



## **First Committee Draft (1CD)**

**Project:** New Recommendation

**Title:** Electrical Vehicle Supply Equipment (EVSE)

— Collated comments and responses 1WD

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**Project Group:** OIML TC 12/ P 3

**Convenership:** Dutch Authority for Digital Infrastructure (RDI) - Netherlands

**Convener:** Matthijs van der Wiel

Country code	Part	Clause/subclause	Paragraph/Figure/Table	Type of comment <sup>2</sup>	Comments (ref. doc: 1WD, TC12_P3_N029/N030/N031/N033)	Proposed change	Convener's responses
0001-JP					No Comments		Noted.
0002-CZ			Part 1&2	ed	“national authorities shall/may” National jurisdictions unify wording.		Discussed at PG meeting in Prague.  See 0003-AU.
0339-CZ	most			ge	“national authorities shall/may” National jurisdictions	in each requirement where it is mentioned this may mean additional certification. It would be advisable to state it somewhere at the beginning so that the manufacturer is aware that he should consider different configurations when designing.	Discussed at PG meeting in Prague.  See 0003-AU.
0003-AU	1			ge	This recommendation contains 29 instances of national authority or national authorities. And more reference to national legislation or similar. Generally, these are associated with requirements or severity levels where agreement could not be reached, and so the compromise was to leave it to the national authority. Each of these reduces the benefits of having an international Recommendation. Many of these come directly from OIML R 46.	Review all instances to see if they can be removed or reworded.	Discussed at PG meeting in Prague.  Decision: there is consensus that reducing the number of choices is wise. Consider clustering different options throughout the document. Many occurrences are in conjunction with "may", which seems weak, but could still be important. Will go through occurrences with 'may' and 'shall' for national choices, and reduced as much as possible.
0004-BR	1			ge	The Direction of Legal Metrology of Brazil is pleased to see the progress towards developing a new OIML Recommendation on EVSE. We are closely monitoring the discussions surrounding this document and are eager to contribute to its use not only in Brazil but also in other South American countries that are equally concerned about the rapid deployment of EV in the region. For this reason, much of our contribution focuses on specifying type approval requirements that facilitate initial and subsequent verifications in a swift and economical manner. In fact, we are worried to see that there are very few requirements in place to prevent fraud (i.e., sealing points, terminal block, mandatory calibration output, test modes, etc.), so we hope that the next WD’s will address these issues. In addition, we are providing numerous comments regarding the type approval test procedures to enable the use of existing laboratory infrastructure, thus avoiding the need to purchase new equipment.		Noted.
0005-BR	1			ge	Inmetro has conducted a case study of an AC EVSE without a display and without metrological test output. We focus our study on how to perform type approval tests and the procedures for in-service verifications. Our conclusion is that while it is possible to conduct most type tests without displays (by using an app on a cellphone as an indicating device), these methods are very time-consuming and inefficient for testing in both the field and the lab. We identified the following problems:  1) High time intervals to obtain measurement results on a cellphone. 2) In areas with no internet, transactions are impossible. If the signal is weak, a metrologist would spend considerable time initiating a transaction and obtaining an updated result on the cellphone (the same applies in the lab). 3) Failures in communication modules result in unavailable readings and transactions. 4) RF radiated tests are practically unfeasible without a physical indicating device, as the laboratory needs to register the meter’s error at each frequency point, requiring one measurement at each dwell time in the anechoic room or G-TEM Cell. Even if a cellphone is placed inside the testing chamber, its display turns off after a while, making the test extremely lengthy. 5) In AC EVSE, we noted differential protection to detect 3-phase unbalances in the output. During type approval tests, this protection must be disconnected to allow for metrological tests using a commercial bench.	Discuss the possibility to become mandatory a physical indicating display in the enclosure of the EVSE, as well as, a metrological test output (LED). For AC EVSE, differential protections must be able to be deactivated for type approval tests and metrological verifications	Discussed at PG meeting in Prague.  An option for a pulse output for testing is already in the document (G22, and 1WD R), although not mandatory. No change needed. The choice for national authorities in 4.3.1 should remain.
0006-CN	1		Paragraph	te	Add New Requirements	For EVSE equipped with a client interface, the display should remain illuminated for at least 15 seconds before and after charging.	Discussed at PG meeting in Prague.  Accepted. Decide to add: For EVSE equipped with a local client interface, the display should remain visible for at least 15 seconds before and after transaction. (Exact wording to be decided; also take into account: what is starting point for the 15 seconds?.) Alternatively: interface open to user interaction to allow recalling.  Implemented in 4.2.2.2 "4.2.2.2Availability of legally relevant transaction data".
0007-BR	1	1 146-147		te	The terms re-verification and in-situ testing are not in the VIML 2022 Edition. Additionally, instead type approval use type evaluation to be consistent with definition 2.04 of VIML:2022.	1. Consider the following change: Instead: “The requirements are provided for type approval, verification, re-verification and in situ testing.” Consider: “The requirements are provided for type evaluation, initial and subsequent verifications including in service verifications.”  Replace in the whole text these terms accordingly with VIML.	Accepted. Terminology improved in section 1, scope.  "re-verification" changed to "subsequent verification" throughout the document.

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0008-BR	1	1	147	te	The scope mentions that the specified requirements also apply to modifications that may be made to existing approved devices. It looks to be incorrect because the recommendation does not bring any provision or extra tests to be done when a previously approved type is modified.  In general, the evaluation of modifications of previously approved models is in charge of type approval Issuing Authorities.	Retire the sentence “They also apply to modifications that may be made to existing approved devices”.  Or  Discuss the possibility to provide guidance to IA’s on evaluating modifications of previously approved models.	Discussed at PG meeting in Prague.  Decide to keep this sentence, and work on guidance inspired by the Annex D of R46 2CD.  However, considering the lack of experience at the moment due to the fact that EVSE are relatively new instruments in the field of legal metrology, we suggest to postpone this activity. In addition, the Annex D in the 2CD version of R46 is still in development. As a result, the sentence mentioned in this comment is removed for now.
0009-BR	1	1	153	te	In our opinion this recommendation must apply to private transactions, especially those defined in 2.2.17.3, because it is a fundamental principle of legal metrology: <b>when there is a need to protect both the buyer and the seller in a commercial transaction</b> the legislation on measurements and measuring instruments is required!	Discuss definition 2.2.17.3 on private transactions.	Discussed at PG meeting in Prague. See also 0140-AU, 0010-AU.  Deciding to remove the final sentence of the scope, thereby including contractual private transactions in scope. It is important to go through the document to assess which aspects (transaction data, 4.2.2.1.3, for example) are relevant, and which are different from the other types of transactions.  ----  We have examined the document and conclude that all requirements and test procedures can apply to the contractual private case, just like to the other two types.
0010-AU	1	1	Para 3	te	This recommendation should apply to all EVSE subject to legal metrological controls (used for trade). If ‘contractual private (single user) transactions’ are ‘subject to legal metrological controls’, why are they excluded? Is another Recommendation needed for them?	Amend the scope to make it apply to all EVSE subject to legal metrological controls.	See 0009-BR, 0140-AU. Discussed at PG meeting in Prague.
0011-NL	1	2		ge	Definitions should be listed in alphabetical order in a Recommendation.	Reorder the definitions in chapter 2.	Will be implemented into the next draft version.
0012-BR	1	2.1.2		te	This definition is dangerous from the legal metrology point of view and probably unnecessary. It leads the reader to think that an EVSE with a meter previously approved need less performance tests than an EVSE with embedded metrology which is not necessarily true. We observed this line of thinking in the notes in table 4 and we consider that EVSE which use a previously approved meter does not deserve special waivers during the type evaluation.	Eliminate definition 2.1.2 to avoid different treatments during evaluation of EVSE with and without approved meters.	Rejected. During the subgroup 2 meeting on the 28th of April it has been decided to keep this definition. However, it has been improved as follows: "device such as defined in 2.1.1, but for which the basic metrology including generation and presentation of legally relevant transaction data is provided by a separately type approved meter which has been tested for compliance with a recognised metering standard with equal or more stringent requirements"
0013-DE	1	2.1.3		te	“Effective metering point is point of connection to the vehicle” this is only correct for EVSEs with attached cables. If the cable is brought by the customer, the socket in the EVSE must be considered as a metering point. The EVSE has no influence and no knowledge of the length and power loss of a customer's cable	Consider the common case for AC that only a socket is installed. Similar to Note 2.2.1. Or refer directly to 2.2.1	Accepted. Explanation in figure in 2.1.3 is now aligned with the definition of 'connection point' in 2.2.1. No change needed for 2.1.4 as DC systems always have fixed cables.  See also 0014-AU, 0015-AU.
0014-AU	1	2.1.3	Fig 1	te	‘D’ in the figure is labelled as ‘Effective metering point in point of connection to the vehicle’. What is meaning of ‘Effective metering point’? This term is not defined or used elsewhere.	Change the label to use defined term ‘Connection point’	Accepted.
0015-AU	1	2.1.4	Fig 2	te	Same comment as 2.1.3, Fig 1.	Change the label to use defined term ‘Connection point’	Accepted.
0016-CA	1	2.2.1		Ed	The note makes reference to ‘charging system” This term is not used anywhere else in the document except in part of the Scope statement.	Replace charging system with EVSE.	Accepted.
0017-CA	1	2.2.1		Ed	“Output cable’ is ambiguous.	Suggest to replace ‘output cable’ with ‘charging cable’ (two instances)  Also introduce definition for charging cable as follows: <b>Charging cable</b> A collection of encased wires that may include an integral connector that is used to transmit electricity to an electric vehicle. The charging cable maybe permanently attached to the EVSE or it may be a replaceable part.	Accepted.
0018-AU	1	2.2.1		ed	This definition refers to a term ‘fixed installation’ which seems to be defined in an IEC standard. The term ‘fixed installation’ is not used elsewhere in this document.	Change fixed installation to ‘EVSE’	Accepted.
0031-CA	1	2.2.4		ed	The sentence is a bit awkward to read.	Suggest the following: Connections of the EVSE and part of the measuring element through which current flows to the electric vehicle connected to the EVSE.	Accepted.
0032-CA	1	2.2.6		Te	The term auxiliary power supply is not used in the Recommendation	Remove ‘Auxiliary power supply’ from this document.	Accepted.
0033-AU	1	2.2.6		ed	This term (auxiliary power supply) is not used anywhere.	Delete term if not needed.	Accepted.
0034-AU	1	2.2.7		ed	Note says an indicating device may be also known as a display. The use of alternative terms should be avoided in OIML Recommendations. If retained, it should be added under the term – not in a note.	Remove note 2, and either: Replace all relevant uses of display with ‘indicating device’, or, edit 2.2.7 as follows: 2.2.7 indicating device display	Accepted. All occurrences of 'display' as a noun will be replaced throughout the text.
0035-DE	1	2.2.7		te	The indicating device must be part of the DUT and thus of the EVSE, otherwise no requirements can be placed on it.	Change to: Part of the EVSE and client interface that displays the legally relevant transaction data. Or: Change “facility” in 2.2.2 to “part” Replace Note 2 with the following:	Accepted.
0036-CA	1	2.2.8		te	Note 2 should be amended to also require manufacturer to provide verification interface to the approval/certification agency.	The manufacturer either ensures that the verification interface is part of the instrument or provides a verification interface to the certification/approval agency or the authorized conformity assessment or inspection body.	Partly accepted.  See also 0037-AU, 0038-DE. Note 2 removed, text simplified and added to the definition itself.
0037-AU	1	2.2.8		ed	Editorial corrections are needed.	Change first letter in definition to lower case. Remove full stops after EVSE and at end of sentence. Note 2 appears to be a requirement so should be moved from the definitions section to the main body of the document.	Accepted.  Note 2 removed (see also 0036-CA). Full stop removed.
0038-DE	1	2.2.8		Ed	The formatting of the definition for “verification interface” does not comply with B6-2 Annex A.	Start with a lowercase letter, remove full stops after “EVSE” and “purposes”. Add a full stop at the end of note 1.	Accepted. See also 0036-CA, 0037-AU.
0039-DE	1	2.2.8		te	The verification interface must be part of the DUT and thus of the EVSE, otherwise no requirements can be placed on it.	Change “facility” to “part”	Accepted.
0040-CA	1	2.2.9		Ed	The term ‘system’ is not clearly defined in the document.	Replace ‘system’ with ‘EVSE’	See also 0041-AU, 0042-AU. Clauses deleted entirely, no longer relevant.

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0041-AU	1	2.2.9 to 2.2.12		ed	These definitions all start with ‘part of the system...’. What is ‘the system’?	Change system to EVSE.	See also 0040-CA, 0042-AU. Clauses deleted entirely, no longer relevant.
0042-AU	1	2.2.9 to 2.2.12		te	The notes refer to registers in a R 46 compliant meter. For example, the note in 2.2.9 is “This energy register is the same as the energy received accumulation register in a R 46 compliant meter.” OIML R 46 does not use these terms. And, OIML R 46 only applies to AC meters, whereas EVSE could be AC or DC. Moreover, none of these terms (2.2.9 to 2.2.12) are used in the document.	For discussion.	Accepted.  These terms are not used in parts 1 and 2, indeed. Do not occur in parts 3 and 4 either. Removing these.
0019-CA	1	2.2.10			The term ‘system’ is not clearly defined in the document.	Replace ‘system’ with ‘EVSE’	Clauses deleted entirely, no longer relevant.
0020-CA	1	2.2.11			The term ‘system’ is not clearly defined in the document.	Replace ‘system’ with ‘EVSE’	Clauses deleted entirely, no longer relevant.
0021-CA	1	2.2.12			The term ‘system’ is not clearly defined in the document.	Replace ‘system’ with ‘EVSE’	Clauses deleted entirely, no longer relevant.
0022-AU	1	2.2.12		te	Note 1 says ‘In this Recommendation unless otherwise noted, register shall mean the transaction energy delivered register.’ This seems either unnecessary or wrong. As far as I can see, either the register is noted, or it should mean any register.	Delete note.	Accepted.
0023-AU	1	2.2.13		ed	This term (adjustment device) is not used anywhere.	Delete term if not needed.	It was not used in 1WD, but now does occur in 9.2.
0024-AU	1	2.2.15		ed	This term (sub-assembly) is only used in 5.1 in the software documentation list. Many other instances of the term have been deleted. Is the term needed?	Delete term if not needed.	Agreed. Not needed. Removed. Also removed from 5.1.
0025-AU	1	2.2.17		te	This clause says ‘A single EVSE may participate in more than one type of transaction’. I don’t think a single EVSE can be used for public and private transactions when the private definition says the use of the EVSE is limited to a single user. Also, this should be part of the requirements, not sit within the definitions.	Move to the body of the Recommendation and clarify it only relates to the public transactions.	Noted. Solved by removing the sentence on multiple types.
0026-DE	1	2.2.17		Te	The formatting and wording of the definition for “transaction types” does not comply with B6-2 Annex A. Moreover, it is unclear if a separate definition for “transaction type” is needed if all three variants of transactions are defined.	Delete 2.2.17 and move the second sentence “A single EVSE may participate...” into a requirement clause.	Accepted. See also 0025-AU.
0027-DE	1	2.2.17.12. 2.17.22.2. 17.3		Ed	The term “recharging point” is used in all three definitions but nowhere else in the text.	Replace the term “recharging point” with either “EVSE”, “connection point” etc. as the case might be.	Accepted.
0028-AU	1	2.2.17.1 and 2.2.17.2		te	These terms (public transactions) use the term ‘recharging service’. This term is not defined and seems to only capture energy transferring from EVSE to an EV. What about energy from the EV to the EVSE?	Redraft these to include energy flowing in both directions.	Noted. The notion of 'service' means more than just the the connection point, more than the EVSE; it is also about the complete service package provided to the user. Please provide a concrete suggestion if a change is still desired.
0029-NL	1	2.2.17.3		ed	To be useful as a definition, the final sentence, starting “In this type of transaction [...]”, should not be part of the definition itself.	Move the second sentence to a note.	Accepted.
0030-AU	1	2.2.17.3		ed	In the term, the words ‘single user’ in brackets do not appear anywhere else in the document. Also, transactions should not be pluralised.	Change ‘contractual private (single user) transactions’ to ‘contractual private transaction’.	Accepted.
0237-CZ	2*	2,3		ge	Missing specification of quantities Umin and Umax. These quantities are used in the Recommendation elsewhere (in section 7.2.1)	Minimum voltage, Umin Lowest value of voltage at which the EVSE is specified by the manufacturer to meet the accuracy requirements of this Recommendation  Maximum voltage, Umax highest value of voltage at which the EVSE is specified by the manufacturer to meet the accuracy requirements of this Recommendation	Comment not completely clear. We suspect this is about chapters 2 and 3 (definitions) in *part 1*, not part 2.  Discussed in Prague. See 0060-DE.
0047-CN	1	2.3.2	Paragraph	te	Regarding the definition of starting current, the text only mentions the power factor of AC EVSE and multiphase balanced loads, without providing a definition specifically for DC EVSE.	The minimum specified current. for AC EVSE charging piles should be recorded at unity power factor. In the case of multiphase charging piles, this should be done under balanced load conditions.	Noted. However, the requirement is covered in Table 1 and Table 2. Specifications not needed here in the definition, and therefore removed.
0060-DE	1	2.3.7		te	Unom is defined for AC EVSE only. Since Umin and Umax are mentioned for DC EVSE, both should be defined, too. The definitions should include DC EVSE only.	Add two new subchapters: Minimum voltage, Umin Lowest voltage specified by the manufacturer for normal operation of an DC EVSE  Maximum voltage, Umax Highest voltage specified by the manufacturer for normal operation of an DC EVSE	See also 0067-DE  Discussed at PG meeting in Prague.  Accepted. But keeping Umin open, no restriction at 300V.
0061-BR	1	2.3.7	32-34	te	Nominal voltage definition needs following improvements: - The term “normal operation” is too ambiguous for legal metrology. - Is normal operation when the meter attends the BMPE? Nominal voltage ranges could be confused with operative limits	Consider the following change in definition 2.3.7:  2.3.7 nominal voltage, Unom voltage (or nominal voltage range) specified by the manufacturer for normal operation of an EVSE in which the instrument keeps its metrological properties (i.e. BMPE). An EVSE may have multiple Unom <del>Note: An DCEVSE with no single nominal voltage, but rather a range of voltages from Umin to Umax.</del>  <b>Note: The nominal voltage range, defined by the interval [Un min; Un max], should not be confused with the operating limits of the instrument generally defined by a larger interval.</b>	Noted. "for normal operation" removed. Instead, write "at which an EVSE is intended to operate". The nominal voltage range (for DC EVSE) is covered in new definitions.
0238-CZ	2	2.3.7		3 te	The Note enables to specify even only Unom or only Umin and Umax for DC EVSE. Should be clear and compatible with Part 3, Clause 1.3, Table DC EVSE	Note: A DC EVSE may have a range of voltages from Umin to Umax.	Comment is not about part 2, but about definitions in part 1.  Rejected. The voltage range is specified in Table 1.  --> see 0060-DE, covered.
0062-AU	1	2.3.8		ed	The definition uses the word ‘outpower’. I don’t think this is the correct word.	Revise definition. Perhaps it is meant to be output power?	Yes. Output power. Accepted
0043-CA	1	2.3.14		Ed	The term “DC ripple” is not used in the document. Only the term “ripple” is used.	Change “DC ripple” to “Ripple”	With adjustments to Table 1 in part 1, the DC ripple definition is not needed at all. Removed entirely.
0044-AU	1	2.3.14		ed	This term (DC ripple) is not used anywhere. But the term ripple is used.	Be consistent. Use either ripple or DC ripple everywhere.	Accepted. Same as 0043-CA.
0045-DE	1	2.3.17		Ed	The “MPE” is defined in V1.	Replace the reference to D31:2023, 3.2.32 with a reference to V1:2022, 0.05.	Accepted.
0046-AU	1	2.3.19		ed	The last sentence says ‘For each influence factor there is one corresponding maximum permissible error shift’. I suggest this sentence is not needed and could cause confusion. There are different maximum permissible error shifts for different accuracy class EVSE.	Delete last sentence.	Accepted



