory requirements.		Noted, however the comment seems unclear. Not every measuring instrument that is exempt from type approval is acceptable for verification.
DE	5 construction and operation...		ge	In 5.13 and 5.14 "durability errors" are defined, but there is no definition of "durability" (see e.g. D11). Such a definition could also cover some information about durability tests and a useful determination of a "period of use" as mentioned in 5.13..		Accepted.
DE	5.02 weighing instruments		ge	See general comment. Possibly it would be better to initiate a vocabulary of weighing methods as an individual OIML document or to include these definitions in the respective OIML Recommendations (R76, R50, R51, etc.) because they are very specific.		Selected terms characteristic of specific areas of measurement but appearing not only in the texts specific for the area should be included. Vocabularies for specific areas of measurement seem a good idea.
FR	5.02		te	Verification scale interval also applies to some other categories of measuring instruments.	It could be generalised with the following wording : Verification scale interval Specific resolution (<i>see VIM 4.14</i>), expressed in relevant units, used for the verification of an instrument The note must be deleted as it is wrong.	Comment accepted, but "resolution" cannot be used in this context VIM 3 gives the following definition of resolution: "4.14 resolution smallest change in a

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						<p>quantity being measured that causes a perceptible change in the corresponding indication NOTE Resolution can depend on, for example, noise (internal or external) or friction. It may also depend on the value of a quantity being measured.”</p> <p>When substituting (cf. “principle of substitution”) it to the definition proposed by the referee we obtain:</p> <p>“Verification scale interval</p> <p>Specific smallest change in a quantity being measured ...etc. (see VIM 4.14), expressed in relevant units, used for the verification of an instrument”,</p> <p>which is not true.</p>

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DE	5.03 weighing instruments		ge	See general comment. Possibly it would be better to initiate a vocabulary of weighing methods as an individual OIML document or to include these definitions in the respective OIML Recommendations (R76, R50, R51, etc.) because they are very specific.		Please see the response to DE 5.02
DE	5.03 number of verification scale intervals		te		Change into: "n" is the quotient of the maximum capacity of a balance, "Max", and the verification scale interval, "e"...". and change note 2 into "Max" and "e" have to be in the same unit".	Accepted. The modified version: "quotient of the maximum capacity of a balance, "Max", and the verification scale interval, "e"...". "NOTE 2: "Max" and "e" have to be in the same unit"
FR	5.03 and 5.07		te	These definitions should be generalised or deleted because they are presented as definitions specific to a category of measuring instruments.	It could be generalised with the following wording : Verification scale interval Specific resolution (<i>see VIM 4.14</i>), expressed in relevant units, used for the verification of an instrument The note must be deleted as it is wrong.	As regards the proposed new definition please see the response to FR 5. 02. The idea of the vocabulary was not to "generalize" the selected terms pertaining to a specific field of measurement so that they pertain to all the aspects of legal metrology but to place therein those terms which may be useful for all who are involved in legal metrology while not necessarily being specialists in the said field of measurement (e.g.

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						legislators.). So it is fully justified to enclose into the vocabulary terms whose use is frequent and which pertain to a measurement of broad application. (Also see 6.13)
DE	5.07 weighing instruments		ge	See general comment. Possibly it would be better to initiate a vocabulary of weighing methods as an individual OIML document or to include these definitions in the respective OIML Recommendations (R76, R50, R51, etc.) because they are very specific.		Please see the response to DE 5.02. As regards the idea of initiation of a vocabulary of weighing methods it seems very interesting.
NL	5.08		edit.	<p>associated measuring instrument instrument for measuring certain measurands which are characteristic of the gas (temperature, pressure, calorific value, etc.) and which are used by the calculator with a view to making a correction and/or a conversion</p> <p>To be made more generic by deleting “gas” and more in line with the rest of definitions in this vocabulary e.g. 0.07</p>	<p>instrument for measuring certain influence quantities and characteristics which are used for the purpose of converting and/or correcting the indication</p> <p>Note As example in measuring gas flow this would concern the instruments measuring the temperature, pressure, calorific value, etc.</p> <hr/> <p>One would consider Vocabularies only to deal with terminology widely used. In that way the</p>	<p>Noted. This term appears in OIML publication in relation to gas flow measurement. It is a broad field of application so it was considered appropriate to include this term in the VIML. (A similar case is e.g. “verification scale interval”).</p> <p>An attempt to make the definition more general needs examples that would justify the proposed generalization.</p> <p>The secretariat proposes a</p>

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					<p>Vocabulary can be useful for the whole (area) of legal metrology. Coupling this term only to gas metering would make it necessary to amend the definition in Recommendations for other measurands. In contrary to the response of the secretariat however it appears that in the DV the term is already adequately generalized on basis of the RS comments.</p> <p>“calculator” however is not yet defined and is not a general (self explanatory) term, moreover for gas meters it was decided to define this term in OIML R137-1 & -2 (3.1.5). Copying this specific gas metering definition in VIML would not be convenient.</p> <p>Suggest therefore to solve this issue by changing “calculator” to “instrument”</p> <p>Resulting in: (see next row)</p>	new definition.
	5.08 (continued)				<p>associated measuring instrument instrument for measuring certain measurands (temperature, pressure, calorific value, etc.) which are characteristic of the substance under measurement and which are used by the instrument with a view to making a correction and / or a conversion</p> <p>A further editorial improvement would be the replacing of “...with a view to...” by “...for the purpose of...”.</p>	See the response to NL 5.08

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NL	5.09			terminal	suggest to delete (generic self explanatory term) No further comments	Noted. The list of VIML terms was accepted by the TC1 meeting and the selection performed in accordance with a decision of the TC1 meeting has not eliminated this term. The word “terminal” has rather many meanings. So even if it seems self – explanatory the role of the vocabulary is to give an agreed upon definition for purposes of legal metrology.
FR	5.09		ge	Terminal digital device that has one or more keys (or mouse, touch-screen, etc.) to operate the instrument, and a display to provide the measurement results transmitted via the digital interface or an analog data processing device We wonder about the utility of this definition. Moreover we do not find it very clear.		Noted. It was enclosed in the VIML draft for the reasons given below (see 6.12). The clarity of the definition has not been questioned by any other member of the committee. Cf. the response to NL 5.09.
DE	5.10 initial intrinsic error		te	See comment to 0.06	Delete 5.10.	Please see the explanation to DE 0.06

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DE	5.11 fault		te	See comment to 0.06 and 5.10	Change 5.11 into “difference between the error of indication of a measuring instrument under measurement conditions and the error of indication of the same measuring instrument under reference conditions...”	Please see the response to D 0.06. Cf. please the response to FR 5.11
DE	5.11 fault		te	Additionally one comment to note 1. We will never know where a fault comes from – if it is really only a change of data or if it is a change of sensors or something else. It can happen to analogue instruments as well.	Thus please delete note 1.	Noted. The note starts with the word which does not exclude any possible cause of the fault. The stress is put on the “change”.
FR	5.11		te	Fault difference between the error of indication and the intrinsic error of a measuring instrument The words “ of indication ” should be deleted (obvious and harmonization with intrinsic error and initial intrinsic error).		Noted. In the definition the “error of indication” is meant. The explanation “of indication” is not necessary for experienced metrologists. So it seems superfluous to the referee. However in the definition the terms used should assume their full form. Some other referees request for detailed precise definitions.
NL	5.12		gen.	significant fault fault greater than the value specified in the relevant recommendation In the above definition a “significant fault” is a Boolean. So its “value” could concern a “yes” or “no” This term therefore implicitly has no numeric value. It is true or false. “fault limit” could be introduced as term for the numeric value established, above which a fault is	Suggest to split up in 2 definitions: fault limit value specified in the applicable Recommendation delimiting non-significant faults ----- significant fault	Noted. In this case the chosen wording of definition was that appearing most frequently in OIML publication. As for the proposed “fault limit value” it corresponds to so many

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				considered a significant fault. In some recommendations significant fault is used for both the Boolean statement and the numerical value.	fault exceeding the applicable fault limit value <hr/> <p>The argument used by the convener is considered not valid. Indeed the definition originates from OIML D 11 2004 and even the previous versions, but especially in the application of the term in the several Recommendations it is noted that the interpretation by the committees differ. Moreover the term seems to invite for an undesirable amending of this term in each different Recommendation. This could be prevented by deleting "...in the applicable Recommendation..." while there is no need for such statement. Compare e.g. with the similar definition of mpe (VIM 4.26)</p> <p>Further the current definition seems even to invite for specifying the applicable value in the terminology. It will be obvious that requirements are not to be implemented in terminology.</p> <p>Examples of such undesirable amendments and implementations are :</p>	<p>terms that what was chosen is the expression from D 11:2004 which was found most "flexible". And this version was accepted by the TC1 meeting.</p> <p>The definition from the D 11 draft will be adopted for the VIML draft.</p>

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NL	5.12 (continued)				(see next row) OIML R50-1 (T.5.5) and still in 5CD OIML R 50 (Terminology part) “4.5.4 significant fault <i>fault exceeding the absolute value of the appropriate maximum permissible error for a load equal to the minimum totalized load (Σ_{min}) for the designated class of the belt weigher”.</i> Also T.4.2.6 of R61-1; R60 2.4.14 R76-1 T 5.5.6 For the reason of such kind of manipulation of terminology this definition will be corrected in the newer version of OIML D11.	
DE	5.12 significant fault		ge/te	The information given in the note can put the reader on the wrong track, because these things may not be true for all Recommendations. So, the source of detailed information as given in the definition (“relevant Recommendation”) is clearer.	Please delete the note.	The definition from the D 11 draft will be adopted for the VIML draft.
DE	5.13 durability error		te	See comment to 0.06 and 5.10.	Change 5.13 into “difference between the errors of indication of a measuring instrument under reference conditions before and after a period of use/ a durability test”. A specification of “period of use” or “durability test” respectively would be helpful.	Noted. Please the response to D 0.06.
NL	5.14			significant durability error	Similar split up as suggested for 5.12 could be considered	Noted. See 5.12.

