TC 5/SC 1/p 2:	Revision of OIML D 11:2013 *General requirements for measuring instruments - Environmental conditions*

Updated compiled comments, observations and responses on 1WD (20 June 2024)

Completed comments shown in green

Outstanding comments shown in yellow

Country Code[1]		Part	Clause/ Sub clause	Paragraph / Figure/ Table/	Type of comment[2]	COMMENTS	PROPOSED CHANGE	OBSERVATIONS OF THE CONVENER/PG on each comment submitted
1	CA				ge	There is no section for revision history	Consider adding a section for revision history	Confirm with WG
2	AU		Annex D Bibliography and notes			References to IEC documents to be updated to the latest version.	Suggest updating the bibliography to reference the latest versions of the IEC standards.	Version numbers have been updated where appropriate
3	AT		Annex D	Ref. [37]	ed	Citation of Ref. [37] is not up-to-date.	Change citation of reference [37] to IEC 61000-4-19 Ed. 1.0 (2015-05)	Version numbers have been updated where appropriate
4	JP		Annex D Bibliography and notes	[29]	ed	Updates to the latest version of this standard.	Change the version of the standard listed to the latest version. (Latest version: IEC 61000-4-3:2020)	Version numbers have been updated where appropriate
5	JP		Annex D Bibliography and notes	[31]	ed	Updates to the latest version of this standard.	Change the version of the standard listed to the latest version. (Latest version: IEC 61000-4-5:2014/AMD1:2017)	Version numbers have been updated where appropriate
6	JP		Annex D Bibliography and notes	[34]	ed	Updates to the latest version of this standard.	Change the version of the standard listed to the latest version. (Latest version: IEC 61000-4-11:2020)	Version numbers have been updated where appropriate
7	NL		Annex D	[1]	ed	New versions of standards to be referred to	Adapt levels and terminology	Version numbers have been updated where appropriate
8	NL		Annex D	[1]	ed	V1:2022 VIML	Adapt terminology where necessary	Version numbers have been updated where appropriate
9	NL		Annex D	[3]	ed	IEC 60068-1:2013	Adapt levels and terminology	Version numbers have been updated where appropriate
10	NL		Annex D	[7]	te	IEC 60068-2-11:2021	Adapt levels and terminology	Version numbers have been updated where appropriate
11	NL		Annex D	[8]	te	IEC 60068-2-18:2017	Adapt levels and terminology	Version numbers have been updated where appropriate
12	NL		Annex D	[12]	te	IEC 60068-2-64:2008+AMD1:2019 CSV	Adapt levels and terminology	Version numbers have been updated where appropriate
13	NL		Annex D	[19]	te	IEC 60529:1989+AMD1:1999+AMD2:2013 CSV	Adapt levels and terminology	Version numbers have been updated where appropriate
14	NL		Annex D	[22]	te	IEC 60721-3-3:2019	Adapt levels and terminology	Version numbers have been updated where appropriate
15	NL		Annex D	[23]	te	IEC 60721-3-4:2019	Adapt levels and terminology	Version numbers have been updated where appropriate

1 **MB** = Member body (enter the ISO 3166 two-letter country code, e.g. CN for China)