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0048-DE	1	2.3.21		Ed	The term “initial intrinsic error” is defined in V1.	Replace the reference to D11:2013, 3.9 with a reference to V1:2022, 5.11.	Accepted.
0049-BR	1	2.3.22		te	Definition of MMQ depends of the EVSE’s resolution. Calling R as the EVSE’s resolution and using mathematical induction, we concluded that MMQ = R [kWh] / Acc.class.[%] That value seems to be unsuitable for metrological type evaluation, in special, when compared with the traditional evaluation method of electricity meters which use the calibration LED test output to automatically compute the meter error. If EVSE have a mandatory test output like electricity meters, the MMQ would be unnecessary, the type evaluation tests would be faster and no adaptation in AC test benches would be required.	Consider to become mandatory the presence of a test output pulse in EVSE and eliminate MMQ definition.	Rejected.  Pulse output added as result of discussion at PG. We do not see, however, why the MMQ definition should be removed.  See also 0163-BR.
0050-AU	1	2.3.23		te	The note needs review. I am not sure what it means and if kept, we should use more definitive wording than ‘The definition of influence quantity is understood to include...’	Review the note. Consider deleting and replace with the note in OIML D 11 2 CD: Note: An influence quantity is not related to the measurand but is a quantity that affects the result of the measurement as indicated by the equipment under test (EUT). Example: The temperature of a measuring instrument is an influence quantity, but the temperature of the measured object (used as a reference for determining the fault or the error) is not. This influence of the environment on this measured object may need to be taken into consideration as a contributor in the definition of the measurand.	Accepted, but suggest not to adopt the example. We are not measuring objects.
0051-DE	1	2.3.25		Ed	The term “disturbance” is defined in V1.	Replace the reference to D11:2013, 3.15.2 with a reference to V1:2022, 5.19.	Accepted
0052-NL	1	2.3.30		ge	The definition of ‘critical fault’ may cause confusion, and we suggest to adjust it.	Change the definition of ‘critical fault’ to become: “failure of the <b>EVSE device when subjected to a disturbance</b> in which the <b>EVSE device</b> appears to function correctly, but where <del>the legally relevant data is incorrect</del> or the shift in the accuracy measurements exceeds <b>the MPE that specified in the tests or other parts of the legally relevant transaction data are incorrect</b> . <b>Note:</b> Ceasing to function is not a critical fault.”  <i>And move the following sentence to requirement 3.3.5.1) --&gt;</i> If a disturbance interrupts a transaction, then either: (a) the transaction must be cancelled or (b) when the disturbance is removed, the transaction must be completed correctly	Discussed in conjunction with 0054-DE, 0055-BR.
0053-AU	1	2.3.30		ed	The last sentence of this definition (of critical fault) is a requirement. It cannot appear in the definition.	Move last sentence to the body of the Recommendation.	See 0055-BR, 0054-DE, 0052-NL.
0054-DE	1	2.3.30		Te	The formatting and wording of the definition for “critical fault” does not comply with B6-2 Annex A.	Turn the second sentence of the definition into a note. Turn the third sentence into a requirement clause.	Discussed in conjunction with 0052-NL, 0055-BR. Accepted in principle, but additional changes to be implemented following 0052-NL and 0055-BR.
0055-BR	1	2.3.30	412	te	“Critical fault” is not a definition of the VIML, the term “significant fault” is broadly accepted in legal metrology community, why define different?	For better understanding change this definition by the following text:  2.3.30 Significant fault of EVSE: Any of the following behaviours are considered a significant fault of the EVSE when submitted to a disturbance: a) The EVSE relative error shift is greater than the MPE shift. b) The EVSE lost the transaction data or change it in the middle of a transaction. c) The transaction is cancelled after the EVSE has delivered any amount of energy losing the measurement of the transaction. The following behaviours are not considered significant faults: a) The EVSE stops to deliver energy (when the disturbance is applied) and ends the transaction without loss of the measurement data. b) The EVSE’s display became unreadable during the disturbance but self-recover after the disturbance or recovers its functionality with intervention of an operator.	Discussed in conjunction with 0054-DE, 0052-NL.  Accepted as follows: Remove definition of 'critical fault', move note to a requirement clause (suggesting 3.3.5.1). Replace occurrences of 'critical fault' in Tables 5,6,7 and replace by "shift +/- 1 BMPE". Remove 'critical fault' in Part 2. Also adjust definition of 'checking facility' to refer simply to "faults".
0056-AU	1	2.3.31		ed	Checking facility, as defined in OIML D 11, relates also to the term fault – which is defined in OIML D 11, but not defined here. If the OIML defined terms are not suitable, consider using different terms rather than modifying the meaning of terms.	Align with OIML D 11 terms or use alternative terms.	Changed to align more closely with OIML D11. See also 0055-BR.
0057-DE	1	2.3.31		Ed	Notes should not contain requirement language.	Either replace “shall not be considered as critical faults” with “is not considered as critical faults” or turn the note into a requirement.	Accepted.
0058-DE	1	2.3.36		Ed	The definition given for the term “legally relevant” does not match its usage in the document (see for example 4.2.1.1 Note 2). 2.3.36 is too restrictive in this context as it only applies to hardware, software and data.	Replace the definition with D31:2023 3.2.29.	Accepted.
0059-BR	1	2.3.36	433	te	There are many confusions between legally and non-legally relevant software and hardware. We understood that in legal metrology all hardware in the same enclosure of a measurement instrument is considered legally relevant. However, for measuring systems, non-relevant components of hardware are difficult to identify; therefore, an additional definition, which applies to software, only, is needed.	Include the following changes in definition 2.3.36:  2.3.36 legally relevant <del>software/hardware/data or part of the software/hardware/data</del> <b>All the hardware and legally software modules</b> of an EVSE which influences properties regulated by legal metrology, e.g. the accuracy of the measurement or the provision of transactional information to the customer.  And add the following new definition:  2.3.38 legally relevant software modules All software modules of EVSE or component that perform legally relevant functions or that contain legally relevant data domains.	Accepted.  See 0058-DE for definition of "legally relevant".  For "legally relevant software", will add definition from D31:2023: "all software modules of a measuring instrument or component that are subject to legal control", which is suitably broad in scope.
0064-SE	1	3,2	Line 413	ed	Table 1 – Rated operating conditions It seems to be something strange with the Table 1, the line about “Current”. It seems that the requirement on I <sub>max</sub> is that it must be both more than 80 A and less than 80 A.	Possibly it should be reading: I <sub>max</sub> > 80 A and I <sub>tr</sub> > 5 A applies or I <sub>max</sub> > 80 A and I <sub>tr</sub> < 0,1 I <sub>max</sub>  This needs to be clarified.	Noted. The different columns are meant to describe different cases: AC EVSE with low currents (up to 80A), AC EVSE with high currents (above 80A).

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0065-AU	1	3,2	Table 1	te	Ripple is required to comply with IEC 61851-23. This standard is a for D.C. electric vehicle charging stations and is part of a family of standards.	Extract the relevant ripple requirements or make a more specific reference. The only relevant clauses seem to be 101.2.1.5 for current ripple and 101.2.1.6 for voltage ripple.	See also 0071-DE.  Discussed at PG meeting in Prague.  Requirement to measure ripple energy up to 2 kHz may not have been the original intention. It seems that IEC standard 62052-11 does not instate a frequency cutoff either.  Decision in PG meeting: remove ripple condition and reference to 61851-23.
0066-AT	1	3,2	Table 1	te	Standards (IEC 62053-41, EN 50470-1, EN 50470-3, EN50470-4) and MID Annex V and OIML R-46 on electricity meters usually specify ratios $I_{tr}/I_{min}$ , $I_{max}/I_{tr}$ and $I_{min}/I_{st}$ for the current range $[I_{min}, I_{tr}]$ and $[I_{tr}, I_{max}]$ and $[I_{st}, I_{tr}]$ to define maximum permissible errors over operating current range.	Table 1 should be modified to contain ratios in line with standards IEC 6205x and EN 50470-1 and MID, Annex V and OIML R-46. e.g. for AC Meters Class A MID Annex V specifies: Ist <= 0,05 * Itr Imin <= 0,5 * Itr Imax >= 50 * Itr	Discussed at PG meeting in Prague.  For charging systems, current ratios are often different from those in other applications like those for electricity meters in IEC 6205x etc.  Rejected.
0067-DE	1	3,2	Table 1	te	The output voltage of a DC EVSE is not relevant. Relevant is U_min and U_max as the voltages specified by the manufacturer for normal operation. U_min should be ≤ 300 V	Name U_min and U_max.	See also 0060-DE  Discussed at PG meeting in Prague.  Accepted.  Definitions for Umin and Umax added to definitions chapter.
0068-DE	1	3,2	Table 1	te	The Itr requirement for DC EVSE with Imax > 500 A seems to be too high. For EVSE with Imax > 500 A also normal DC charging is possible. Normal DC charging will also take place at 25 A or even at lower currents.	Change “Itr <= 0,10 Imax at Imax > 500 A” into “Itr <= 0,05 Imax at Imax > 500 A”	See also 0066-AT  Discussed at PG meeting in Prague.  Accepted. At exactly 500A, the two cases now match.
0069-DE	1	3,2	Table 1	te	For EVSE temperature limits, IEC 61851-1:2019 and EN 61851-23:2014 can be considered. The minimum range for EVSE declared for indoor use are: –5 °C to +40 °C, and for EVSE declared for outdoor use: –25 °C to +40 °C. Therefore, the minimum value of + 5 °C and the maximum value of +30 °C can be deleted.	Delete in the line temperature the minimum value of + 5 °C and the maximum value of +30 °C.	The point is valid. However, OIML D11 lists these values as options, so we prefer to keep all the temperature values. No change.
0070-DE	1	3,2	Table 1	te	The scope includes also bidirectional charging. At bidirectional charging the currents are much smaller than 5 A for AC EVSE and much smaller than 25 A for DC EVSE. Normal active power values in case of energy transfer from a vehicle to the grid are in a range of a few 100 W (transfer from EV to the EVSE). Therefore, additional requirements shall be implemented for bidirectional charging.	Add an additional Current table in the line “Current” for bidirectional charging as follows: “Where a manufacturer has specified that an EVSE is capable of bidirectional energy flow, the following current values apply: AC Itr ≤ 0,02 Imax  DC Itr ≤ 4 A Imin ≤ 0,5 Itr Ist ≤ 0,25 A”	Discussed at PG meeting in Prague.  PG agrees that different current ranges may be needed for negative direction. Exact form and values to be discussed. China to provide proposal in writing. Idea: introduce 'application class'.  After receiving the proposal from China, the option for a separate set of current characteristics in the negative direction is implemented in Table 1. The actual text is such that very low currents can be selected by the manufacturer in both direction, but the upper limit in positive direction is unchanged.
0071-DE	1	3,2	Table 1	te	The requirement regarding Ripple is not clear “The EVSE shall only measure energy having frequencies up to 2 kHz.” Is the EVSE forced to measure up to 2 kHz correctly (e.g. 1,999 kHz) and nothing over 2 kHz? That would require a frequency (FFT)-based measurement and not only a low pass filter.	Change “The EVSE shall only measure energy having frequencies up to 2 kHz.” into: “The EVSE may measure AC energy having frequencies up to 2 kHz.” Or “The EVSE shall not measure energy having frequencies above 2 kHz.”	Discussed at PG meeting in Prague.  Sentence adjusted so it now reads: "The EVSE shall <b>not</b> measure energy having frequencies <b>above</b> 2 kHz."  See also 0065-AU.
0072-DE	1	3,2	Table 1	te	The ripple requirement “The ripple produced on the output of the EVSE shall comply with IEC 61851-23.” seems to be regarding emission. Is emission really the scope of the recommendation?	Delete the following sentence at the line “Ripple”: “The ripple produced on the output of the EVSE shall comply with IEC 61851-23.”	See 0071-DE.
0073-BR	1	3,2	Table 1	te	Input from Labelo: If a manufacturer specifies an EVSE with an environmental class of H3, it is inappropriate for them to set the temperature limits.	Add a note to Table 1: “National authorities may specify the temperature limits based on the country's typical weather condition”	Rejected.  Connected to discussion on choices for national authorities, see comments 0002, 0003, 0339. We prefer to avoid national dependencies in this document as much as possible. Member states can always include a specific temperature range in national legislation.
0074-CN	1	3,2	Table1	ed	Ist is to be specified by the manufacturer. Imin is to be specified by the manufacturer. Imin shall be less than or equal to Itr. Imax is to be specified by the manufacturer.	Revised : Ist is to be specified by the manufacturer. Itr is to be specified by the manufacturer. Imin shall be less than or equal to Itr. Imax is to be specified by the manufacturer.	Discussed at PG meeting in Prague.  Accepted. Modification made in Table 1.
0075-CN	1	3,2	Table1	te	For EVSE equipped with a certified energy meter, the current measurement range of the energy meter should cover the output current range of the EVSE. The same applies to voltage, and the voltage range indicated on the nameplate should match the actual output capability of the EVSE.	Note: The minimum output current should be higher than the certified current of the meter, and the output voltage beyond the range of the nameplate is not allowed to charge	Rejected. It is up to the OIML issuing authority to assess the design with applied parts, including - if applicable - any pre-certified meter.