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					See response 5.12	The definition from the D 11 draft will be adopted for the VIML draft.
NL	5.15		gen.	<p>influence factor</p> <p>influence quantity having a value within the rated operating conditions of a measuring instrument specified in the relevant recommendation</p> <p>The grammar of this definition is weak. “specified” could as well refer to “instrument “ or “factor” instead of “conditions”</p> <p>“Operating conditions” is a 2 dimensional array consisting of a number of ranges of values. (similar as indicated in note 1 of 0.09) A specific influence factor concerns only one of these ranges (quantities)</p>	<p>influence factor</p> <p>influence quantity having a value within the rated operating conditions of a measuring instrument.</p> <p>Notes:</p> <p>(1) These rated operating conditions which are to be specified by the manufacturer of the instrument shall meet the requirements of the relevant Recommendation</p> <p>(2) The variation of an indication as a consequence of an influence factor is considered an error and not a fault.</p> <p>This definition was commented on at all occasions during the drafting. Moreover it is needed to align this definition with the amended version for the new OIML D11. It is in no way the intention of the above comment to delete any need for specification of the rated operating conditions. The convener response supports the need for elucidation while “specified” in the original definition it is not meant to refer to: “the influence factor” but instead to: “the rated operating</p>	<p>Noted. The definition was taken from OIML D 11:2004 and as such was accepted throughout all the VIML2 drafts. Also there were no objection as regards it during the TC1 meeting. There are some variants of this definition however for the purposes of legal metrology it seems important that the influence factor be specified in a recommendation. So the actual version seems appropriate.</p> <p>Accepted. The actual version will be substituted by the one adopted in the latest version of D 11, i.e. by the above text suggested by the referee.</p>

Explanations

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					conditions". The second CH comment on this term seems to support such an amendment as well.	
ISO / TC 69/ US	5.19		Te	Add environmental clause to complete the conditions for the testing		A referee's proposal of the relevant clause would have been appreciated.
DE	6 Software		te	Here as well has to be distinguished between general definitions and specific information that can be found in a special Document (here D31) or the respective Recommendations. An important information for the examination of software properties as well as means against manipulation in legal metrology is the "severity level". This should be defined somewhere.		The VIML will be translated into a lot of languages and used not only by metrologists but also by specialists from various professional areas. So it seemed appropriate to introduce to it also some terms which though characteristic of some specialistic fields of metrology are to be used by non-specialists (legislators). If a term is enclosed in terminology section of 15 – 20 Rs or Ds then perhaps it should be enclosed in the VIML too. For example the terms "event" or "terminal" are so popular and can be

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						defined in so many correct (!) ways that it seems appropriate to define it in the VIML so that it be not necessary that every technical committee or every legislator draft its definition anew. Of course it should be carefully thought over. As regards generalization it is not always possible and sometimes not.
UK	6.02 software separation			Software interface is mentioned here but not defined in the document		Definition of “software interface” will be added.
NL	6.05 / 6.06 /6.07/6.08/6.1 0/6.11			cryptographic certificate/cryptographic means/ data domain/ error log/ fixed legally relevant software part/legally relevant software part These definitions at present stated in D31 are not yet implemented in any OIML Recommendation. Even when this would occur it is questionable whether it would be needed to include into the VIML 2 these self explanatory and rather generic software terms, of which the meaning in legal metrology is not different from its use in generic software terminology.	Consider deletion convener response is considered not in agreement with earlier decisions, while the D31 extracted terms have been called in question in the input delivered on the 4th February 2011 to the TC secretariat. This as result of the ad-hoc group established to deal with the resolution 4 of the TC 1 meeting and having the task of reviewing relevance of	Noted. The mentioned terms are on the list of VIML terms which was accepted by the TC1. OK

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DE	6.09 event		ed/te	The term “event” as defined within this chapter is only used once in 6.04 where a similar description of “event” is still included.	implementation of D31 related terminology. 6.09 can be deleted in this case.	The term “event” is a word commonly used in every day speech. The VIML will be translated into a lot of languages and used not only by metrologists but also by specialists from various professional areas. So it seemed appropriate to introduce to it also some terms which though characteristic of some specialistic fields of metrology are to be used by non-specialists (legislators). If a term is enclosed in terminology section of 15 – 20 Rs or Ds then perhaps it should be enclosed in the VIML too. For example the term “event” or “terminal” is so popular and can be defined in so many correct (!) ways that it seems appropriate to define it in the VIML so that it be not necessary that every technical committee or every

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						legislator draft its definition anew. Of course it should be carefully thought over. As regards generalization it is not always possible and sometimes not. used in everyday language
FR	6.09		te	Event action in which a modification of a measuring instrument parameter, adjustment factor or update of software module is made We understand that “modification” refers to “measuring instrument parameter” and “adjustment factor” and not to “update of software module”. Is it correct?		We understand it the same way.
FR	6.11		te	Fixed legally relevant software part part of the legally relevant software that is and remains identical in the executable code to that of the approved type Not very clear. In particular is it necessary to indicate “that is and remains identical”? Conformity to type is conformity to type, there is no allowed transition whether or not it is question of software.		The whole expression is: “that is and remains identical in the executable code”. The problem was discussed during preparation of OIML D31:2008 (E), 3.1.24 and have not been claimed unclear ever since. Cf. response to NL 6.05/.../6.11
FR	6.12		te	<i>Note</i> It can be achieved by hardware, software or a combination of both. This is not specific to software. See also 3.07		The terms differ, viz.: 3.07 sealing mark and 6.12 sealing. The reason of enclosing the two terms and not proposing one instead is

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					deal with the resolution 4 of the TC 1 meeting and having the task of reviewing relevance of implementation of D31 related terminology	quoted after D 31 should be enclosed into the VIML. There was no formal joint resolution, but every of the three persons made proposals as regards the removal of some entries.
FR	A1		ge	All the definitions in this paragraph, except A1.7 A1.9 and A1.25 are fully in line with the ISO/IEC 17000:2004. So we suggest to specify the original standard in this paragraph.		The last sentence of the Introduction reads: "Those terms have been taken from ISO/IEC 17000:2004 Conformity assessment – Vocabulary and general principles and they are contained in Annex A." See the response to BY A.1
FR	A1.26		te	We suggest to attach the following note [ISO/IEC 17000:2004, 7.1] : NOTE Approval can be based on fulfilment of specified requirements or completion of specified procedures		Accepted
DE	A1.35 acceptance		ed		Delete "results" at the beginning of the text. This seems to be a typing error.	Accepted
DE	A1.6 (specified) requirement		te		Change the note into "Specified requirements may be stated in statutory regulations and in normative documents..."	This entry is quoted from ISO 17000:2004, 3.1 and is placed in annex. Thus it should not be changed.
NL	general		gen.	Since the OIML D11 is in revision it is of utmost importance that for a number of terms modifications are		Noted. The revision of D 11:2004 is at an early stage. It would be rather difficult to

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				<p>performed in parallel</p> <p>This especially concerns the terms: 0.03; 0,06; 5.12; 5.14 and 5.15</p> <p>Please contact the NL secr. TC 5/SC 1 immediately on any developments on the terms mentioned</p>	<p>Please be informed that the revision of D11 is in approval stage</p>	<p>fit the course of the VIML revision (which is at a final stage) to that of D 11. But the future mutual cooperation is a right idea.</p> <p>Noted</p>
NL	general		edit.	<p>There appears to be some misunderstanding on the meaning of the term “quantity” which, when converted to some languages, could mean the same as “amount” or “number” and be expressed as a dimensionless figure.</p> <p>In metrology this term “quantity” however is used in its scientific context and therefore means the physical parameter of which its magnitude is established by the measurement and which has a dimension (e.g. kg;; m; m/s)</p>	<p>Add the definition of the term “quantity” in the VIML chapter 0 to prevent confusion</p> <hr/> <p>no further comments</p>	<p>Noted. It is true that the meaning of the word “quantity” can be - in some languages - different depending on the context in which it appears. The same problem appears - in some languages – as regards the word “magnitude”. So the problem should not be neglected, but on the other hand there still is a discussion about the definition of “quantity” given by VIM3 as well as about some of its components. Considering that as well as the fact that “quantity” is a frequently used term (i.e. rather familiar to its users) it seems better</p>