2 **Type of comment**: ge = general te = technical ed = editorial

Country Code[1]	Part	Clause/ Sub clause	Paragraph / Figure/ Table/	Type of comment[2]	COMMENTS	PROPOSED CHANGE	OBSERVATIONS OF THE CONVENER/PG on each comment submitted
16	NL		Annex D	[25]	ed	IEC 61000-2-2:2002+A1:2017+A2:2018	Adapt levels and terminology	Version numbers have been updated where appropriate
17	NL		Annex D	[26]	ed	IEC TR 61000-2-5:2017	Adapt levels and terminology	Version numbers have been updated where appropriate
18	NL		Annex D	[27]	ed	IEC TR 61000-4-1:2016	Adapt levels and terminology	Version numbers have been updated where appropriate
19	NL		Annex D	[29]	te	IEC 61000-4-3:2020	Adapt levels and terminology	Version numbers have been updated where appropriate
20	NL		Annex D	[31]	te	IEC 61000-4-5:2014+AMD1:2017 CSV	Adapt levels and terminology	Version numbers have been updated where appropriate
21	NL		Annex D	[32]	te	IEC 61000-4-6:2013/COR1:2015	Adapt levels and terminology	Version numbers have been updated where appropriate
22	NL		Annex D	[34]	te	IEC 61000-4-11:2020/CO1/COR2	Adapt levels and terminology	Version numbers have been updated where appropriate
23	NL		Annex D	[35]	te	IEC 61000-4-13:2002+AMD1:2009+AMD2:2015	Adapt levels and terminology	Version numbers have been updated where appropriate
24	NL		Annex D	new	te	Consider if IEC 61000-4-14 “Voltage fluctuation” should be added	Add voltage fluctuation	NL to provide further details Brazil to assist
25	NL		Annex D	new	te	Consider if IEC 61000-4-16:2015 “immunity to conducted, common mode disturbances in the frequency range 0 Hz to 150 kHz” should be added Rationale: When this IEC Standard was published, it spoke of phenomena primarily occurring in industrial environments. However, since then, households have increased their use of LED lights, dimmers and other electronic devices causing household electricity meters to be affected. This has been observed in multiple European countries and, at least in The Netherlands, electricity suppliers and manufacturers of these meters have since started performing this test on a voluntary basis to prevent problems in the field.	Add immunity to conducted, common mode disturbances in the frequency range 0 Hz to 150 kHz	Table has been updated
26	NL		Annex D	[38]	ed	IEC 61000-4-20:2022	Adapt levels and terminology	Version numbers have been updated where appropriate
27	NL		Annex D	new	ed	IEC 61000-4-28:1999+AMD1:2001+AMD2:2009 CSV	If added to Table 21, insert here	IEC 61000-4-28 has been added to ANNEX D. Table 21 updated
28	NL		Annex D	new	te	Consider if IEC 61000-4-31:2016 “AC mains ports broadband conducted disturbance immunity test” should be added	Add AC mains ports broadband conducted disturbance immunity test	NL to provide further details.
29	NL		Annex D	[40]	ed	IEC 61000-6-1:2016	Adapt levels and terminology	Version numbers have been updated where appropriate

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30	NL		Annex D	[41]	ed	IEC 61000-6-2:2016	Adapt levels and terminology	Version numbers have been updated where appropriate
31	NL		Annex D	[45]	te	ISO 7637-3:2016	Adapt levels and terminology	Version numbers have been updated where appropriate
32	AU		2 Scope and field of application	2.2 Note 2	Tech/Gen	This Note references “OIML scope”. Where is “OIML scope” defined? Is it provided in some overarching document? Should D11 be defining the scope for OIML?	Propose to get some clarity around the use of “OIML scope”.	Document updated
33	AU		2 Scope and field of application	2.2 Note 3	Tech/Gen	The current Note reads as follows: “This Document does not address aspects concerning transportation of measuring instruments while not in operation. Requirements concerning transportation-related durability, handling and maintenance aspects are beyond the OIML scope.” What does this Note mean? In what sense is transportation beyond the OIML scope? For example, OIML R 46 for electricity meters includes shock and vibration tests for the purpose of transportation while not in operation. Is the scope of OIML being defined by OIML D11, or is this from somewhere else?	Propose to get some clarity on the scope of the document including impact on measuring instruments during transportation.	Document updated
34								
35								
36	CA	3			te	There is no definition for measuring system. It is used section 3.5, 3.7, 3.16, 3.17, and Annex B	Either only use the term “measuring instrument” throughout or define measuring system. Suggest to remove measuring system.	Measuring system has been defined
37	CA	3			te	Definition for integrating instrument is required	Integrating instrument: A measuring devices that provides a cumulative value of measured quantity, either continuously or over a specific interval of time.	Accepted for now
38	CA	3			te	Definition for non-integrating instrument is required. The term discrete measuring instrument can also be used instead of non-integrating.	Non-integrating instrument: A measuring devices that provides a value for a measured quantity at the time when the measurement occurred.	Accepted for now
39	BR		3.10			The word "fault" can be misunderstood by including other behaviors than only an error difference. On the other hand, an error difference not necessarily means that a fault happens because the error of indication at a particular time (even under reference conditions) varies around a mean value.	Consider rename definition 3.10 as “error difference” or “error variation”	Rejected

