



TC9 / SC2 Comments on:

TC9 / SC2 Secretariat

TC9/SC2 meeting

3 CD R 50-1 and -2: Continuous Totalising weighing instruments - Part 1 and 2 ~~Metrological and test requirements.~~

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April 18-19, 2011, NMO. 3 CD TC9/SC2 comments and meeting discussions and agreements.

Member State/ Liaison	Page number	Document clause	Member Comments	Meeting Comments
Canada			No Comments from Measurement Canada	
Cyprus			No Comments	
Japan			No Comments.	
Russian Federation			No Comments.	
Serbia			No Comments.	
Germany		General	A remark on the °C / K discussion: According to rules in physics and engineering the temperature may be expressed in degrees Celsius but for expressing temperature differences the Kelvin is supposed to be used. Thus when saying that the temperature must not drift more than a certain amount (difference between the initial and the final temperature) then this difference must be expressed in Kelvin. In thermodynamics engineers and physicists use the Kelvin for single temperatures as well because a lot of formulas are based on the absolute Kelvin temperature. So if we want to be absolutely correct, we should use both the degree Celsius and the Kelvin. However, this is only of academical interest.	Thank you for your comments.
NL	general		References to D11 not implemented correctly. Please note that the comment given was only a example. Please make reference to the applicable clauses of D 11 and not only to the example	Amended.

Member State/ Liaison	Page number	Document clause	Member Comments	Meeting Comments
NL	1		<p>The document now contains Part 1 and Part 2 Therefore change title to:</p> <p>TITLE OF THE CD (English): OIML R 50-1 and -2 Continuous totalizing automatic weighing instruments (belt weighers). Part 1: Metrological and Technical Requirements Part 2: Metrological controls and performance tests</p> <p>TITLE OF THE CD (French): OIML R 50-1 and -2 Instruments de pesage totalisateurs continus à fonctionnement automatique (peseuses sur bande). Partie 1: Exigences métrologiques et techniques, Partie 2: Contrôles métrologiques et essais de performance</p> <p>Original version in: English</p>	Amended.
CECIP	1	?	<p>the document now contains Part 1 and Part 2 Therefore change title to:</p> <p>TITLE OF THE CD (English): OIML R 50-1 and -2 Continuous totalizing automatic weighing instruments (belt weighers). Part 1: Metrological and Technical Requirements Part 2: Metrological controls and performance tests</p> <p>TITLE OF THE CD (French): OIML R 50-1 and -2 Instruments de pesage totalisateurs continus à fonctionnement automatique (peseuses sur bande). Partie 1: Exigences métrologiques et techniques, Partie 2: Contrôles métrologiques et essais de performance</p>	Amended.
NL	8	T 2.3.1	Correct reference to D 11; should be for D11, 3.2[4]	Amended.
NL	8	T 2.3.2	Correct reference to D 11; should be for D11, 3.3[4]	Amended.

Member State/ Liaison	Page number	Document clause	Member Comments	Meeting Comments
U.S.A.	8	T.2.4	<p>To provide a more accurate definition it is suggested that it be stated that this device performs its operations by incorporating programmable software. Suggested wording change:</p> <p>Belt Profile Correction Device</p> <p>A device capable of correcting for variations in the load applied to the load receptor by an (empty) belt during a belt revolution. The device uses <u>software to maintain</u> a stored profile of the (empty) belt load over a full revolution <u>and to manage the synchronization process of the profile to the belt.</u></p>	Amended.
CECIP	8/9	T.2.5	an addition of partial loads seems a contradiction with T.1.3	“without systematic subdivision of the mass and” deleted from T.1.3.
Australia		T.2.11	<p>In Figure 1, ‘terminal’ is not as clear as “keys or keyboard to operate” in the 2CD – we suggest perhaps ‘operator input/control’. Also note that according to T.2.11, the terminal includes a display (although it is possible that this might not be the primary display). The note above Figure 1 needs some changes to correspond with the Figure (e.g. ‘remote display’ should perhaps be replaced by ‘primary display and terminal’)? In Figure 1, the displacement transducer is shown being ‘in-series’ with the load cell. See the attached Figure 2 which we think is preferable. Some changes to the associated table may also be necessary (see the table at the end of our comments as a suggestion to go with our suggested Figure 2).</p>	The meeting decided to choose the diagram proposed by the Netherlands due to its similarity with the diagram in OIML R76.

Member State/ Liaison	Page number	Document clause	Member Comments	Meeting Comments
Australia	Table associated with our proposed replacement for Figure 1.			Amended as above in line with The Netherlands' proposal.
	weighing module	(T.2.11.8)	1 + 2 + (3) + (6) + (7) + (9)	
	load cell	(T.2.11.1)	2 + (3)	
	displacement measurement		4 + 5 + (6)	
	belt position signal		(11)	
	Indicator	(T.2.11.6)		
	indicator		(3) + (6) + 7 + (8) + (9) + (10)	
	analogue data processing device	(T.2.11.4)	3 + (6) + 7	
	digital data processing device	(T.2.11.5)	7 + (8) + (9) + (10)	
	primary display	(T.2.11.6) (T.2.11.9)	10	
	terminal	(T.2.11.7)	(8) (9) (10)	
CECIP	10	T.2.11	Figure 1, though other combinations are possible, is not logic, not correct and not in line with the definitions in the table underneath the figure and the rest of the terminology.	

Member State/ Liaison	Page number	Document clause	Member Comments	Meeting Comments		
Denmark	9 / 10	T.2.11	<p>The drawing in figure 1 is not amended correct Suggestion:</p> <p style="text-align: center;">Figure 1</p> <p style="text-align: center;">Definition of typical modules according to T.2.11 and 5.1.6 (other combinations are possible)</p> <div><div><div>1</div><div>Mechanical electrical connecting elements</div></div><div><div>2</div><div>Load Cell</div></div><div><div>3</div><div>ADC</div></div><div><div>4</div><div>Data processing</div></div><div><div>5</div><div>Weighing Unit (further processing)</div></div><div><div>7</div><div>Primary display</div></div><div><div>2A</div><div>Displacement Transducer</div></div><div><div>6</div><div>Terminal</div></div><div><div>Digital data (e.g. speed, position)</div><div>Weighing data (e.g. mass units)</div><div>Primary indications</div></div><div><div>Peripheral devices</div><div>Printer</div><div>Secondary Display</div><div>Data Storage device</div><div>Other peripheral devices</div></div></div> <p>And insert the following as a new second row in the table:</p> <table><tr><td>Displacement transducer (T.2.11.2)</td><td>2A</td></tr></table>	Displacement transducer (T.2.11.2)	2A	Amended as above in line with Netherlands' proposal.
Displacement transducer (T.2.11.2)	2A					

Member State/ Liaison	Page number	Document clause	Member Comments	Meeting Comments
NL	9	T.2.11	Figure 1 is not correct and not in line with definitions in table underneath the Figure and the rest of the Terminology . Please for progress reasons allocate an ad-hoc WG to work out this topic. NL offers to participate.	Diagram inserted in draft as agreed at R50 meeting.
U.S.A.	9-10	Figure 1	<p>The lower half of this figure is confusing:</p> <ul style="list-style-type: none"> - Within the lower half of fig. 1, the first line indicates that a load cell module would be inclusive of a displacement transducer. The load cell and displacement transducer are distinct components and it does not seem appropriate that a module termed "load cell" would include the function of a displacement transducer. - In the same sense it does not seem correct to include a displacement transducer within a module termed as "indicator". <p>We recommend replacing the lower half of the figure with examples of modules such as:</p> <ul style="list-style-type: none"> - Indicator module may include the following components: Data processor; Weighing unit (further processing); terminal; and primary display. - Weighing module may include the following components: Mechanical and electrical connecting elements; load cell; displacement transducer; data processor; weighing unit (further processing); and terminal. 	<p>The meeting decided to choose the diagram proposed by Netherlands due to its similarity with the diagram in OIML R76.</p> <p>Amended as agreed at R50 meeting.</p>
U.S.A.	General	T.2.11, T.2.11.4, T.2.11.6, 2.2.2, 3.3.1,	Recommend the use of "analogue" rather than analogue for consistency	Amended.
CECIP	11	T.2.11.3	such a simulator can be a pulse generator as well	‘Pulse generator’ added as another type of simulator. As agreed at the meeting.
Denmark	10	T.2.11.6	Correct to T.2.11.2	Amended.
U.S.A	10	T.2.11.6	This should be numbered as T.2.11.2	Amended.