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0076-CA	1	3.3.1		Ed	<p>Fail to see the value of this statement in this part of the document. If it is deemed to be important perhaps it can be moved to Section 7.</p> <p>“Because of the nature of transactional testing, all tests contain transitional periods where the voltage and/or current are changing. Except during transitions between power levels, voltages and currents are typically slowly varying. As a result, no specific test with rapidly changing loads is present.”</p>	Move paragraph to Section 6 or Section 7. Alternatively the paragraph can be deleted.	Accepted. Moved to Section 6 (part 2).																																								
0077-DE	1	3.3.1		te	<p>Since energy losses between the point of measurement and the connection point can only be avoided with 4-point-measurements (voltage measurement directly at the transfer point) and 4-point-measurements are not common in AC EVSE, a small energy loss between the point of measurement and the connection point shall be allowed.</p>	<p>Add in line 417: “Possible measurement errors due to energy losses between the point of measurement and the connection point shall not exceed +/-0,5% / +/- 0,25% / +/- 0,13% for measuring systems of accuracy class A/B/C respectively. NOTE Acceptable relative error limits from table 2 and 3 are not expanded by the additional error due to the energy losses. Both requirements are applied independently.”</p>	<p>According to clause 4.2.1.3, accuracy shall be determined at the connection point. This covers any internal losses and as such, G22 does not contain requirement for internal losses.</p> <p>Discussed in Prague.</p> <p>One-sided offsets / biases are undesirable.</p> <p>R49 for water states "shall not exploit the MPE or systematically favour any party", which is the same principle that this comment refers to. We suggest to adopt this in the EVSE Recommendation; not in this clause, but instead in chapter 9 on (subsequent) verification, in part 2 of the Recommendation.</p>																																								
0078-CN	1	3.3.1	Paragraph	Ge	<p>Add : This International Recommendation for electricity metering should include direct connected meter, transducer connected meter, electricity metering modules, etc.</p>	To be discussed	Rejected. This document is about EVSE, and is agnostic to the applied internal measuring method. The existing R46 covers these meters.																																								
0079-CA	1	3.3.2		Te	<p>The sentence:</p> <p>“The polarity of energy flow shall be defined by the manufacturer’s connection instructions for the EVSE”</p> <p>does not align well with the definitions provided in 2.3.34 and 2.3.35 for positive and negative energy flow. Definitions already define what constitutes positive or negative energy. Why is this clause suggesting that the manufacturer’s connection instructions should be used?</p>	<p>Suggest to remove :</p> <p>The polarity of energy flow shall be defined by the manufacturer’s connection instructions for the EVSE</p>	Accepted. This sentence is not needed, and will be removed. See also 0081-AU.																																								
0080-AU	1	3.3.2	Note 2	ge	<p>Note 2 provides for the national authority to determine what EVSE type and calculation methods are appropriate. It is not clear what this means in the context of EVSE. For electricity meters under NMI R 46, a similar note was inserted mainly because of the different possible calculation methods for bi-directional polyphase meters. E.g. simultaneous flow in different directions on different phases, and whether to register energy on different phases separately. Is this note needed for EVSE? Can it be deleted, or altered to remove national authority?</p>	<p>Delete the note. Or change to:</p> <p>This Recommendation does not specify or restrict calculation methods that may be used based on active energy measurements.</p>	Accepted. Note to be deleted.																																								
0081-AU	1	3.3.2	Para 1	te	<p>Second sentence says ‘The polarity of energy flow shall be defined by the manufacturer’s connection instructions for the EVSE.’ But, the definitions for positive and negative (energy) flow state that positive is from the EVSE to the EV, and negative is from the EV.</p>	Delete sentence.	Accepted. See 0079-CA.																																								
0082-CA	1	3.3.3		Te	<p>Expand note to say that power factor is applicable to AC EVSE only.</p>	<p><i>Note:</i> Power factor is applicable to AC EVSE only and electric vehicles are constrained by standards to operate at power factors of greater than 0.9</p>	Accepted. See 0083-DE.																																								
0083-DE	1	3.3.3	Table 2	te	<p>For AC EVSE the power factor should be inductive and capacitive. In addition, for DC EVSE the power factor should be 1.</p>	<p>Add the following remark at each “&gt; 0.9” for the power factor: “For AC, inductive and capacitive power factor has to be considered. For DC, power factor = 1.”</p>	Accepted: adding "capacitive or inductive" to the note below the table.																																								
0084-DE	1	3.3.3	Table 2	te	<p>These base maximum permissible errors shall be applicable for the whole voltage range. Until now only anything in the rated operating conditions is enough.</p>	<p>Add in line 446: “Table 2 is applicable to the following voltage ranges: For AC EVSE: For each Unom, 0.9 × Unom to 1.1 × Unom For DC EVSE: From lowest output voltage to highest output voltage”</p>	Rejected.  The base MPEs in Table 2 are not applicable to the whole operating range, listed in Table 1. Instead, they are meant to apply only at the <i>reference</i> conditions, as stated in 3.3.3. For DC EVSE, the system is already tested at Umin and at Umax according to clause 7.2.1 (voltage variation is not an influence quantity in this case). For AC EVSE, there is the voltage variation test in Table 4.																																								
0085-BR	1	3.3.3	Table 2	te	<p>The base MPE for currents between Ist and Imin are too high and are not coherent with BMPE of table 2 in R46-1:2012</p>	<p>Correct the BMPE according to those specified in table 2 below: (<i>see image to the right.</i>)</p> <table><caption>Table 2 Base maximum permissible errors and no load requirements</caption><tr><th colspan="2">Quantity</th><th colspan="4">Base maximum permissible errors (%) for meters of class</th></tr><tr><th>Current <i>I</i></th><th>Power factor</th><th>A</th><th>B</th><th>C</th><th>D</th></tr><tr><td rowspan="2"><math>I_n \leq I \leq I_{max}</math></td><td>Unity</td><td>± 2.0</td><td>± 1.0</td><td>± 0.5</td><td>± 0.2</td></tr><tr><td>0.5 inductive to 1 to 0.8 capacitive <sup>(1)</sup></td><td>± 2.5</td><td>± 1.5</td><td>± 0.6</td><td>± 0.3</td></tr><tr><td rowspan="2"><math>I_{min} \leq I &lt; I_n</math></td><td>Unity</td><td>± 2.5</td><td>± 1.5</td><td>± 1.0</td><td>± 0.4</td></tr><tr><td>0.5 inductive to 1 to 0.8 capacitive</td><td>± 2.5</td><td>± 1.8</td><td>± 1.0</td><td>± 0.5</td></tr><tr><td><math>I_n \leq I &lt; I_{max}</math></td><td>Unity</td><td>± 2.5 <i>I<sub>min</sub>/I</i></td><td>± 1.5 <i>I<sub>min</sub>/I</i></td><td>± 1.0 <i>I<sub>min</sub>/I</i></td><td>± 0.4 <i>I<sub>min</sub>/I</i></td></tr></table> <p><sup>(1)</sup> The national authority may specify that the power factor requirement is from 0.5 inductive to 1 to 0.5 capacitive.</p>	Quantity		Base maximum permissible errors (%) for meters of class				Current <i>I</i>	Power factor	A	B	C	D	$I_n \leq I \leq I_{max}$	Unity	± 2.0	± 1.0	± 0.5	± 0.2	0.5 inductive to 1 to 0.8 capacitive <sup>(1)</sup>	± 2.5	± 1.5	± 0.6	± 0.3	$I_{min} \leq I < I_n$	Unity	± 2.5	± 1.5	± 1.0	± 0.4	0.5 inductive to 1 to 0.8 capacitive	± 2.5	± 1.8	± 1.0	± 0.5	$I_n \leq I < I_{max}$	Unity	± 2.5 <i>I<sub>min</sub>/I</i>	± 1.5 <i>I<sub>min</sub>/I</i>	± 1.0 <i>I<sub>min</sub>/I</i>	± 0.4 <i>I<sub>min</sub>/I</i>	<p>Discussed in Prague.</p> <p>We propose to implement an expression similar to that of R46 between Ist and Imin.</p> <p>Accepted, after discussion at PG meeting.</p>
Quantity		Base maximum permissible errors (%) for meters of class																																													
Current <i>I</i>	Power factor	A	B	C	D																																										
$I_n \leq I \leq I_{max}$	Unity	± 2.0	± 1.0	± 0.5	± 0.2																																										
	0.5 inductive to 1 to 0.8 capacitive <sup>(1)</sup>	± 2.5	± 1.5	± 0.6	± 0.3																																										
$I_{min} \leq I < I_n$	Unity	± 2.5	± 1.5	± 1.0	± 0.4																																										
	0.5 inductive to 1 to 0.8 capacitive	± 2.5	± 1.8	± 1.0	± 0.5																																										
$I_n \leq I < I_{max}$	Unity	± 2.5 <i>I<sub>min</sub>/I</i>	± 1.5 <i>I<sub>min</sub>/I</i>	± 1.0 <i>I<sub>min</sub>/I</i>	± 0.4 <i>I<sub>min</sub>/I</i>																																										
0086-CN	1	3.3.3	Table2/ Table3/ Table4	Ge	<p>“A (2%) 、 B (1%) 、 C (0.5%) ” Accuracy classes should not be expressed with a percentage when indicated numerically.</p>	Reference R46 can be modified to A/2, B/1, C/0.5	Accepted.																																								
0087-AU	1	3.3.4		ed	<p>In the draft OIML R 46, we have changed references to K (kelvin) to °C due to comments received. These are equivalent for temperature ranges, and the comments were that °C is more widely understood. Either way, there should be consistency between this Recommendation and OIML R 46.</p>	Change K to °C in alignment with draft OIML R 46.	Accepted. Also checked throughout for other occurrences of K(elvin) outside of 3.3.4, but found none.																																								
0088-AU	1	3.3.4	Table 3	ed	<p>The text at the bottom of the Table (at top of page 17) is more appropriate for the test procedure of Part 2. And the same text already appears in a note in 7.3.3. It is not needed here. Also see comments on Part 2, 7.3.3.</p>	Delete text	Accepted.																																								



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0089-DE	1	3.3.4	Table 3	te	For a better readability, an example for choosing the temperature ranges and fulfilling the temperature requirement should be integrated.	Add in table 3 an example: “EXAMPLE – A temperature range of [-25°C ; +55°C] shall be split in 4 intervals of 20K each: [-25°C ; -5°C], [-5°C ; +15°C], [+15°C ; +35°C] and [+35°C ; +55°C] If error@-5°C = 0,5% and error@15°C = 0,8%, then variation in percentage error per K = (0,8% – 0,5%) / 20K = 0,015%/K, that is compatible with class A, class B and class C. If error@35°C = 0,3% and error@55°C = 1,2%, then variation in percentage error per K = (1,2% - 0,3%) / 20K = 0,045%/K, that is compatible with class A and class B, but not with class C.”	Rejected. R46 does not contain any such example either.
0090-AU	1	3.3.4	Table 4	te	Reversed phased sequence. The double dagger note should not be here. This note is only relevant for DC EVSE, but this influence quantity is only for AC 3-phase.	Delete the double dagger symbol in this row	Accepted.
0091-AU	1	3.3.4	Table 4	te	Conducted disturbances, induced by radio-frequency fields. Suggest the double dagger note should not be here. A conducted disturbances test normally applies to all terminals. It isn't clear why the AC to DC conversion could be the only sources of this.	Delete the double dagger symbol in this row	There may be other ways these disturbances could come into the EVSE, besides through the power input.  Discussed at PG meeting in Prague. Decision: no change needed.
0092-AU	1	3.3.4	Table 4	ge	Note (2) says in the second sentence: ‘National authorities may select a lower magnetic induction for national requirements.’ National authorities can always modify requirements – making them higher or lower. Can this sentence be removed?	Consider removing this sentence in the note.	Discussed at PG meeting in Prague.  A similar note is present in R46, clause 6.4.1.6.  Suggestion accepted, removing this sentence from EVSE Recommendation.
0093-DE	1	3.3.4	Table 4	te	Voltage variation: Mentioning only „highest U_nom” can be misleading. If U_min and U_max is not min and max supply-voltage, but min and max measuring voltage, this test can be relevant for DC EVSE, too.	Change to: “0.9 x lowest U_nom to 1.1 x highest U_nom”	Accepted partially. Agreed for AC chargers. DC chargers are already tested over their complete voltage range, see part 2, clause 7.2.1, line 1431.
0094-BR	1	3.3.4	Table 4	te	Although some values of MPE shift are the same as R46:2012, they are not aligned with IEC 61053-21. We identified the following: Self-heating IEC 62053-21: A: ±1%; B: ±0.7%; C: ±0.5%. R46 & G22: A: ±1%; B: ±0.5%; C: ±0.25%.  DC magnetic field IEC 62053-21: A: ±3%; B: ±2%; C: ±2%. R46 & G22: A: ±3%; B: ±1.5%; C: ±0.75%.  AC magnetic field IEC 62053-21: A: ±3%; B: ±2%; C: ±1%. R46 & G22: A: ±2.5%; B: ±1.3%; C: ±0.5%.  Operation of auxiliary devices IEC 62053-21: At Imin only: A: ±3%; B: ±2%; C: ±1%. R46 is ½ MPE: At Imin: A: ±0.8%; B: ±0.5%; C: ±0.3%. At Imax: A: ±0.7%; B: ±0.3%; C: ±0.16%. G22 for both Imin and I max: A: ±0.7%; B: ±0.3%; C: ±0.15%	Change to the IEC values	In principle, this Recommendation is aligned with OIML R46. There is also the intention to align OIML Recommendations with IEC values, but this discussion is first held in the R46 project, TC12/p1.  Discussed at meeting in Prague. Ideally, shifts should be the same in R46 and EVSE R, but in any case the EVSE shifts should not be tighter than in R46. Operation of auxiliary device is tested at Itr and Imax in R46, part 2, 2.4.14 (2CD).  No change needed.
0095-BR	1	3.3.4	Table 4	te	In IEC 62053-21 the test of operation of auxiliary devices is carried out at Imin because this is the most sensitive operation mode in electricity meters. We do not see any benefit in repeat the test at Imax even than it is faster than the test at Imin.	Consider to perform this tests at Imin only	According to 7.3.11 the test is performed at 50% of Imax. Performing charging sessions at minimum current would lead to very long testing times. Suggestion rejected.
0096-BR	1	3.3.4	Table 4	te/ed	The field strength in radiated RF electromagnetic fields test was wrongly specified or is not aligned with severity level 3 in IEC 61000-4-3.	Instead: Field Strength ≤ 10 V/m Correct to: Field Strength = 10 V/m	Accepted.
0097-BR	1	3.3.4	Table 4	te/ed	The amplitude in conducted disturbances induced by RF fields was wrongly specified or is not aligned with severity level 3 in IEC 61000-4-6.	Instead: Amplitude ≤ 10 V Correct to: Amplitude = 10 V	Accepted
0098-BR	1	3.3.4	Table 4 and 5	te	As mention in [0012-BR], notes † and ‡ in table 4 are questionable because an approved electricity meter can be immune to the disturbance test, but not necessarily the whole EVSE. For instance, note † exempt the EVSE with a previously approved meter from many tests, but actually because the electronic circuits used to compute the transaction in the EVSE is different from the meter, when submitted to the disturbances, the EVSE can present a significant and critical faults. If this note is kept such situation will not be assessed. Note ‡ is even worse because it assume that disturbances are filtered by an AC/DC converter which actually is not part of the instrument. On the contrary, the tests marked with ‡ are more relevant because if the AC-DC converter is poorly designed then the disturbances will not be filtered and such converter can also generate disturbance which can lead the EVSE to measure wrong. Again, if this note is kept such situations will not be assessed. Another example: Even in a DC regulated network fast transients can occur; they are expected from the relay's operation opening the charging process, therefore DC EVSE cannot be exempt from this test in table 5.	Delete notes † and ‡ from tables 4 and 5	Discussed at PG meeting in Prague. See also 0012-BR.  To be considered in new subgroup 2 with members: BR (Juan), NL (Henri, Matthijs), US (Katya, Bill), AU (Chris, Phillip), CN (Molly, Haiming).  During this subgroup meeting on the 28th of April Table 4 and 5 are reviewed and updated. Especially it has been decided to add a single dagger at RF fields, conducted disturbances, fast transients, dips, interruptions and to remove the test with impulse voltage tests.
0099-CN	1	3.3.4	Table 4/ Table 5	te	For Unitary DC EVSE, if the internal DC meter has passed type approval, can the influence and disturbance tests for the DC EVSE be dispensed with?	To be discussed	Discussed at PG meeting in Prague.  --> subgroup 2, see 0098-BR
0100-CN	1	3.3.4	Table 4/ Table 5	te	For high-power Complex DC EVSE, more and more will be built in China. If the DC energy meter is installed on a split-type operating terminal and the DC energy meter has passed type certification, the relevant influence tests and disturbance tests are not required. The reason is that, on the one hand, the charging power module and the DC energy meter inside the Complex DC EVSE are separate, and will not affect or interfere with the energy measurement part; on the other hand, we only certify the energy measurement, and the power module and specific charging function of the Complex DC EVSE pile body can be left unregulated.	Add an appendix table to specifically classify the test items in the case of whether the integrated, split, or internal DC meter has passed type approval.	See also 0099-CN.  Discussed at PG meeting in Prague.  --> subgroup 2, see 0098-BR



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0101-CN	1	3.3.4	Table 4	Technical	The current in most of the test items in Table 4 in Part 1 is a current test range, while the test point in the test method in the part 2 is 50% I <sub>max</sub> . Therefore, can the current test point in the part 2 also be a test range for the testing institution to choose the test current point by itself. The purpose of this is to deal with the problem of I <sub>max</sub> becoming larger and larger.	To be discussed	Although requirement can apply to a certain range, the number of test points for checking the requirements can be limited.  No change needed in Table 4.  It does make sense to adjust test points in part 2 (clauses 7.4.1), which is changed to I <sub>tr</sub> or higher.
0102-BR	1	3.3.5.1	513-515	Technical	Why a change in the registers or pulses of the test output of an EVSE shall not be considered as a critical fault when no transaction is in progress? This paragraph seems to be unnecessary and if kept can induce misunderstandings between manufacturers and labs.	Delete this paragraph to avoid diverse interpretations between labs and manufacturers	Rejected.  In Part 2, all tests are specified to take place while current is running, mimicking a real transaction. If no transaction is running, affected pulses or register changes do not negatively impact the billing to the customer.
0103-BR	1	3.3.5.2	517-519	Technical	This paragraph allow two different ways to perform electrical disturbance tests: By checking the error after each tests; or By checking the error after all the tests.  If the EVSE exceed the MPE, option a) does allow identifying what disturbance caused the significant fail, but option b) does not. Furthermore, option b) is unfeasible to execute because you have to keep an open transaction during all the tests to compute the meter error. For these reasons we recommend to compute the EVSE error during each disturbance.	Considering the following changes in the text of this paragraph:  The electrical disturbances tests <del>can</del> <b>must</b> be performed <del>either</del> individually with an error check after each test <del>or as a group with a single error check after all tests have been performed</del> . An error shift larger than 1.0 BMPE shall not occur.	Accepted. The method of testing does not belong in Part 1, in fact. We suggest to replace these two sentence by the requirement that the error shift stays within 1.0 BMPE. This is now implemented in Table 5.
0104-BR	1	3.3.5.2	Table 4 and 5	Technical	- We miss the requirement of the following tests: One or two phases interrupted for 3-phase AC EVSE (R46-1 item 6.3.9) DC in the AC current circuit of EVSE (R46-1 item 6.3.16)	Discuss the need of these tests..	See 0105-AU.
0105-AU	1	3.3.5.2	Table 5	Technical	Voltage dips and interrupts The latest test standard (IEC 61000-4-11) now provides more and different voltage dips and interrupts. Align with latest draft OIML R 46.	Replace with: 100 % voltage reduction, 5/6 cycles(1) 100 % voltage reduction, 50/60 cycles(1) 100 % voltage reduction, 1/1(1) 95 % voltage reduction, 250/300 cycles(1) 60 % voltage reduction, 5/6(1) 60 % voltage reduction, 50/60 cycles(1) 30 % voltage reduction, 0.5/0.5 cycle(1) 30 % voltage reduction, 1/1 cycle(1) 50 % voltage reduction, 3000/3600 cycles(1) (1) “Cycle(s)” means a number of nominal power line frequency at either 50 Hz or 60 Hz (e.g.) “50/60” means “50 cycles for 50 Hz test” and “60 cycles for 60 Hz test”	Discussed at PG meeting in Prague.  Will align with R46 which is being amended on this aspect.  Adjusted based on suggestion submitted by BR.
0106-AU	1	3.3.5.2	Table 5	Technical	Impulse voltage The impulse voltage levels are different and lower to those in OIML R 46.  Why should the levels be lower for an EVSE? Align with latest draft OIML R 46.	Replace with: 1.5 kV (≤ 100 V); 2.5 kV (≤ 150 V); 4 kV (≤ 300 V); 6 kV (≤ 600 V).	Rejected.  The reasoning behind is: EVSE are not directly connected to the main grid connection. As a result, several EMC levels can be lower than for general-purpose electricy meters. This is also in line with IEC 61851 (see Part 2, 7.4.7.1).
0107-BR	1	3.3.5.2	Table 5	Technical	Allowed effects in table 5 are too vague. Because each test has specific allowed effects in their respective section (7.4.X) this column could be deleted.	Delete column with allowed effects or summarize the allowed effects of each section in this column.	Rejected. Similar aspects are also listed in 2CD of R46 (Table 7).
0108-BR	1	3.3.5.2	Table 5	Technical	In DC networks with many EVSE connected on it (like in figure 2), DC voltage dips are expected often; therefore, the tests of IEC 61000-4-29 have to be applied for DC EVSE.	Include a line with DC voltage dips and interruptions. Brazil can submit a new version of table 5 including this proposal.	Discussed at PG meeting in Prague.  ----- Rejected, see 0280-BR. Unnecessary for DC.
0109-BR	1	3.3.5.2	Table 5	Technical	For EVSE, the surge test seems to be too severe. Severity levels in table 5 are based on R46 which is for electricity meters; although EVSE are designed to measure electrical energy, they are not connected directly to the distribution network, so the disturbance level is expected to be lower than for electricity meters.	Consider the severity levels for AC mains port of tables 2 and 3 of IEC 61851-21-2:2021.	In IEC 61851-21-2, the following levels are listed: - voltage circuits 2kV line to line, 4kV line to earth (non-residential), - voltage circuits 1kV line to line, 2kV line to earth (residential), - auxiliary circuits 1kV line to line, 2kV line to earth. It is not straightforward to create a distinction (residential vs. non-residential) based on the application. Therefore, we would like to stick to higher, non-residential levels.
0110-BR	1	3.3.5.2	Table 5	Technical	Neither OIML D11 nor IEC 61851-21-2 specifies an impulse voltage test. Although R46:2012 includes a requirement for electricity meters to withstand the network's basic impulse level (BIL), this does not apply to EVSE, as they are not directly connected to the distribution network.	Retire the impulse voltage test from this recommendation.	Accepted, as discussed in sg2 in April 2025.
0111-BR	1	3.3.5.2	Table 5, note 1	Technical	The last sentence of note 1 have no sense: For DC cases, a duration of 5 s should be interpreted	Eliminate this sentence. Instead include lines for DC voltage dip and short interruption tests of IEC 61000-4-29 as suggested in BR021.	Agreed. Note removed.
0112-AU	1	3.3.5.3	Table 6	Editorial	The note under the table uses ‘should’. It is better to use ‘shall’ or ‘may’ for OIML Recommendations.	Change note to “For complex DC EVSE, these tests shall be applied to the console only.”	Accepted. Changed to 'shall', and moved to Part 2 (7.4.8) since it relates to testing.
0113-DE	1	3.3.5.3	Table 6	Technical	EVSE are normally used outside, but the water requirements are quite low. Why isn’t IPX4 required as for outside electricity meter in IEC 62052-31 (with reference to IEC 60529:1989 chapter 14.2.4)?	Change in table 6 the “Level of disturbance” of line “Water” as follows: “H3 only: IPX4 with 0,84 L/min (per nozzle), 0 ° and 180 °, 10 min”	Initially, we had the idea to increasethe required ingress protection level to be at least IP51 (indoors) or IP54 (outdoors). However, after internal discussion, we now suggest that water and dust ingress is covered by safety (IEC 61851), and does not need to be repeated by a metrology Issuing Authority . A new clause has been added as chapter 4.1, requiring IP51 and IP54, in deviation from IEC 61851.  For reference: R117 for liquid measuring systems (including vehicle fuel) does not contain any water or dust ingress tests or requirements either.

