

## PATTERN APPROVAL

Compliance of Pattern Approval  
Enforcement by KPDNHEP 2020

Regarding to the Pattern Approval application, below are the steps for Pattern Approval (PA):

1. Fill up the form. (as per attachment)
2. Complete form and document (in English language ) and submit to NMIM via email or post or by hand
3. Document checking by PA committee
4. If the document OK (means job proceed) - Customer Service will issue Quotation
5. Applicant shall send Weighing instruments to NMIM for type evaluation.
6. For Weighbridge (WB) the type evaluation will be done at site. The applicant shall provide standard weights /dead weights for min and max range of the WB (If the WB had stamped by the MCM before)
7. Document assessment /analysis data and preparation certificate by the lab
8. Bring to PA committee
9. Preparation PA plate by the applicant and will stamp by NMIM

**Please do not hesitate** to contact us if you require further information.

Thank you



### Application for Pattern Approval

National Metrology Institute of Malaysia  
(National Measurement Standard Laboratory under Act 675)

SIRIM Berhad  
Lot PT 4803  
Bandar Baru Salak Tinggi  
43900 Sepang, Selangor Darul Ehsan  
Facsimile 603-8778 1661

Telephone 603-8778 1600  
<http://www.sirim.my>

Company No. 367474 - V  
<http://nmim.gov.my>

Organisation details	
Organisation name	.....
Address line 1	.....
Address line 2	.....
City	.....
ZIP/postal code	.....
State/province/region	.....
Country	.....
Address for correspondence	<input type="checkbox"/> Same as organisation address? If not the same, please write below
Address line 1	.....
Address line 2	.....
City	.....
ZIP/postal code	.....
State/province/region	.....
Country	.....
Address for accounts	<input type="checkbox"/> Same as organisation address? If not the same, please write below
Address line 1	.....
Address line 2	.....
City	.....
ZIP/postal code	.....
State/province/region	.....
Country	.....

Organisation type	<input type="checkbox"/> Manufacturer <input type="checkbox"/> Agent for manufacturer (attach a copy of your letter of authorisation as agent and supply manufacturer details below) <input type="checkbox"/> assembler of systems constituted of subsystems produced by various manufacturers <input type="checkbox"/> importers
Manufacturer name	.....
Address line 1	.....
Address line 2	.....
City	.....
ZIP/postal code	.....
State/province/region	.....
Country	.....
<b>Contact details</b>	
Title	<input type="checkbox"/> Dr <input type="checkbox"/> Miss <input type="checkbox"/> Mr <input type="checkbox"/> Mrs <input type="checkbox"/> Ms <input type="checkbox"/> Prof
Given name	.....
Surname	.....
Position	.....
Email	.....
Work phone	.....
Fax	.....
Mobile	.....
Preferred method of contact	<input type="checkbox"/> Email <input type="checkbox"/> Work phone <input type="checkbox"/> Mobile <input type="checkbox"/> Fax
<b>Application details</b>	
Type of application	<input type="checkbox"/> New pattern approval <input type="checkbox"/> Modification of approved pattern approval <input type="checkbox"/> Review of approval
Category of instrument	<input type="checkbox"/> existing type of instrument not previously approved by NMIM but stamped by Metrology Corporation (applies until 31 Dec 2019) <input type="checkbox"/> For Trade (ATS 1972) <input type="checkbox"/> For other legal purposes (please specify):..... .....
Approval number (if applicable)	.....

Description of instrument, including technical characteristics and intended application	..... ..... .....
Maker and model	..... .....
Parameters, functions and features, e.g. min. and max capacity, range, limits, resolution	..... ..... .....
Software Type	<input type="checkbox"/> Embedded software  <input type="checkbox"/> Stand alone software
Modification (if applicable)	
<b>Supporting documents</b> <sup>Note 1</sup> (tick where applicable)	
<input type="checkbox"/> Application letter for pattern approval <input type="checkbox"/> Assembly drawings and detailed drawings <sup>Note 2</sup> <input type="checkbox"/> Manual for instruction for installation and preparation of an instrument for service, operating, maintenance and repair. <input type="checkbox"/> Catalogues and brochures <input type="checkbox"/> Detailed specifications of the instrument (e.g construction, assembly, adjustment, internal operation of the instrument, safety devices, self-adjusting mechanisms, assembly drawings, detailed drawings, layouts and schematic diagram) <input type="checkbox"/> Reports of test or calibrations from accredited laboratory in ISO 17025 <input type="checkbox"/> Type/Pattern approval report from other National Measurement Institutes <input type="checkbox"/> Latest stamping certificate and report <sup>Note 3</sup> <input type="checkbox"/> OIML Basic Certificate or OIML MAA Certificate <sup>Note 4</sup> <input type="checkbox"/> EC-Type Certificate <sup>Note 4</sup> <input type="checkbox"/> Countries Authority approval certificate issued stating the relevant OIML recommendation <sup>Note 4</sup> <input type="checkbox"/> Software Design Documentation <sup>Note 5</sup> : <ul style="list-style-type: none"> <li><input type="checkbox"/> Description of legally relevant software: <ul style="list-style-type: none"> <li>o list of software modules that belong to the legally relevant part including a declaration that all legally relevant functions are included in the description;</li> <li>o description of the software interfaces of the legally relevant software part and of the commands and data flows via this interface including a statement of completeness;</li> </ul> </li> </ul>	