Member State/ Liaison	Page number	Document clause	Member Comments	Meeting Comments
U.S.A.	11	T.2.11.7	<p>Recommend the following wording changes:</p> <p>T.2.11.7 Terminal</p> <p>Digital device that has one or more keys <u>equipped with operator interface(s) such as</u> (or a keypad, mouse, touch-screen, etc.) <u>used to monitor the operations of</u> operate the instrument. <u>Also equipped with</u> and a display to provide the <u>feedback to the operator, such as:</u> weighing results; belt speed; flow rate; etc. transmitted via the digital interface of a weighing module or an analogue data processing device.</p>	Inserted as proposed.
Australia		T.2.12.1	<p>Legally relevant software should be ALL software which is legally relevant (not just part of).</p> <p>Suggest: All software modules of a measuring instrument, electronic device, or sub-assembly that are legally relevant (potentially some software modules may not be legally relevant).</p> <p>In the example we suggest that replacing “Examples of legally relevant software are: final results of the measurement” with “Examples of legally relevant software are software involved in: determination of the measurement results ...”.</p>	Amended.
Denmark	14	T.2.5	We suggest to remove ‘net’ again from the header to avoid any Gross/Net/Tare associations.	Amended.
Denmark	14	T.3.1.2	In order to avoid misunderstandings change heading to: Totalization scale interval for testing (d _e)	Amended.
Denmark	14	T.3.1.3	<p>The header ‘Control scale interval’ has caused misunderstanding of the term. The term is related to 2.6 in 2CD and to 5.1.6.4 first bullet.</p> <p>Suggested new wording</p> <p>T.3.1.3 Minimum scale interval of electronics (e)</p> <p>The minimum scale interval for which the analogue data processing device can fulfil the requirements.</p>	Inserted as proposed.

Member State/ Liaison	Page number	Document clause	Member Comments	Meeting Comments
Australia		T.3.10	A belt weigher will not necessarily only operate from mains power (could be a generator, solar power ...). It should also be recognised that the belt drive may potentially use a different power supply to the belt weigher. Hence delete “mains”.	Amended.
Germany		T.3.10	We cannot see why this requirement only refers to mains. Warm-up effects may also be perceived when you switch on a battery powered instrument.	‘mains’ deleted.
Australia		T.3.4	If “instantaneous” is deleted from Minimum net capacity, then it should also be deleted from the definition of Maximum net capacity. In fact the “(load applied by the bulk product – not including load applied by the belt)” should also be included.	Amended as proposed.
Denmark	14	T.3.4	We suggest to remove ‘net’ again from the header to avoid any Gross/Net/Tare associations. Remove ‘Instantaneous’ and insert the bracket as in T.3.5	Amended.
Germany		T.3.4 and T.3.5	The word “net” should not be used in this context. “Net” can only be shown after a tare operation. Yet, a belt weigher does not have a tare device. The load of the belt could better be characterized as “dead load”.	‘net’ removed from T.3.4 AND T.3.5 in accordance with other comments.
Denmark	16	T.4.3	Change numbering to T.4.2. (and the following numbering).	Amended.
U.S.A.	17	T.4.3.3.4	There does not appear to be a need for providing a reason for this feature within the terminology section. It is recommended that the language in this section remain limited to providing a definition as follows: A totalization indicating device in which the indication of mass of loads conveyed is updated once in each belt revolution (i.e. at the same point in each belt revolution). to eliminate effects of variations in the load applied to the load receptor by an (empty) belt during a belt revolution.	Amended.

Member State/ Liaison	Page number	Document clause	Member Comments	Meeting Comments
Germany		2.1	Accuracy class 0.2: We believe that most belt weighers are not able to fulfil the requirements of the class. Yet, we have hardly doubts that control instruments are available having an accuracy of 0.03%. The required accuracy corresponds to a non-automatic weighing instrument of class III with $n = 6000$ (keeping the initial verification error limits). In case of doubt the control instrument may be calibrated / adjusted prior to be used as control instrument. We should also remember that most OIML recommendations as well as national legislations say that the verification authority may require the manufacturer or owner of the instrument to provide suitable test means. So, if a consumer wants a high precision instrument he should be aware of the costs not only for buying it also for maintenance. We oppose introducing such an odd accuracy class as 0.3 since this would question the whole system of 1, 2, or 5 multiplied by 10^k for scale divisions and accuracy classes as per R51, R61, R76, R106, R107 and R134.	Amended. Accuracy class 0.2 will be kept in the draft.
U.S.A.	22	2.1	<p>The reservations regarding the introduction of the new 0.2 accuracy class have not been adequately addressed. The U.S. restates the following concerns established in comments provided for the 2nd CD.</p> <p>The ability of a belt conveyor scale achieving accuracies of 0.2% are realistic, however the existence of a control device capable of being used during materials testing, that could be verified to meet the tolerance allowance (1/3 the tolerance allowed for belt scale itself) is questionable. This becomes more profound during an initial verification where the MPE is 0.1% for the belt weigher, and therefore requiring that the control instrument be held to 0.03% accuracy.</p> <p>An alternative suggestion would be to change 0.2 class to 0.3 which would require the control instrument to be held to 0.1 % tolerance.</p>	Accuracy class 0.2 will be kept in the draft as agreed at the meeting.
Australia		2.2.2	As indicated in our previous comments, the value in Table 2 for Class 0.5 should be 0.175% (not rounded to 0.18). The rounding indicated in the 1 st paragraph is rounding in kg (as d_i is in kg).	Amended as proposed.

Member State/ Liaison	Page number	Document clause	Member Comments	Meeting Comments
Australia		2.4	<p>As indicated in our previous comments, we do not believe that there is good justification for basing the minimum value of minimum totalised load on the load obtained at maximum flowrate in one revolution of the belt. It would be more logical to relate this to the extent of any zero variation during one revolution of the belt.</p> <p>However we could accept the change in clause 2.4 of 3CD, but only if clause 2.8.4 (not 2.9.4) clearly indicated that an empty belt profile correction device and/or whole belt totalisation device may be in operation during the test of 2.8.4 (as was the case in 2CD).</p>	Amended as agreed at the meeting.
CECIP	23	2.4	b) there is no 2.9.4, we think 2.8.5 is meant	Amended.
Denmark	23	2.4	<p>The bracket in point b should be removed. It create a circular reference as the conditions in 2.9.4 (should have been 2.8.4) is based on \sum_{\min}.</p> <p>We assume that point b will be one of the discussion points on a coming meeting.</p>	Amended.
U.S.A.	23	2.4	References section 2.94. No such paragraph exists. Should this reference be 2.8.5 instead?	Amended to 2.8.5.
U.S.A.	23	2.5	<p>The clause is not worded so that it is clearly understood. Under (b) is the last statement in the clause “less than 20% of the maximum flow rate” correct? The net load statement seems right, but the first statement should require a flow rate greater than 20% of the maximum capacity.</p>	Amended to ‘greater than 20%...’
NL	24	2.7 and 2.8	<p>There is still a need for distinguishing between “requirements” and “tests”. So “test (requirements)” are to be specified in part 2 of the recommendation. Part 1 only should restrict to “requirements” independent of the test method. E.g. all simulations are ways of testing and therefore should shift to Part 2.</p>	2.7 and 2.8 are in Part 1 because they provide the metrological requirements for the ‘Simulation’ and ‘In-situ’ test methods. These are not the actual tests which can be found in 5.1.3.1, 5.2.2.1, 6.1 and 6.3.

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Australia		2.7.4.2	<p>The change here has attempted to incorporate both Australia's and the Netherlands comments – however when the temperature change has been halved to 5°C, the specified percentage errors should also have been halved.</p> <p>Suggest:</p> <p>The effect of temperature on totalizations at zero flowrate shall not vary by more than:</p> <ul style="list-style-type: none"> – 0.007% for class 0.2; – 0.0175 % for class 0.5; – 0.035 % for class 1; – 0.07 % for class 2. <p>per 5 °C of a load totalized at the maximum flowrate for the duration of the totalization.</p>	Amended.
Germany		2.7.4.2	<p>Temperature effect at zero flowrate: In the second committee draft the requirement still corresponded to the 1997 edition, that is, the maximum change of zero was based on 10 (ten!) °C, not on 5 °C. Please be aware that this would mean doubling the error limits! Does the subgroup really intend to do so??? This requirement must not be mixed up with the requirement that during the test the rate of temperature change must not exceed 5 °C per hour! Moreover, 2.7.4.2 is now in contradiction to A.7.2.2 that reads that the differences shall be calculated as per 10 °C.</p>	Amended as above.