Country code	Part	Clause/subclause	Paragraph/Figure/Table	Type of comment <sup>2</sup>	Comments (ref. doc: 1WD, TC12_P3_N029/N030/N031/N033)	Proposed change	Convener's responses
0114-AU	1	3.3.6		te	OIML R 117 applies for fuel dispensers and should be a comparable recommendation for mechanical disturbances. OIML R 117 specifies a vibration test, but not a shock test. A shock test is commonly associated with dropping an instrument, so is applicable for an electricity meter, but may be less applicable for an EVSE. Also, the following sentence is problematic: 'National authorities may eliminate any of these requirements when the EVSE is too large to perform the associated test reasonably and at a reasonable cost.' It is a problem because it does not support international harmonisation. Is it possible for components of the EVSE to be subjected to vibration testing? Note, there is no similar note for fuel dispenser vibration testing in OIML R 117.	Discuss whether the shock test is required.  Discuss alternative means of subjecting large EVSEs to vibration testing, including testing of relevant components or sub-assemblies rather than a complete unit.	Discussed at PG meeting in Prague.  Decision: implement a concrete mass threshold of 10kg?/25kg?, instead of the choice for national authority to skip the test. Also reevaluate 7.4.10 text. Shock/vibration relates to electrical safety more than to metrology (with ferraris type phased out), but could still have merit. Decision by PG: keep both tests.  Following R137:2012, clause 12.6.13, we will implement a mass limit of 10kg in the test chapter, 7.4.10. The choice for national authority to eliminate is removed from 3.3.6 and from 7.4.10.
0115-AU	1	3.3.6	Table 7	ed	The note under the table uses 'should'. It is better to use 'shall' or 'may' for OIML Recommendations.	Change note to "For complex DC EVSE, these tests shall be applied to the console only."	Note moved to part 2, section 7.4.10, and rephrased "they are" (without any 'should' or 'shall'). It does not belong in part 1.
0116-AU	1		4	ed	Part 1 is titled metrological and technical requirements – consistent with OIML drafting guidelines in OIML B 6. Section 4 should align with this.	Change title of section 4 from 'Functional requirements' to 'Technical requirements'. Make consequential changes anywhere 'functional requirements' in used throughout the document.	Accepted.
0117-AU	1		4,1	ge	Suggest we try to reach agreement on (minimum) mandatory markings to support international harmonisation.	a) Make the following markings mandatory: Approval mark Manufacturer Model Year of manufacturer Serial number Accuracy class MMQ Voltage range Current range Frequency (for AC EVSE) Temperature range	Accepted.  Suggest to remove the first sentences: "National authorities shall determine what information shall be marked on every EVSE. The EVSE shall have a clearly visible nameplate and the following are strongly recommended as minimum markings:" In addition, we suggest to retain the existing list markings from G22 and make it mandatory.
0118-CN	1		4,1	te	For DC EVSE, specifying the maximum and minimum output voltages is appropriate. However, for AC EVSE, it is preferable to use the rated voltage, as the rated operating conditions in section 3.2 clearly define the range as 0.9Un to 1.1Un.	the nominal voltage or the range of voltage(minimum and maximum output voltage);	Accepted. Change existing text for voltage range to: "nominal voltage (AC EVSE) or output voltage range (DC EVSE)"
0119-CN	1		4,1	te	It is not appropriate to label the frequency as 0 Hz for DC EVSE.	the nominal frequency in Hz for AC EVSE; for DC EVSE "DC" shall be marked	Accepted.
0120-CA	1	4.2.1.1		Te	Add additional requirement for EVSE capable of charging more than one vehicle	Add the following: 4.2.1.1 Devices capable of servicing more than one vehicle Devices that are capable of servicing more than one vehicle must comply with all applicable technical and metrological requirements for each EV connection point available at the EVSE.	Accepted.
0121-AU	1	4.2.1.1	Note 1	ge	The scope of EVSE only relates to energy measurement between the EVSE and the EV.	Delete the note	Rejected. The note is not a requirement, does not restrict anything.
0122-AU	1	4.2.1.2	Example 1	te	Legally relevant measurement data should not be able to be lost or deleted by a user interacting with a menu. What is a scenario where an action should result in lost measurement data?	Suggest this example is removed or reviewed	Accepted. We agree that such scenarios are not applicable to EVSE.
0123-CN	1	4.2.1.2	Paragraph	te	The second example is not entirely appropriate. In practice, remote operation is intended for starting and stopping charging events of the charging equipment, rather than for starting and stopping measurements. The initiation and termination of the measurement function should be carried out by the charging equipment based on the charging event process or triggered by the application of voltage and current, such as the starting current.	2. The charging event is initiated remotely via a mobile application running on any device. The measurement function of the EVSE is fully secured and protected (both physically and in software). It only allows a single command to be input through a protective interface to start the measurement. Once the measurement is completed, the result is displayed on a screen connected to the device. The result is also sent back to the mobile device (such as a smartphone) for display.	Accepted.  In fact, the better option, in our opinion, is to remove this (generic D31-based) example altogether.
0124-CZ	1	4.2.1.2	Part 1&2	te	Arbitrary device  Even though the essence of the word is clear what it is about, it might be nice to specify it in the terminology to avoid misunderstandings.		Covered by 0123-CN.
0125-NL	1	4.2.1.3		te	For replaceable parts between measuring point and connecting point, markings are sufficient if metrological characteristics can be derived from them. An approval number (of the EVSE? or only the cable?) may not be necessary.	We would like to discuss the option to remove "approval number" from the first bullet under iii).	Discussed at PG meeting in Prague. See also 0130-DE.
0126-CA	1	4.2.1.3		Te	The clause: "they shall be have metrological characteristics identical in every respect to the originally verified parts;"  Is a bit difficult to confirm. There are no metrological characteristics in the Recommendation that can be specifically attributed to the replaceable parts.	Should there be a clause that requires parts which are not identical to the parts in the approved EVSE shall be assessed for compliance with requirements (select from tables 4, 5, and 6) with the parts installed. Compliant devices must be identified in the approval notice (certificate).	Discussed at PG meeting in Prague. See also 0130-DE.  After further considerations offline, we conclude that the only relevant aspect is the resistance (or alternatively: cable length and resistance per meter).
0127-AT	1	4.2.1.3		te	On replaceable parts and cables: It is not clear why the possibility to compensate energy loss in cables described in OIML G.22 is no longer mentioned explicitly here. Most DC charging stations currently in the market do compensation of cable losses by using the specified resistance of the approved charging cable. It appears to be useful to allow replacement of charging cables against cables with the same type, length, cross section and hence the same series resistance without breaking seals. Such replacement parts must be labelled by the manufacturer as described and must be specified in type approval or conformity assessment documents.	Please consider the comment and include the possibility to compensate cable losses and to have the option of specifying equivalent cables as replaceable parts not breaking seals.	We strongly agree that compensation is useful, in some cases necessary, and should be allowed. The words "An EVSE that applies corrections to compensate [...]" were removed in the 1WD of Dec 2024, relative to G22:2022. The reason for removing these words is because we think that the conditions for cable assembly replacement should hold for EVSE that apply compensation and also for EVSE that do not apply compensation. It does not affect cable loss compensation being allowed.  Discussed at PG meeting in Prague. Clause 4.2.1.3 has been revised.
0128-DE	1	4.2.1.3		te	Regarding the parts between the measurement point and the connecting point: Why was the other possibility with a hardware seal deleted? Leave it up to the manufacturer which possibility he/she would like to implement.	Add before line 565: "All legally relevant parts of the EVSE shall be sealed with a metrological seal, including all non-replaceable parts between the measuring part and the connecting point (like the charging cable, a vehicle coupler, socket outlets, contactor)."	Option to completely seal system is still available. It was simply the wording in version 1WD that was simplified. "**In case* parts [...]" are intended to be replaceable ..", which does not exclude other cases.  Clause 4.2.1.3 now revised, with the "not replaceable" explicitly reinstated, as discussed at PG meeting in Prague.

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0129-DE	1	4.2.1.3		te	EVSE will normally have different cables with different correction factors e.g. some cables for a correction factor of 0,995 and some for a correction factor of 0,99. In the type approval certificate these possibilities are listed, but the exact configuration of this specific EVSE is not visible on-side. Therefore, EVSE shall be marked with the allowable cable models. The same philosophy can also be applied for other replacement parts. This also prevents operators from attaching wrong cable assemblies or other replacement parts.	Add after line 576: “iv) the EVSE shall be marked with the manufacturer model of the allowable replacement parts e.g. cable assemblies with equivalent characteristics as specified in the type approval certificate for this specific EVSE.”	Discussed at PG meeting in Prague. See also 0130-DE. Clause 4.2.1.3 to be partly reworded.  See fourth list item under (b) in new text proposal, in line with the discussion in Prague.
0130-DE	1	4.2.1.3		te	These markings can just give an indication if the current cable assembly is correct or not, but there is no evidence of an intervention. If the current cable assembly is changed directly before the reverification period ends, this is not visible to the market inspection bodies. Therefore, an operator seal with a record identifier and an obligation to record a replacement list shall be added to provide more evidence.	Add after line 576: “iv) the cable assembly shall be sealed with an installation seal including a record identifier after it is assembled to the EVSE according to the assembly instructions of the EVSE manufacturer. v) the manufacturer shall state the obligation of the operator to record a replacement list including the record identifier and the date and to issue it to market inspection bodies if requested.”	Discussed at PG meeting in Prague.  Forcing the operator to have an official replacement list available for inspection purposes is challenged. There is a serious risk this will not work in practice. This Recommendation is about requirements that public authorities place on manufacturers of EVSE. We do not believe it is wise to introduce obligations here that one private party (the manufacturer) places on another private party (the operator); that belongs to a different legal realm.  No change implemented to address this particular comment, but an overall revised text of 4.2.1.3 has been done (see 0129-DE, 0128-DE, 0127-AT, 0126-CA, 0125-NL).
0131-AU	1	4.2.1.3	Note	ge	Would any national authority not allow parts to be replaced? Or is the issue what controls are required when parts are replaced? If so, I suggest the note is removed.	Delete the note	Discussed at PG meeting in Prague. See also 0130-DE. Clause 4.2.1.3 to be partly reworded.
0132-CA	1	4.2.1.5		ed	The “nominal source” is ambiguous and perhaps not important here. Suggest to simply state something to the effect that energy transfers from the EV back through the EVSE.	If an EVSE is capable of receiving <b>and measuring</b> electrical energy from the vehicle <del>to be transferred to the nominal source</del> , then:	Accepted.
0133-AU	1	4.2.2.1		ge	Suggest this section needs discussion. Ideally we agree upon a minimum amount of information for different transactions.	For discussion. At minimum, EVSEs need to provide energy delivered and received (as applicable) over the transaction period.	To be considered as part of the transaction data items clustering.
0134-DE	1	4.2.2.1		Te	An OIML Recommendation cannot impose requirements on national authorities.	Rephrase the first sentence of 4.2.2.1 as a note. Rephrase the second sentence to clarify that the “required” elements of a transaction defined in 4.2.2.1.1 and 4.2.2.1.2 are mandatory.	Accepted. Rephrased to take away the notion that requirements are being put on the national authority.
0135-CZ	1	4.2.2.1	Part 1&2	ge	Vendor identifier EVSE identifier  What are the minimum identification requirements?		EVSE identifier is normally the serial number. Vendor identifier is merely a recommendation, and left to the market. We do not feel it is wise to restrict possible solutions.
0136-DE	1	4.2.2.1.1		te	The correct wording for “of each different tariff” is “of each different rate”, since a tariff is the combination of different rates and for each rate only one price per unit is applicable. Therefore, the wording multiple tariffs can be used, but for each part of the tariff different rates shall be used.	Change line 602 “If multiple tariffs are used, for each occurrence of each different tariff” into: “If multiple tariffs are used, for each occurrence of each different rate”	Accepted. In fact, the 1WD document used 'tariff' in many places where 'rate' was meant, i.e., the unit price, price per kWh. Now replaced by 'rate' throughout.
0137-DE	1	4.2.2.1.2		te	The EVSE identifier is added as required for ad hoc public transactions (see 4.2.2.1). Following the same idea, the EVSE identifier shall also be added for contractual public transactions. This is especially important for the correct identification of the EVSE when using apps according to chapter 4.3.1.2.	List “EVSE identifier” as required and not as recommended for contractual public transactions.	Accepted.  Discussed at PG meeting in Prague. Also builds towards clustering exercise to minimize differences between countries (see 0003-AU comment discussed earlier).
0138-DE	1	4.2.2.1.2		te	For bidirectional charging, the measured energy has been split in “delivered to the EV” and “received from the EV” in the ad hoc public transactions case (see 4.2.2.1.1). Following the same idea, both energy values shall also be added for contractual public transactions.	Change in line 614 “Measured energy” into: “Measured energy delivered to the EV Measured energy received from the EV (if appropriate)”	Accepted.
0139-DE	1	4.2.2.1.2		te	The correct wording for “of each different tariff” is “of each different rate”, since a tariff is the combination of different rates and for each rate only one price per unit is applicable. Therefore, the wording multiple tariffs can be used, but for each part of the tariff different rates shall be used.	Change line 615 “If multiple tariffs are used, for each occurrence of each different tariff” into: “If multiple tariffs are used, for each occurrence of each different rate”	Accepted. See also 0137-DE.
0140-AU	1	4.2.2.1.3		te	There is a conflict here. The scope (last sentence) says this Recommendation does not apply to contractual private transactions. So this clause would be out of scope. Also see comments on clause 1.	Need to resolve following discussion on whether contractual private transactions are within scope or not.	Discussed. See also 0009-BR. Resolved; following action at 0009-BR, it is now in scope.
0141-DE	1	4.2.2.1.3		te	For bidirectional charging, the measured energy has been split in “delivered to the EV” and “received from the EV” in the ad hoc public transactions case (see 4.2.2.1.1). Following the same idea, both energy values shall also be added for contractual private transactions.	Change in line 630 “Total energy measured for the billing period” into: “Measured total energy for the billing period delivered to the EV Measured total energy for the billing period received from the EV (if appropriate)”	Accepted. Have worded the separate energy directions using the terms 'positive flow' and 'negative flow' that were already defined in chapter 2.3.
0142-DE	1	4.2.2.1.3		te	For using multiple tariffs at contractual private transactions, the requirements are missing. Therefore, add the same lines as in contractual public transactions for multiple tariffs.	Add after line 630: “If multiple tariffs are used, for each occurrence of each different rate - Unit price; - Start time; - End time; - Cost at this tariff.”	Rejected. In contractual transactions, the unit price can also be communicated through different channels, or even be agreed upon before initiating the contract.
0143-AT	1	4.2.2.2		ge	On availability of legally relevant transaction data: Many charging stations in the market transmit legally relevant transaction data to external IT billing systems (backend) for billing and do not store transaction data inside the EVSE. This appears to be acceptable, when this legally relevant transaction data is stored in a secure and protected manner in these external IT systems at least until the final invoice presented to the customer is accepted by the customer.	There should be an option that transaction data can also be stored outside the EVSE in a secure and protected manner until the transaction is accepted by the customer. Please consider the comment.	Accepted. See also 0146-CN. See answer to 0144-DE.