Country Code[1]	Part	Clause/ Sub clause	Paragraph / Figure/ Table/	Type of comment[2]	COMMENTS	PROPOSED CHANGE	OBSERVATIONS OF THE CONVENER/PG on each comment submitted
40	BR		3.12			The definition of significant fault can be broader, for instance: • For instance, a permanent communication fault of a smart meter • Unexpected operation of the load switches in electricity meters. • A speed meter which register velocity but do not save the record due to disturbances. An integrating instrument which records where lost after the tests.	Consider the following definition of significant fault: Fault exceeding the applicable fault limit value and any other unexpected behavior defined by the Technical Committee as affecting legal metrology principles.	Rejected
41	CA	3	3.12		te	Some of the information provided in the Note is a directive and not part of the definition.	Perhaps the following definition is more appropriate: Fault exceeding the applicable fault limiting value or an operational condition not permitted for a particular measurement, measuring instrument, or measuring system. Remove the Note.	Rejected
42	AU		3 Terminology	3.19	Tech	The current definition of 'checking facility' requires it to detect and act upon faults. Fault is the difference between error of indication and intrinsic error. How is a measuring instrument to do that? Also the definition does not align with the Note 1 given under this definition.	Suggest to align this definition with Note 1 and make it usable for practical measuring instrument. Several OIML Recommendations have modified this definition, including R 139, R 117, R 129, and R 46.	Definition maintained
43	CA	3	3.19	Second bullet of the note	ed	Reference is made to "specific devices". This is ambiguous and confusing. What are "specific devices" of a measuring instrument?		Definition maintained
44	CA	3	3.20		te	**3.20 durability protection facility** - This seems to be a "pie in the sky" feature. In essence it is suggesting that a meter be able to monitor and correct for its own errors. Durability errors are defined as a comparison of intrinsic errors determined after a period with initial intrinsic errors. Intrinsic errors are by definition, errors established at reference conditions. If durability protection is intended to operate while the device is in service then typically the meter is not necessarily operating under reference conditions. Under these circumstances it does not seem realistic that a device can easily determine durability errors. Not sure if there is any value in introducing this in the main body of D11.	Perhaps this should be moved to the Annex in its entirety	Definition maintained
45	CA	3	3.29		te	The abbreviation PMR is not included	Add the following: PMR personal mobile radio	Added to document

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46	AU	5 Requirements for measuring instruments with respect to their environment	5.1.2 (b)	Tech	General requirements under 5.1.2 (b) provides that for measuring instruments, significant faults are detected and acted upon by means of a facility. In practice, measuring instruments do not "detect" significant faults.	Suggest amending this note and aligning with modified definition for 'checking facility'.	Comment dismissed
47	CA	3	5.1.2		ed	The note below is confusing. The definitions of fault limit and significant fault already provide the same information as is provided by the note. *Note*: A fault equal to or smaller than the value fixed (fault limit) in the applicable Recommendation as defined in 3.11 is allowed irrespective of the value of the error of indication.	Suggest to remove the note.	comment dismissed
48	CA	5	5.1.3		te	In sentence: **5.1.3** The provisions in 5.1.1 and 5.1.2 shall be durably met, the term "durably met" is ambiguous.		comment dismissed
49	AU	5 Requirements for measuring instruments with respect to their environment	5.1.3 (b)	Tech	This clause just duplicates the information given above in clauses 5.1.1 and 5.1.2. Also, the requirements under 5.1.3(b) similar to the one in 5.1.2(b). See AU3comment above.	Suggest deleting this requirement. However, if the convener prefers to retain this clause, then suggest rewording it as suggested for 5.1.2(b) above (AU3).	Comment dismissed
50	CA	5	5.1.3(b)		te/ed	This clause is inconsistent with the definition in 3.14 which suggests that a significant durability error may be consider acceptable if the durability checking facility fails (Note (d)).	Perhaps Note (d) in 3.14 should be removed?	Comment dismissed
51	CA	5	5.4		te	This section seems to be lacking substance. In 5.4.3 it states that if a manufacturer claims that his devise is not susceptible to significant durability errors, there is no need to include a durability checking facility. If this is the case presumably all manufacturers can simply claim that their devices are durable.	Perhaps this is better suited in the Annex?	TBD – to be continued May 24Action item subgroup – Canada, US, Cecip Clause 5.4.3 updated (May 7)
52	CA	5	5.3.1	Paragraph (a)	ed	P, I and N are not defined in 3.19 or elsewhere in the document	Define P,I and N in 3.19 or 3.29	Accepted