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CECIP	26	2.7.4.4.	In general we are not in favour of durability requirements. But on the other hand promoting high quality and innovative design belongs to our principles. We admit, because of the complicated requirements of the mechanical design, the quality of a belt weigher only can be established after a certain period of operation. However, a six month testing period, as suggested in 2.8.6 and 5.1.3.4 is not practical. It is a burden for the manufacturer as it will not be easy or even impossible to find a user, willing or being able to have a belt weigher operational during such an amount of time without a legal status. That's why we suggest a belt weigher can be fully approved at initial testing But if it does not pass it's second "durability" test after, by example 6 months by the issuing authority the manufacturer should be allowed one further attempt to calibrate it to the required standard. If this also fails the unit is declared unsuitable for Trade Use and the manufacturers Pattern Approval is revoked. Should the scale pass at the second attempt then a second 6 month durability evaluation period is commenced, and so on. If the scale fails the second 6 month durability test then the unit is declared unsuitable for trade use and the manufacturers Pattern Approval is revoked, and so on.	The R50 meeting at NMO in April 2011 agreed to implement the report of the working group (Australia, UK) on durability testing. The working group proposed: <ul style="list-style-type: none"> 1) Delete clause 5.1.3.4 Durability Testing. 2) Amend clause 5 with additional information on the importance of durability testing and durability measures will be subject to national regulations 3) To include in clause 5.3 Subsequent metrological control, recommendations for durability checking in use and in accordance with ILAC-G24/OIML D 10 (2007) "Guidelines for the determination of calibration intervals of measuring instruments"
NL	26	2.7.4.4.	As indicated before NL is not in favour of durability requirements	See Secretariat's comment on durability above.

Member State/ Liaison	Page number	Document clause	Member Comments	Meeting Comments
Australia		2.7.5.3	<p>In looking at A.5.5.4, it is evident that there are different possibilities of interpreting the requirement and test – some could interpret the test duration on which the allowable difference is based to be 3-minutes (that was our opinion, but we are no longer confident that others would take that approach), others could interpret this as 15-minutes, and others as 3-hours (or 3:15, or 3:30). This definitely needs to be clarified.</p> <p>The difficulty in commenting is to decide whether the A.5.5.4 procedure should reflect the 2.7.5.3 requirement (as we would normally expect), or vice versa.</p> <p>The difficulty with A.5.5.4 is that (relative to 2.7.5.3) it is not clear what the appropriate maximum permissible error is (based 3-minutes, 15-minutes ...?). Also 2.7.5.3 indicates 5 tests at the beginning, and 5 at the end of a 3 hour period. This might suggest a sequence of R 3min R 3min R 3min R 3min R 3min R 2h30min R 3min R 3min R 3min R 3min R 3min R which is not what is described in A.5.5.4.</p> <p>A.5.5.4 describes R 3min R 3min R 3min R 3min R 3min R 3hour R 3min R 3min R 3min R 3min R</p> <p>Also, was our understanding (perhaps incorrectly) that the intention was to combine the short and long term zero stability requirements - so that there would just be one requirement that the difference between the smallest and largest of all 12 readings would be within some limit.</p> <p>The difficulty with 2.7.5.3 is that by mentioning “10 tests, 5 tests carried out ...” it suggests that each test is separate (of 3-minutes), whereas A.5.5.4 suggests it is really two tests (of six readings each – 15 minutes duration).</p> <p>Until it is clear which test procedure is intended it is difficult to say whether the particular allowable difference is appropriate (on a first look it appeared not to be, but that depends very much on the duration which is the basis of the calculation).</p> <p>The solution is likely to require specifying actual percentages and durations.</p>	Report of the working group set up at the R50 meeting at NMO to be adopted. Working group outlined 2 proposals for TC9/SC2 to choose from. Members should indicate their preference in their comments back to the Secretariat.

Member State/ Liaison	Page number	Document clause	Member Comments	Meeting Comments
Denmark	26	2.7.5.3	<p>In order to obtain the same error limits as for short-term stability of zero in the current R50-1 the factor in both point a and point b shall be changed to 0.14</p> <p>And a new point c shall be added,</p> <p>c) for all 10 tests, 0.2 times the appropriate maximum permissible error specified in 2.2.2 Table 2</p>	Report of the working group set up at the R50 meeting at NMO to be adopted. Working group outlined 2 proposals for TC9/SC2 to choose from. Members should indicate their preference in their comments back to the Secretariat.
Germany		2.7.5.3	<p>Regarding the factors for the short-term and long-term stability of zero, 2.7.5.3 is in contradiction to A.5.5.4 and also to the 1997 edition:</p> <p>The factor for short-term stability of zero is</p> <ul style="list-style-type: none"> - 0.7 in 2.7.5.3; - 0.1 in A.5.5.4; - 0.007 in the 1997 edition. <p>The factor for long-term stability of zero is</p> <ul style="list-style-type: none"> - 0.1 in 2.7.5.3; - 0.1 in A.5.5.4; - 0.01 in the 1997 edition. <p>Our proposal is: Reinstate the old 1997 paragraphs or, at least, use the old factors resulting from the old 1997 paragraphs in order to correspond with the 1997 version.</p>	Report of the working group set up at the R50 meeting at NMO to be adopted. Working group outlined 2 proposals for TC9/SC2 to choose from. Members should indicate their preference in their comments back to the Secretariat.

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U.S.A.	26	2.7.5.3	<p>This requirement appears to be directed at testing for a drift in zero resulting from electronic imperfections. If the requirement is to test for repeatability within the instrument, then the allowable errors should be the same for each set of 5 tests. Alternatively, if the test is for stability, then the allowable errors should be different (one error allowed for repeatability and the other error for stability). In addition, the value of the MPE for the second set of tests does not seem appropriate. (0.7% of MPE for first 5 tests and only 0.1% of MPE for the next 5 after three hours of operation).</p> <p>If this requirement is to test for repeatability we suggest the following:</p> <p>2.7.5.3 Stability of zero</p> <p>The difference between the smallest and largest indications obtained in 10 tests, 5 tests carried out at the beginning of a 3 hour period of operation, and 5 tests carried out at the end, shall not exceed:</p> <ul style="list-style-type: none"> - for the first each set of 5 tests, 0.7 times the appropriate maximum permissible error specified in 2.2.2 Table2, for the second 5 tests, 0.1 times the appropriate maximum permissible error specified in 2.2.2 Table2 	See Secretariat response to this clause above.
U.S.A.	26	2.7.5.3	<p>The location of this clause implies that this requirement applies to laboratory test procedures; however there is not currently a comparable requirement under 2.8, In-situ testing requirements. If the testing in this clause is directed at determining stability, then the test is most meaningful when performed as part of in-situ testing (see the following comment). Provided that this is the intent, then setting an arbitrary time limit of three minutes for a zero test is not an acceptable practice. Durations of zero tests are typically determined by whole belt revolutions. This is made evident by the definitions and descriptions of a Zero-setting device in T.2.6, 3.4.1 (a), and 3.5 (b) where it is described in terms of obtaining zero over a whole number of belt revolutions.</p>	<p>Amended as agreed at the meeting. Report of the working group adopted. 2 proposals outlined for TC9/SC2 to choose from. Members should indicate their preference in their comments back to the Secretariat.</p> <p>Clause location in R50 1997E in under 2.5 'Simulation Tests'. However, following SC2 approval of one of the proposals, a corresponding requirement (taken from A.5.5.4) will be placed in 2.8.</p>

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U.S.A.	26-27	2.8.X	<p>Although stability of zero is addressed under A.5.5.4, the lack of an associated requirement under 2.8 In-Situ Method implies that testing for stability of zero resulting from other sources (i.e. conveyor belt inconsistency, mechanical/structural defects) is not required.</p> <p>The existence of a clause for testing the stability of zero in 2.7.5.3 (under 2.7 - Simulated method) and the lack of any such requirement under 2.8 (In-situ method) provides the motive for the recommendation to add a requirement in 2.8 such as follows:</p> <p>2.8.x <i>Stability of zero</i></p> <p><i>The difference between the smallest and largest indications obtained in 3 zero tests at the beginning of the in-situ testing shall not exceed 0.7 times the appropriate maximum permissible error specified in 2.2.2 Table2. In some installations this test may be repeated to assure that the belt has reached an equilibrium condition.</i></p> <p><i>At the conclusion of the material testing the difference between the smallest and largest indications obtained in 3 zero tests shall not exceed 0.7 times the appropriate maximum permissible error specified in Table 2.</i></p> <p><i>The total range of zero adjustment throughout the verification testing shall not exceed the appropriate maximum permissible error specified in Table 2.</i></p> <p><i>Each test shall be for a unit number of belt revolutions as close as practicable to 3 minutes duration. Zero setting shall be carried out prior to the first test, no further zero adjustment shall be carried out before completion of the 3 tests</i></p> <p>Note: Addition of a section 2.8.x as above will also result in changes being required in A.8.</p>	Following TC9/SC2 approval of one of the proposals from the WG as above, a corresponding requirement (in A.5.5.4) will be placed in 2.8.
Australia		2.8	<p>We would suggest changing ‘In-situ method’ to ‘In-situ testing’ or ‘In-situ examination’.</p> <p>Using ‘method’ might suggest that it is an alternative method to simulation, when in fact both are necessary.</p>	Since clause 2 deals with metrological requirements, it is proposed to use ‘In-situ test requirements’
CECIP	27	2.8.2	the remark “for the duration of the test” is superfluous	Remark deleted.