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0144-DE	1	4.2.2.2		te	Storing of the legally relevant transaction data until the transaction has been completed is not sufficient for transactions in the absence of one of the trading parties. Monthly billing is typical in the electromobility sector, meaning that checking the bill with the proof of the measurements must be available at a later point in time than when the transaction is completed. This also includes legal objection periods. It shall therefore be included that the legally relevant transaction data must be sent to the customer (see definition of transaction in 2.2.16) and stored for at least the billing period + legal objection periods, e.g. a total of 3 years.	Change “Legally relevant data referenced in 4.2.2.1 shall be stored in the EVSE and accessible to the end user through the client interface, see 4.3.2, until the transaction has been completed.” into: “Legally relevant data referenced in 4.2.2.1 shall be stored in the EVSE for at least three years. The legally relevant data shall be accessible to the end user through the client interface, see 4.3.2, for at least three years. After the transaction the legally relevant data shall be send to the user digitally or printed.”	Partly accepted. Text to be changed as follows: “Legally relevant data referenced in 4.2.2.1 shall be stored in the EVSE. The legally relevant data shall be accessible to the end user through the client interface, see 4.3.2. Alternatively, the legally relevant data shall be stored at an external IT billing system (backend). After the transaction the legally relevant data shall be made available to the user. All externally located legally relevant data is treated in a secure and protected manner.”  Remark: we refrain from including the three year term, to focus on the design and metrological certification of the product itself, not on the way it will be operated.
0145-US	1	4.2.2.2		T	Completed as refers to transactions is not defined.	Completed transaction: A transaction is completed when the fueling process is complete, the transaction data has been presented to the customer and transmitted successfully to a billing system and/or printed.	Accepted. In lines 633 and 634, the word "transaction" will be replaced by "charging session".
0146-CN	1	4.2.2.2	Paragraph	te	For charging equipment with a platform system, legally relevant data does not necessarily have to be stored only in EVSE, but can also be stored in the platform system.	Legally relevant data referenced in 4.2.2.1 shall be stored in the EVSE and accessible to the end user through the client interface or internet, see 4.3.2, until the transaction has been completed.	Accepted. See 0143-AT, 0144-DE.
0147-AU	1	4.2.3		te	This clause seems to assume that energy is only transferred in one direction during the transaction. This seems reasonable, but do we need to clarify somewhere that energy can only transfer in one direction during a transaction?	Suggest to clarify that during a transaction energy is only permitted to flow in one direction (positive or negative).	Rejected  There is clause 3.3.2 specifying two types of registers. In case of bidirectional flow, enery is registered in both directions. This clause holds, even in case of multiple rates as in 4.2.3. It is not clear what wording in 4.2.3 exactly leads to the idea that only one direction is assumed. No clarification needed.
0148-DE	1	4.2.3		te	The requirements in point 5) are listed for ad hoc transactions only. These multiple tariffs shall be applicable to all transactions including contractual public transactions and contractual private transactions.	Change line 651 “5) for ad hoc transactions, it shall be clear for each part of the transaction:” into: “5) for all transactions, it shall be clear for each rate of the transaction:”	Rejected. Item 5d is limited to ad hoc transactions only, and should stay that way. The reason is that the unit price (rate) can be determined in other ways for contractual public/private transactions.
0149-DE	1	4.2.3		te	While using multiple tariffs with changing prices during a transaction, the accuracy of the used clock is very important for correct measurements. The requirements for these time stamps are listed in chapter 4.4.7, but in this chapter 4.2.3 is neither a reference to the time stamp requirements in 4.4.7 nor time stamps are directly required. So, a requirement for using time stamps for each part of the transactions shall be added.	Add after line 650: “For each part of the transaction the start time and end time shall be time stamps according to chapter 4.4.7.”	Rejected. We suggest to avoid repeating requirements on time stamps in many different places throughout the document. Clause 4.4.7 holds anyway.
0150-DE	1	4.2.3		Te	While we agree with the principle that specific items mentioned in 5)a) to d) must be transparent for all parties. It is unclear if this is a requirement for the EVSE or for the user.	Clarify 4.2.3 to illustrate that this is a technical requirement to be met by the EVSE.	Rejected. It seems clear, in our opinion. Line 644: "An EVSE [...] shall meet .."
0151-CN	1	4.3	Paragraph	ge	For some compact AC EVSEs, mobile control can be achieved through methods such as Bluetooth communication, eliminating the need for a client interface on the charging station itself.	EVSE should be equipped with a client interface, which may be local or remote.	No change needed. Clause 4.3.1 already includes both options: local (4.3.1.1) and/or remote (4.3.1.2).
0152-BR	1	4.3.1		te	Input from Labelo: Non-local client interfaces may encounter availability issues. If Option 4.3.1.2 is adopted, a local interface could still be available, at a minimum, to display the measured data in a simplified manner	At line 720, rewrite as follows: ... Option 4.3.1.2 is only allowed under the condition that the transaction is initiated (authorized) by the same software on the same device. If the non-local client interface has the risk of encountering availability issues, a local interface must remain available, at a minimum, to display the measured data.	Rejected  When an EVSE type is offered for type testing, where the assessment is based on this particular text, it is unknown where all the individual chargers will be installed in the in-use phase. As a result, the availability of (internet) connection is not known a priori. To be 100% sure, the only measure is to enforce the presence of a physical local display, as proposed here in 0152-BR. However, the requirement to use the same software on the same device to initiate the transaction guarantees a certain level of confidence that the connection is reliable. If the (internet) connection with the app is lost during the transaction, the measurement itself is not affected. So, even if the reading is temporarily not visible during the charging session, the transaction itself is not affected.
0153-DE	1	4.3.1.2		Te	Apart from authenticity of measurement data (bullet point d) ), their integrity also needs to be checked. In addition, it should be documented how the EVSE reacts in case data transmission to the non-local client interface fails. Also, the rest of 4.3.1.2 addresses transaction data, instead of measurement data. This should be fixed in bullet point d)	Change d) to “In case a general fit for purpose device is used as a non-local client interface, the documentation to be submitted for type evaluation shall contain a description of the method implemented to check the <u>integrity and</u> authenticity of the transaction data. <u>The documentation shall describe the reaction of the EVSE in case integrity or authenticity violations are detected.</u> ”	Partly accepted. It is not the EVSE itself that performs the check of authenticity and integrity. This is expected to be done by external (transparency) software.  Proposed change (underlined): "In case a general fit for purpose device is used as a non-local client interface, the documentation to be submitted for type evaluation shall contain a description of the method implemented to check the <u>integrity and authenticity</u> of the transaction data. <u>The documentation shall describe how possible integrity or authenticity violations are detected.</u> "
0154-CN	1	4.3.1.2	Paragraph	ge	For EVSE with a platform system, legally relevant data can be generated by the platform in conjunction with the energy metering data from the EVSE and presented to the user.	the legally relevant transaction data shall be made accessible to the end user together with all the information required to check the authenticity, using fit for purpose technical means. These data should be generated by EVSE or by the platform in conjunction with the energy metering data from EVSE.	Rejected.  The minimum set of legally relevant transaction data are listed 4.2.2.1. They shall be generated by the EVSE itself. Other items could be added by the backend/platform, but are outside the scope of this document.
0155-BR	1	4.3.1.2.c		te	Input from Labelo: Ensuring data integrity is a critical aspect of legally relevant transaction data. This addition would emphasize that not only authenticity but also the accuracy and completeness of the data are maintained	Modify this line to say “authenticity and integrity”	Accepted. See 0153-DE.
0156-BR	1	4.3.1.2.d		ed/te	Input from Labelo: Specialized devices should also verify the authenticity of the measurement data, and the verification result should be displayed accordingly.	Rewrite the sub-clause as follows: The non-local interface shall verify the authenticity of the transaction data and display the verification result. The documentation submitted for type evaluation shall include a description of the method implemented to verify the authenticity of the measurement data.	Rejected. Requirements for indication and checking are described in item (a), (b), (c), where fit-for-purpose technical means can be used to display the values. Point (d) is about documentation only.
0157-AU	1	4.3.2		te	The last dot point (under requirements for all client interfaces) says they shall not be significantly affected by exposure to normal operating conditions over the maximum duration of the EVSE lifetime. This is impossible to assess for a general fit for purpose device as per 4.3.1.2 d). It is probably also irrelevant.	Add text to the last dot point as follows ‘...(not applicable for general fit for purpose devices).’	Accepted. Reworded such that this bullet point now applies only for local client interfaces.



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0158-DE	1	4.3.2		Ed	It is unclear why the first bullet point speaks of “data relevant for billing purposes” instead of “transaction data”.	Change the first bullet point to “they shall be able to display all legally relevant transaction data correctly and in an easily readable form”	Accepted.
0159-CZ	1	4.3.2	Part 1&2	ge	specify whether "client interface" is legally relevant or not or both options are possible. This information is helpful in designing a SW solution.		The client interface described here is always legally relevant. However, if desired, a manufacturer may add other displays to present other items for information purposes only. The distinction must then be made clear to the end user. No proposed change.
0160-AU	1	4.3.3		te	Can we try to agree upon an amount of energy required for rollover – rather than leaving for national authority.	I would suggest some reasonable multiple of the maximum power, such as maximum power x 10 hours. May need to be different for AC and DC EVSE?	To be discussed.  After discussion at PG meeting, the decision is to state "if maximum capacity of the register is reached, the transaction shall be terminated.". This way, we avoid stating a fixed number of digits that may no longer be sufficient when typical charging power levels rise in the coming years.
0161-BR	1	4.3.4.1	786-789	te	Why the resolution specified for AC EVSE is 0.1 Wh while DC EVSE is 1 Wh? Should not be the same?	Define a unique resolution requirement for AC and DC EVSE	Rejected. The rationale for the difference is that DC systems have significantly higher output power. Imin and MMQ are also significantly higher for DC, see Table 1. To keep testing time reasonable, AC chargers therefore need higher resolution for testing purposes.
0162-BR	1	4.3.4.1.1	786-787	te	Although we understand the resolution requirement for AC EVSE, we consider it unnecessarily high in the case of EVSE with metrological pulse output. Moreover, such resolution is uncommon for AC electricity meters that usually have 1 kWh or 0.1 kWh.	Consider reduce the resolution requirement for EVSE with metrological test output from 0.1 Wh to 0,01 Wh.	Comment not understood. The comment seems to indicate that the resolution is deemed too high, but the proposed change suggests to further _tighten_ the resolution requirement for AC systems. Decision at PG meeting in Prague to add a mandatory pulse output. However, the resolution of the displays was not discussed. We are keeping the current resolution values; to be discussed in next iteration.
0163-BR	1	4.3.4.3	792-793 and 796	te	The primary mode of metrological verifications should be the metrological pulse output. Due to different methods used to truncate the digits in a display, its reading brings higher uncertainty than the account of metrological pulses. Moreover, the use of pulses allows automated error evaluation (for both type approval and verifications) reducing measuring uncertainty, enabling faster testing times and allowing the use of existent infrastructure (benches).	Consider the following changes in the sentence 792-793:  4.3.4.3 The primary mode of testing shall be based on the <del>energy displayed on the client interface of the EVSE</del> <b>metrological test output</b> .  And the following change in the sentence 796: <b>EVSE must have a metrological test output used for testing, providing pulses corresponding to the energy measured by the instrument.</b> <del>If present, testing may also be performed while using a dedicated pulse-output.</del>	Discussed at PG meeting in Prague. See also 0164-CN.  Testing can be substantially sped up if a pulse output is available.  Accepted, with different wording. Also added a sentence to part 2 (chapter 6) test programme, item 4, to open the possibility of using a pulse counting comparison.
0164-CN	1	4.3.4.3	Paragraph	ge	When testing electrical energy errors, it is recommended that light pulses, electrical pulses and the cumulative electrical energy method can be used.	To be discussed	Discussed at PG meeting in Prague. Accepted. See 0163-BR.
0165-AU	1	4.3.4.3.4		ed	The word either is only to be used for 2 options.	Edit: It shall be possible to examine the correctness of algorithms and functions of the EVSE either by metrological tests, software tests, or software examination.	Accepted.
0166-NL	1	4.3.4.4		ed	In the first sentence, there is one word “the” too many: “.. that meets the all the requirements ..”	Delete “the”.	Accepted.
0167-DE	1	4.3.4.4		te	Since multiple tariffs shall also be possible at contractual private transactions, the verification interface shall be capable of displaying also the measurement data for contractual private transactions and not only for the other two transactions.	Change line 777 “a. the measurement data as required under 4.2.2.1.1 and 4.2.2.1.2,” into “a. the measurement data as required under 4.2.2.1,”	Accepted, given the outcome of discussion regarding the scope of the document, see 0009-BR.
0168-AU	1	4.3.4.4	Example 3	ge	OCCP needs to be defined.	Define OCCP.	Accepted.
0169-AU	1	4.3.4.4	Para 1	ed	Delete extra the.	Edit: ... that meets the all the requirements...	Accepted.
0170-AU	1	4.3.4.4	Para 1	ge	The term ‘verification software’ needs to be defined.	Add a definition for verification software.	Accepted.  Definition to be added. Following D31, we suggest: "verification software: software on a remote unit used for the purpose of verification of [an EVSE]". See also 0207-AU.
0171-CZ	1	4.3.4.4	Part 1&2	ge	specify whether "verification interface" is legally relevant or not or both options are possible. This information is helpful in designing a SW solution.		The definition in clause 2.2.8 clearly shows the legal relevance of the verification interface. No change needed.
0192-NL	1	4.4.2		ge	Does this clause “conformity of manufactured devices [...]” belong in part 1?	To be discussed: is “manufacturers shall produce [...]” the legal requirement (in which case it belongs here in Part 1), or is it checking of conformity (in which case it should go to Part 2)?	In fact, the content of 4.4.2 is already covered in Part 2, clause 9.2.2, and as such 4.4.2 appears to be redundant. To be removed.
0193-AU	1	4.4.2	Note 2	ed	Note 2 says ‘This Recommendation interprets certification as consisting of type evaluation and type approval.’ But the term certification is not used anywhere else in the Recommendation. Related terms like certificate are used elsewhere, but not in this clause.	Delete, or clarify the purpose of this note.	Accepted. Deleting. See also 0192-NL.
0206-AU	1	4.4.3	Item a)	te	Here it says the software identification shall be made available on the verification interface <u>and/or</u> the client interface. This conflicts with 4.3.4.4 which says (in item b) that the verification interface shall be capable of displaying the software identification. The software identification needs to be available on both the interfaces.	Replace ‘and/or’ with ‘and’	Rejected. It is in fact always the verification interface that needs to show the identification. Sentence has been simplified.
0207-AU	1	4.4.3	Last para	te	The last sentence says, ‘If applicable it shall be transmitted to the verification software’. What is meant by ‘if applicable’? This appears to conflict with 4.3.4.4 which says ‘All information available through the verification interface shall be transmittable to the verification software.’ Similar comments apply to other information such as the ‘audit trail’.	Clarify.	Transmission of data to the verification software is only necessary if remote verification is implemented in the EVSE. Therefore, we suggest to replace "if applicable" with "if remote verification functionality is implemented". (Also in audit trail clause.)  See also 0170-AU, asking for a definition of verification interface to be added.
0201-NL	1	4.4.3		ed	Under list item a), the partial sentence after the semicolon appears to be an erroneous leftover from OIML G22.	Remove all text after “;” at item a): “does not have any [...] of the”	See 0202-CA.

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0202-CA	1	4.4.3		ed	Currently : Via the verification interface <b>and/or the client interface</b> ; does not have any control capability to activate the indication of the <b>software identification on the display, or the display does not technically allow the identification of the software to be shown</b> ;	Sentence is incomplete. Not sure if strike out section was meant to stay	Noted. The incomplete sentence was caused by removing too much rather than too little. We will remove everything after the ";" in item a).  This removal covers concerns from 0202-CA, 0203-DE, 0204-US, 0205-AU.  See also 0201-NL
0203-DE	1	4.4.3		Ed	Point a) is not legible anymore due to the implemented changes.	Correct a) so that the intention behind the phrase“does not have any control capability” becomes clear. Is this intended as a condition for a)?	See 0202-CA.
0204-US	1	4.4.3		E	The phrase in (a) ends in an incomplete manner. “Via the verification interface and/or the client interface; does not have any control capability to activate the indication of the”	Use “Via the verification interface and/or the client interface”	See 0202-CA.
0205-AU	1	4.4.3	Item a)	ed	The text here needs editing. Item a) seems to say ‘Via the verification interface and/or the client interface; does not have any control capability to activate the indication of the’	Clarify.	See 0202-CA.
0208-DE	1	4.4.4		Te	It is unclear under which conditions events shall be logged in an audit trail.	Add logging conditions to 4.4.4 unless already specified elsewhere.	Rejected. See, e.g., 4.4.9.3.2, 4.4.9.3.8, 4.4.13.
0209-BR	1	4.4.5		te	Input from Labelo: The requirement does not specify the frequency for integrity checks. To ensure clarity and effectiveness, it should explicitly state how often these checks must be performed, or allow the manufacturer to define the frequency	Replace the sentence “The EVSE shall be designed to check the integrity of the legally relevant software” with "The EVSE shall be designed to check the integrity of the legally relevant software at least once per week."	Accepted.
0210-US	1	4.4.5		E	First Note - Use of “authorized authority”	Could be modified to “authorized person” or “authorized entity”	No longer relevant. Note completely removed based on discussion at PG meeting in Prague. See 0211-AU.
0211-AU	1	4.4.5	First note	ge	Delete this note which references national legislation. Also, 4.4.6 covers a similar thing and includes the statement ‘The device shall send a notification of the defect to an authorized authority’.	Delete the note.	Accepted. Note to be deleted.
0212-NL	1	4.4.6		te	The source of the clause “error protection” is D31:2023 clause 6.2.6.2 durability protection. The example provided there reads: “ <i>some</i> kinds of measuring instruments require an adjustment after a prescribed time interval, [...]”. We wonder if EVSE actually fall in this category of instruments. There are no mechanical parts subject to wear and tear.	We suggest to consider removing 4.4.6. Detection of (software) errors is already covered by 4.4.5.	See also 0215-AU, 0216-CZ, 0212-NL. Clauses 4.4.5 and 4.4.6 to be merged and edited.
0213-CA	1	4.4.6		ed	The title of this section is misleading.	Change title to:  4.4.6 Durability and defect protection	Noted. To be handled together with merging 4.4.5 and 4.4.6.
0214-US	1	4.4.6		E	See above regarding “authorized authority”	“authorized person” or “authorized entity”	Solved by merging 4.4.6 into 4.4.5.
0215-AU	1	4.4.6	Para 1	ge	This first paragraph covers the same subject as 4.4.5. It just lists different examples of defects in the hardware.	Merge with 4.4.5.	See also 0215-AU, 0216-CZ, 0212-NL. Clauses 4.4.5 and 4.4.6 to be merged and edited. =
0216-CZ	1	4.4.6	Part 1&2	te	“The device shall send a notification of the defect to an authorized authority.”  The question is whether the manufacturer will be able to arrange this. Because the correctness of the function also depends on the authorized authority. The question arises whether there will be requirements in this regard for the authorized authority to be able to accept the error message.		See also 0215-AU, 0216-CZ, 0212-NL. Clauses 4.4.5 and 4.4.6 to be merged and edited.
0217-NL	1	4.4.7		ed	In the first sentence, “these timestamp shall be ..”	Add an ‘s’ to timestamp to make it plural.	Accepted.
0218-AU	1	4.4.7		ed	Some editorial corrections are needed	Use timestamp or time stamp consistently. Express measurements correctly with a space: 60 s, not 60s. Last sentence: change ‘lock’ to ‘clock’	Accepted. Suggesting "timestamp" without a space.  See also 0219-US.
0219-US	1	4.4.7		E	“The method of synchronization between the internal <b>lock</b> and the network time shall be described in documentation submitted for type approval”	Correct “lock” to “clock”.	Accepted.
0220-AU	1	4.4.8		ge	I am not clear on the meaning and significance of ‘dynamic modules’. Why is it necessary and how is it helpful to indicate information about the use of dynamic modules in transaction data?	To discuss?	Discussed at PG meeting in Prague.  Decision: remove clause 4.4.8 entirely.
0221-BR	1	4.4.9		te	Input from Labelo: There is no requirement specifying the behavior of the EVSE during a software update. It is unclear whether the EVSE must remain inoperative during the update or if it must ensure that the legally relevant functionality continues to meet its specifications	Add a sub-clause with the following: The EVSE shall either remain inoperative during the update or ensure that the legally relevant functionality continues to meet its specifications throughout the process.	Accepted.
0222-CA	1	4.4.9.1		ed	The sentence as written suggests legally non-relevant software cannot be installed in an EVSE	Change : <b>Only versions of legally relevant software that conform to the approved type are allowed for use.</b>  To:  <b>Any version of legally relevant software installed in the EVSE must conform to an approved type.</b>	Accepted.
0223-CA	1	4.4.9.1		ed	The following is an awkward sentence: <b>Software which does not realise legally relevant functions of the EVSE does not require verification after being updated.</b>  “Software which does not realize legally relevant functions” should be identified as legally non-relevant software	Change: <b>Software which does not realise legally relevant functions of the EVSE does not require verification after being updated.</b>  To: Legally non-relevant software in the EVSE does not require verification after being updated.	Accepted. See 0225-DE.
0224-CA	1	4.4.9.1		Ed	It is not clear why there is “note” at the end of this section.  Note: Separation of legally relevant and legally non-relevant software parts is possible, as described in 4.4.18 .  What purpose does it serve in the context of clause 4.4.9.1.	Review the purpose of note, and if not necessary remove the note.	Accepted. Note removed.