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						not to include the discussed term to VIML now.
ISO / RE MC O	General		Ge	ISO/REMCO proposes that appropriate cross-referencing (without reproducing the text of the various definitions in the OIML document) should be introduced into the OIML draft, and that the concepts 'reference material' and 'certified reference material' would be useful to reference via ISO Guide 30, Amd. 1 (2008). In principle, REMCO envisages a problem with duplicating (or multi-cating) specific definitions in different vocabularies as this will unavoidably lead to problems: no identical timing is possible, different versions of definitions will be valid, etc.		The referee indicates a problem which is difficult to solve while it makes a lot trouble for the vocabulary users. But the solution is rather an exchange of information among the organisations and bodies issuing terminology publications. Basing on it, annexes and amendments should be published in order to keep vocabularies up to date. Unluckily so far no care is taken about that.
FR	Introduction		te	In the historical development some explanations should be given about the terms reintroduced in this new version	In the historical development it is suggested to add: Some terms (such as scale interval) used in legal metrology (which were in the former edition of the VIM and which came in fact from the first edition of the VIML) have been deleted in the last version of the VIM and therefore reintroduced in the VIML.	Actually there is “scale interval” in the draft.
FR	Introduction		te	We consider that the words “Furthermore, considering the increasing use of conformity assessment” are misleading. Operations of the legal metrology control (type approval, initial verification...) are conformity assessment procedures and have always been used. What	Modify the sentence to read : “Furthermore, considering the increasing use of conformity assessment formalised according to modern standards”	As a result of the TC 1 meeting the following record was produced: part of metrology relating to activities which result from

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				is increasing in legal metrology is the use of conformity assessment procedures formalised according to modern standards on this topic.		<p>statutory requirements and concern measurement, units of measurement, measuring instruments and methods of measurement and which are performed by competent bodies</p> <p>practice and process of applying statutory and regulatory structure and enforcement to metrology (see 0.01)</p> <p>NOTE 1 The scope of legal metrology may be different from country to country.</p> <p>NOTE 2 The competent bodies responsible for legal metrology activities or part of these activities are usually called legal metrology services.</p> <p>NOTE 3 2 Legal metrology includes four main activities:</p> <ul style="list-style-type: none"> • Setting up legal requirements; • Control/conformity assessment of regulated products and regulated activities;

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						<ul style="list-style-type: none"> • Supervision of regulated products and of regulated activities; and • Providing the necessary infrastructure for the traceability of regulated measurements and measuring instruments. <p>NOTE 4.3 There are also regulations outside the area of legal metrology pertaining to the accuracy and correctness of measurement methods.</p> <p>The above text shows that:</p> <ul style="list-style-type: none"> - the former definition was abandoned after discussion and - a new definition was adopted which by the bye differs from the former one by in its initial part (this can be seen in the above quotation) <p>The French referee proposes</p>

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						<p>a definition which is different from the two which:</p> <ul style="list-style-type: none"> - introduces the words “part (or form) of metrology which results ...”. <p>They do not seem proper. “Part” cannot be substituted by “form”. It does not seem appropriate to say – in order to define legal metrology - that it is a “part of metrology result from ... requirement”. The whole metrology infrastructure is established by relevant legal requirements.</p> <p>Also the referee's opinion is that the definition is “not clear at all” which is surprising as the TC 1 opinion was opposite.</p>
NL	x.xx			Consider implementing some of the terminology used in OIML R46 which is in revision at present. This would be of great help while R 46 has a somewhat different approach to errors and MPE's but in principle is not really conflicting with the general OIML approach.		Noted. The list of VIML terms was accepted by the TC1 meeting and the draft was accepted. The results of R46 revision will be taken

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				This additional terminology concerns “error shift” which can be considered the difference between the "intrinsic error" and the "error". “base MPE” and “maximum permissible error shift”	No further comment	into consideration and utilized as appropriate. Anyway thank you for your important remark. Noted

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TEXT SHOWING CHANGES TO 1DV

OIML TC 1

4CD/2DV – Revision of OIML Vocabulary



COMMITTEE DRAFT VIML2 (4CD)
DRAFT VOCABULARY (2DV)

Date: 15 January 2013

Reference number: OIML/TC 1/N30

Supersedes document: DV

OIML TC 1

Project p1

Title: International Vocabulary of Terms in
Legal Metrology

Secretariat:

Jerzy Borzyminski - Poland

Circulated to P- and O-members and
liaison international bodies and
external organisations for:

☐

discussion at (date and place of
meeting):

☒

comments by: 15 April 2013

☒

vote (P-members only) and
comments by: 15 April 2013

TITLE OF THE CD (English):

International vocabulary of terms in legal metrology (VIML)

TITLE OF THE CD (French):

Vocabulaire international des termes de métrologie légale (VIML)

Original version in: English

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- 1. Metrology and its legal aspects**
- 2. Legal metrology activities**
- 3. Documents and marks within legal metrology**
- 4. Classification of measuring instruments**
- 5. Construction and operation of measuring instruments**
- 6. Software in legal metrology**

Annex 1. Selected terms relating conformity assessment

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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 OIML 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.

This publication - reference OIML V 1, edition 2012 (E/F) - was developed by the OIML Technical Committee TC 1 *Terminology*. It was approved for final publication by the International Committee of Legal Metrology in 2012.

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Avant-propos

L'Organisation Internationale de Métrologie Légale (OIML) est une organisation intergouvernementale mondiale dont l'objectif principal est d'harmoniser les réglementations et contrôles métrologiques mis en œuvre par les services nationaux de métrologie, ou organismes apparentés, de ses Etats Membres. Les principales catégories de publication de l'OIML sont:

- **Les Recommandations Internationales (OIML R)**, qui sont des modèles de réglementations fixant les caractéristiques métrologiques d'instruments de mesure et les méthodes et moyens de contrôle de leur conformité; les États Membres de l'OIML doivent, dans la mesure du possible, mettre en application ces Recommandations;
- **Les Documents Internationaux (OIML D)**, qui sont de nature informative et destinés à améliorer l'activité des services de métrologie;
- **Les Guides Internationaux (OIML G)**, qui sont de nature informative et qui sont destinés à donner des directives pour la mise en application à la métrologie légale de certaines exigences;
- **Les Publications de Base Internationales (OIML B)**, qui définissent les règles de fonctionnement des différentes structures et systèmes OIML.

Les projets de Recommandations, Documents et Guides OIML sont élaborés par des Groupes de Projets reliés à des Comités Techniques ou Sous-Comités Techniques composés de représentants d'États Membres. Certaines institutions internationales et régionales y participent également à titre consultatif. Des accords de coopération ont été conclus entre l'OIML et certaines institutions, telles que l'ISO et la CEI, pour éviter des prescriptions contradictoires; en conséquence les fabricants et utilisateurs d'instruments de mesure, les laboratoires d'essais, etc. peuvent appliquer simultanément les publications OIML et celles d'autres institutions.

Les Recommandations Internationales, Documents et Guides sont publiés en français (F) et en anglais (E) et sont révisés périodiquement.

De plus l'OIML participe à la publication de Vocabulaires (**OIML V**) et mandate périodiquement des Experts en métrologie légale pour rédiger des Rapports d'Expert (**OIML E**). Les Rapports d'Expert sont destinés à fournir des informations et conseils aux autorités de métrologie, et reflètent uniquement le point de vue de leur auteur, en dehors de toute participation d'un Comité Technique ou d'un Sous-Comité Technique, ou encore de celle du CIML. Ainsi, ils ne reflètent pas nécessairement l'opinion de l'OIML.

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International vocabulary of legal metrology (VIML)

Vocabulaire international de métrologie légale (VIML)

Introduction

The history of this edition of the *International vocabulary of terms in legal metrology* (VIML) demonstrates the mutual relationship between specific fields of metrology and the importance of harmonized terminology in metrology.

The work on the harmonization of terminology used in the field of legal metrology was started by the OIML in 1961. The work was initiated by Professor Jan Obalski who played a leading role in the preparation of the first edition of the *Vocabulary of Legal Metrology* (VML). It was sanctioned by the 3rd International Conference of Legal Metrology in 1968 and published in 1969. The first edition was later completed by two addenda sanctioned by the 4th and 5th International Conferences of Legal Metrology in 1972 and 1976 respectively.

The second edition of the VML, which included the first edition of 1969 and the two addenda, was published in 1978 as a bilingual French–English version.