Member State/ Liaison	Page number	Document clause	Member Comments	Meeting Comments
NL	27	2.8.2.	Delete "...for the duration of the test"..	Remark deleted.
Australia		2.8.4	<p>We accept that as a whole belt totalisation device would satisfy Note 1, it is not necessary to include this in the second note – however this is not the case for an empty belt profile correction device. Therefore we believe that the note below should be reintroduced.</p> <p>Suggest:</p> <p>2) An empty belt profile correction device may be in operation during these tests.</p>	Amended as agreed at the meeting to adopt CECIP and Netherlands' proposal.
CECIP	27	2.8.4	<p>.....zero load test.” Remove the word “test”. Instead we suggest to use the following text for the clause:</p> <p>“ During a whole number of belt revolutions and of a duration as close as possible, but not less than 3 minutes, the variation of the indication from its initial value shall not exceed the following percentages of the minimum load totalized (Σ_{min}) at the maximum flowrate (Q_{max}):</p>	Amended.
NL	27	2.8.4	<p>.....zero load test.” Remove the word “test” Instead suggest to use the following text for the clause:</p> <p>“ During a whole number of belt revolutions and of a duration as close as possible, but not less than 3 minutes, the variation of the indication from its initial value shall not exceed the following percentages of the minimum load totalized (Σ_{min}) at the maximum flowrate (Q_{max}):</p>	Amended.

Member State/ Liaison	Page number	Document clause	Member Comments	Meeting Comments
U.S.A.	27	2.8.4	<p>It is not the U.S.'s intent to restrict any technological advances in belt weigher devices. However to inhibit totalization until whole revolutions of the belt have been achieved brings to question the appropriateness of the use of such a device in all installations. Installations where a normal weighment consisting of very few revolutions of the belt would not seem to be an appropriate application. We would not readily support the unrestricted and unlimited use of whole belt totalization for all applications.</p> <p>In addition, exemptions provided in the Notes at the end of 2.8.4 regarding the totalizer variation during product tests are not warranted. It is expected that all totalizing indicators are to be held to a single set of standards without regard to the method used for the stabilization of zero. We recommend eliminating the Note following the requirement as follows:</p> <p>During the zero-load test as specified in 2.8.2, the totalization indicator shall not vary from its initial indicated value by more than the following percentages of the minimum totalized load (Σmin):</p> <p>0.07% for class 0.2; 0.18 % for class 0.5; 0.35 % for class 1; 0.7 % for class 2.</p> <p>Notes:</p> <p>1) This is not applicable when all product tests load readings are obtained over a whole number of belt revolutions or where the indication of mass of loads conveyed is updated once in each belt revolution (i.e. at the same point in each belt revolution)</p>	Amended as agreed at the meeting to adopt CECIP and Netherlands' proposal.
NL	27	2.8.4 Note	Delete "product tests load"...in the first line	Deleted as proposed.

Member State/ Liaison	Page number	Document clause	Member Comments	Meeting Comments
Australia		2.8.5	<p>Replace “...in order to ensure...” with “... in such a way as to ensure ...”</p> <p>The second and third paragraphs appear to confuse the situation (containing elements of a totalisation hold back device and some of an empty belt profile correction device). We suggest deleting these two paragraphs, or replacing with:</p> <p>Various means of permitting all test load readings to be obtained over a whole number of belt revolutions may be used, such as:</p> <p>a) Use of a whole belt totalisation device. b) Manually ensuring during testing that test readings are obtained over a whole number of belt revolutions, by marking the belt.</p>	Amended in accordance with Denmark’s proposal as agreed at meeting.
Denmark	27/28	2.8.5	<p>The new header is misleading. “Indication over whole belt revolution” would better cover the contents of the section.</p> <p>The first paragraph is not possible to understand – at least for people not having English as first language! We suggest, the following wording: Belt weighers may include a mean of only permitting totalized load to be obtained over a whole belt revolution. When such a facility is present and when material tests are conducted for the purpose of type approval 'in-situ' tests, initial verification or for subsequent re-verification, the minimum totalized load need not exceed to fulfill requirement 2.4 b).</p> <p>The start of point a) “All <u>or a sufficient part</u> of totalization <u>may</u>” should be changed to “The totalization shall” as the indication shall either be updated continuously or only once per belt revolution.</p>	Amended.
NL	28	2.8.5	Change “Minimum test load” in “Minimum load” and change “test load” to “load” on several places in the clause.	Amended in accordance with Denmark’s proposal as agreed at meeting.

Member State/ Liaison	Page number	Document clause	Member Comments	Meeting Comments
U.S.A.	27-28	2.8.5	<p>This requirement for a minimum test load contains language that implies that the methods used to comply are limited to either a whole belt totalization device or a belt profiling device. The minimum test load requirement should be enforced regardless of what means of masking actual flow rates are used.</p> <p>If the delivery totalization is withheld until the completion of a whole revolution, another totalizer should be provided to indicate actual accumulation at all times.</p> <p>The last statement regarding a "checking method" in the clause is not definitive and lacks important details. The revision of R50 would greatly benefit from further discussion regarding this topic in the next TC9/SC2 meeting.</p>	Amended in accordance with Denmark's proposal as agreed at meeting.
CECIP	28	2.8.6	<p>In general we are not in favour of durability requirements. But on the other hand promoting high quality and innovative design belongs to our principles. We admit, because of the complicated requirements of the mechanical design, the quality of a belt weigher only can be established after a certain period of operation. However, a six month testing period as suggested in 2.7.4.4 and 5.1.3.4 is not practical. It is a burden for the manufacturer as it will not be easy or even impossible to find a user, willing or being able to have a belt weigher operational during such an amount of time without a legal status. That's why we suggest a belt weigher can be fully approved at initial testing But if it does not pass it's second "durability" test after, by example 6 months by the issuing authority the manufacturer should be allowed one further attempt to calibrate it to the required standard. If this also fails the unit is declared unsuitable for Trade Use and the manufacturers Pattern Approval is revoked.</p> <p>Should the scale pass at the second attempt then a second 6 month durability evaluation period is commenced, and so on. If the scale fails the second 6 month durability test then the unit is declared unsuitable for trade use and the manufacturers Pattern Approval is revoked, and so on.</p>	<p>2.8.6 deleted.</p> <p>The R50 meeting at NMO in April 2011 agreed to implement the report of the working group (Australia, UK) on durability testing.</p>
NL	28	2.8.6	NL is not in favour of durability requirements	'Durability requirements' amended as discussed at the R50 meeting. WG proposals adopted.

Member State/ Liaison	Page number	Document clause	Member Comments	Meeting Comments
Australia		3.2	If “3.2 Rated Operating Conditions” is added, later clauses will need renumbering.	Amended.
Australia		3.2.6	<p>As written in 3CD it appears that an operation checking device cannot be optional (in which case “if fitted” should be removed). However we do not think that this was intended and therefore we would prefer wording which made this clear (it is the error indications which are important, not how they are produced).</p> <p>We Suggest (some further work is required): The instrument shall produce a continuous, clearly audible and/or clearly visible error indication if:</p> <ul style="list-style-type: none"> a) the instantaneous load (T.4.3.1) is above the maximum capacity of the weighing unit; b) the flowrate is above the maximum or below the minimum value; c) a breakdown, maladjustment or fault has been detected (see clause 3.2.1); d) a whole belt totalization device, if applicable, provides a totalization over less than a whole number of belt revolutions; or e) the mpe on checking of zero has been exceeded (3.4.1). <p>A record of the error condition (i.e. date, time, and duration) shall be provided on the applicable partial or general totalized printout, and on any supplementary recording devices (flow rate chart recorder, alibi device, etc.).</p> <p>Note: The indication is intended as a warning indication and its operation shall be obvious (e.g. an obvious continuously beeping or flashing warning light would be an acceptable solution). The use of different indications for each cause is acceptable.</p> <p>The error conditions may be part of the inherent design of the instrument, or may be detected by an operation checking device (T.2.8).</p>	Amended. ‘Operation checking device’ deleted. 3.2.6 amended in accordance with CECIP and Netherlands proposals.

Member State/ Liaison	Page number	Document clause	Member Comments	Meeting Comments
CECIP	29	3.2.6	In the clause the word “error” should be omitted. Error in the sense of OIML refers to a value of discrepancy. Change both times “error indication” back to “warning” and remove sentence beneath the note since it has become obsolete	Amended as proposed. Australia’s proposal also taken into account.
CECIP	30	3.2.6	under d) toalization must be totalization	Amended
Germany		3.2.6	For a better understandability, please insert the reference to 2.8.2 in the last line: “the mpe on checking of zero (see clause 2.8.2) has been exceeded (see clause 3.4.1).	Amended
NL	29	3.2.6	In the clause the word “error” should be omitted. Error in the sense of OIML refers to a value of discrepancy. Change both times “error indication” back to “warning” Remove sentence beneath the note since it has become obsolete	Amended
Australia		3.2.7.1	The change from “Securing and sealing” to “Securing or sealing” might suggest that securing a setting is an alternative to sealing it. This is not the case. Securing presents an impediment to alteration, whereas sealing provides evidence of alteration or tampering - both are important (it would be preferable for them to be treated separately). We believe 3.2.7.1 should refer to “Securing measures”, and 3.2.7.2 to “Sealing measures”. Item (d) is not clear – separate from what? Must each individual setting be separately secured?	Title amended to include both ‘securing’ and ‘sealing’ terms. 3.2.7.1(d) deleted.
Australia		3.2.7.2	We believe that this should refer to “Sealing measures”.	Amended as above.
CECIP	33	3.3.5	The amendment is incorrect. a) It shall not be possible to reset the general totalization indicating device to zero. b) In automatic operation it shall not be possible to reset any totalization device to zero; c) It shall.... etc.	Amended. The text ‘in automatic operation’ deleted.