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0225-DE	1	4.4.9.1		Ed	The term “software which does not realise legally relevant functions” should be avoided.	Replace the term with “non-legally relevant software”.	Accepted.
0226-CA	1	4.4.9.2		te	<p>These sentences are not necessary</p> <p>Evidence of an intervention shall be recorded. A person should be on the installation site of the EVSE to check that the updated software has been installed successfully.</p> <p>By definition a verified update requires that the EVSE undergo verification. The verification process will require check of the updated software and its correct installation. Therefore the sentences above do not add any value..</p>	<p>Remove the following sentences:</p> <p>Evidence of an intervention shall be recorded. A person should be on the installation site of the EVSE to check that the updated software has been installed successfully.</p>	<p>Discussed at PG meeting in Prague.</p> <p>Decision: Accepted. Two sentences to be removed.</p>
0227-AU	1	4.4.9.2		ed	Don’t use the word should.	Replace ‘A person <u>should</u> be on the installation site of the EVSE to check that the updated software has been installed successfully.’ With ‘A person <u>shall</u> be on the installation site of the EVSE to check that the updated software has been installed successfully.’	No longer relevant. Covered by outcome of 0226-CA.
0228-US	1	4.4.9.2		E	“After the update of the legally relevant software of an EVSE (exchange with another approved version or re- installation) the EVSE is <u>not allowed to be</u> employed for legal purposes before a verification of the EVSE has been performed and the securing means have been renewed.”	Consider use of normative language if this is a requirement: “the EVSE <u>shall not be</u> employed for legal purposes...”	Accepted.
0229-CA	1	4.4.9.3.1		Te	<p>Currently within 4.4.9.3.1:</p> <p>The traced update shall not affect existing parameters</p> <p>It should not matter if legally non-relevant parameters are affected.</p>	<p>Suggest the following:</p> <p>The traced update shall not affect <b>legally relevant</b> parameters</p>	Accepted.
0230-CA	1	4.4.9.3.3 & 4.4.9.3.4		te	<p>These two clauses do not align with each other. Clause 4.4.9.3.3 suggests that securing or protection measures may be turned off but clause 4.4.9.3.4 says this is not allowed.</p> <p>4.4.9.3.3 . . . If some of the securing or protection measures of the EVSE are turned off to enable updating, they shall be turned on again immediately after update, independent of the result of the update process.</p> <p>4.4.9.3.4 During a traced update, any existing protection measures, e.g. audit trail information, shall be retained.</p>	<p>Suggest to remove the following sentence from clause 4.4.9.3.3:</p> <p>If some of the securing or protection measures of the EVSE are turned off to enable updating, they shall be turned on again immediately after update, independent of the result of the update process.</p>	<p>We understand the concern. However, the intention is that 4.4.9.3.4 refers to the audit trail information, which should be retained even when the protection and securing measure are temporarily deactivated. To make this clear, we suggest to reword 4.4.9.3.4 as follows: "During a traced update, <b>any</b> existing <b>information from</b> protection measures, e.g. audit trail information, shall be retained."</p>
0172-AU	1	4.4.10		ge	The meaning of remote verification needs to be explained.	Add a definition and/or explanation of the meaning and scope of remote verification.	<p>Discussed at PG meeting.</p> <p>Remote verification is defined in D31 3.2.52, and is related to our definition 2.2.8. In D31, it mentions "supporting" verification. PG wonders if it should be implied that the entire verification, including metrological performance, can ever be performed remotely. We believe it is the intention that remote verification concerns only the functioning of the metrologically relevant software. Clarifying sentences to this effect will be added tot 4.4.10.1. In line with this, verification marks also do not make sense in this context, so notions about verification marks are removed from 4.4.10.</p>
0173-NL	1	4.4.10.1		te	For remote verification capabilities, there is an open action for the PG to decide if (and if so which) additional data shall be stored regarding a remote verification.	To be discussed.	Discussed at PG meeting in Prague. Decision: No further items needed.
0174-CA	1	4.4.10.1		Te	In last line of this section, reference is made to clause 4.4.18. This does not seem correct. Perhaps the clause to be referenced should be 4.4.15?	Check reference to clause 4.4.18	Dicussed at PG meeting in Prague. The reference should be to 4.4.19 (storage of data). Will be corrected.
0175-AU	1	4.4.10.1		ge	<p>The sentence on top of page 36 says ‘Access to the verification procedures, specific test items or commands shall be available but can be restricted if these influence compliance with other requirements, such as:’</p> <p>What does this mean? Who would restrict the access – the manufacturer or regulator? How would restricted access work?</p>	Clarify	<p>Discussed at PG meeting in Prague.</p> <p>See also 0172-AU, 0173-NL, 0174-CA, 0175-AU.</p> <p>Explanation: D31 proposes a scenario where the manufacturer implements technical access restrictions for remote verification in the instrument. This is intended to prevent third parties from initiating a remote verification procedure.</p> <p>Decision: clarification needed of sentence "Access to the verification procedures, [...]" . To be provided after PG meeting in Prague.</p> <p>After further deliberation post-meeting, we see no added value in this sentence. The two preceding sentences already cover influence on ongoing measurements, and continued compliance with other requirements. Removing this sentence and three associated bullet points.</p>
0176-CA	1	4.4.11.2		te	Reference is made to memory device in the first sentence. Software can be stored in more than just a memory device.	Legally relevant software shall be protected against modification, loading, or changes by swapping <del>the memory device</del> <b>any component in which the software is stored</b> .	Accepted, but without the word "any".
0177-CA	1	4.4.12		Te	Clauses 4.4.12.1- 4.4.12.8 are applicable to the operating system. Most of the requirements are the same as those applicable to any legally relevant software in an EVSE. Legally relevant software is required to be protected, identifiable, traceable, etc., however there is no explicit statement in these sections that the operating system is legally relevant. Is there are reason for this omission?	If the operating system is legally relevant this should be stated in section 4.4.12	Accepted. Yes, the OS is typically legally relevant. Now added to the text.
0178-CA	1	4.4.12.2		Te	The term protective interface is used however this is not defined and there are no criteria that can confirm the suitability of a protective interface.	Additional details relating to a protective interface need to be developed.	<p>The comments appears to be about 4.4.12.1.</p> <p>To be discussed: if a detailed description of 'protective interface' would be added here, we open the door to also include (possibly very many) software definitions in the document.</p> <p>Discussed at PG meeting. Since OIML D31 (3.2.51) defines 'protective interface', there is no need to add it here. Definitions are usually only copied if absolutely necessary.</p>



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0179-CA	1	4.4.12.6		Text	In ‘Note 2’ it is stated that “ ... legally relevant operating system parts can only be changed by means of a verified update (see 4.4.8.2) or by means of a traced update (see 4.4.9.3) if an audit trail is used.”  An audit trail is always required for traced updates. Therefore the note should not include “if an audit trail is used”	Change Note 2 as follows:  This implies that legally relevant operating system parts can only be changed by means of a verified update (see 4.4.8.2) or by means of a traced update (see 4.4.9.3) <del>if an audit trail is used</del> .	Accepted.
0180-CA	1	4.4.14		Edited	Suggest to change the title to Transaction data	Change 4.4.14 Measurement data To 4.4.14 Transaction data	Accepted partly. Changing to "Protection of transaction data"
0181-CA	1	4.4.16		Text	The second bullet may be too restrictive:  not be able to influence the legally relevant characteristics of the instrument remotely, such a through a remote verification procedure or a software download	Change the second bullet as follows:  From: not be able to influence ...  To: not be able to inadmissibly influence ...	Accepted.
0239-BR	2	4.4.1.7*	1263-1264	Text	Input from Labelo: It is unclear when this requirement apply.	This requirement applies if the EVSE or component has interfaces for communicating with other devices, components or with other software modules besides the legally relevant software modules within an EVSE or component.	Comment appears to be about 4.4.17 in part 1.  Rejected. This is a general software requirement.
0182-CA	1	4.4.17.2		Text	In the first Note of this section reference is made to clause 4.4.19.  Note: If legally relevant components interact with other legally relevant components or electronic devices, refer to 4.4.19.  The reference to 4.4.19 does not seem correct.	Confirm the correct clause to be referenced in the note.	Reference will be corrected. It should be 4.4.16 Communication Interface.
0183-CA	1	4.4.17.2		Text	Suggest to replace measurement data with legally relevant data	Suggest to replace measurement data with legally relevant data	Partly accepted. Suggest to replace "legally relevant software, parameters or measurement data" by "legally relevant data".
0184-CA	1	4.4.17.5		Text	The notion of “limited protection capabilities” is ambiguous.  Also, a mobile app is not part of the EVSE approved pattern and therefore is not subject to any of the software protection requirements in this recommendation.  The EV telematics software presumably resides in the EVSE and should adhere to all protection requirements of this recommendation. It should not be considered as having ‘limited protection capabilities’.	Consider the following for 4.4.17.5 :  An EVSE that interacts with external devices such as mobile apps shall be designed with telematics software that limits the information exchange to the following: <ul style="list-style-type: none"><li>• Initiation of the transaction</li><li>• Termination of the transaction</li><li>• Payment for the transaction</li><li>• Display of the legally relevant transaction data and the capability to check the authenticity and integrity of the data.</li></ul>	Accepted.
0185-CA	1	4.4.17.7		Text	The requirements under this clause seem inconsistent with other provisions in the document. As an example, measurement values may be transmitted to a remote mobile app (such as the client interface) The software of the remote mobile app is not under legal control but the transmission of data is required to be employ cryptographic measures. This would be inconsistent with 4.4.17.7 a).	Reconsider the value or need for clause 4.4.17.7. Perhaps it should be removed.	Discuss in conjunction with 0186-AU.  One could question why it is forbidden (item a) to send cryptographically signed measurement values to non-legally relevant sw modules. However, do note that the client interface is a legally relevant component (that was intention of SG1 software). It is therefore subject to requirements (4.3.2, 4.3.4.4, 4.4.17.4). The PG agreed that the three clauses named here are sufficient to cover the trust in the client interface, and 4.4.17.7 itself is not needed. Therefore: PG decides to accept this suggestion. Clause will be removed.
0186-AU	1	4.4.17.7		Text	I suggest this needs to be discussed. Why would the EVSE send measurement values to non-legally relevant software modules? Also, need to be consistent with use of ‘non-legally relevant’, or ‘legally non-relevant’.	For discussion.	Discussed at PG meeting in Prague, in conjunction with 0185-CA.  PG agreed to remove entire clause 4.4.17.7.
0187-NL	1	4.4.17.8		Text	The full PG needs to decide whether any components should be made mandatory to be connected and available.	Needs to be discussed.	To be discussed at PG meeting in Prague.  Decision: No other components needed, therefore no change.
0188-CA	1	4.4.19.2		Text	Suggest to replace measurement data with legally relevant data	Suggest to replace measurement data with legally relevant data	Partly accepted.
0189-CA	1	4.4.19.3		Text	Suggest to replace stored measurement data with legally relevant data	Suggest to replace stored measurement data with legally relevant data	Accepted.
0190-CA	1	4.4.19.4		Text	The following sentence is confusing and it’s purpose is not clear.  · Records of measurement data stored in a component to construct the measurement result can be deleted or overwritten if the next module or component state a proper completion of expected actions engaged.	Reword or remove the sentence.	Wording originated from D31:2023, 6.3.4.4.2. We concur with this comment. Such a provision may be useful for instruments with conversion devices (like for gas volume), consisting of multiple parts. This is not relevant for EVSE. We will remove this sentence.
0191-CA	1	4.4.19.4		Text	National authorities should be able to establish appropriate retention periods for their respective jurisdictions.	Add note:  National authorities may establish retention periods for record as appropriate.	Connected to discussion on choices for national authorities, see comments 0002, 0003, 0339.  Note added, in fact moved from original 4.2.2.2.
0194-CA	1	4.4.20		Text	Suggest to replace measurement data with legally relevant data	Suggest to replace measurement data with legally relevant data	Rejected.
	1	4.4.20.1		Text	Suggest to replace measurement data with legally relevant data	Suggest to replace measurement data with legally relevant data	Rejected.
0196-NL	1	4.4.20.2		Text	Protection of transmitted data: In the second bullet, remove reference [10], or replace it with meaningful reference. It should not be IEC 60068-2-2.	Remove “[10]”.	See 0198-CN
0197-CA	1	4.4.20.2		Text	Suggest to replace measurement data with legally relevant data	Suggest to replace measurement data with legally relevant data	There is no mention of "measurement data" in 4.4.20.2. But we suggest to adopt the suggestion to change "transmitted data" into "transmitted legally relevant data".



Country code	Part	Clause/subclause	Paragraph/Figure/Table	Type of comment <sup>2</sup>	Comments (ref. doc: 1WD, TC12_P3_N029/N030/N031/N033)	Proposed change	Convener's responses						
0198-CN	1	4.4.20.2	Paragraph	te	<p>In the case of network attached components the legally relevant software of the sending device calculates a CRC32 [10] of the dataset, which is appended to the dataset. A secret initial value is used for the calculation of the CRC32 instead of the value given in the standard [10].</p> <p>No definition for CRC 32 [10] [10] IEC 60068-2-18:2017 Environmental testing - Part 2-1: Test R and guidance: Water</p>	<p>In the case of network attached components the legally relevant software of the sending device calculates a checksum of the dataset, for example CRC32. which is appended to the dataset. It is used to verify the integration of the dataset.</p> <p>Do not fix the algorithm. Suggest national authorities to give the detail requirements.</p> <p>Standard [10] is not correct for index. Suggest to delete it. If there was standard related to corresponding requirements, change it and list in the Annex A</p>	<p>Accepted.</p> <p>Clause 4.3.1.2, point b, mentions (as it did already in G22:2022) "state-of-the-art cryptographic means", in general terms. Aligning 4.4.20.2 with 4.3.1.2 would be our preference. CRC32 is not state of the art anymore, and we suggest to remove it. And in fact: the simplest way to reach alignment may be to remove the rest of 4.4.20.2 too.</p> <p>Discussed at PG meeting. Deciding to align 4.3.1.2 and 4.4.20.2, and to place the requirements on protection in 4.4.20.2, and refer there from 4.3.1.2.</p>						
0199-US	1	4.4.20.2, lines 1281, 1282.		E	“In the case of web-based components and components with limited functionality and protection capabilities, electronically signatures shall be used that enables the retrieving software to check the integrity and authenticity of the records.”	Change “electronically” to “electronic”	Accepted, but text was already removed following discussion at 0198-CN.						
0200-CA	1	4.4.20.3		Te	Suggest to replace measurement data with legally relevant data	Suggest to replace measurement data with legally relevant data	Rejected. Clause 4.4.20.3 only mentions "the measurement" itself, not the data. No change needed.						
0235-DE	1	Explanatory note		5 Ed	In paragraph 5, the term “charger” is used instead of EVSE. The term appears nowhere else in the text.	Change “AC and DC chargers” to “AC and DC EVSEs”	Accepted.						
0236-US	1	Line 1144Line 1157		E	The acronym PG is not defined anywhere?	Define PG and/or spell out the words.	PG means "project group". The content for this clause will be dicussed at the PG meeting, and the acronym will be removed.						
0240-CN	2	5,3	Table 8	ed	redundant	Delete one table	In the clean version of the document, TC12_P3_N033, an erroneous duplication of Table 8 appears. One will be removed.						
0241-BR	2	5,3	Table 8	te	Insert a clause informing that no adjustments to any adjustment device are allowed once tests are initiated	<p>Add a column to the table for Examination Level B, based on OIML D 31, which includes methods such as DFA, CIWT, and SMT. See a new version of table 8 in annex.</p>	<p>Discussed at PG meeting in Prague.</p> <p>The reason for BR to propose this extension is because of high risk of fraud in Brazil. (Also holds for utility electricity metering.)</p> <p>No other participants are considering this high risk class. Decision: will not include additional column in Table 8.</p>						
0242-CA	2	6		ge		<p>Immediately following Note 2 insert the following:</p> <p>No adjustments using any available adjustment device in the EVSE are permitted once testing has started.</p>	<p>We suggest to leave this to the Issuing Authority.</p> <p>Rejected.</p>						
0243-CA	2	6		Te	<p>This clause suggests phantom loading can be used for testing.</p> <p>Note 2: The tests can be performed either with a real load or with a phantom load</p> <p>Do we need to add additional information on phantom load connection points. Perhaps manufacturers should be required to provide details on the location of the phantom load connection points and confirmation that the EVSE metering points will be able to meter the same points.</p>	<p>This may require further discussion.</p>	<p>See also 0244-DE.</p> <p>We suggest to extend note 2 by: "[... with a phantom load], in consultation with the manufacturer."</p>						
0244-DE	2	6	Note 2	te	If testing with phantom power is performed, the standard EVSE communication protocols are not necessarily used. Phantom power test equipment may use an own communication protocol between charging station and test system	Extend Note 2: ... or with phantom load. Using phantom load also other communication protocols between charging station and test system may be used.	See 0243-CA. Suggest not to go into details on communication protocols.						
0300-CA	2	6 2)		Ed	<p>The following clause suggests that a quantity of energy is specified, but a quantity of energy is not specified in the Recommendation:</p> <p>2) Charging at a specified power level for a specified quantity of energy (must be greater than the MMQ).</p>	Change clause 2) as follows: 2) Charging at a specified power level for a <u>specified</u> quantity of energy that is equal to or greater than MMQ ( <del>must be greater than the MMQ</del> ).	Accepted.						
0245-CN	2	7,1	Table 10	te	<p>Operating position for instruments sensitive to position</p> <p>Not required for electric energy meter</p>	Delete it	Accepted.						
0246-DE	2	7,1	Table 10	te	Reference conditions for voltage does not fit to the test of initial intrinsic error. Error shift then may be difficult to evaluate, if no intrinsic error is measured for the reference conditions mentioned here.	Change reference conditions for DC voltage to Umin and Umax	Rejected.  The intrinsic error test is already performed at Umin, Umax and the midpoint following 7.2.1. It would be undesirable to do all the influence tests at the extreme voltage values.						
0247-BR	2	7,1	Table 10	ed	The voltages of DC EVSE contains tolerances in the reference condition column	<p>Instead (<i>see image to the right</i>)</p> <p>...</p> <p>Considers: (<i>see image to the right</i>)</p> <table><tr><th>Quantity</th><th>Reference conditions</th><th>Tolerance</th></tr><tr><td>Voltage(s) AC EVSE DC EVSE</td><td>Highest <math>U_{load}</math> 375 VDC 700 VDC</td><td><math>\pm 1\%</math> <math>\pm 50</math> VDC <math>\pm 50</math> VDC</td></tr></table>	Quantity	Reference conditions	Tolerance	Voltage(s) AC EVSE DC EVSE	Highest $U_{load}$ 375 VDC 700 VDC	$\pm 1\%$ $\pm 50$ VDC $\pm 50$ VDC	Accepted.
Quantity	Reference conditions	Tolerance											
Voltage(s) AC EVSE DC EVSE	Highest $U_{load}$ 375 VDC 700 VDC	$\pm 1\%$ $\pm 50$ VDC $\pm 50$ VDC											
0248-CA	2	7.2.2		Te	<p>Table 2 specifies an error limit for registration at starting current, this should be the acceptance criteria.</p>	<p>Edit as follows:</p> <p>Object of the test: To verify that the EVSE starts and continues to operate at Ist as given by Table 1 and to verify the error of registration is within limits of BMPE given in Table 2 for Ist</p> <p>Add the following:</p> <p>Acceptance criteria: The error of registration at Ist is not greater than the BMPE for Ist as given in Table 2</p>	Accepted. Referring to Table 2.						
0256-DE	2	7.3.3		te	Temperature tests with a complete charging station may be difficult for high power or even megawatt charging stations. In our opinion testing of the metrological relevant parts would be sufficient	<p>Add</p> <p>Note: Testing the complete charging station is not necessary if at least this test is performed with all metrological relevant components of the charging station</p>	<p>Noted.</p> <p>However, this test can be done with phantom load (see chapter 6). We assume the temperature test will be much more feasible this way.</p>						