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53	NL	5	5.1	ge	Attention should be given to measuring instruments performing non-repeatable measurements (such as measuring systems for liquids other than water, taximeters, speed meters)	Add description that in case of non-repeatable measurements (for example taximeter, speed meter) case (b) significant faults may not occur	TBD – To be discussed later when informative annex is discussed. Discuss definitions of integrating and non-integrating instruments provided by Brazil
54	CA	8	8.1.2	Paragraph 4th	ed	A semi column ";" is used in the sentence "independent; an overall"	Replace ";" with "," in the sentence "independent; an overall", as the second sentence is a consequence of the first.	Accepted
55	NL	8	8.2.2	Table 1	te	Add description about use in vehicle	Add in line H2 before "etc" "vehicles,"	Accepted updated to vehicle cabins
56	NL	8	8.3	Table 2	te	Add test level index for vehicle mounted measuring instruments (for example taximeter) acc. to IEC 60068-2-64	Add M2* Test level index 4 Vibration, 4 Shock with description: "This class applies to locations inside vehicles (other descriptors can be used)	TBD NL to review test levels and determine if an updated class designation is needed
57	NL	8	8.4.1	Table 4	ed	Load dump has test pulse A and B, not I and II.	Change "I + II" to "A or B"	Accepted
58	NL	8	8.4.1	Table 4	te	Load dump: Vehicles produced since 2004 have a suppressor diode so that only pulse B is relevant	Delete "A or"	Reject deletion of A
59	CE CIP	8	8.4.1	Table 4	te	For table 27 (Surges on AC and DC mains power lines) E2 (industrial buildings) requires level 3. For industry EN 61000-6-2:2019 requires for DC power ports only level 2. So OIML measuring instruments are tested harder than industrial equipment.	In table 4 separate between "Surges on AC mains power lines" (table 27a) and "Surges on DC mains power lines" (table 27b). Keep the test level for "Surges on AC mains power lines" (table 27a) at level 3, but reduce the test level for "Surges on DC mains power lines" (table 27b) to level 2 for both, E1 (household) and E2 (industry).	Brazil to work on updates to tables 27 & 29
60	CE CIP	8	8.4.1	Table 4	te	For table 29 (Surges on signal, data and control lines) E2 (industrial buildings) requires level 3. For industry EN 61000-6-2:2019 requires only level 2. So OIML measuring instruments are tested harder than industrial equipment	Reduce the test level for "Surges on signal, data and control lines" (table 29) to level 2 for both, E1 (household) and E2 (industry).	Brazil to work on updates to tables 27 & 29
61	BR			Table 4	Te/ed	In line 6 of this table, severity levels for AC mains voltage dips, short interruptions and reductions do not correspond with severity levels in table 1 and 2 of IEC 61000-4-11. Furthermore, in 8.4.2.4 levels 2 and 3 of IEC 61000-4-11 are mentioned.	Instead class 1 (for E1) and 2 (for E2), please correct the severity levels to class 2 (for E1) and 3 (for E2).	Deferred for future discussion Brazil to work on updates to tables 27 & 29
62	BR		8.4.2.3		Te	Please provide guidance for photo-voltaic (PV) power supply systems which are very common to power instruments like speed meters in roads, flow computers and many others.		Proposed input provided
63	BR		8.4.2.4		Te	Because the disturbance's times are different for 50 Hz and 60 Hz, we understand that instruments claiming to operate in 50/60 Hz have to do the test in both frequencies.	We highly appreciate the comments and opinions from other experts in this PG regarding this interpretation.	Deferred for future discussion Brazil to provide more details and draft updates