Member State/ Liaison	Page number	Document clause	Member Comments	Meeting Comments
NL	33	3.3.5	Amendation incorrect. a) It shall not be possible to reset the general totalization indicating device to zero. b) In automatic operation it shall not be possible to reset any totalization device to zero; c) It shall.... etc.	Amended as above.
Australia		3.3.6	The wording of (b) suggests that such a disengagement device is mandatory. We do not believe that it should be mandatory.	Amended. 'Shall' replaced with 'may'.
U.S.A.	34	3.4	The statement of 4% of maximum capacity needs to be defined as +/- 2% of maximum capacity for better clarity.	Wording from R76 clause 4.5.1 adopted. 'The effect of zero-setting shall not be more than 4 % of the maximum capacity'
Germany		3.4.1	For a better understandability, please append the 2 nd paragraph with the following line: “ d) the automatic take-over of a zero-correction after the zero-load test is provided by an interlock when the maximum permissible error on checking of zero (see clause 2.8.2) has been exceeded (see also clause 3.2.6).	New bulletin inserted as proposed.
U.S.A.	34	3.5	Within this clause there are two paragraphs that would be identified as 3.5 a) and two paragraphs that would be identified as 3.5 b). We recommend an alternate outline format (perhaps the use of bullets) for clarity.	Amended.
U.S.A.	34	3.5, 3.7.2.2	The "profile" of the belt would obviously be subject to change due to wear, repair splicing or replacement of the belt or belt portions. The profile would also be subject to variation due to the effect of temperature change on the elasticity of the belt which may occur and have significant effect on a zero reference during periods of extended operation. If a belt profile correction device is operated in combination with an automatic or semi-automatic zero-setting device, then it becomes necessary to establish controls for the timing and frequency of synchronizing the belt profile. The need to allow for technological advancements is recognized, however it is necessary to provide appropriate testing to verify the operation of that technology. The U.S. requests further definition on the operation of this type of device and recommends that it be included as a topic for discussion during the next TC9/SC2 meeting.	As defined in T.2.4, the belt profile device is a software operated device and any malfunction should be easy picked up during the approval tests. Clause 3.7.2.2 amended as agreed at the meeting.

Member State/ Liaison	Page number	Document clause	Member Comments	Meeting Comments
U.S.A.	35-36	3.7.2.2	<p>The examples given at the end of the clause are not necessary and this statement can be interpreted as promoting specific features of a particular manufacturer(s) device. We do not support the language in the document specifying how to maintain belt uniformity or the method to achieve it. We recommend the elimination of the final statement in the clause as shown:</p> <p>Variations in the mass per unit length of the belt (including belt joins) shall not have any significant effect on the results (so as to ensure the requirement of 2.8.4 is met). It is recommended that such variations are minimised. , e.g., by using devices such as a belt profile correction device (3.5), or whole belt totalization device (3.3.5.d).</p>	The given example deleted.

Member State/ Liaison	Page number	Document clause	Member Comments	Meeting Comments
U.S.A.	36	3.7.2.3	<p>The belt displacement transducer provides a signal representative of the belt travel distance. Correcting for belt speed variations is one of the “basic” purposes of the transducer. High capacity systems, when starting under load, may take significant time to reach full speed, but are still providing part of the delivery. In this context the question arises as to whether the control of the belt speed should be included in R50 as a requirement.</p> <p>It is recognized that frequent/constant changes in belt speed can cause changes in the tension of the belt which will have an adverse effect on the accuracy of the beltweigher. This effect will hopefully become apparent if it is significant, thus prompting appropriate measures to correct the inconsistency.</p> <p>It should also be pointed out that the beltweigher does not control the speed of the belt and that if the requirement is to remain then alternative language is recommended similar to the example suggested below.</p> <p>3.7.2.3 Speed control</p> <p>The beltweigher output from the belt displacement transducer shall ensure that the speed of the belt is within the following defined speed range:</p> <ol style="list-style-type: none"> 1) For single or multiple speed weighers, the speed of the belt during weighing shall not vary by more than 5 % of the nominal speed. 2) For variable speed belt weighers having a speed setting control, the speed of the belt shall not vary by more than 5 % of the set speed. 	Existing wording maintained in order to avoid excessive technical restriction. This was discussed and agreed at the R50 meeting.
Australia		3.7.2.4	<p>The re-wording makes the situation less clear. In some sense the idlers adjacent to the weigh idlers (which define the weigh length) might not be seen to be part of the belt weigher. Also, the alignment issue mentioned in the US comments is an important consideration.</p>	Sentence amended.

Member State/ Liaison	Page number	Document clause	Member Comments	Meeting Comments
Switzerland	36	New 3.7.2.6	<p>We have experienced a case where the slope of the instrument is variable (e.g. belt weighers for unloading ships). A change of slope introduces an influence factor that needs to be compensated by an inclinometer.</p> <p>Proposed text:</p> <p>3.7.2.6 <i>Belt slope</i></p> <p>The belt shall normally be installed in a fix position. If the slope of the load receptor in the running direction of the belt can change, the instrument must be fitted with a device to compensate the effect due to the slope</p>	Paragraph inserted as agreed at the meeting.
Australia		3.8 of 2CD	Regrettably the Whole Belt Totalisation Device (3.8 of 2CD) has been deleted. It appears that this is at least in part due to a misunderstanding. Such as device must certainly be a Continuous Totaliser (weight values being integrated with the belt travel, just like any Belt Weigher). The only point of difference is restriction to display values only when a whole number of belt revolutions has passed (to minimise belt influences).	The draft was amended to remove references to “Whole Belt Totalisation Device” as agreed at the meeting.
CECIP	40	4.5.1	2.7 has not to do with requirements but with simulation	Amended. Should be 2.7.4.
NL	41	4.5.5	First line change: ...”battery voltage supply” to ...”battery supply”	Amended.
CECIP	43	4.8.2	under b), T.2.5.7.5 does not exist, it should be T.2.12.5	Amended.
NL	43	4.8.2 b)	T.2.5.7.5 should be T.2.12.5	Amended.
CECIP	44	5.1.1	in T.7, abbreviations and symbols, Pi is mentioned as pi	Amended.
NL	43	5.1.1	7 th dash; change Pi to p _i	Amended.
CECIP	44	5.1.3	under b) the word “the” is superfluous	Amended.
Austria	45	5.1.3.4	A minimum number of months is not considered to be necessary if a minimum number of hours in operation is required.	5.1.3.4 deleted as agreed at the R50 meeting.

Member State/ Liaison	Page number	Document clause	Member Comments	Meeting Comments
CECIP	45	5.1.3.4	<p>6 months is too long a period. We are not in favour of durability requirements and associated testing.</p> <p>So we ask the committee to reconsider durability testing. The additional burden on our members is too high in our opinion. The duration of the type evaluation would be easily extended with 4 months. An additional problem for our members is to find a customer who allows installation of such a, not yet approved, instrument, which then cannot be used for trade. That's why we suggest a belt weigher can be fully approved at initial testing But if it does not pass it's second "durability" test after, by example 6 months by the issuing authority the manufacturer should be allowed one further attempt to calibrate it to the required standard. If this also fails the unit is declared unsuitable for Trade Use and the manufacturers Pattern Approval is revoked. Should the scale pass at the second attempt then a second 6 month durability evaluation period is commenced, and so on. If the scale fails the second 6 month durability test then the unit is declared unsuitable for trade use and the manufacturers Pattern Approval is revoked, and so on.</p>	<p>5.1.3.4 deleted as agreed at the R50 meeting.</p> <p>The R50 meeting at NMO in April 2011 agreed to implement the report of the working group (Australia, UK) on durability testing.</p>
Denmark	45	5.1.3.4	<p>We stand by our comment to 2CD:</p> <p>Denmark agrees in principle to have a durability test as part of type-testing. However we do not agree to the present proposal and we do not have a better proposal ourselves. The mechanical construction of the belt weigher will vary from place to place and so will the material to be weighed. Accordingly we will have a problem in laying down how much variation is allowed before you have to perform another durability test. Furthermore we have strong opposition to the principle of having an "initial test" and a "final test" implying that a not fully approved instrument will be working for a period (i.e. the period in between the 2 tests) without being legalised.</p> <p>Our conclusion is that the Recommendation should not include durability test for the time being.</p>	<p>See Secretariat response to this clause above.</p>