- description of the generation of the software identification;
- list of parameters to be protected and description of protection means;
- ☐ Description of system and hardware requirements:
  - description of suitable system configuration and minimal required resources;
  - overview of the system hardware, e.g. topology block diagram, type of computer(s), type of network, etc. Where a hardware component is deemed legally relevant or where it performs legally relevant functions, this should also be identified;
- ☐ Description of security:
  - description of security means of the operating system (password, etc. if applicable);
  - description of the software sealing method(s);
- ☐ Description of functionality:
  - Description of the accuracy of the algorithms (e.g. filtering of A/D conversion results, price calculation, rounding algorithms, etc.);
  - Description of the user interface, menus and dialogues;
  - List of commands of each hardware interface of the measuring instrument / electronic device / sub-assembly including a statement of completeness;
- ☐ Description of durability:
  - list of durability errors that are detected by the software and if necessary for understanding, a description of the detecting algorithms;
  - if fault detection is realized in the software, a list of faults that are detected and a description of the detecting algorithm;
- ☐ Description of data sets stored or transmitted;
- ☐ Software Operating Manual

- ☐ Side-by side comparison report of instrument and software submitted against the National Measurement Institute pattern approved instrument.

Note 1: Must be written in English or Bahasa Melayu. Translation from other languages to English or Bahasa Melayu must be endorsed by a certified translator or by the publisher of the document.

Note 2: Drawing for weigh in motion (WIM), platform scale and weighbridge shall be endorsed by Professional Engineers (PE)

Note 3: For existing instrument which is verified before obtaining pattern approval (applies until 31st Dec 2019)

Note 4: The validity of document shall be 10 years from the approval date

Note 5: The measuring instruments with respect to the application of software.

#### Terms and conditions

I hereby agree that:

- ☐ All the information and supporting documents given in this application is true.
- ☐ Instrument/software submitted with this application is in good conditions.
- ☐ Bears all the risk and cost or damage to the instruments while in NMIM, SIRIM.
- ☐ No hidden undocumented program functions, relevant data structures and software interfaces.
- ☐ To provide a copy of fully functional software when requested by NMIM <sup>Note 5</sup>

☐ Payable fee according to NMIM payment terms and conditions

.....  
Signature

.....  
Date

.....  
Name of signatory

.....  
Position

## 17 CHECKLIST

Application N°: .....

Pattern designation: .....

## 17.1 All types of weighing instruments except non-self-indicating instruments (6.1-6.9, R 76-1)

Requirement	Testing procedures		PASSED	FAILED	Remarks
<b>Descriptive markings</b>					
7.1.1  (+ 3.3.1) (+ 3.3.1)	A.3	<b>Compulsory in all cases:</b>			
		manufacturer's mark or name			
		accuracy class			
		maximum capacity, Max, Max <sub>1</sub> , Max <sub>2</sub> ...			
		minimum capacity, Min			
7.1.2	A.3	<b>Compulsory if applicable:</b>			
		name or mark of manufacturer's agent			
		serial number			
		identification marks on separate but associated units			
		pattern approval mark			
		scale interval d (d < e)			
		maximum tare effect T (subtractive tare only if T ≠ Max)			
		maximum safe load, Lim (if Lim > Max + T)			
		special temperature limits			
		counting ratio			
		ratio between weight platform and load platform			
		range of plus/minus indication			
7.1.3  3.2 4.16	A.3	<b>Additional markings:</b>			
		not to be used for direct sales to the public			
		to be used exclusively for:			
		the stamp does not guarantee/guarantees only...			
		to be used only as follows:			
7.1.4	A.3	special applications clearly marked (weighings ranges in Classes (I) and (II) or (II) and (III))			
		near display "not to be used for direct sales to the public" (for instruments similar to those used for direct sales to the public)			
7.1.4	A.3	<b>Presentation of markings:</b>			
		indelible			
		easily readable			
		grouped together in a clearly visible place			
		Max, Min, e and d (d ≠ e) near display			
7.1.5.1	A.3	possible to seal and apply a control mark/removal will result in destruction			
		<b>Instruments with several load receptors and load measuring devices:</b>			
7.1.5.1	A.3	identification mark, Max, Min and e of each load receptor on relating load measuring device (Lim and T = + if applicable)			