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64	BR		8.4.2.10	te	With the increase of WiFi technologies immunity testing according to existing standards, such as IEC 61000-4-3, it may be suitable also to assess radiated fields generated by transmitters located in close proximity (for example, within a few centimetres) of the surface of instruments.	Consider to include the following new immunity test: IEC 61000-4-39:2017 Electromagnetic compatibility (EMC) - Part 4-39: Testing and measurement techniques - Radiated fields in close proximity - Immunity test	Update provided
65	NL	8	8.5.2	3rd par. Table 38	ge	Dispute about upward extended test levels is solved (higher levels confirmed in 2016)	Replace the levels for pulses 2a, 3a and 3b with the values in brackets	Accepted
66	DE	8	8.4.5.10		te	The frequency range should not be limited to 6 GHz because e.g. in the US the frequency range 5.925–7.125 GHz is allocated for Wi-Fi.	"In the frequency bands above 960 MHz a couple of frequency bands used for communication services (e.g. LTE, 5G, Wi-Fi, etc.) of devices in close proximity. Tests should be implemented according to table 34 or (IEC 61000-4-39 for close proximity devices.	section updated with new wording.
67	AU		9.2.1	Table 5	Tech	Influences factors and disturbances are influence quantities (within or outside of rated operating conditions).Table 5 provides for evaluation method in general applicable to influence factors. How should a recommendation express the influence quantity and rated operating conditions for each of these? For example, what is the influence quantity for "Load dump test", and how should a recommendation express the rated operating conditions?	Suggest that the revised D11 provide clarity around expressing the influence quantity and rated operating conditions for the factors listed in Table 5.	Acknowledged – members to review and determine if updated wording is required in future review cycles.
68	NL	9	9.2.1	Table 5	te	Besides integrating and non-integrating, there are also repeatable / non-repeatable and interruptible / non-interruptible measurements.	Add in bottom row "NSFd for non-repeatable and/or non-interruptible measurements."	Subgroup created – Jan, Juan, Paulo, Wim Bernd Adnan Wim to lead subgroup To review table 5 and 9,2,1. Present updates for consideration.
69	BR			Table 5	te/ed	The evaluation method NSFa and NFSd is wrongly changed in the parenthesis for integrating and non-integrating instruments. The criteria NSFa applies to non-integrating instruments because you can repeat the measurements in case of fails. The criteria NSFd applies for integrating instruments because you cannot repeat the measurements so NSFs are more critical.	Correct all the numbers in the parenthesis of evaluation column in table 5 as indicated below: NSFa (2) NSFd (1) Or Change the legend at the end of the table as follows: (1) For non-integrating instruments (2) For integrating instruments	Subgroup created – Jan, Juan, Paulo, Wim Bernd Adnan Wim to lead subgroup To review table 5 and 9,2,1. Present updates for consideration.

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70	BR		Table 5	te	For AC mains voltage dips, short interruptions and reductions the evaluation method should be the same as per DC voltage dips test.	Include criteria NSFa (non-integrating instruments) for AC mains voltage dips test.	Subgroup created – Jan, Juan, Paulo, Wim Bernd Adnan Wim to lead subgroup To review table 5 and 9,2,1. Present updates for consideration.
71	BR		Table 5	te	Evaluation criteria for surges on AC and DC mains power must be the same like surges on signal lines.	Include criteria NSFd (integrating instruments) for surge on AC/DC mains port.	Subgroup created – Jan, Juan, Paulo, Wim Bernd Adnan Wim to lead subgroup To review table 5 and 9,2,1. Present updates for consideration.
72	BR		9.2.2.1 (o)	ed	Improve understanding	Implement any of the following suggestions in the sentence: Calculate ~~the fault which is~~ the difference between the intrinsic error (Ei) and the initial intrinsic error (Eii) to determine if a significant fault happened. OR Calculate ~~the fault which is~~ the difference between the ~~intrinsic~~ error after the disturbance (Ei) and the ~~initial intrinsic~~ error before the disturbance (Eii) to determine if a significant fault happened.	Text has been updated with a new option
73	BR		9.2.2.2 (i)	ed	Improve understanding	Implement the following suggestion in the sentence: Calculate ~~the fault which, is~~ the difference between the error in the second measurement (Ed) and the initial intrinsic error (Eii) to determine if a significant fault happened. This error difference ~~fault~~ shall not exceed the ~~fault limit~~ maximum permissible error specified in the applicable Recommendation.	Text has updated with a new option
74	CA	9	9.2.2.1	Paragraph (j)	ed	Dot "." before bracket: "(j) Record all indicated and registered values of interest.(see note 2);"	Remove dot before bracket: "(j) Record all indicated and registered values of interest (see note 2);"	Accepted
75	CE CIP	10	10.1	Table 6	te	Table line 'Test procedure in brief' states 'The test comprises exposure to the specified high temperature under "free air" conditions during the period of time specified. The term 'free air conditions' leaves room for interpretation. Occurs again in table 7	Specify what 'free air conditions' means	Clause 2.1.1.3 in IEC 60068-3-1 provides some clarity. Requires further review. To be discussed later