Member State/ Liaison	Page number	Document clause	Member Comments	Meeting Comments
Germany	45	5.1.3.4	Durability test: After having reconsidered the practical impact on type approval testing and the use of the instruments we agree with others (DK, NL, UK) that a durability test makes sense but seems to be impractical. In most countries, we assume, it is not allowed to use instruments without being verified. An instrument in turn can only be verified if the type approval (examination) certificate (TAC / TEC) is available. Thus from a legal point of view it is a contradiction to require a durability test in the field while the instrument must not be used without a TAC / TEC available. Moreover, it must be questioned whether a test on one pattern can be considered as being representative for all other instruments since the environmental conditions may significantly differ. So, we'd propose to mention the requirement of durability, however, only saying that this matter should be addressed under national regulations. For issuing an OIML certificate, yet, durability shall be proved by the results of an on site testing within the scope of in-service inspection / periodical verification. We agree with France who say that environmental conditions will probably differ. Looking at R76 as the weighing instruments' reference document (Nos. 3.9.4.3 and A.6) we must admit that obviously the conditions at the weighing tests before and after endurance as per R76-1, No. 4.4.1 should not significantly differ because otherwise you would combine it with influence factor tests, which, of course, is not allowed (see No. A.4.1.1 of R76-1).	See Secretariat response to this clause above.
NL	45	5.1.3.4	NL is not in favour of durability requirements and associated testing. The Netherlands asks the committee to reconsider durability testing. The additional burden on manufacturers is too high in our opinion. The duration of the type evaluation would be easily extended with 4 months. Problem for the manufacturer is to find a customer who would allow installation of such a, not yet approved, instrument, which then cannot be used for trade. It is the opinion of the Dutch experts that non-durable equipment will disappear from the market anyway. The market mechanism will take care of that.	See Secretariat response to this clause above.
Poland	45	5.1.3.4	Durability test period is twice too long. In our opinion much shorter period is sufficient. Proposed regulation of this form may cause cost of type very high and make negative influence on market. We agree with intention of carrying performance tests however we think that the current proposal is not very good. We propose shorter period of this test.	See Secretariat response to this clause above.

Member State/ Liaison	Page number	Document clause	Member Comments	Meeting Comments
UK	Page 48	5.1.3.4	<p>The one item which drew my attention most, was the UK comment on page 45, 5.1.3.4; durability testing. The suggestion for in-service durability testing to which you referred could be further complicated by the fact that with equipment of this type, most of the installations will be in businesses which are operated under ISO9000 Quality schemes. Such schemes often, themselves, require an annual test which is often specified to Verification tolerances (voluntarily as the requirement in law is to inspection tolerances).</p> <p>Few Local Authority budgets stretch to independent inspection of this equipment, the risk assessment on equipment which is so closely self-monitored usually means they come out as low unless the equipment has a poor history. It is more likely that one of the contracting parties to the results calculated by the Beltweigher, will insist on 3rd party "verification", usually annually, which is where LA Inspectors come in. This is practically charged out as a normal re-verification. This negates the need for an inspection test without additional relevant problematic factors being recognised. As self verification further encroaches into such work, the verifications are increasingly going to move in the direction of the private sector, as more equipment comes under the regulation of the 2006 (MID) regulations.</p> <p>I may be more appropriate, therefore to consider the cost in terms of the manufacturer/user with the 3rd party verifier as part of their costs.</p> <p>Even if a complaint was received that there was a problem, full inspection and test of the equipment could not be carried out without the user bearing most of the costs for the material and those who handle the plant which feeds and further processes on the measured product.</p>	See Secretariat response to this clause above.
CECIP	47	5.1.6	T.3.15 must be T.3.14	Amended.

Member State/ Liaison	Page number	Document clause	Member Comments	Meeting Comments
U.S.A.	47	5.1.6.1	<p>The validity of the following statement is questionable:</p> <p>Approval of the most sensitive EUTs implies approval of the variants with lower characteristics. Therefore, when a choice exists, the EUTs with the highest metrological characteristics shall be selected for test.</p> <p>This statement can be challenged in that the opposite may also be true. The approval of the least "sensitive" EUT implies approval of the more "sensitive" instruments. If sensitivity refers to the degree of technological superiority of the device, then it would stand to reason that substandard performance could be observed in a less "sensitive" device. For that reason the less sensitive instrument could be selected as the EUT. There needs to be a fixed allowable range for approval of type based on sensitivity (capacity, loading, speed, etc.) Implying the most sensitive (lightest possible load) or least sensitive (highest load) does not justify approval for the opposite. A firm, rigid frame may weigh heavy loads well but will not have sensitivity required to weigh light loads. Alternately, a device that can measure light loads may not stand up to the rigors of heavy loading over time.</p> <p>The selection of the EUT should be made with the purpose of identifying any defect or fault the "type" of instrument may have. This selection should be based on the EUT being representative of the "type" and allow for the selection of multiple instruments within the type if deemed necessary.</p>	Amended in accordance with the working group report.
CECIP	48	5.1.6.4	lowest input signal; reference to 2.6 is not applicable; it has to do with units of measurement	Amended.
CECIP	48	5.1.6.4	metrological relevant features; 5.1.6.1 is not applicable, it concerns the selection of EUT's	Amended.
Denmark	47	5.1.6.4	<p>Change the first bullet to:</p> <ul style="list-style-type: none"> - lowest input signal, $\mu\text{V/e}$ (when using analogue strain gauge load cells, see T.3.1.3 and 5.1.6.5); 	Amended.
NL	47	5.1.6.4	reference to 5.1.6.1 is not correct; referred clause does not concern metrological relevant features	Amended. Now 5.1.6.3.

Member State/ Liaison	Page number	Document clause	Member Comments	Meeting Comments
Denmark	48	5.1.6.5	<p>New point inserted between 5.1.6.4 and 5.1.6.5 of 3CD.</p> <p>Suggestion:</p> <p>5.1.6.5 Minimum scale interval of electronics (e).</p> <p>When the electronics contain an analogue data processing device the minimum scale interval e obtainable shall be determined as follows,</p> $e = \text{Error} \times \text{Max} / Q_{\text{Max}}$ <p>Where Error is the maximum effect per 5 °C of temperature on totalization at zero flow rate (A.7.2.2)</p> <p>Comment: This requirement is the electronics counterpart to v_{\min} for analogue load cells. If this requirement is not inserted, there is no meaning in having the requirement for load cells (see 3CD 5.1.6.5)</p>	New paragraph and requirement inserted.
CECIP	49	5.1.6.6	for all other modules etc., we don't understand what is wrong when the fraction pi is less than 0,3	This error limit (widely accepted in OIML) was implemented in R76 and other Recommendations in order to ensure that the errors from a single module do not unduly influence the total error when more than one module is contributing to the total error being evaluated.
U.S.A.	54	6.5	The last statement under (b) in this clause states that the supplementary totalization indicating device may be used that has a higher resolution than the primary totalization device. The supplementary device is allowed to have a resolution of up to 0.2 d, however the indication of the mass of the test load is required to be at least ten times the resolution of the primary totalization device. Should the limit then for the resolution of the supplementary device be 0.1 d?	The text 'not greater than 0.2 d' removed.
CECIP	57	A.3.3	(A7.3.1) is AC mains short time reductions, (A7.3.3) surges, meant is A7.2.1 and A7.2.3	Amended.
NL	57	A.3.3	reference to A.7.3.1 and A.7.3.3 should be A.7.2.1 and A.7.2.3	Amended.
CECIP	61	A.5.4.1	4 th paragraph, there is no relevance between one belt revolution and the number of displacement transducer pulses divided by 5. Each pulse represents a certain length, so that figure should be taken into account	The text 'the number of displacement transducer pulses divided by 5' removed.