Country code	Part	Clause/subclause	Paragraph/Figure/Table	Type of comment <sup>2</sup>	Comments (ref. doc: 1WD, TC12_P3_N029/N030/N031/N033)	Proposed change	Convener's responses
0257-AU	2	7.3.3	Note	te	The meaning of the note is not clear. What does 'limited to only the extreme temperatures' mean? What temperatures should be tested? Also, the text should also use the defined term 2.1.2 'EVSE with separately type approved meter'.	Clarify.	Accepted. Changed to "The test can be limited to an accuracy test at the extreme temperatures for EVSE with separately type approved meter." (And moved from note to main text in 7.3.3.)
0258-BR	2	7.3.4 to 7.3.11		te	<p>Since the pass/fail criteria of these tests are based on the error shift, consider to do them at any current between Itr and Imax.</p> <p>Rationality: Influence quantity tests are not accuracy tests. The use of high currents became these tests unnecessarily expensive. To allow flexibility to the laboratories left to them the choice of the test current between Itr to Imax.</p> <p>Furthermore, the laboratory must verify if its equipment can supply 50% Imax, which depending of the DC EVSE nominal power could be considerable high.</p>	<p>Consider the following change for the tests in Sections 7.3 and 7.4:</p> <p>The test current shall be <b>between Itr to 50%-Imax</b></p>	Accepted, only for the DC EVSE. For AC EVSE, we believe that 50% Imax is feasible.
0259-DE	2	7.3.5		ed	Declaration of tests for AC EVSE not consistent	Add "(AC EVSE)" to the headlines or remove "(AC EVSE)" from the headline of 7.3.4 to be consistent	Accepted. Also for three other AC-only cases.
0260-BR	2	7.3.6	1684	te	We found the severity level of this test too soft and therefore innocuous. The waveforms EV#1 and EV#2 have a small THD and looks to be less severe than the harmonics specification for electricity meters (6.10 of R46-1) and for measuring instruments (Table 24 in OIML D11).	Discuss whether waveforms EV#1 and EV#2 are representative of the environment of EVSE. Otherwise use severity level 3 of table 24 in OIML D11.	Not discussed in plenary. Leaving text and waveforms as in G22 and 1WD for now.
0261-DE	2	7.3.8		te	Error shift can not be determined for DC EVSE, because no intrinsic error exists for reference voltage	Change reference voltages (see. 7.1)	Comment not understood.
0262-US	2	7.3.8		T	The specification of the DC magnet is not a complete specification. Note: The IEC magnet has a pull force of over 1400 N. It is very dangerous to handle in the vicinity of any steel object. It would be impossible to hold 30mm from any magnetic object.	It would be better to adopt the specification of the IEC test magnet. 50mm x 50mm x 25mm remanence of >200 mT and surface flux 400 mT.	Rejected. This Recommendation includes the same specification as R46. We have added a note at Table 14 to clarify the application.
0263-DE	2	7.3.9		te	In the standard IEC 61851-21-2 nothing was found regarding AC magnetic field	Please check, if the standard 61851-21-2 listed here is correct	Tables 1 (and further) in section 5.1 of that standard do specify magnetic field levels. See also 0266-BR.
0264-DE	2	7.3.9		te	Arranging the charging station within the induction coil may be difficult for large charging stations. It may be sufficient to perform this test only with the metrologically relevant parts of the charging station	Insert a Note: Note: Testing the complete charging station is not necessary if at least this test is performed with all metrological relevant components of the charging station	Accepted, with modification: "Testing can be limited to the metrologically relevant parts,for EVSE of large dimensions."
0265-DE	2	7.3.9		te	Error shift can not be determined for DC EVSE, because no intrinsic error exists for reference voltage	Change reference voltages (see. 7.1)	See 0261-DE.
0266-BR	2	7.3.9	1747	te	The severity level specified for EVSE seems to be too rigorous. The value of 400 A/m comes from R46, however EVSE are rarely exposed to such level.	Consider to adopt the severity levels specified by IEC 61851-21-2 as described below: 100 A/m for EVSE with currents above 32 A 30 A/m for EVSE with currents less or equal 32 A.	These values are indeed listed in IEC 61851-21-2. However, the highest value in OIML D11 is 100 A/m, whereas R46 lists 400 A/m. We suggest to stick to R46.
0249-BR	2	7.3.10.1	1752	te	Since the test can be conducted in both a semi-anechoic chamber (IEC 61000-4-3) and a G-TEM cell (IEC 61000-4-20), include the reference standard for the method using the G-TEM cell.	- Include in the applicable standard the IEC 61000-4-20	Accepted.
0250-BR	2	7.3.10.1	1765	Ed/te	To be coherent with section 7.3 of IEC 61000-4-3	<p>Consider the following change:</p> <p>The cable length exposed to the electromagnetic field shall be <b>at least 1 m</b>.</p>	Accepted.
0251-BR	2	7.3.10.1	1770 - 1774	te	Manufacturers do not declare the clock frequencies or any other sensitive frequencies because before the test they are unknown. On the other hand, the note in line 1773 does not apply to this immunity tests; it is related to emission tests.	Delete the sentences 1770 to 1774.	Accepted.
0252-BR	2	7.3.10.1	1782	te	<p>Include a minimal value of dwell time, which be enough to obtain at least 1 measurement error at each frequency step.</p> <p>We recommend to adopt the suitable value of at least 3 s specified by IEC 62052-11, clause 9.3.1.2.1.</p>	<p>Include the following sentence after line 1782:</p> <p>The dwell time must be enough to obtain at least one measurement error at each frequency step and in any case not less than 3 s.</p>	Accepted as follows: test time per frequency step at 'test procedure' changed from 0.5s to 3s; repeated text about dwell time at 'test condition' removed, to avoid confusion.
0253-BR	2	7.3.10.3	1824	te	The same comments in BR043 apply to this test.	<p>Include the following sentence after line 1824:</p> <p>The dwell time must be enough to obtain at least one measurement error at each frequency step and in any case not less than 3 s.</p>	Accepted. Test time per frequency step change from 0.5s to 3s again.
0254-BR	2	7.3.10.3	1825-1826	te	This sentence is unclear	<p>Eliminate the sentence or rewrite as follows:</p> <p>If the EVSE is a poly-phase EVSE, the tests shall be performed <del>at all extremities of the cable</del> <b>using the proper CDN, for example CDN-M5.</b></p>	Accepted. We suggest to remove this sentence.
0255-DE	2	7.3.11		te	Error shift can not be determined for DC EVSE, because no intrinsic error exists for reference voltage	Change reference voltages (see. 7.1)	See 0261-DE.
0267-BR	2	7.4.1	1849-1851	te	<p>This sentence contradicts the subsequent sections or at least causes confusion.</p> <p>According to Section 9.2.2 of OIML D11, there are two ways to evaluate measuring instruments: - Criteria NSFa (No Significant Fault shall occur after the disturbance), and - Criteria NSFd (No Significant Fault shall occur during the disturbance).</p> <p>Criteria NSFd is the recommended criterion for integrating instruments like the EVSE.</p> <p>Since the subsequent sections specify mandatory test points, it is understood that the tests must be evaluated (correctly) using criteria NSFd and not NSFa, as the sentence suggests.</p>	Delete the sentence in lines 1849 to 1851.	Accepted.  Table 5, 6, 7 are updated accordingly. However, without mentioning the expressions NSFa or NSFd but with the same philosophy.
0268-BR	2	7.4.1	1852-1853	te	It is not clear if the EVSE can return to normal operation with or without the intervention of the operator.	Discuss if the intervention of an operator is allowed to recover the normal function	Return to normal should happen *automatically*, so without any manual human intervention. Wording added to clarify this.

Country code	Part	Clause/subclause	Paragraph/Figure/Table	Type of comment <sup>2</sup>	Comments (ref. doc: 1WD, TC12_P3_N029/N030/N031/N033)	Proposed change	Convener's responses																														
0269-BR	2	7.4.1	1854-1858	Text	<p>Since the pass/fail criteria of these tests are based on the error shift, consider doing them at any current between I<sub>tr</sub> and I<sub>max</sub>.</p> <p>Rationality: Disturbance tests are not accuracy tests. The use of high currents made these tests unnecessarily expensive. Moreover, by the definition of transitional current, the EVSE must fulfill the BMPE for any current between I<sub>tr</sub> and I<sub>max</sub>.</p> <p>On the other hand, setting the current point at a fixed value (50% I<sub>max</sub>) means that the laboratory must verify if its power sources and disturbance generators can support the test current, which, depending on the DC EVSE's nominal power, could be considerable high.</p>	Delete sentences 1854 to 1858.	Accepted. Text of 7.4.1 adapted to allow lower currents.																														
0270-BR	2	7.4.2		Text	The time interval between discharges is missing. We suggest using 1 s between pulses as specified in table 35 of OIML D11.	Add the following sentences after line 1869: The time interval between successive discharges shall be at least 1 second. The test pulses shall be applied continuously during the measurement time.	Accepted.																														
0271-BR	2	7.4.2	1865-1866	Text	For type approval the most sensitive polarity is unknown, therefore both of them must be applied.	Rewrite the sentence as follows: At least 10 discharges, <del>in the most sensitive polarity</del> <b>in both positive and negative polarities</b> , shall be applied.	Accepted.																														
0272-BR	2	7.4.2	1882-1883	Text	The test#1 is enough to evaluate the immunity of the EVSE. Test#2 is not necessary because the evaluation criteria for integrating instruments is NSFd.	Delete test#2.	Accepted.																														
0273-BR	2	7.4.2	1884	Edited	The word “constitutes” is incoherent in the sentence.	Rewrite the sentence as follows: An error shift larger than 1.0 BMPE <del>constitutes</del> <b>during the test</b> shall not occur	Accepted.																														
0274-DE	2	7.4.2	Test 1# / Test #2	Text	For DC EVSE the Unom is not clear	Specify Unom e.g.: Lowest Unom	Agreed. Test conditions are now moved to clause 7.4.1, for all disturbance tests, making a distinction between AC and DC EVSE and indicating at which voltage the tests should be performed.																														
0275-DE	2	7.4.2 – 7.4.7	Performance verification	Text	Error shift can not be determined for DC EVSE, because no intrinsic error exists for reference voltage	Change reference voltages (see. 7.1)	See 0261-DE.																														
0276-BR	2	7.4.3	194 - 196	Text	<p>What about the I/O signal lines below 40 V?</p> <p>Almost all signal lines are below 40 V. The tests must be applied to any signal lines bellow 40 V.</p>	Rewrite the sentence as follows: A capacitive coupling clamp, as defined in the standard, shall be used to couple to I/O and communication lines with a reference voltage over 40 V.	Agree with the comment. Suggested text change is not different from the existing text. The best solution in our view is to remove the restriction on "above 40V".																														
0277-BR	2	7.4.3	1910	Text	A cable of exactly 1 m could be too short.	Rewrite the sentence as follows: The cable length between the coupling device and the EVSE shall be <b>at least</b> 1 m.	Rejected. The expression 'at least' opens the door for an undefined length, with different results during the burst test. The burst would taper off over the (long) length of the cable.																														
0278-BR	2	7.4.3	1916	Text	The term “auxiliary circuits with reference voltage over 40 V” is not applicable to EVSE.	Rewrite the sentence as follows: Test voltage on I/O and communication lines: 1 kV	Accepted																														
0279-AU	2	7.4.4		Text	The latest IEC 61000-4-11 has different and additional tests. See comments on 3.3.5.2, Table 5.	Update	Accepted. See 0281-BR.																														
0280-BR	2	7.4.4		Text	Because DC EVSE will be connected to a DC network DC voltage dips should be applied. Moreover, other tests applicable to DC networks need to be included.	<p>Include sections with the following tests recommended by OIML D11:</p> <p>1) DC voltage dips (IEC 61000-4-29) 2) Ripple on DC mains (IEC 61000-4-17) 3) DC mains voltage variations (OIML D11, 12.1)</p> <p>Brazil can prepare a text with such tests.</p>	<p>Not accepted.</p> <p>After consultation with Bill Hardy, we come to the following conclusion. The document covers unitary EVSE and complex DC EVSE (fig. 1 and 2). This always includes an AC to DC conversion. As such, the EVSE is always connected to an AC network. Even in case the complex DC EVSE is directly connected to a DC grid, the DC-DC amplifiers are still present. As such, DC dips, ripples, or voltage variations will not play a role. As a result, we do not think the tests suggested here are necessary.</p> <p>See also 0108-BR.</p>																														
0281-BR	2	7.4.4	1933 - 1938	Text	The severities specified in this section are different from IEC 61000-4-11, 4-34, OIML D11 and IEC 61851-21-2 (See tables 2 and 3)	<p>Implement the following changes:</p> <p>- Instead “Reduction”, consider “Residual voltage” to be coherent with definition 3.5 of IEC 61000-4-11.</p> <p>- Instead “Unom” consider “UT” to be consistent with IEC 61000-4-11 definitions.</p> <p>- Change the severity test levels to those specified for equipment class 3 in IEC 61000-4-11 and -4-34: <i>(see image to the right)</i></p> <table><caption>Table 1 – Preferred test level and durations for voltage dips</caption><tr><th>Class<sup>a</sup></th><th colspan="5">Test level and durations for voltage dips (r<sub>d</sub>) (50 Hz/60 Hz)</th></tr><tr><td>Class 1</td><td colspan="5">Case-by-case according to the equipment requirements</td></tr><tr><td>Class 2</td><td>0 % during ½ cycle</td><td>0 % during 1 cycle</td><td colspan="3">70 % during 25/30<sup>c</sup> cycles</td></tr><tr><td>Class 3</td><td>0 % during ½ cycle</td><td>0 % during 1 cycle</td><td>40 % during 10/12<sup>b</sup> cycles</td><td>70 % during 25/30<sup>c</sup> cycles</td><td>80 % during 250/300<sup>c</sup> cycles</td></tr><tr><td>Class X<sup>b</sup></td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td></tr></table> <p><sup>a</sup> Classes as per IEC 61000-2-4; see Annex B.</p> <p><sup>b</sup> To be defined by product committee. For equipment connected directly or indirectly to the public network, the levels must not be less severe than Class 2.</p> <p><sup>c</sup> "25/30 cycles" means "25 cycles for 50 Hz test" and "30 cycles for 60 Hz test".</p>	Class <sup>a</sup>	Test level and durations for voltage dips (r <sub>d</sub> ) (50 Hz/60 Hz)					Class 1	Case-by-case according to the equipment requirements					Class 2	0 % during ½ cycle	0 % during 1 cycle	70 % during 25/30 <sup>c</sup> cycles			Class 3	0 % during ½ cycle	0 % during 1 cycle	40 % during 10/12 <sup>b</sup> cycles	70 % during 25/30 <sup>c</sup> cycles	80 % during 250/300 <sup>c</sup> cycles	Class X <sup>b</sup>	X	X	X	X	X	Mostly accepted.
Class <sup>a</sup>	Test level and durations for voltage dips (r <sub>d</sub> ) (50 Hz/60 Hz)																																				
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Class X <sup>b</sup>	X	X	X	X	X																																
0282-BR	2	7.4.5	1945	Text	This test can be also applicable to DC mains, for instance in DC EVSE where the distance between the instrument and the power source is greater than 10 m.	Eliminate “AC” from the heading	Accepted																														
0283-BR	2	7.4.5	1962 - 1962	Text	<p>The specified angles are no longer used for electricity meters or any other electronic devices. They were changed in the Ed. 2.0 of IEC 62052-11 by 0°, 90°, 180° and 270°.</p> <p>Rationality: To evaluate the critical points of the instrument’s processor for the sinusoidal waveform, specifically at zero-crossings and peak values.</p>	<p>Rewrite the sentence as follows:</p> <p>phase angle: pulses to be applied at <del>60° and 240°</del> <b>0°, 90°, 180° and 270°</b> relative to zero crossing of AC supply.</p>	Accepted																														
0284-DE	2	7.4.6		Text	Mega-watt charging will go up to currents of 3 kA. Therefore this test should not be limited at 3 kA	Remove the limit and add a note: Note: The current of this test can be limited if the EVSE have devices installed, that technically will limit the overcurrent in the case of a fault	Accepted.																														
0285-BR	2	7.4.7	1995 to 236	Text	The same comment as BR024: Impulse voltage tests is not applicable to EVSE	Delete Section 7.47.	Accepted, as agreed in SG2 in April 2025.																														