The need to harmonize metrological terminology worldwide resulted in the identification of general concepts which form the basic terminology common to various technical disciplines. Seven International Organizations (BIPM, IEC, IFCC, ISO, IUPAC, IUPAP and OIML) thus jointly prepared the International Vocabulary of Basic and General Terms in Metrology (VIM) for which the VML, 1978 edition, was used as one of the basic sources. The first edition of the VIM was published in 1984. The second edition of the *International vocabulary of basic and general terms in metrology* (VIM) was published in 1993.

The importance of international aspects of terminology in legal metrology and the need to speak a common language in international cooperation resulted in the continuation of the work on the *Vocabulary of Legal Metrology*

although the major part of the text of the 1978 edition had been transferred to the VIM. The work was restarted in 1995 by OIML TC 1 *Terminology* and in 2000 the *International Vocabulary of Terms in Legal Metrology* (VIML) was published.

In the meantime, work on revision of VIM continued within the *Joint Committee for Guides in Metrology* (JCGM) of which the OIML is a Member Organization. Their aim was among other things to cover measurements in fields which had not been sufficiently considered in earlier editions of VIM. Also some important general concepts (e.g. metrological traceability, measurement uncertainty) got their new definitions. The work led to the publication of the third edition of the VIM in 2008. Its title was changed to *International vocabulary of metrology — Basic and general concepts and associated terms* (VIM), in order to emphasize the primary role of concepts in developing a vocabulary.

The publication of the third edition of the VIM, as well as the period of eight years which elapsed from the publication of VIML gave a stimulus to start a revision of the latter. The developments in legal metrology which had occurred over that period included an increased role of conformity assessment, software tools as well as a change of views on the traditional forms of legal metrology. It is hoped that these developments have been adequately reflected in this new edition of VIML.

All the terms and definitions of the third edition of the VIM, published by the OIML as OIML V2-200:2010 are fully adopted by the OIML and are applicable in the field of legal metrology. However, it was found necessary to quote a few of those terms in the VIML. They are contained in Clause 0. *Basic terms*. Furthermore, considering the increasing use of conformity assessment it was acknowledged that selected terms pertaining to it should also be included into the VIML. Those terms have been taken from ISO/IEC 17000:2004 *Conformity assessment — Vocabulary and general principles* and they are contained in Annex A.

Scope

The set of terms and definitions in this Vocabulary is related to various aspects of legal metrology which are dealt with in OIML publications. However, this Vocabulary was developed to be compatible with fundamental metrological publications, first of all the *International Vocabulary Metrology – Basic and General Concepts and Associated Terms* (VIM), so it can be used not only within the OIML.

This Vocabulary is meant as a reference for metrologists as well as other specialists involved in various activities pertaining to legal metrology - from measurement and legal metrological control to legislation. It can also be a reference for governmental and intergovernmental bodies, trade associations, manufacturers of measuring instruments and users of metrological services.

It is intended to contribute to the global harmonization of the terminology used in (legal) metrology.

0. Basic terms	
0.01 metrology science of measurement and its application <i>Note:</i> Metrology includes all theoretical and practical aspects of measurement, whatever the measurement uncertainty and field of application. [OIML V2-200:2010, 2.2]	
0.02 International System of Units SI system of units, based on the International System of Quantities, their names and symbols, including a series of prefixes and their names and symbols, together with rules for their use, adopted by the General Conference on Weights and Measures (CGPM) <i>Note 1</i> The SI is founded on the seven base quantities of the ISQ. See: OIML V2-200:2008, 1.16 and the SI brochure. BIPM 2006 <i>Note 2</i> The base units and the coherent derived units of the SI form a coherent set, designated the “set of coherent SI units”. <i>Note 3</i> For a full description and explanation of the International System of Units, see the current edition of the SI brochure published by the Bureau International des Poids et Mesures (BIPM) and available on the BIPM website. <i>Note 4</i> In quantity calculus, the quantity ‘number of entities’ is often considered to be a base quantity, with the base unit one, symbol 1. <i>Note 5</i> The SI prefixes for multiples of units and submultiples of units are given in OIML V2-200:2008, 1.16 [OIML V2-200:2010, 1.16]	

<p>0.03</p> <p>indication</p> <p>quantity value provided by a measuring instrument or a measuring system</p> <p><i>Note 1</i> An indication may be presented in visual or acoustic form or may be transferred to another device. An indication is often given by the position of a pointer on the display for analog outputs, a displayed or printed number for digital outputs, a code pattern for code outputs, or an assigned quantity value for material measures.</p> <p><i>Note 2</i> An indication and a corresponding value of the quantity being measured are not necessarily values of quantities of the same kind.</p> <p>[OIML V2-200:2010, 4.1]</p>	
<p>0.04</p> <p>error(of indication)</p> <p>indication minus a reference quantity value</p> <p><i>Note</i> This reference value is sometimes referred to as a (conventional) true quantity value.</p>	
<p>0.05</p> <p>maximum permissible measurement error</p> <p>maximum permissible error</p> <p>limit of error</p> <p>extreme value of measurement error, with respect to a known reference quantity value, permitted by specifications or regulations for a given measurement, measuring instrument, or measuring system</p> <p><i>Note 1</i> Usually the term “maximum permissible errors” or “limits of error” are used, where there are two extreme values.</p> <p><i>Note 2</i> The term “tolerance” should not be used to designate ‘maximum permissible error’.</p> <p>[OIML V2-200:2010, 4.26]</p> <p><i>Note 3</i> Usually the term “maximum permissible errors” is abbreviated to “MPE” or “mpe”.</p>	

<p>0.06</p> <p>intrinsic error</p> <p>error of indication, determined under reference conditions</p>	
<p>0.07</p> <p>influence quantity</p> <p>quantity that, in a direct measurement, does not affect the quantity that is actually measured, but affects the relation between the indication and the measurement result</p> <p><i>Example 1</i> Frequency in the direct measurement with an ammeter of the constant amplitude of an alternating current.</p> <p><i>Example 2</i> Amount-of-substance concentration of bilirubin in a direct measurement of haemoglobin amount-of substance concentration in human blood plasma.</p> <p><i>Example 3</i> Temperature of a micrometer used for measurement of length of a rod, but not the temperature of the rod itself, which can enter into the definition of the measurand.</p> <p><i>Example 4</i> Background pressure in the ion source of a mass spectrometer during a measurement of amount-of-substance fraction.</p> <p><i>Note 1</i> An indirect measurement involves a combination of direct measurements, each of which may be affected by influence quantities.</p> <p><i>Note 2</i> In the GUM, the concept ‘influence quantity’ is defined as in the 2nd edition of the VIM, covering not only the quantities affecting the measuring system, as in the definition above, but also those quantities that affect the quantities actually measured. Also, in the GUM this concept is not restricted to direct measurements.</p> <p>[OIML V2-200:2010, 2.52]</p>	
<p>0.08</p> <p>rated operating condition</p> <p>operating condition that must be fulfilled during measurement in order that a measuring instrument or measuring system perform as designed</p> <p><i>Note</i> Rated operating conditions generally</p>	

<p>specify intervals of values for a quantity being measured and for any influence quantity.</p> <p>[OIML V2-200:2010, 4.9]</p>	
<p>0.09</p> <p>reference operating condition</p> <p>reference condition</p> <p>operating condition prescribed for evaluating the performance of a measuring instrument or measuring system or for comparison of measurement results</p> <p><i>Note 1</i> Reference operating conditions specify intervals of values of the measurand and of the influence quantities.</p> <p><i>Note 2</i> In IEC 60050-300, item 311-06-02, the term “reference condition” refers to an operating condition under which the specified instrumental measurement uncertainty is the smallest possible.</p> <p>[OIML V2-200:2010, 4.11]</p>	
<p>0.10</p> <p>measuring instrument</p> <p>device used for making measurements, alone or in conjunction with one or more supplementary devices</p> <p><i>Note 1</i> A measuring instrument that can be used alone is a measuring system.</p> <p><i>Note 2</i> A measuring instrument may be an indicating measuring instrument or a material measure.</p> <p>[OIML V2-200:2008, 3.1]</p>	
<p>0.11</p> <p>measurement transducer</p> <p>device, used in measurement, that provides an output quantity having a specified relation to the input quantity</p> <p><i>Example</i> Thermocouple, electric current transformer, strain gauge, pH electrode, Bourdon tube, bimetallic strip.</p> <p>[OIML V2-200:2008, 3.7]</p>	

<p>0.12</p> <p>measuring system</p> <p>set of one or more measuring instruments and often other devices, including any reagent and supply, assembled and adapted to give information used to generate measured quantity values within specified intervals for quantities of specified kinds</p> <p><i>Note</i> A measuring system may consist of only one measuring instrument.</p> <p>[OIML V2-200:2008, 3.2]</p>	
<p>0.13</p> <p>scale of a displaying measuring instrument</p> <p>part of a displaying measuring instrument, consisting of an ordered set of marks together with any associated quantity values</p> <p>[OIML V2-200:2008, 3.5]</p>	
<p>0.14</p> <p>calibration</p> <p>operation that, under specified conditions, in a first step, establishes a relation between the quantity values with measurement uncertainties provided by measurement standards and corresponding indications with associated measurement uncertainties and, in a second step, uses this information to establish a relation for obtaining a measurement result from an indication</p> <p><i>Note 1</i> A calibration may be expressed by a statement, calibration function, calibration diagram, calibration curve, or calibration table. In some cases, it may consist of an additive or multiplicative correction of the indication with associated measurement uncertainty.</p> <p><i>Note 2</i> Calibration should not be confused with adjustment of a measuring system, often mistakenly called “self-calibration”, nor with verification of calibration.</p> <p><i>Note 3</i> Often, the first step alone in the above definition is perceived as being calibration.</p> <p>[OIML V2-200:2008, 2.39]</p>	

0.15

adjustment of a measuring system

adjustment

set of operations carried out on a measuring system so that it provides prescribed indications corresponding to given values of a quantity to be measured

Note 1 Types of adjustment of a measuring system include zero adjustment of a measuring system, offset adjustment, and span adjustment (sometimes called gain adjustment).