Member State/ Liaison	Page number	Document clause	Member Comments	Meeting Comments
NL	60	A 5.4.1	To be discussed (comment last time: “Described test is more severe than requirements in 2.8.1. For variable speed belt weighers tests below the minimum speed and above the maximum speed should not be performed”)	The text ‘the number of displacement transducer pulses divided by 5’ removed.
Australia		A.5.4.2	We believe that generally the adoption of 4 quarters eccentricity testing from R76 is not necessary or appropriate for a belt weigher (a belt weigher which is “inclusive of conveyor” might possibly be an exception).	First paragraph removed.
Denmark	61	A.5.4.2	The insertion of the new first paragraph adds a new four quarter segments eccentric loading test in addition to the present three band eccentric loading test! This extension of eccentric loading testing is not necessary. Remove the first paragraph again.	First paragraph removed.
Germany		A.5.5.2	In paragraph 1), a) it should read “0.07” instead of 0.007”.	Amended.
Denmark	62	Figure 3	Remove the drawing and insert one with the three bands instead of.	Amended as proposed.
U.S.A.	63	A.5.5.3	Same comment as made regarding 2.7.5.3. The setting of a 3 minute time limit is not appropriate and the length of totalization should be based on a number of whole revolutions.	Report of the working group set up at the R50 meeting at NMO to be adopted. Working group outlined 2 proposals for TC9/SC2 to choose from. See working group proposals.
Australia		A.5.5.4	The references to 2.5.8.3 and 2.7.5.4 need to be corrected. We do not believe that the test description corresponds well to that in 2.7.5.3. See our comments on 2.7.5.3.	Report of the working group set up at the R50 meeting at NMO adopted. Working group outlined 2 proposals for TC9/SC2 to choose from. Members should indicate their preference in their comments back to the Secretariat.
CECIP	64	A.5.5.4	there is no 2.5.8.3 and no 2.7.5.4, meant is 2.7.5.3	Amended.
Germany		A.5.5.4	As we do not agree with the wording of 2.7.5.3, reinstate the wording of old A.9.4 of the 1997 version, or, at least, use the factors resulting from the old 1997 paragraph to be in accordance with the 1997 version.	Report of the working group set up at the R50 meeting at NMO adopted. Working group outlined 2 proposals for TC9/SC2 to choose from. Members should indicate their preference in their comments back to the Secretariat.
NL	64	A 5.5.4	Reference to 2.5.8.3 and 2.7.5.4 should be to 2.7.5.3	Amended.

Member State/ Liaison	Page number	Document clause	Member Comments	Meeting Comments
U.S.A.	64	A.5.5.4	Title references 2.5.8.3 and 2.7.5.4. Neither of these clauses exists in current draft. Recommend inserting 2.7.3 and 2.7.5.3 instead.	Amended.
CECIP	66	A.7.1	<i>Preliminary note 2.</i> Tests should be carried out in accordance with the IEC publication version as mentioned in the recommendation. A change of test procedures apart of the modification of the recommendation creates uncertainty for all parties involved and is, for that reason, unacceptable. After the moment of publication of a recommendation the reference shall be kept fixed until the next revision of the recommendation	The preliminary note is taken from OIML R76 2006. Recommending that that influence factor tests should be done to the latest referenced EMC publications.
NL	66	A 7.1	Delete Note 2. This clause, which originates from D11 should not be copied in a recommendation. This clause in D11 means that the SC should implement reference to the last version of the applicable IEC standard at the time of publication of the recommendation. After the moment of publication the reference shall be kept fixed until the next revision of the recommendation.	See response as above.
NL	68	A.7.2.1 Table 5	Specifying temperature sequence twice in one clause should be omitted and does not provide extra clarity; referring to such duplication in R50-1 1997E is not convincing as argument.	Amended.
Austria	70	A 7.2.2	In the new paragraph replace “of 10 °” by “of 10 °C”	Amended. Netherlands proposals taken into account.
CECIP	70	A.7.2.2	Since clause 2.7.4.2. has been changed to 5 °C at “test procedures in brief” the end of the first sentence also should be changed into: “... for temperature differences of 5 °C.”	Amended as proposed.
NL	70	A.7.2.2	Since clause 2.7.4.2 has been changed to 5 °C at “test procedures in brief” the end of the first sentence also should be changed to: “... for temperature differences of 5 °C.”	Amended as proposed.
NL	73	A 7.2.4	Also remove ...” according to basic standard IEC Publication 61000-2-1 [16] and IEC Publication 61000-4-1 [17], and...” in header and remove references [16] and [17] in references list.	Amended.
CECIP	75	A.7.2.6	2.7.4.4 concerns durability, it should be 2.7.4.3	Amended
CECIP	76	A.7.2.6	object of the test; 2.7.4.4 concerns durability, it should be 2.7.4.3	Amended
Czech Republic	3 and 94	A.8	Editorial: The title of the section should be the same as indicated in the table of content (page 3). Also in the table of content we have now two A.8	Amended

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NL	88	A 8	Has only partly been amended. Not logic to keep the new A.8.2.3 “In-situ product tests” as a header. Remove this header and amend numbering as a consequence (see NL comments on 2CD)	Amended
U.S.A.	90	A.8.1.3 (new)	<p>For any addition of a recommendation under clause 2.8.X (above), it becomes necessary to include an associated test procedure under A.8. While it is recognized that A.8.1 exists to verify that a zero-condition has been established and that the zero-reference will exhibit consistency, the current form of A.8.1 provides that only a single test run is required (with the option to repeat if necessary).</p> <p>The U.S. recommends that a new clause as shown below be added. The suggested clause would require the performance of three zero tests (prior to and following product testing) which would indicate a stable zero condition. In addition, the ability of the belt weigher to repeat a zero indication within limits, establishes that the belt/system has been “warmed-up” and reached equilibrium and is ready to perform totalization operations.</p> <p>It is anticipated that the incorporation of the suggestion shown would eliminate the need for, and replace A.8.1</p> <p>Draft suggestion for A.8.1.3:</p> <p><i>A.8.1.3 Stability of zero.</i></p> <p><i>Perform three zero tests in accord with 2.8.x. These tests may need to be repeated if the belt operating condition has not reached equilibrium. When three consecutive tests meet the requirements of 2.8.x proceed with product testing.</i></p> <p><i>At the conclusion of the final test perform three zero tests in accord with 2.8.x</i></p> <p><i>The zero tests shall meet the stability requirements as specified in 2.8.x.</i></p>	<p>Report of the working group set up at the R50 meeting at NMO to be adopted. Working group outlined 2 proposals for TC9/SC2 to choose from.</p> <p>See working group proposals.</p>
CECIP	90	A.8.2.1.1	<p>a) and b); as 2.8.1 “repeatability” refers to 2.2.1 “maximum permissible errors for automatic weighing” we don’t understand why:</p> <ol style="list-style-type: none"> 1. it is not mentioned directly in a) and 2. 2.2.1 and 2.8.1 are mentioned separately in b) 	Amended. Worded differently for clarity.

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Czech Republic	97	A.8.2.2	We understand the reason for the sentence in the second paragraph of the A.8.2.2; however, we propose to reword the sentence as follows: “If a control instrument with sufficient resolution is not available the greater resolution of the control instrument may be ensured by using change point weights as specified in A.3.7.2.”	Amended as proposed.
U.S.A.	90-91	A.8.2.2	This paragraph clearly states the control instrument “shall enable the determination of the weight of the product used for testing with an error not exceeding one-third of the appropriate maximum permissible error”. A question remains regarding the new accuracy class of 0.2 based on this requirement and the limited possibility of finding a control device that can repeatedly provide a load representation not exceeding 0.066% (0.2 / 3).	As discussed at the R50 meeting, this requirement is intended to encourage technological innovation.
U.S.A.	91	A.8.2.3.1	<p>This section defines the number of tests required and allows for testing that does not include tests at flow rates down to 20% of maximum flow rate for some beltweighers. As it is written this seems to allow (or at least does not prohibit) <u>type approval</u> of a beltweigher when testing at a single flow rate. This limitation on test conditions would not be appropriate for type approval where the instrument should undergo testing at multiple flowrates.</p> <p>We recommend the following wording changes:</p> <ul style="list-style-type: none"> a) 50-35% <u>35%</u> of maximum flow than <u>then</u> perform a) and b) or (<u>see section 2.5 for maximum allowable minimum flow rate determination</u>). b) <u>If the application confirms the system is operated at not less than 80% of the maximum flowrate for not less than 80% of the operational time</u>, perform a) and b) with only one pair of tests each or only 2 pairs of tests, at any available feeding flowrate. 	As agreed at the NMO R50 meeting, “Not applicable to type approval” added to A.8.2.3.1.
Australia		A.9	We look forward to further discussion regarding the possibility of reducing testing effort (time/resources) by testing ‘worse case’ situations – as per our previous comments. For example, rather than carrying out pairs of tests using the same materials, they could be carried out with different materials for each run – it could be assumed that if the instrument passes that test, it would undoubtedly pass a test with the same material.	I hope the R50 meeting successfully addressed the Member’s concerns.