7.1.5.2	A.3	<b>Separately-built main parts:</b>			
		identification mark repeated in descriptive markings			
4.1.1.3		<b>Identification of devices:</b>			
		which have been subject to separate type examination			
<b>Verification marks and sealing</b>					
7.2.1	A.3	<b>Verification mark:</b>			
		cannot be removed			
		easy application			
		visibility without the instrument to be moved when it is in service			
7.2.2		<b>Verification mark support or space:</b>			
		which ensures conservation of the mark			
		for stamp, stamping area $\geq 200 \text{ mm}^2$			
		for self-adhesive type, $\varnothing \geq 25 \text{ mm}$			
4.1.2.4	A.3	<b>Securing/sealing:</b>			
		location			
		form			
		evidence, where software means are used			
4.1.2.5		<b>Span adjustment device (automatic and semi-automatic):</b>		Existent <input type="checkbox"/>	Non-existent <input type="checkbox"/>
		external influence impossible after sealing			
4.1.2.6		<b>Gravity compensation:</b>		Existent <input type="checkbox"/>	Non-existent <input type="checkbox"/>
		external influence on or access to impossible after sealing			
<b>Documentation</b>					
8.2.1.1	A.1	<b>Technical information and data:</b>			
5.3.6.1	A.1	specific declaration of the manufacturer			
		specifications of modules			
		specifications of components			
3.5.4.2	A.1	fractions $p_i$ (modules tested separately)			
8.2.1.2	A.1	drawings			
		functional description			
		technical description with schematic diagrams for internal processing and exchange via interface			
5.3.7		manufacturer's lower limit of battery voltage			
8.2.2	A.2	<b>Examination of:</b>			
		documents			
		functions (spotchecks)			
		test reports from other authorities			
<b>Indicating device</b>					
4.2.1		<b>Reading:</b>			
4.3.1		reliable, easy and unambiguous			
		overall inaccuracy $\leq 0.2 e$ (analogue indication)			
		size, shape and clarity			
		by simple juxtaposition			
4.2.2.1	A.3	<b>Units of:</b>			
		mass			
		price			

4.2.2.1		<b>Form of indications:</b> for one indication, one unit of mass scale interval in the form $(1,2 \text{ or } 5) \times 10^k$ same scale interval for all indicating devices, printing devices and tare weighing devices				
4.2.2.2		<b>Form of digital indication:</b> at least one figure at right <b>Decimal sign:</b> shall maintain its position (scale interval changed automatically) separate at least one figure to the left and all to the right <b>Zero:</b> indication of zero figures only one non-significant zero to the right for values with decimal sign, non-significant zero only in third position				
4.2.3		<b>Limits:</b> preventing of indication above $\text{Max} + 9e$				
4.2.4		<b>"Approximate" indication:</b> scale interval $> \text{Max}/100$ without being smaller than $20e$	Existent <input type="checkbox"/>	Non-existent <input type="checkbox"/>		
4.2.5		<b>Semi-self indicating instruments:</b> extension of self-indication range $\leq$ self-indication capacity				
4.3.1		<b>Analogue indication:</b> thickness and length of scale marks				
4.3.2		scale spacing				
4.3.3		limit of movement below zero and above capacity of self-indication				
4.3.4		damping of oscillations of indicating component				
4.4.1		<b>Changing of digital indication:</b> after change in load, previous indication not longer than 1 s				
4.4.3		<b>Extended digital indication:</b> not allowed when there is a differentiated scale division while pressing key or at most, 5 s after manual command prevention of printing	Existent <input type="checkbox"/>	Non-existent <input type="checkbox"/>		
4.4.4		<b>Digital indications other than primary indications:</b> quantities identified by units or symbols or signs thereof weight values (not weighed) shall be clearly identified or display only temporarily on manual command and shall not be printed	Existent <input type="checkbox"/>	Non-existent <input type="checkbox"/>		
4.4.5		<b>Digital printing:</b> clear and permanent figures $> 2 \text{ mm}$ high name or symbol of units above column of values behind column of values printing impossible when equilibrium not stable	Existent <input type="checkbox"/>	Non-existent <input type="checkbox"/>		