Note 2 Adjustment of a measuring system should not be confused with calibration, which is a prerequisite for adjustment.

Note 3 After an adjustment of a measuring system, the measuring system must usually be recalibrated.

[OIML V2-200:2008, 3.11]

1. Metrology and its legal aspects	
1.01 legal metrology practice and process of applying statutory and regulatory structure and enforcement to metrology (see 0.01) <i>Note 1</i> The scope of legal metrology may be different from country to country. <i>Note 2</i> Legal metrology includes: <ul style="list-style-type: none">• setting up legal requirements;• control / conformity assessment of regulated products and regulated activities;• supervision of regulated products and of regulated activities; and• providing the necessary infrastructure for the traceability of regulated measurements and measuring instruments to SI or national standards. <i>Note 3</i> There are also regulations outside the area of legal metrology pertaining to the accuracy and correctness of measurement methods.	
1.02 law on metrology legal acts and secondary legislation that provide the statutory structure to metrology <i>Note</i> Legal acts and secondary legislation in particular specify the legal units of measurement, prescribe: <ul style="list-style-type: none">• requirements with respect to the properties of measuring instruments,• accuracy of measurement in cases specified by law,• a system of legal control of measuring instruments and• metrological supervision	
1.03 legal metrology regulation technical regulation in the field of legal metrology	

<p><i>Note 1</i> These regulations shall, when applicable, be compatible with the International Recommendations of the OIML and make use of their requirements.</p> <p><i>Note 2</i> The scope of legal metrology generally includes:</p> <ul style="list-style-type: none"> • protection of the interests of individuals and enterprises; • protection of national interests; • protection of public health and safety, including in relation to the environment and medical services; and • meeting the requirements for commerce and trade. 	
<p>1.04</p> <p>national responsible body</p> <p>organization or agency at the national level or in a nation, responsible for developing and / or enforcing laws or regulations regarding legal metrological control</p>	
<p>1.05</p> <p>metrological authority</p> <p>legal entity designated by law or by the government to be responsible for specified legal metrology activities</p> <p><i>Note 1</i> The legal entity may be a central or local government body, or a non-governmental body empowered by the government.</p> <p><i>Note 2</i> The responsibility may include e.g. type approval.</p>	
<p>1.06</p> <p>legal units of measurement</p> <p>units of measurement required or permitted by regulations</p> <p><i>Note</i> Legal units may be:</p> <ul style="list-style-type: none"> • SI units, • their decimal multiples and submultiples as indicated by the use of SI prefixes, • non-SI units specified by relevant regulations. 	

2. Legal metrology activities	
2.01 legal metrological control the whole of legal metrology activities <i>Note</i> Legal metrological control includes: <ul style="list-style-type: none"> • legal control of measuring instruments, • metrological supervision, • metrological expertise all the operations for the purpose of examining and demonstrating, e.g. to testify in a court of law, the condition of a measuring instrument and to determine its metrological properties, amongst others by reference to the relevant statutory requirements. 	
2.02 legal control of measuring instruments generic term used to globally designate legal operations to which measuring instruments may be subjected, e.g. type approval, verification, etc.	
2.03 metrological supervision activity of legal metrological control to check the observance of metrology laws and regulations <i>Note 1</i> Metrological supervision also includes checking the correctness of quantities indicated on and contained in prepackages. <i>Note 2</i> For achieving these purposes, means and methods such as market surveillance and quality management may be utilized.	
2.04 metrological expertise all the operations for the purpose of examining and demonstrating, e.g. to testify in a court of law, the condition of a measuring instrument and to determine its metrological properties, amongst others by reference to the relevant statutory requirements	

<p>2.054</p> <p>type (pattern) evaluation</p> <p>conformity assessment procedure on one or more specimens of an identified type (pattern) of measuring instruments which results in an evaluation report and / or an evaluation certificate</p> <p><i>Note 1</i> “Pattern” is used in legal metrology with the same meaning as “type”; in the entries below, only “type” is used.</p> <p><i>Note 2. There are countries and economies where conformity assessment procedures are employed for type evaluation.</i></p>	
<p>2.065</p> <p>type approval</p> <p>decision of legal relevance, based on the review of the type evaluation report, that the type of a measuring instrument complies with the relevant statutory requirements and results in the issuance of the type approval certificate</p> <p><i>Note</i> See also A1.26</p>	
<p>2.076</p> <p>type approval with limited effect</p> <p>approval of a type of measuring instrument that is linked with one or more specific restrictions</p> <p><i>Note</i> Restrictions may pertain to, for instance:</p> <ul style="list-style-type: none"> • the period of validity, • number of instruments covered by the approval, • obligation to notify the competent authorities of the place of installation of each instrument, • use of the instrument 	
<p>2.087</p> <p>recognition of type approval</p> <p>legal decision taken by a party either voluntarily or based on a bi- or multilateral arrangement whereby a type approved by another party is recognized as complying with the relevant statutory requirements, without issuing a new type approval certificate</p>	

<p><i>Note</i> See also A1.34</p>	
<p>2.098</p> <p>withdrawal of a type approval</p> <p>decision of legal relevance canceling a type approval</p> <p><i>Note</i> The withdrawal is justified in case of:</p> <ul style="list-style-type: none"> • alterations of the type, • modification of its vital parts, • circumstances that affect metrological durability and/ or reliability, • effects altering the metrological performance of the instrument required by law and coming to light only after the official type approval was granted. 	
<p>2.109</p> <p>verification of a measuring instrument</p> <p>conformity assessment procedure (other than type evaluation) which results in the affixing of a verification mark and / or issuing of a verification certificate</p> <p><i>Note</i> See also OIML V2-200:2010, 2.44.</p>	
<p>2.110</p> <p>preliminary examination</p> <p>examination of a measuring instrument either to partial requirements or before certain elements of the measuring instrument are installed as part of the verification procedure</p>	
<p>2.121</p> <p>verification by sampling</p> <p>verification of a homogeneous batch of measuring instruments based on the results of examination of a statistically appropriate number of specimens selected at random from an identified lot</p>	
<p>2.132</p> <p>initial verification</p> <p>verification of a measuring instrument which has not been verified previously</p>	

<p>2.143</p> <p>subsequent verification</p> <p>verification of a measuring instrument after a previous verification</p> <p><i>Note 1</i> Subsequent verification includes:</p> <ul style="list-style-type: none"> • mandatory periodic verification, • verification after repair, • voluntary verification <p><i>Note 2</i> Subsequent verification of a measuring instrument may be carried out before expiry of the period of validity of a previous verification either at the request of the user (owner) or when its verification is declared to be no longer valid.</p>	
<p>2.154</p> <p>mandatory periodic verification</p> <p>subsequent verification of a measuring instrument, carried out periodically at specified intervals according to the procedure laid down by the regulations</p>	
<p>2.165</p> <p>rejection of a measuring instrument disqualification of a measuring instrument</p> <p>decision of legal relevance that a measuring instrument does not comply with statutory requirements for verification and prohibiting its use for applications requiring mandatory verification</p>	
<p>2.16</p> <p>requalification of a measuring instrument</p> <p>decision of legal relevance that a measuring instrument after it had been disqualified was returned to conformity with statutory requirements and its use for applications requiring mandatory verification is no more prohibited</p>	
<p>2.17</p> <p>recognition of verification</p> <p>legal decision taken by a party, either voluntarily or based on a bi- or multilateral arrangement</p>	

whereby a verification certificate issued and /or a verification mark applied by another party is recognized as complying with relevant requirements, without issuing a new type approval certificate	
<p>2.18</p> <p>inspection by sampling</p> <p>inspection of a homogeneous batch of measuring instruments based on the results of evaluation of a statistically appropriate number of specimens selected at random from an identified lot</p> <p><i>Note 1</i> It should be assured, that the conditions under which the respective instruments have been used (e.g. water quality for water meters) are as well comparable (homogeneous) within the batch.</p> <p><i>Note 2</i> ISO 3534-2 gives the following definition: “4.1.6 sampling inspection inspection of selected items in the group under consideration”</p>	
<p>2.19</p> <p>marking</p> <p>affixing of one or more marks</p> <p><i>Note 1</i> Examples of marks include: verification, rejection, sealing and type approval marks (as described in 3.05, 3.06, 3.07 and 3.08).</p> <p><i>Note 2</i> Verification and sealing marks may be combined.</p> <p><i>Note 3</i> The manufacturer may be authorized to apply other marks.</p>	
<p>2.20</p> <p>sealing</p> <p>means intended to protect the measuring instrument against any unauthorized modification, readjustment, removal of parts, software, etc.</p> <p><i>Note</i> It can be achieved by hardware, software or a combination of both.</p>	