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76	CE CIP	10	10.1	Table 7	te	There are scales that are used in cold stores. There, temperatures of +2°C are common. OIML D11 today's level 1 is too high at +5°C, today's level 2 is unnecessarily strict at -10°C. CECIP had also made this point during the earlier revision of the European Measuring Instruments Directive MID.	Suggesting introducing at least one intermediate level at 0°C, perhaps also a second at -5°C.	Withdrawn.
77	CE CIP	10	10.3	Table 10	te	The table describes water tests that are not commonly used	Refer to IP or NEMA tests – these are widely used and accepted.	Further review and clarification with clear proposal is required from Cecip
78	CA	11	11.1	Table 15	ed	Last row: do we need to redefine ASD here? It was already defined in the list of abbreviation.	Remove the definition of ASD in brackets	rejected
79	NL	11	11.1	Table 15	te	Test levels are not according to IEC 60068-2-64	Level 1 RMS value: 1,5 ; Freq. range 5 - 500 Hz ASD 5 – 10 Hz 0,0025 10-50 Hz 0,04; 50-100 Hz 0,0025 $(m/s^2)^2/Hz$ Level 2 RMS value: 7,0 Freq. range 5 - 500 Hz ASD 10-30 Hz 0,022; 30-200 Hz 0,2; 200-500 Hz 0,0052 $(m/s^2)^2/Hz$ Level 3 RMS value: 18,7 Freq. range 10 - 500 Hz ASD 10-200 Hz 1,0; 200-500 Hz 0,03 $(m/s^2)^2/Hz$	Accepted in principle. NL to review further and provide updated proposal
80	NL	11	11.1	Table 15	te	Add test level index for vehicle mounted measuring instruments (for example taximeter) acc. to IEC 60068-2-64	Test level index 4: freq range 10 – 1000 Hz, RMS level 33,8 m/s^2 ASD level 10 – 50 Hz: 10 $(m/s^2)^2/Hz$, ASD level 50 – 1000 Hz: 0,1 $(m/s^2)^2/Hz$, Duration per axis 8 h	NL to review further and provide updated proposal
81	AU	12	12.3 Mains Power disturbances	Table 23 AC mains voltage dips, short interruptions and reductions	te	This test is based on the IEC 61000-4-11standard. The current D11 refers to the 2004 version of this standard. IEC61000-4-11 has been updated in 2020 and this version is significantly different to the 2004 version.	Suggest updating the test in Table 23 based on the 2020 version of the IEC 61000-4-11.	Aus to provide updated tables 23 and table 22
82	BR			Table 23	ed	The test level indexes do not correspond with standard IEC 61000-4-11. Actually, the specified tests parameters correspond to class 2 and 3 instead class 1 and 2.	Correct test level indexes in table 23.	Brazil and Australia to provide new wording and table entries for review.
83	AU	12	12.3 Mains power disturbances	Table 27 Surges on AC and DC mains power lines	te	This test is based on the IEC 61000-4-5 standard. The current D11 refers to the 2004 version of this standard. IEC61000-4-5 has been updated in 2014 with amendments in 2017.	Suggest reviewing and updating the test in Table 27 based on the 2014/am.2017 version of IEC 61000-4-5:2014/AMD1:2017.	Australia to provide updated proposal for table 27