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NL	94	Ref [11]	update; change to IEC 60068-2-1 Ed. 6.0 (2007-03)	Amended
NL	96	Ref [16] and [17]	Remove and update numbering of the rest of references (see comment A.7.2.4)	Amended
NL	98	Ref [22]	update; change to IEC 61000-4-2 Ed. 2.0 (2008-12)	Amended
CHINA		2.8.6 Durability	<p>Suggestion : durability (in the "laboratory test") During the durability test, the weighing instrument should be able to maintain the performance which does not exceed the maximum permissible error in-service.</p> <p>Reason: durability test purpose is to maintain that the error does not exceed the maximum permissible error in use.</p>	Clause 2.8.6 has been deleted as agreed at the R50 meeting.
CHINA		5.1.3.4 Durability test	<p>Suggestion : Modification contents of this items as follows: During the durability test, no adjustment should be performed except zero-setting. As far as practicable, durability tests should take into account the range of adverse and harsh working environment the belt weigher operates in. Examination of research result and test data from a Chinese company suggests that it is possible to perform laboratory durability test. The secretariat may examine and analyze these findings.</p> <p>Reason: Only in laboratory can all the durability-influence factors in actual belt weigher working environment be fully simulated. Durability test in a single site cannot represent all the possible situations belt weighers may encounter, because it would be impossible to reproduce various environmental conditions in a single site.</p>	<p>5.1.3.4 deleted as agreed at the R50 meeting.</p> <p>The R50 meeting at NMO in April 2011 agreed to implement the report of the working group (Australia, UK) on durability testing. The working group proposed:</p> <ul style="list-style-type: none"> 4) Delete clause 5.1.3.4 Durability Testing. 5) Amend clause 5 with additional information on the importance of durability testing and durability measures will be subject to national regulations 6) To include in clause 5.3 Subsequent metrological control, recommendations for durability checking in use and in accordance with ILAC-G24/OIML D 10 (2007) "Guidelines for the determination of calibration intervals of measuring instruments"

Member State/ Liaison	Page number	Document clause	Member Comments	Meeting Comments
CHINA		Subsequent metrological controls		
CHINA		5.3.3 controls during the two verifications	<p>Suggestion: add to the item ,as follows:</p> <p>In addition to pattern evaluation, the belt weigher does not require durability test.</p> <p>After maintaining and mechanical adjustments to the Conveyor system of the belt weigher and between the two verifications, the indication in-service should be checked.</p> <p>Checking of the indication in-service can be carried out using the simulation load or product.</p> <p>If the belt weigher relative error is less than or equal to the following percentage, continue to use;</p> <p>If the belt weigher relative error is greater than the following percentage, should be adjusted.</p> <p>For class 0.2 : $\pm 0.3\%$</p> <p>For class 0.5 : $\pm 0.6\%$</p> <p>For class 1: $\pm 1.2\%$</p> <p>For class 2 : $\pm 2.5\%$</p> <p>After adjustment, the belt weigher shall be re-examined by the legal metrology services as requirements.</p> <p>Reasons: pattern evaluation need to perform durability test; and in-service inspection can available simulation load or product in use.</p>	Subsequent metrological control is usually a matter for national regulation. OIML R50 is intended to address type approval mainly.
CHINA		Accuracy classes		
CHINA		2.1 Accuracy classes	Agreed to add to the level of accuracy classes 0.2.	Agreed by TC9/SC2. Encourages technical innovation.

Member State/ Liaison	Page number	Document clause	Member Comments	Meeting Comments
CHINA		Belt shape correction device		
CHINA		3.5 (T.2.4) Belt Profile Correction Device	Agreed to add to this item.	Item added. Now 3.6.
CHINA			Problems	
CHINA		Contents A8	There are two A8 in Contents , suggestion: (1) cancel the first A8 “Metrological characteristics” (2) change the second A8” In-situ product tests” into “ in-situ tests”. Reasons: A8 in appendix is” in-situ tests”.	Amended.
CHINA		No. T.1.6 Variable speed or multiple speed belt weigher	Suggestion: modified to” T.1.5.2 Variable speed or multiple speed belt weigher”, extend the behind serial number. Reason: " variable or multi-speed belt weigher" and " T.1.5.1 single-speed belt weigher," belong to " Belt speed control of T.1.5"	Amended as proposed.
CHINA		No. T.2.1.1 T.2.1.1.1 T.2.1.1.2	Suggestion: cancel "Types of load receptor" T.2.1.1 modified to weigh table Cancel No. T.2.1.1.1, T.2.1.1.2 increase No. T.2.1.2 Inclusive of conveyor Reasons: No. disorder in 3CD	Amended.
CHINA		No. T.2.11.6 Displacement transducer	Suggestion: should be No.T.2.11.2 Displacement transducer Reason: written error in 3CD	Amended.

Member State/ Liaison	Page number	Document clause	Member Comments	Meeting Comments
CHINA		T.2.12.4、 T.3.6.1、 T.3.8、 T.4.3.1、 T.7、 2.8.3、 3.8.2、 5.2.4 a) 、 A.5.2 Test B	Suggestion: "Maximum capacity" should be "Maximum net capacity"; "Minimum capacity" should be "Minimum net capacity"; Reason: corresponding to "T.3.4 Maximum net capacity" corresponding to "T.3.5 Minimum net capacity"	‘Net’ removed from T.3.4 and T.3.5 for clarity. Inclusion of ‘net’ in T.3.4 and T.3.5 originally requested by the US in the 2 CD consultation.
CHINA		T.4.5.1	Suggestion : Cancel title T.4.5.1 Reading by simple juxtaposition Reason : Has been the title of 4.5 Reading	Title intended to reflect that reading of the weighing result is by juxtaposition, i.e. reading of two figures near each other. Title is as defined in OIML R 76 2006 E.
CHINA		T.6.3、 T.6.4、 T.6.5	Suggestion: should be replaced respectively by T.6.2, T.6.3, T.6.4, Reasons: No. disorder in 3CD	Amended.
CHINA		T.8.1	Suggestion: proposal to cancel the No. T.8.1, this entry- "Load per belt displacement " and the examples should be in front of the entry- "T.3.4 maximum net capacity ". Reasons: First calculate the "Load per belt displacement" and then determine the " maximum net capacity ".	T.8.1 describes the basic calculations and is only for illustration purposes. Its placement in the terminology is not critical. T.8 was inserted at the request of Australia in the R50 2CD consultation.
CHINA		T.8.2	Suggestion: Cancel No. T8.2, which be incorporate into T3.4, change the name of the entry into the "maximum net capacity " and add to the concept description and calculation examples of " Load per weigh length (the load seen by the weighing unit),". Reason: the concept of " Load per weigh length (the load seen by the weighing unit)," and " maximum net capacity "are the same.	See Secretariat response as above.
CHINA		2.6	Suggestion: add to kg / h, t / h of flowrate units. Reason: convey flowrate is the main units of the belt weigher	Units inserted as proposed.

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CHINA		2.8.4 Zero- load test	<p>(1) Suggestion: cancel the words 1). Reason: no 2)</p> <p>(2) Suggestion: change the content: "This is not applicable when all product tests load readings are obtained over a whole number of belt revolutions or where the indication of mass of loads conveyed is updated once in each belt revolution (ie at the same point in each belt revolution. "</p> <p>Reason: According to the above description, whether the instrument with totalization indicating of the whole ring do not perform zero-load test?</p>	2.8.4 amended as agreed at the R50 meeting.
CHINA		2.8.2 2.8.3	<p>Suggestion: "-" in 2.8.2,and "a), b)" in 2.8.3 should be the same format.</p> <p>Reason: format unified in 3CD</p>	Amended.
CHINA		3.2	<p>Suggestion: should be changed to 3.3; from 3.2 All serial numbers begin to be postponed a number.</p> <p>Reason: serial number repeat in 3CD.</p>	Amended.
CHINA		A.5.4.1	<p>Proposals: modify "Run the belt" to "simulate running the belt".</p> <p>Reason: Since A.5.4 as " the static load test without belt conveyor," why is there the term -"Run the belt" - in A.5.4.1?</p>	Amended
CHINA		A.5.5.2	<p>Suggestion: "0.007%" should be "0.07%".</p> <p>Reason: written error in 3CD.</p>	Amended
CHINA		A.5.5.3	<p>Suggestion: cancel the terms</p> <p>Reason: in this version, "2.7.5.2 discrimination of the totalization indicating device " don't include zero totalization, but the test method corresponding to discrimination of the totalization indicating device has been described in A.5.5.2,</p>	Amended.

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CHINA		A.5.5.4	<p>Suggestion: The test method of the items should comply with the requirements of "2.7.5.3 Stability of zero", proposed, name and the content are also modified to " Stability of zero ", the short and long-term stability which were described in version 97 do not appear in this version.</p> <p>Reason: The test method should correspond with the technical requirements.</p>	Title will be amended. Report of the working group set up at the R50 meeting at NMO adopted. Working group outlined 2 proposals for TC9/SC2 to choose from. Members should indicate their preference in their comments back to the Secretariat.
CHINA		A.7.2.3 Damp heat, steady state	<p>Suggestion: "48 hours at the upper limit temperature as specified in 2.7.4.1 " instead of "2 days at the upper limit temperature as specified in 2.7.4.1 "</p> <p>Reason: Table 6 specifies the 48h, the context should be unified.</p>	Amended. '2 days' changed to '48 hours'.
CHINA		1.1 unification of the abbreviation	<p>"Continuous totalizing automatic weighing instruments is referred to as "belt weighers " in 1.1,</p> <p>suggestion: hereinafter, all the "weighing instrument "will be modified to "belt weigher "</p> <p>Reason: terms of the context should be unified in 3CD.</p>	The text 'weighing instrument' is used as a general reference, while 'instrument' is used specifically to indicate a beltweigher. See T.1.1, T.1.2 and T.1.3.