<p>2.21 securing means preventing unauthorized access to the device's hardware or software part</p>	
<p>2.202 obliteration of a verification mark cancellation of the verification mark when it has been found that the measuring instrument no longer complies with the statutory requirements</p>	
<p>2.213 initial verification of measuring instruments utilizing the manufacturer's quality management system manufacturer's declaration of conformity of measuring instruments to legal metrological requirements for initial verification; the declaration permitted on condition that the manufacturer has a quality management system implemented and approved by a competent body <i>Note 1</i> The national responsible body shall have in place a means for periodically validating the implementation of a manufacturer's quality management system. <i>Note 2</i> The quality management program for measuring instruments shall be in accordance with legal metrological requirements for initial verification according to national laws or regulations for legal metrological control.</p>	
<p>2.224 placing on the market the first making available of a measuring instrument or a prepackage on the market <i>Note</i> This may refer to the market of a single country or a group of countries (region).</p>	

3. Documents and marks within legal metrology	
3.01 type approval certificate document certifying that type approval has been granted	
3.02 verification certificate document certifying that the verification of the measuring instrument was carried out and compliance with statutory requirements was confirmed	
3.03 metrological expertise certificate document issued by an authorized institution and registered by it, stating the conditions under which the metrological expertise took place and reporting the investigation made and the results obtained	
3.043 rejection notice document stating that a measuring instrument was found not to comply or no longer to comply with the relevant statutory requirements	
3.054 verification mark mark applied to a measuring instrument in a conspicuous manner certifying that the verification of the measuring instrument was carried out and compliance with statutory requirements was confirmed <i>Note</i> The verification mark may identify the body responsible for verification and/or indicate the year or date of verification or its expiry date.	

3.065 rejection mark mark applied to a measuring instrument in a conspicuous manner to indicate that the measuring instrument does not comply with the statutory requirements and obliterating the previously applied verification mark	
3.076 sealing mark mark intended to protect the measuring instrument against any unauthorized modification, readjustment, removal of parts, etc.	
3.087 type approval mark mark applied to a measuring instrument certifying its conformity to the approved type	

4. Classification of measuring instruments	
4.01 category of instruments identifiable set ation or classification of instruments according to unique metrological and technical characteristics that may include the measured quantity, the measuring range, and the principle or method of measurement	
4.02 family of measuring instruments identifiable group of measuring instruments belonging to the same manufactured type within the same category that have the same design features and metrological principles for measurement but which may differ in some metrological and technical performance characteristics, as defined in the relevant recommendation	
4.03 metrologically relevant attribute of any device, instrument, function or software that attribute of any device, instrument, function or software that being of influences the measurement result or any other primary indication	
4.04 module identifiable part of a measuring instrument or of a family of measuring instruments that performs a specific function or functions and that can be separately evaluated according to prescribed metrological and technical performance requirements as specified in the relevant recommendation <i>Example</i> Typical modules of a weighing instrument are: weighing module, load cell, indicator, analog or digital data processing	

device, terminal, primary display.	
4.05 family of modules identifiable group of modules belonging to the same manufactured type that have similar design features but may differ in some metrological and technical performance requirements as defined in the relevant recommendation	
4.06 type of a measuring instrument or module definitive model of a measuring instrument or module (including a family of instruments or modules) of which all of the elements affecting its metrological properties are suitably defined	
4.07 legally controlled measuring instrument measuring instrument which conforms to prescribed requirements, in particular legal metrological requirements	
4.08 legally relevant attribute of a part of measuring instrument, device or software attribute of a part of measuring instrument, device or software subject to legal control	
4.09 specimen of an approved type measuring instrument of an approved type, which on its own or together with suitable documentation, serves as a reference e.g. for checking conformity of instruments with the approved type	
4.10 legally relevant parameter parameter of a measuring instrument, (electronic)	

<p>device, sub-assembly, software or a module subject to legal control</p> <p><i>Note</i> The following types of legally relevant parameters can be distinguished: type-specific parameters and device-specific parameters.</p>	
<p>4.11</p> <p>type-specific parameter</p> <p>legally relevant parameter with a value that depends on the type of instrument only</p> <p><i>Note</i> Type-specific parameters are part of the legally relevant software.</p>	
<p>4.12</p> <p>device-specific parameter</p> <p>legally relevant parameter with a value that depends on the individual instrument</p> <p><i>Note</i> Device-specific parameters comprise adjustment parameters (e.g. span adjustment or other adjustments or corrections) and configuration parameters (e.g. maximum value, minimum value, units of measurement, etc.).</p>	
<p>4.13</p> <p>approved type</p> <p>definitive model or family of measuring instruments permitted for legal use, the decision being confirmed by the issuing of a type approval certificate</p>	
<p>4.14</p> <p>measuring instrument acceptable for verification</p> <p>measuring instrument of an approved type, or one that meets statutory requirements and may be exempt from type approval</p>	
<p>4.15</p> <p>verification equipment</p> <p>equipment that meets the statutory requirements and that is used for verification</p>	

<p>4.16</p> <p>equipment under test</p> <p>a sub-assembly, a combination of subassemblies or a complete measuring instrument subject to a test</p> <p><i>Note</i> Abbreviated: EUT.</p>	

5. Construction and operation of measuring instruments	
5.01 scale interval value expressed in units of the measured quantity of the difference between: <ul style="list-style-type: none"> the values corresponding to two consecutive scale marks, for analog indication; or two consecutive indicated values, for digital indication 	
5.02 verification scale interval value, expressed in appropriate units of mass , used for the classification and verification of an instrument Note This term applies to weighing instruments	
5.03 number of verification scale intervals quotient of the maximum capacity of a balance, “Max” and the verification scale interval, “e”: $n = \text{Max} / e$ <p><i>Note 1</i> This term applies to weighing instruments.</p> <p><i>Note 2</i> “Max” and “e” have to be in the same unit stands for maximum capacity.</p>	
5.04 indicating device part of the measuring instrument which displays the measurement results either continuously or on demand <p><i>Note</i> A printing device is not an indicating device, although a printed measurement result is considered to be an indication.</p>	

<p>5.05</p> <p>primary indication</p> <p>indication (displayed, printed or memorized) subject to legal metrology control</p>	
<p>5.056</p> <p>ancillary device</p> <p>device intended to perform a particular function, directly involved in elaborating, transmitting or displaying measurement results</p> <p><i>Note 1</i> An ancillary device may or may not be subject to legal metrology control according to its function in the measuring system or to national regulations.</p> <p><i>Note 2</i> Main ancillary devices are:</p> <ul style="list-style-type: none"> • zero setting device; • repeating indicating device; • printing device; • memory device; • price indicating device; • totalizing indicating device; • pre-setting device; • self-service device. 	
<p>5.067</p> <p>checking facility</p> <p>facility that is incorporated in a measuring instrument and which enables significant faults to be detected and acted upon.</p> <p><i>Note</i> “Acted upon” refers to any adequate response by the measuring instrument (luminous signal, acoustic signal, prevention of the measurement process, etc.).</p>	
<p>5.078</p> <p>control instrument</p> <p>weighing instrument used to determine the conventional true value of the mass of the test load(s)</p> <p><i>Note 1</i> Control instruments used for testing may be:</p> <ul style="list-style-type: none"> • separate from the instrument being tested; or • integral, when a static weighing mode is 	

<p>provided by the instrument being tested</p> <p><i>Note 2</i> This term is applicable for weighing instruments.</p>	
<p>5.089</p> <p>associated measuring instrument</p> <p>instrument for measuring certain measurands (temperature, pressure, calorific value, etc.) which are characteristic of the substance under measurement and which are used by the calculator with a view to making a correction and /or a conversion</p> <p>instrument for the measurement of a quantity, other than the measurand, the value of which is used to correct or convert a measurement result</p> <p><i>Note:</i> Typically, an associated measuring instrument is connected to a device (correction device, conversion device, calculator) that is part of a measuring instrument and that changes (corrects, converts) the measurement result to obtain a value for the measurand under specified conditions.</p>	
<p>5.109</p> <p>terminal</p> <p>digital device that has one or more keys (or mouse, touch-screen, etc.) to operate the instrument, and a display to provide the measurement results transmitted via the digital interface or an analog data processing device</p>	
<p>5.101</p> <p>initial intrinsic error</p> <p>intrinsic error of a measuring instrument as determined prior to performance tests and durability evaluations</p>	
<p>5.112</p> <p>fault</p> <p>difference between the error of indication and the intrinsic error of a measuring instrument</p> <p><i>Note 1</i> Principally, a fault is the result of an undesired change of data contained in or</p>	