Country code	Part	Clause/subclause	Paragraph/Figure/Table	Type of comment <sup>2</sup>	Comments (ref. doc: 1WD, TC12_P3_N029/N030/N031/N033)	Proposed change	Convener's responses
0286-CA	2	7.4.8.3		Text	The allowed effects states: “....the error shift shall not exceed the limit of error shift listed in Table 6”.  There is no error shift limit identified in Table 6. Only a check for critical fault is mentioned.	Review to determine if an error shift limit is appropriate.	Accepted. Table 5, 6 and 7 are improved, including accuracy requirements in Table 6.
0287-AU	2	7.4.8.3		Text	If the specified upper temperature for the EVSE is 85 °C, then then the test cannot be performed at one step higher.	Add a (1) next to 85 °C that says: Note <sup>(1)</sup> : If specified upper temperature limit is 85 °C, then this test shall be performed at 85 °C. (A similar note appears in 7.4.8.4 for –55 °C)	Accepted
0288-DE	2	7.4.9		Text	Reference voltage for DC is not specified	Add “lowest” or “Highest” to reference voltage	Accepted.
0289-AU	2	8		Text	This section only refers to requirements in 3. But, Part 1 of this Recommendation sets requirements in 3 and 4.	Change 3 to 3 and 4.	Accepted.
0231-SE	1	9	all	General	Must the part 9 of this proposal be a part of the Recommendation?	We would like to see the part 9 as a separate part (Part 5) or still as part of a guide.	Agreed. Following B6-2, we suggest that all text related to verification will move to the optional 'part 5'. This is all of what was Chapter 9 until now, and will include the outcome of subgroup 3 work (see 0299-US).
0232-SE	1	9.1	Line 2122	Edited	As noted in 3.3.3, national authorities may specify the base maximum permissible errors for subsequent verification and re-verification.	That reference does not hold up since point 3.3.3 do not contain any note about that.	Accepted. Removing reference to 3.3.3.
0290-AU	2	9.1		General	Sentence 3 says: ‘As noted in 3.3.3, national authorities may specify the base maximum permissible errors for subsequent verification and re-verification.’ No statement like this appears in 3.3.3. Suggest this Recommendation specifies base MPEs or MPEs for verification and in-service.	For verifications performed at reference conditions, the base MPEs should apply. Discuss and add MPEs for verifications performed at the installation site and for in-service.	Accepted partly. 9.1 and 9.2.4.2 adapted to reflect that Table 2 holds for initial verification, and it is up to national authorities to set requirements for subsequent verifications.  See also 0299-US, 0232-SE.
0291-BR	2	9.1		Text	There are no requirements to facilitate the in-service verifications using phantom loads. We noted that for AC EVSE it is feasible if the instrument have a terminal block which allows accessing the input connections without the need to open the whole equipment.  For DC EVSE, we believe it is also feasible, but we are currently unaware of the existence of any commercial DC phantom loads.	Consider to include the following disposition:  AC EVSE must be projected to allow easy but protected access to the input connections in order to carry out in-service verifications using phantom loads.	The current text is sufficiently open: it therefore allows real load or phantom load to be used for (re)verification. As a result, we do not see a need to change the text.
0292-CZ	2	9.1		1 Text	The sentence below raises technical issues related to re-verification after repair: “...The following minimum programme applies to the initial verification of all EVSE, whether verified individually or statistically, <u>and to reverification of EVSE which have been repaired or otherwise changed....”</u>  Consequences: 1) a repair of EVSE on the street: re-verification has to be performed at I <sub>max</sub> too. But I <sub>max</sub> at U <sub>max</sub> is not achievable every time, depends on the power net load. I <sub>min</sub> : measurement can become time consuming. Conclusion: expansive re-verification after repair. 2) exchange of the charging cable. Same problems like in point no.1. Moreover, with increasing charging powers there will be problem to follow reverification requirements with testing tools with achievable I <sub>max</sub> at U <sub>max</sub> .	We suggest allowing testing at I <sub>max</sub> /U <sub>min</sub> and U <sub>max</sub> /I <sub>min</sub> instead of I <sub>max</sub> /U <sub>max</sub> in clause 9.2.4.2  Add sentence in clause 9.2.4.2: It is allowed to simplify checking of DC EVSE in the following way: performing current level I <sub>min</sub> at U <sub>max</sub> , I <sub>tr</sub> at U <sub>max</sub> , 50 % I <sub>max</sub> at any value between U <sub>min</sub> and U <sub>max</sub> , I <sub>max</sub> at U <sub>min</sub> and at U <sub>min</sub> or U <sub>max</sub> .	Point understood. We have implemented a distinction between initial and subsequent verification, where the latter only requires a limited set of load points.
0293-CZ	2	9.1		2 Text	Sentence: “The exact requirements for verification and re-verification shall be specified by the national authority.” imply that Testing in Clause 9.2 Testing can by reduced for initial verification, not only for subsequent verification.	The exact requirements for <b>subsequent</b> verification and re-verification shall be specified by the national authority.	The text of 9.1 has been adjusted, also in relation to above comments.
0233-SE	1	9.2.2	Line 2134	Edited	Check that the instrument is manufactured in conformity with the type approval documentation.	As a starting point this should also apply for re-verification so that we can see that it is the responsibility of the manufacturer to declare that the product fulfils the requirements and we use this as a basis when performing the control.	Not an editorial comment. This is part of chapter 9, 'verification and reverification', so it applies to both.
0294-DE	2	9.2.3		Edited	There is one “up” too much	Remove the “up” behind EVSE	Accepted.
0295-CZ	2	9.2.4.2		1 Text	Too many points. Application of measurement at U <sub>max</sub> /I <sub>min</sub> and I <sub>max</sub> /U <sub>min</sub> (as is proposed in the draft of prEN 50732) is preferred.	We suggest allowing testing at I <sub>max</sub> /U <sub>min</sub> and U <sub>max</sub> /I <sub>min</sub> instead of I <sub>max</sub> /U <sub>max</sub> in clause 9.2.4.2	Clause "current dependence" renamed to "determination of intrinsic error" and adapted: I <sub>max</sub> lowered to 70% I <sub>max</sub> , situations for DC and AC described separately. Number of test points reduced for cases where a separately certified electricity meter is included.
0296-BR	2	9.2.4.2	2330	Text	For DC EVSE the defined test points could be unfeasible to do in the field and perhaps unnecessary.	Consider the following change in line 2330:  I <sub>min</sub> ; I <sub>tr</sub> ,; Any other current in the interval I <sub>tr</sub> < I ≤ I <sub>max</sub>	See 0295-CZ. Highest load point lowered to 70% I <sub>max</sub> .
0297-CZ	2	9.2.4.2		3 Text	Last two sentences: <i>For EVSE operating at a voltage in the range 208 V–240 V, testing may be done at <u>any Unom</u> within the range.</i> The sentence implies, that there are specified more Unom within 208-240 V; that is not true. Moreover, what about Unom at 400 V?  <i>Otherwise, tests shall be run at the <u>lowest Unom and the highest Unom</u>.</i> This value is not defined in Part 3. The Part 3, Clause 1.3, Table DC EVSE defines only U <sub>min</sub> and U <sub>max</sub> . We suggest to simplify sentences.	If an AC EVSE can operate in both single-phase and three-phase modes, then both modes shall be tested. For AC EVSE testing may be done at Unom. For DC EVSE, testing may be done at U <sub>min</sub> and U <sub>max</sub> .	Noted. Covered in rewrite of this clause.
0234-SE	1	9.2.4.2	Line 2152	Edited	The test point I <sub>max</sub> is hard to reach when re-verification is done. It requires a large load, e.g. a battery with a large amount of charging capacity to reach the I <sub>max</sub> for high power EVSE. It also requires that the EVSE has the capacity to charge with this really high current. The cost for a battery solution will probably be high and someone need to pay for it. This is in our opinion not a proportionate cost.	Find a more appropriate test-method for re-verification.	See 0295-CZ. Highest load point lowered to 70% I <sub>max</sub> .
0298-BR	2	9.2.5	2335	Text	There are no requirements to prevent fraud or to facilitate maintenance without the need to carry out after repair verifications.	Consider to include the following disposition in Section 9.2.5:  The EVSE must have specific sealing points to allow maintenance without the need of after-repair verifications. In addition, the metrological sensors inside the EVSE should be provided with sealing points that grants that no intervention happened without break such seals.	Point understood. The requirement belongs, in fact, in Part 1. Physical sealing of metrologically relevant components added to Part 1 (4.2.1.2).



Country code	Part	Clause/subclause	Paragraph/Figure/Table	Type of comment <sup>2</sup>	Comments (ref. doc: 1WD, TC12_P3_N029/N030/N031/N033)	Proposed change	Convener's responses																																																
0299-US	2	9,5		T	Please see attachment below ( <i>in Annex</i> ). The U.S. proposes an expansion of the field verification component of this document		Many participants interested in field verification. The US proposal was dicussed at the PG meeting in Prague.  --> subgroup 3 is established to come up with a consensus proposal for this document. Participation: US, ES, CZ, DE, AU, KR, CA, BR, NL, CN. To be decided whether it will go in Part 2, or possibly an optional Part 5.  Subgroup 3 will start work after 1CD is published.																																																
0301-CN	2	Annex	/	te	R22 is suitable for type approval, verification, re-verification and in situ testing, as well as the modification of in-use charging piles, but no test item table is given for each type of test.	To be discussed	Type approval tests are listed in chapter 7. Verification and reverification H299are under chapter 9, including field testing (on-site, in situ) in 9.6. In our opinion, the tests in these chapters are clearly defined. Also, the wording of the scope has been adjusted.																																																
0302-CA	3	1,5		te	Test connection mode is a bit ambiguous.	Add the following: Test connection mode (AC single phase, AC three phase, DC)	Accepted.																																																
0303-CA	3	1,6		te	The term “Critical change value” is not used in Part 1 of the document. In Part one, the acceptance criteria is 1.0 BPME (see clause 3.3.5.2). In part 1 of this document the term that is used is “Allowed effect”	If “Critical change value” is intended to be maintained as a decision criteria, it should also be included in Part 1 of the document.	Critical change value removed from Part 3, throughout.																																																
0304-CA	3	2,1		te	Perhaps an entry for uncertainty should be provided	Add table cells for “uncertainty” in the error table.	Rejected. According to Part 1, clause 8, the measurement uncertainty shall be less than one fifth of the MPE. This is an obligation for the test lab.																																																
0305-CA	3	2,2		Ed	The entries for column for BPME (%) will be taken from Table 2 for the Class of the EVSE under test.  For efficiency this column should be divided into three sub-columns filled with the BMPE limit for each Class of EVSE.	(see image to the right) <table><tr><td></td><td>Energy per EVSE</td><td>Energy per stanadard</td><td>Error (%)</td><td colspan="3">Class BMPE (%)</td><td>Pass</td></tr><tr><td></td><td></td><td></td><td></td><td>A□</td><td>B□</td><td>C□</td><td></td></tr><tr><td>I<sub>min</sub></td><td></td><td></td><td></td><td>±2.5</td><td>±1.5</td><td>±1.0</td><td></td></tr><tr><td>I<sub>tr</sub></td><td></td><td></td><td></td><td>±2.0</td><td>±1.0</td><td>±0.5</td><td></td></tr><tr><td>I<sub>max</sub></td><td></td><td></td><td></td><td>±2.0</td><td>±1.0</td><td>±0.5</td><td></td></tr><tr><td>I<sub>max</sub></td><td></td><td></td><td></td><td>±2.0</td><td>±1.0</td><td>±0.5</td><td></td></tr></table>		Energy per EVSE	Energy per stanadard	Error (%)	Class BMPE (%)			Pass					A□	B□	C□		I <sub>min</sub>				±2.5	±1.5	±1.0		I <sub>tr</sub>				±2.0	±1.0	±0.5		I <sub>max</sub>				±2.0	±1.0	±0.5		I <sub>max</sub>				±2.0	±1.0	±0.5		The proposal is appreciated. In fact, this would help efficiency in other sections of Part 3, too. Noted for possible future improvement.
	Energy per EVSE	Energy per stanadard	Error (%)	Class BMPE (%)			Pass																																																
				A□	B□	C□																																																	
I <sub>min</sub>				±2.5	±1.5	±1.0																																																	
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I <sub>max</sub>				±2.0	±1.0	±0.5																																																	
0306-CA	3	2,2		te	The acceptance criteria is stated to be 75% in the following sentence: Test passes if energy registered by the EVSE is greater than 75 %  This is only valid for Class A devices, for Class B it is 85% and Class C 90%  Table 2 BMPE values should be used for starting current errors.	Replace: Test passes if energy registered by the EVSE is greater than 75 %  With: Test passes if the error of registration by the EVSE is not greater than: ±25 % for Class A ±15 % for Class B ±10 % for Class C	Accepted. Column added for "BMPE".																																																
0307-CA	3	3,3		ed	The last column labelled “Limit(%)” should be labelled similar to Table 4 column “ Maximum Permissible Error Shift (%)”	Replace column heading “Limit (%)” with MPE Shift (%) for EVSE class”	Accepted.																																																
0308-CA	3	3,4		Ed	The last column labelled “Limit(%)” should be labelled similar to Table 4 column “ Maximum Permissible Error Shift (%)”	Replace column heading “Limit (%)” with MPE Shift (%) for EVSE class”	Accepted.																																																
0309-CA	3	3,5		ed	The last column labelled “Limit(%)” should be labelled similar to Table 4 column “ Maximum Permissible Error Shift (%)”	Replace column heading “Limit (%)” with MPE Shift (%) for EVSE class”	Accepted.																																																
0310-CA	3	3,6		Ed	The last column labelled “Limit(%)” should be labelled similar to Table 4 column “ Maximum Permissible Error Shift (%)”	Replace column heading “Limit (%)” with MPE Shift (%) for EVSE class”	Accepted.																																																
0311-CA	3	3,7		ed	The last column labelled “Limit(%)” should be labelled similar to Table 4 column “ Maximum Permissible Error Shift (%)”	Replace column heading “Limit (%)” with MPE Shift (%) for EVSE class”	Accepted.																																																
0312-CA	3	3,8		Ed	The table   Maximum error shift              Table 4 limit                   Should be re-labelled for clarity	Replace table as follows:   Highest measured error shift                     MPE Shift (%) for EVSE class	Accepted.																																																
0313-CA	3	3,9		Ed	The last column labelled “Limit(%)” should be labelled similar to Table 4 column “ Maximum Permissible Error Shift (%)”	Replace column heading “Limit (%)” with MPE Shift (%) for EVSE class”	Accepted.																																																
0314-CA	3	3,1		Ed	The last column labelled “Limit(%)” should be labelled similar to Table 4 column “ Maximum Permissible Error Shift (%)”	Replace column heading “Limit (%)” with MPE Shift (%) for EVSE class”	Accepted.																																																
0315-CA	3	3,11		Ed	The last column labelled “Limit(%)” should be labelled similar to Table 4 column “ Maximum Permissible Error Shift (%)”	Replace column heading “Limit (%)” with MPE Shift (%) for EVSE class”	Accepted.																																																
0316-CA	3	3,12		Ed	The last column labelled “Limit(%)” should be labelled similar to Table 4 column “ Maximum Permissible Error Shift (%)”	Replace column heading “Limit (%)” with MPE Shift (%) for EVSE class”	Accepted.																																																
0317-CA	3	4,1		te	Test #1 is titled: “Check for Significant fault”. The term Significant fault is not used in Part 1. Neither is Critical Change value. Perhaps Test #1 should be titled : “Check for critical fault”	Change Title of Test #1 : Check for Critical fault  Change title of last column from “Critical change value” to “Observed critical fault(s)”	Accepted partially. Template aligned with part 2.																																																
0318-CA	3	4,2		Te	The test results table seems inconsistent with the procedure presented in section 7.4.3 of Part 1.  The accuracy test is to be at 50% I <sub>max</sub> not 10I <sub>tr</sub>	Review test table and adjust to reflect a check for an “Observed Critical fault”  Replace test current 10I <sub>tr</sub> with 50% I <sub>max</sub> .	Accepted partially. Template aligned with part 2.																																																
0319-CA	3	4,3		te	The test data table is titled: “Check for Significant fault”. The term Significant fault is not used in Part 1. Neither is Critical Change value. Perhaps Table should be titled : “Check for critical fault”	Change Title of Test table: Check for Critical fault  Change title of last column from “Critical change value” to “Observed critical fault(s)”	Accepted partially. Template aligned with part 2.																																																
0320-CA	3	4,4		te	The test data table is titled: “Check for Significant fault”. The term Significant fault is not used in Part 1. Neither is Critical Change value. Perhaps Table should be titled : “Check for critical fault”	Change Title of Test table: Check for Critical fault  Change title of last column from “Critical change value” to “Observed critical fault(s)”	Accepted partially. Template aligned with part 2.																																																
0321-CA	3	4,6		te	The test data table is titled: “Check for Significant fault”. The term Significant fault is not used in Part 1. Neither is Critical Change value. Perhaps Table should be titled : “Check for critical fault”	Change Title of Test table: Check for Critical fault	Accepted partially. Template aligned with part 2.																																																
0322-CA	3	4,7		te	The test data table is titled: “Check for Significant fault”. The term Significant fault is not used in Part 1. Neither is Critical Change value. Perhaps Table should be titled : “Check for critical fault”	Change Title of Test table: Check for Critical fault  Change title of last column from “Critical change value” to “Observed critical fault(s)”	Accepted partially. Template aligned with part 2.																																																
0323-CA	3	4,9		te	This makes reference to a fault limit. A fault limit (error shift limit) is not identified in Table 6.	Review Table 6 and adjust this section accordingly.	Noted. Resolved																																																
0324-CA	3	4,1		te	This makes reference to a fault limit assessment immediately following the damp test. A fault limit (error shift limit) is not identified in Table 6.	Review Table 6 and adjust this section accordingly.	Noted. Resolved.																																																

Country code	Part	Clause/subclause	Paragraph/Figure/Table	Type of comment <sup>2</sup>	Comments (ref. doc: 1WD, TC12_P3_N029/N030/N031/N033)	Proposed change	Convener's responses
0325-CA	3	4,11		te	This makes reference to a fault limit assessment immediately following the damp test. A fault limit (error shift limit) is not identified in Table 6.	Review Table 6 and adjust this section accordingly.	Noted. Resolved.
0326-CA	3	4,12		te	The test data table is titled: "Check for Significant fault". The term Significant fault is not used in Part 1. Neither is Critical Change value. Perhaps Table should be titled : "Check for critical fault"	Change Title of Test table: Check for Critical fault  Change title of last column from "Critical change value" to "Observed critical fault(s)"	Noted. Resolved.
0327-CA	3	4,13		Ed	This section should come after section 4.15	Move this test data to section 4.15 and shift 4.14 and 4.15 to 4.13 and 4.14 respectively.	Accepted. Now follows the sequence from Part 1 --> Part 2, Part 3.
0328-CA	3	4,13		te	This makes reference to a fault limit. A fault limit (error shift limit) is not identified in Table 6.	Review Table 6 and adjust this section accordingly.	Noted. Resolved.
0329-CA	3	4,13		ed	The box for "Standard(s)" seems oddly placed. What standard is expected to be inserted here?  The following sentence is probably better situated just above the 'Other details' box:  Specify details of durability test including test conditions and severity levels	Review the box for "Standard(s)"  Move the following sentence to just above the "Other details" box  Specify details of durability test including test conditions and severity levels	This appears to be an artefact of R46. "Standards box" deleted.
0330-CA	3	4,14		Ed	Reorder and move this to section 4.13		See 0327-CA.
0331-CA	3	4,14		te	This makes reference to a fault limit. A fault limit (error shift limit) is not identified in Table 6.	Review Table 6 and adjust this section accordingly.	Noted. Resolved.
0332-CA	3	4,15		Ed	Reorder and move this to section 4.14		See 0327-CA.
0333-CA	3	4,15		te	This makes reference to a fault limit. A fault limit (error shift limit) is not identified in Table 6.	Review Table 6 and adjust this section accordingly.	Noted. Resolved.
0334-CA	3	5,9		Ed&te	This should be section 4.9 not 5.9  This makes reference to a fault limit. A fault limit (error shift limit) is not identified in Table 6.	Review Table 6 and adjust this section accordingly.	Noted. Resolved.
0335-CA	4			Gen	Suggest to review Part 4 at a later date once Parts 1,2, &3 have been updated.		Noted.
0336-CZ	4	1,2	Table Electrical parameter, EVSE DC:	te	For DC EVSE, using Umin and Umax instead of Unom is more practical (and compatible with Part 3 too).	Replace quantity Unom with two quantities: Minimum voltage, Umin: Maximum voltage, Umax:	Accepted.
0337-CA	4	All		ed	All references to OIML G-22 need to be updated to reference OIML R XX-4		Accepted.
0338-CA	4	All		Ed	Many of the column headings for table entries are identified as 'Pass' or 'Fail' when it is more appropriate to identify a 'value' or a specific characteristic of the device.	Suggest to review Tables and adjust column titles to reflect appropriate values.	Rejected.