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84	AU	12	12.4 Other disturbance introduced through conduction by connected external wiring	Table 29 Surges on signal, data and control lines	te	This test is based on the IEC 61000-4-5 standard. The current D11 refers to the 2004 version of this standard. IEC61000-4-5 has been updated in 2014 with amendments in 2017.	Suggest reviewing and updating the test in Table 29 based on the 2014/am.2017 version of IEC 61000-4-5:2014/AMD1:2017.	Australia to provide updated proposal for table 29
85	JP	12	12.3 Mains power disturbances	Table 23 AC mains voltage dips, short interruptions and …	ed	Updates to the latest version of this standard.	Change the version of the standard listed to the latest version. (Latest version: IEC 61000-4-11:2020)	Updated
86	JP	12	12.3 Mains power disturbances	Table 27 Surges on AC and DC ….	ed	Updates to the latest version of this standard.	Change the version of the standard listed to the latest version. (Latest version: IEC 61000-4-5:2014/AMD1:2017)	Updated
87	JP	12	12.4 Other disturbance introduced …	Table 29 Surges on signal, data …	ed	Updates to the latest version of this standard.	Change the version of the standard listed to the latest version. (Latest version: IEC 61000-4-5:2014/AMD1:2017)	Updated
88	NL	12	12.2	Table 21	ed	IEC 61000-4-28:1999+AMD1:2001+AMD2:2009 CSV should be added	Add IEC 61000-4-28:1999+AMD1:2001+AMD2:2009 CSV	NL to reconfirm
89	NL	12	12..3	New table	te	Add IEC 61000-4-14 “Voltage fluctuation”	Add voltage fluctuation based on Table 22 or 23	Australia and NL to work together and provide a new table.

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90	BR	12		Table 27	te	In some test reports evaluated here in Brazil, the test laboratories applied just the voltage level specified in the Recommendation without applying lower levels as stablished in the reference standard IEC 61000-4-5. We understand that the lower levels are required because of the non-linear characteristics of the EUT as defined in IEC 61000-4-5:2014 (pag. 35) and we rejected such tests reports. However, we have received claims arguing that, for legal metrology type approvals, it is not necessary to test lower levels because they were already carried out during the product developing stages. Therefore, repeating the tests (at lower levels) in the type approval step only increases the cost for manufacturers. We have received the same arguments for ESD tests.	We highly appreciate the comments and opinions from other experts in this PG regarding these arguments.	Brazil to draft a note for consideration and review.
91	DE	12	3	26	te	Repetition rate of only 5 kHz is mentioned.	Add 100 kHz because it depicts reality better.	Added
92	DE	12	4	28	te	Repetition rate of only 5 kHz is mentioned.	Add 100 kHz because it depicts reality better.	Added
93	CA	13	13.2	Table 34	te	Cell phones are now utilizing frequencies in the range 3-6 GHz	Note 6 should be deleted.	Updated and also included test levels 3 and 10 in bold.
94	NL	13	13.2	Table 34	te	The rationale is not necessary any more, WiFi at 5 GHz, 5G mobile phones makes testing to 6 GHz necessary in all cases	Delete Note 6	Updated and also included test levels 3 and 10 in bold.
95	CA	13	13.2	Table 34	ed	Note (5), missing closing bracket: “(see IEC TR 61000-2-5 [26].”	Add bracket : “(see IEC TR 61000-2-5) [26].”	Accepted
96	AU	13	13.2 Immunity to RF Electromagnetic fields	Table 32 Radiated RF electromagnetic fields	te	This test is based on the IEC 61000-4-3 standard. The current D11 refers to the 2010 version of this standard. IEC61000-4-5 has been updated in 2020.	Suggest reviewing and updating the test in Table 32 based on the 2020 version of IEC 61000-4-3.	to be reviewed to see if any updates are necessary.
97	JP	13	13.2 Immunity to RF Electromagnetic fields	Table 32 Radiated RF electromagnetic fields	ed	Updates to the latest version of this standard.	Change the version of the standard listed to the latest version. (Latest version: IEC 61000-4-3:2020)	Updated
98	NL	13	13		ge	Automotive experts believe testing for vehicle mounted measuring instruments should be examined otherwise	Consider “automotive” testing according to UN ECE regulations (to be discussed). NL can provide input.	members to identify if UN ECE is applicable in their jurisdictions.