<p>flowing through an electronic measuring instrument.</p> <p><i>Note 2</i> From the definition it follows that a “fault” is a numerical value which is expressed either in a unit of measurement or as a relative value, for instance as a percentage.</p>	
<p>5.13</p> <p>fault limit</p> <p>value specified in the applicable Recommendation delimiting non-significant faults</p>	
<p>5.124</p> <p>significant fault</p> <p>fault greater than the value specified in the relevant recommendation</p> <p><i>Note</i> The relevant recommendation may specify that the following faults are not significant, even when they exceed the specified value:</p> <ul style="list-style-type: none"> • faults arising from simultaneous and mutually independent causes (e.g. EM fields and discharges) originating in a measuring instrument or in its checking facilities; • faults implying the impossibility to perform any measurement; • transitory faults being momentary variations in the indication, which cannot be interpreted, memorized or transmitted as a measurement result; • faults giving rise to variations in the measurement result that are serious enough to be noticed by all those interested in the measurement result; the relevant recommendation may specify the nature of these variations. <p>fault exceeding the applicable fault limit value</p> <p><i>Note</i> For particular types of measuring instruments some faults exceeding the fault limit may not be considered a significant fault the applicable Recommendation shall state when such exception applies. For example the occurrence of one or some of the following faults may be acceptable</p> <ul style="list-style-type: none"> • faults arising from simultaneous and mutually independent causes originating in a measuring instrument or in its checking facilities, 	

<ul style="list-style-type: none"> • faults implying the impossibility to perform any measurement, • transitory faults being momentary variations in the indication, which cannot be interpreted, memorized or transmitted as a measurement result, • faults giving rise to variations in the measurement result that are serious enough to be noticed by all those interested in the measurement result; the applicable Recommendation may specify the nature of these variations. 	
<p>5.15 durability ability of the measuring instrument to maintain its performance characteristics over a period of use</p>	
<p>5.136 durability error difference between the intrinsic error after a period of use and the initial intrinsic error of a measuring instrument</p>	
<p>5.147 significant durability error durability error greater than exceeding the value specified in the relevant applicable Recommendation <i>Note</i> The relevant recommendation may specify that durability errors are not significant, even when they exceed the specified value, in the following cases: Some durability errors exceeding the value specified may still be considered not significant. The applicable Recommendation shall state when such exception applies. For example the occurrence of one or some of the following errors may be acceptable:</p> <ul style="list-style-type: none"> • the indication cannot be interpreted, memorized or transmitted as a measurement result; • the indication implies the impossibility to perform any measurement; • the indication is so obviously wrong that it is 	

<p>bound to be noticed by all those interested in the result of the measurement; or</p> <ul style="list-style-type: none"> • a durability error cannot be detected and acted upon due to a breakdown of the appropriate durability protection facility. 	
<p>5.158</p> <p>influence factor</p> <p>influence quantity having a value which ranges within the rated operating conditions of a measuring instrument specified in the relevant recommendation</p> <p><i>Note 1:</i> The rated operating conditions shall be in conformity with the applicable requirements specified in the applicable Recommendation</p> <p><i>Note 2:</i> The variation of an indication as a consequence of an influence factor is considered an error and not a fault.</p>	
<p>5.169</p> <p>disturbance</p> <p>influence quantity having a value within the limits specified in the relevant recommendation, but outside the specified rated operating conditions of a measuring instrument</p>	
<p>5.1720</p> <p>test program</p> <p>description of a series of tests for certain types of equipment</p>	
<p>5.218</p> <p>performance test</p> <p>test intended to verify whether the EUT is able to accomplish its intended functions</p>	
<p>5.1922</p> <p>durability test</p> <p>test intended to verify whether the EUT is able to maintain its performance characteristics over a period of use</p>	

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6. Software in legal metrology	
6.01 software identification sequence of readable characters (e.g. version number, checksum) that is inextricably linked to the software or software module under consideration <i>Note</i> It can be checked on an instrument whilst in use.	
6.02 software separation separation of the software in measuring instruments, which can be divided into a legally relevant part and a legally non-relevant part <i>Note</i> These parts communicate via a software interface.	
6.03 software interface program code and a dedicated data domain receiving, filtering, or transmitting data between software modules <i>Note</i> Software interface is not necessarily legally relevant.	
6.034 software protection securing of measuring instrument software or data domain by a hardware or software implemented seal <i>Note</i> The seal must be removed, damaged or broken to obtain access to change software.	
6.045 audit trail continuous data file containing a time stamped information record of events, e.g. changes in the	

<p>values of the parameters of a device or software updates, or other activities that are legally relevant and which may influence the metrological characteristics</p>	
<p>6.05</p> <p>cryptographic certificate</p> <p>data set containing the public key belonging to a measuring instrument or a person plus a unique identification of the subject, e.g. serial number of the measuring instrument or name or Personal Identification Number (PIN) of the person</p> <p><i>Note 1</i> . The data set is signed by a trustworthy institution with an electronic signature.</p> <p><i>Note 2</i> . The assignment of a public key to a subject can be verified by using the public key of the trustworthy institution and decrypting the signature of the certificate.</p>	
<p>6.06</p> <p>cryptographic means</p> <p>encryption of data by the sender (storing or transmitting program) and decryption by the receiver (reading program) with the purpose of hiding information from unauthorized persons or electronic signing of data with the purpose of enabling the receiver or user of the data to verify the origin of the data, i.e. to prove their authenticity</p> <p><i>Note 1</i> For electronic signing a public key system is used in general, i.e. the algorithm needs a pair of keys where only one has to be kept secret; the other may be public.</p> <p><i>Note 2</i> The sender (the sending or storing program) generates a hash code of the data and encrypts it with his secret key. The result is the signature. The receiver (the receiving or reading program) decrypts the signature with the public key of the sender and compares the result with the actual hash code of the data. In case of equality, the data are authenticated. The receiver may require a cryptographic certificate of the sender to be sure of the authenticity of the public key.</p>	

<p>6.07</p> <p>data domain</p> <p>location in memory that each program needs for processing data</p> <p>Note 1 The location is defined by hardware addresses or by symbolic names.</p> <p>Note 2 Data domains may belong to one software module only, or to several.</p>	
<p>6.08</p> <p>error log</p> <p>continuous data file containing an information record of failures / faults that have an influence on the metrological characteristics</p> <p>Note This especially applies to volatile failures that are not recognizable afterwards when the measurement values are used.</p>	
<p>6.096</p> <p>event</p> <p>action in which a modification of a measuring instrument parameter, adjustment factor or update of software module is made</p>	
<p>6.11</p> <p>fixed legally relevant software part</p> <p>part of the legally relevant software that is and remains identical in the executable code to that of the approved type</p>	
<p>6.10</p> <p>legally relevant software part</p> <p>part of all software modules of a measuring instrument, electronic device, or sub-assembly that is legally relevant</p>	
<p>6.12</p> <p>sealing</p> <p>means intended to protect the measuring instrument against any unauthorized modification, readjustment, removal of parts,</p>	

<p>software, etc.</p> <p>Note It can be achieved by hardware, software or a combination of both.</p>	
<p>6.13</p> <p>securing</p> <p>means preventing unauthorized access to the device's hardware or software part</p>	
<p>6.1407</p> <p>storage device</p> <p>storage used for keeping measurement data ready after completion of the measurement for later legally relevant purposes (e.g. the conclusion of a commercial transaction)</p>	
<p>6.1508</p> <p>user interface</p> <p>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</p>	

A1 Terms relating to conformity assessment	
A1.1 conformity assessment demonstration that specified requirements relating to a product, process, system, person or body are fulfilled <i>Note 1</i> The subject field of conformity assessment includes activities defined in ISO/IEC 17000, such as testing, inspection and certification, as well as the accreditation of conformity assessment bodies. <i>Note 2</i> The expression “object of conformity assessment” or “object” is used in ISO/IEC 17000 to encompass any particular material, product, installation, process, system, person or body to which conformity assessment is applied. A service is covered by the definition of a product. [ISO/IEC 17000, 2.1]	
A1.2 conformity assessment body body that performs conformity assessment services <i>Note</i> An accreditation body is not a conformity assessment body. [ISO/IEC 17000, 2.5]	
A1.3 accreditation body authoritative body that performs accreditation <i>Note</i> The authority of an accreditation body is generally derived from government. [ISO/IEC 17000, 2.6]	
A1.4 conformity assessment system rules, procedures and management for carrying	