4.4.6		Memory storage:	Existent <input type="checkbox"/>	Non-existent <input type="checkbox"/>
		storage, transfer, totalizing, etc. inhibited when equilibrium not stable	<input type="checkbox"/>	<input type="checkbox"/>
3.4.1		Auxiliary indicating device (Classes ① and ② only; not allowed on multi-interval instruments)	Existent <input type="checkbox"/>	Non-existent <input type="checkbox"/>
		If existent, type:		
		rider <input type="checkbox"/>	Interpolation <input type="checkbox"/>	
		complementary <input type="checkbox"/>		
		differentiated scale division <input type="checkbox"/>		
3.4.2		only to the right of decimal sign	<input type="checkbox"/>	<input type="checkbox"/>
		$d < e \leq 10 d$ , $e = 10^k \text{ kg}$ or $e = 1 \text{ mg}$ for class ① with $d < 1 \text{ mg}$	<input type="checkbox"/>	<input type="checkbox"/>
Differences between results				
3.6.3		Differences:		
		between multiple indications: $\leq mpe$	<input type="checkbox"/>	<input type="checkbox"/>
		between digital indications and printout: zero	<input type="checkbox"/>	<input type="checkbox"/>
3.6.4		between two results: $\leq mpe$ for same load when method of balancing changed (semi-self-indicating)	<input type="checkbox"/>	<input type="checkbox"/>
Level indicator				
3.9.1.1		Indicator:	Existent <input type="checkbox"/>	Non-existent <input type="checkbox"/>
		fixed firmly	<input type="checkbox"/>	<input type="checkbox"/>
		visible to the user	<input type="checkbox"/>	<input type="checkbox"/>
		Limiting value:		
		shows that maximum tilt is being exceeded	<input type="checkbox"/>	<input type="checkbox"/>
Zero-setting, -tracking and -indicating				
			Existent <input type="checkbox"/>	Non-existent <input type="checkbox"/>
		Initial zero-setting	<input type="checkbox"/>	<input type="checkbox"/>
		Semi-automatic zero-setting	<input type="checkbox"/>	<input type="checkbox"/>
		Nonautomatic zero-setting	<input type="checkbox"/>	<input type="checkbox"/>
		Zero-tracking	<input type="checkbox"/>	<input type="checkbox"/>
		Zero-indicating	<input type="checkbox"/>	<input type="checkbox"/>
4.5.1	A.4.2.1	Effect:		
		shall not alter Max	<input type="checkbox"/>	<input type="checkbox"/>
		Overall effect of:		
		zero-setting	<input type="checkbox"/>	= %
		zero-tracking	<input type="checkbox"/>	= %
		initial zero-setting	<input type="checkbox"/>	= %
4.5.2	A.4.2.3	Accuracy:		
		deviation $\leq 0.25 e$	<input type="checkbox"/>	<input type="checkbox"/>
		deviation $\leq 0.5 d$ (auxiliary indicating device)	<input type="checkbox"/>	<input type="checkbox"/>
4.5.3		Multiple range:	Existent <input type="checkbox"/>	Non-existent <input type="checkbox"/>
		effective for greater weighing range (if switching when loaded possible)	<input type="checkbox"/>	<input type="checkbox"/>
4.5.4		Control of zero-setting:		
		separate from that of tare weighing device	<input type="checkbox"/>	<input type="checkbox"/>
		Semi-automatic zero-setting: functions only		
		in stable equilibrium and	<input type="checkbox"/>	<input type="checkbox"/>
		if it cancels any previous tare operation	<input type="checkbox"/>	<input type="checkbox"/>