Country Code[1]	Part	Clause/ Sub clause	Paragraph / Figure/ Table/	Type of comment[2]	COMMENTS	PROPOSED CHANGE	OBSERVATIONS OF THE CONVENER/PG on each comment submitted
99	NL	13	13.2	New table	te	Consider if IEC 61000-4-16:2015 “immunity to conducted, common mode disturbances in the frequency range 0 Hz to 150 kHz” should be added	Add immunity to conducted, common mode disturbances in the frequency range 0 Hz to 150 kHz (based on Table 31)	NL to provide a draft table for this.
100	NL	13	13.2	New table	te	Consider if IEC 61000-4-31:2016 “AC mains ports broadband conducted disturbance immunity test” should be added	Add AC mains ports broadband conducted disturbance immunity test (based on Table 31)	NL to study further and provide draft table
101	DE	13	2	34	te	Frequency range (3 – 6) GHz. Change Note (5) that in the IEC 61000-4-3:2020 the 6 GHz frequency limit is lifted. (Application example: Wi-Fi in the 6 GHz band)	(5) “It is not intended that tests need to be applied continuously above 1 GHz to the desired upper frequency”.	Removed Note 5
102	DE	13	2	34	te	Frequency range (3 – 6) GHz. Change Note (6) that in the IEC 61000-4-3:2020 the 6 GHz frequency limit is lifted. (Application example: Wi-Fi in the 6 GHz band)	(6) “A rationale is required when specifying the need for testing at frequencies above 3 GHz.”	Discussed previously, comment withdrawn
103	US	14	14.1	Table 36	te	The minimum operating voltage of an instrument is completely independent of the impedance of the battery. The requirement to perform the test simulating the battery impedance places unnecessary burden onto the evaluator and possible restrictions on the manufacturer. If the battery is not able to sufficient energy, then this will cause a drop in the voltage. If the instrument is supplied with the minimum operating voltage, then it is automatically supplied with sufficient energy to operate. This does not depend on the battery impedance. Also, if a lead acid battery (the most common battery in scales) is discharged, its internal impedance increases. That means that the impedance varies which makes it even harder to simulate or obtain realistic specifications from the battery manufacturer. The battery voltage test in many recommendations (incl. R 76) do not require any simulation of the battery impedance.	The test comprises exposure of the EUT to the specific low battery level condition during a period sufficient for achieving temperature stability and for performing the required measurements. ~~**The maximum internal impedance of the battery and the minimum battery supply voltage level (Ubmin) shall be specified by the manufacturer of the instrument.**~~ If an alternative power supply source is used instead of the internal battery~~**, for instance in bench testing, the internal impedance of the specified type of battery shall also be simulated.**~~ ~~**T**~~t**h**e alternative power supply shall be capable of delivering sufficient	US to provide further details. Members to review and provide comments.
104	BR		14.2	Table 38	te	There are many tests parameters that are missing in D11. As a consequence, those parameters have to be selected by the test laboratories. It means that test results from one laboratory to other could be different. In some cases, parameters like duration time define the pulse’s energy which means higher or lower severity level for the tests.	Provide a rationale value for the following parameters: • For pulse 2a: Repetition time (t1) from 0.2 s to 5 s. • For pulse 2b: ○ Duration time (td) from 0.2 s to 2 s. Internal Resistance (Ri) from 0 to 0.05 ohm	Note to be added in minutes requesting members to review further and provide feedback.

Country Code[1]	Part	Clause/ Sub clause	Paragraph / Figure/ Table/	Type of comment[2]	COMMENTS	PROPOSED CHANGE	OBSERVATIONS OF THE CONVENER/PG on each comment submitted
105 CA	14	14.2	Table 39	te	Modular measuring instrument is not defined	Definition is required.	The word modular removed from table.
106 NL	14	14.2	Table 41	ed	Load dump has test pulse A or B, not I and II	Refer to A or B instead of I and II	Accepted
107 NL	14	14.2	Table 41	te	Vehicles produced since 2004 have a suppressor diode so that only pulse B is relevant	Delete test level index A	Rejected