<p>out conformity assessment</p> <p><i>Note</i> Conformity assessment systems may be operated at international, regional, national or sub-national level.</p> <p>[ISO/IEC 17000, 2.7]</p>	
<p>A1.5</p> <p>conformity assessment scheme</p> <p>conformity assessment program</p> <p>conformity assessment system related to specified objects of conformity assessment, to which the same specified requirements, specific rules and procedures apply</p> <p><i>Note</i> Conformity assessment schemes may be operated at international, regional, national or sub-national level.</p> <p>[ISO/IEC 17000, 2.8]</p>	
<p>A1.6</p> <p>(specified) requirement</p> <p>need or expectation that is stated</p> <p><i>Note</i> Specified requirements may be stated in normative documents such as regulations, standards and technical specifications.</p> <p>[ISO/IEC 17000, 3.1]</p>	
<p>A1.7</p> <p>product certification system</p> <p>system that has its own rules of procedures and management for carrying out product certification</p> <p>[ISO Guide 65]</p>	
<p>A1.87</p> <p>procedure</p> <p>specified way to carry out an activity or a process</p> <p>[ISO 9000:2000, 3.4.5]</p>	
<p>A1.98</p> <p>product certification scheme</p> <p>product certification system related to specified products to which the same particular standards</p>	

<p>and rules, and the same procedure, apply [ISO Guide 65]</p> <p>certification scheme</p> <p>certification system related to specified products, to which the same specified requirements, specific rules and procedures apply</p> <p>NOTE 1 Adapted from ISO/IEC 17000:2004, definition 2.8.</p> <p>NOTE 2 A “certification system” is a “conformity assessment system”, which is defined in ISO/IEC 17000:2004, definition 2.7.</p> <p>NOTE 3 The rules, procedures and management for implementing product, process and service certification are stipulated by the certification scheme.</p> <p>NOTE 4 General guidance for the development of schemes is given in ISO/IEC 17067, in combination with ISO/IEC Guide 28 and ISO/IEC Guide 53.</p> <p>[ISO/IEC 17065:2012, 3.9]</p>	
<p>A1.109</p> <p>sampling</p> <p>provision of a sample of the object of conformity assessment, according to a procedure</p> <p>[ISO/IEC 17000, 4.1]</p>	
<p>A1.110</p> <p>testing</p> <p>determination of one or more characteristics of an object of conformity assessment, according to a procedure</p> <p><i>Note</i> “Testing” typically applies to materials, products or processes.</p> <p>[ISO/IEC 17000, 4.2]</p>	
<p>A1.121</p> <p>inspection</p>	

<p>examination of a product design, product, process or installation and determination of its conformity with specific requirements or, on the basis of professional judgement, with general requirements</p> <p><i>Note</i> Inspection of a process may include inspection of persons, facilities, technology and methodology.</p> <p>[ISO/IEC 17000, 4.3]</p>	
<p>A1.132</p> <p>audit</p> <p>systematic, independent, documented process for obtaining records, statements of fact or other relevant information and assessing them objectively to determine the extent to which specified requirements are fulfilled</p> <p><i>Note</i> Whilst “audit” applies to management systems, “assessment” applies to conformity assessment bodies as well as more generally.</p> <p>[ISO/IEC 17000, 4.4]</p>	
<p>A1.143</p> <p>peer assessment</p> <p>assessment of a body against specified requirements by representatives of other bodies in, or candidates for, an agreement group</p> <p>[ISO/IEC 17000, 4.5]</p>	
<p>A1.154</p> <p>review</p> <p>verification of the suitability, adequacy and effectiveness of selection and determination activities, and the results of these activities, with regard to fulfillment of specified requirements by an object of conformity assessment</p> <p>[ISO/IEC 17000, 5.1]</p>	
<p>A1.165</p> <p>attestation</p> <p>issue of a statement, based on a decision following review, that fulfillment of specified</p>	

<p>requirements has been demonstrated</p> <p><i>Note 1</i> The resulting statement, referred to in ISO/IEC 17000 as a “statement of conformity”, conveys the assurance that the specified requirements have been fulfilled. Such an assurance does not, of itself, afford contractual or other legal guarantees.</p> <p><i>Note 2</i> First-party and third-party attestation activities are distinguished by the terms: declaration, certification and accreditation. For second-party attestation, no special term is available.</p> <p>[ISO/IEC 17000, 5.2]</p>	
<p>A1.176</p> <p>scope of attestation</p> <p>range or characteristics of objects of conformity assessment covered by attestation</p> <p>[ISO/IEC 17000, 5.3]</p>	
<p>A1.187</p> <p>declaration (of conformity)</p> <p>first-party attestation</p> <p>[ISO/IEC 17000, 5.4]</p>	
<p>A1.198</p> <p>certification (of conformity)</p> <p>third-party attestation related to products, processes, systems or persons</p> <p><i>Note 1</i> Certification of a management system is sometimes also called registration.</p> <p><i>Note 2</i> Certification is applicable to all objects of conformity assessment except for conformity assessment bodies themselves, to which accreditation is applicable.</p> <p>[ISO/IEC 17000, 5.5]</p>	
<p>A1.2019</p> <p>accreditation</p> <p>third-party attestation related to a conformity assessment body conveying formal demonstration</p>	

<p>of its competence to carry out specific conformity assessment tasks</p> <p>[ISO/IEC 17000, 5.6]</p>	
<p>A1.210</p> <p>surveillance</p> <p>systematic iteration of conformity assessment activities as a basis for maintaining the validity of the statement of conformity</p> <p>[ISO/IEC 17000, 6.1]</p>	
<p>A1.221</p> <p>suspension</p> <p>temporary invalidation of the statement of conformity for all or part of the specified scope of attestation</p> <p>[ISO/IEC 17000, 6.2]</p>	
<p>A1.232</p> <p>appeal</p> <p>request by the provider of the object of conformity assessment to the conformity assessment body or accreditation body for reconsideration by that body of a decision it has made relating to that object</p> <p>[ISO/IEC 17000, 6.4]</p>	
<p>A1.243</p> <p>complaint</p> <p>expression of dissatisfaction, other than appeal, by any person or organization to a conformity assessment body or accreditation body, relating to the activities of that body, where a response is expected</p> <p>[ISO/IEC 17000, 6.5]</p>	
<p>A1.254</p> <p>agreement group</p> <p>bodies that are signatories to the agreement on which an arrangement is based</p>	

[ISO/IEC 17000, 7.10]	
<p>A1.265</p> <p>approval</p> <p>permission for a product or process to be marketed or used for stated purposes or under stated conditions</p> <p>[ISO/IEC 17000, 7.1]</p>	
<p>A1.276</p> <p>reciprocity</p> <p>relationship between two parties where both have the same rights and obligations towards each other</p> <p><i>Note 1</i> Reciprocity can exist within a multilateral arrangement comprising a network of bilateral reciprocal relationships.</p> <p><i>Note 2</i> Although rights and obligations are the same, opportunities emanating from them can differ; this can lead to unequal relationships between parties</p> <p>[ISO/IEC 17000, 7.11]</p>	
<p>A1.287</p> <p>equal treatment</p> <p>treatment accorded to products or processes from one supplier that is no less favorable than that accorded to like products or processes from any other supplier, in a comparable situation</p> <p>[ISO/IEC 17000, 7.12]</p>	
<p>A1.2928</p> <p>national treatment</p> <p>treatment accorded to products or processes originating in other countries that is no less favourable than that accorded to like products or processes of national origin, in a comparable situation</p> <p>[ISO/IEC 17000, 7.13]</p>	
<p>A1.3029</p>	

equal and national treatment treatment accorded to products or processes originating in other countries that is no less favorable than that accorded to like products or processes of national origin, or originating in any other country, in a comparable situation [ISO/IEC 17000, 7.14]	
A1.3130 designation governmental authorization of a conformity assessment body to perform specified assessment activities [ISO/IEC 17000, 7.2]	
A1.321 designating authority body established within government or empowered by government to designate conformity assessment bodies, suspend or withdraw their designation or remove their suspension from designation [ISO/IEC 17000, 7.3]	
A1.332 equivalence equivalence of conformity assessment results sufficiency of different conformity assessment results to provide the same level of assurance of conformity with regard to the same specified requirements [ISO/IEC 17000, 7.4]	
A1.343 recognition recognition of conformity assessment results acknowledgement of the validity of a conformity assessment result provided by another person or body [ISO/IEC 17000, 7.5]	

A1.354 acceptance acceptance of conformity assessment results use of a conformity assessment result provided by another person or body [ISO/IEC 17000, 7.6]	
A1.365 unilateral arrangement arrangement whereby one party recognizes or accepts the conformity assessment results of another party [ISO/IEC 17000, 7.5]	
A1.376 bilateral arrangement arrangement whereby two parties recognize or accept each other's conformity assessment results [ISO/IEC 17000, 7.8]	
A1.387 multilateral arrangement arrangement whereby more than two parties recognize or accept one another's conformity assessment results [ISO/IEC 17000, 7.9]	

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