4.5.5	A.4.2.2	<b>Zero-indicating device (digital indication):</b>																															
		shows deviation $\leq 0.25 e$																															
		not mandatory if auxiliary indicating device or rate of zero-tracking $\geq 0.25 d/s$																															
4.5.6		<b>Automatic zero-setting:</b>																															
		operates only when equilibrium stable and indication has remained stable below zero at least 5 seconds																															
4.5.7		<b>Zero-tracking:</b>																															
		operates only when indication at zero or at negative net value equivalent to gross zero and equilibrium stable																															
		corrections $\leq 0.5 d/s$																															
		when operates after tare, the overall effect may be 4 % of Max																															
<table border="0" style="width: 100%;"> <tr> <td colspan="2" style="text-align: center;"><b>Tare devices</b></td> <td style="text-align: center;">Existent</td> <td style="text-align: center;">Non-existent</td> </tr> <tr> <td>Tare weighing</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td></td> </tr> <tr> <td>Tare balancing</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td></td> </tr> <tr> <td>Combined zero-setting and tare balancing</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td></td> </tr> <tr> <td>Tare indicating</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td></td> </tr> <tr> <td>Type:</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Additive</td> <td><input type="checkbox"/></td> <td>Subtractive</td> <td><input type="checkbox"/></td> </tr> </table>						<b>Tare devices</b>		Existent	Non-existent	Tare weighing	<input type="checkbox"/>	<input type="checkbox"/>		Tare balancing	<input type="checkbox"/>	<input type="checkbox"/>		Combined zero-setting and tare balancing	<input type="checkbox"/>	<input type="checkbox"/>		Tare indicating	<input type="checkbox"/>	<input type="checkbox"/>		Type:				Additive	<input type="checkbox"/>	Subtractive	<input type="checkbox"/>
<b>Tare devices</b>		Existent	Non-existent																														
Tare weighing	<input type="checkbox"/>	<input type="checkbox"/>																															
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Type:																																	
Additive	<input type="checkbox"/>	Subtractive	<input type="checkbox"/>																														
4.6.1		4.1 through 4.4 apply																															
4.6.2		<b>Tare weighing device:</b>																															
		$d_r = d$																															
4.6.3	A.4.6.2	<b>Accuracy:</b>																															
		better than $\pm 0.25 e$ (electronic instruments and instruments with analogue indication), $e = e_i$ for multi-interval																															
		better than $\pm 0.5 d$ (mechanical instruments with digital indication and instruments with auxiliary indicating device)																															
4.6.4		<b>Operation range:</b>																															
		prevention of operation at or below its zero effect	at																														
		prevention of operation above its maximum indicated effect	below																														
4.6.5		<b>Visibility of operation:</b>																															
		operation indicated																															
		net with sign "NET", "Net", "net" or complete word (digital indication)																															
		NET disappears if gross displayed temporarily																															
4.6.6		<b>Subtracting tare:</b>																															
		prevention of use above Max or indication that capacity is reached																															
4.6.7		<b>Multiple range:</b>																															
		operation effective in greater weighing ranges if switching when loaded possible																															
4.6.8		<b>Semi-automatic or automatic tare:</b>																															
		operation only in stable equilibrium																															

4.6.9		<b>Combined zero/tare:</b>			
		accuracy (4.5.2)			
		zero indicating device (4.5.5)			
		zero-tracking (4.5.7)			
4.6.10		<b>Consecutive tare operations:</b>			
		indicated or printed tare weight values clearly designated (if tare devices operative at the same time)			
4.6.11		<b>Printing net or gross:</b>			
		without designation			
		designation: by G or B (gross)			
		by N (only net printed)			
		designation of net and tare by N and T (if net printed with gross and/or tare)			
		instead of G, B, N and T, complete words			
		printing separately net and tare with identification (different tare devices)			
<b>Preset tare</b>			Existent <input type="checkbox"/>	Non-existent <input type="checkbox"/>	
4.7.1		$d_T = d$ or automatically rounded to $d$			
		transferred from one range to another one with larger $e_i$ , shall be rounded to the latter (multiple range)			
		tare value $\leq \text{Max}_i$ for the same net weight value (multi-interval) and calculated net value rounded to the scale interval for the same net weight value			
4.7.2		4.6.10 applies			
		cannot be modified/cancelled if tare operated after the preset tare is still in use			
		operates automatically if clearly identified with load			
4.7.3		4.6.5 applies			
		possibility to indicate preset tare			
		if calculated net printed then preset tare value is printed as well			
		4.6.11 applies			
		designation of preset tare by PT or complete word			
<b>Locking devices</b>			Existent <input type="checkbox"/>	Non-existent <input type="checkbox"/>	
4.8.1		<b>Positions:</b>			
		only two stable positions			
		weighing only in "weigh" position			
4.8.2		positions clearly shown			
<b>Multiple ranges</b>			Existent <input type="checkbox"/>	Non-existent <input type="checkbox"/>	
4.10		<b>Weighing ranges:</b>			
		range in operation clearly indicated			
		selection from smaller to greater range possible at any load (manual)			
		selection from smaller to the following greater range (automatic) possible only for load $\geq \text{Max}_i$ of smaller range			
		selection from a greater to a smaller range only when no load (manual)*			
		selection only from a greater to the smallest range only when no load (automatic)*			
		when no load tare cancelled and zero to $\pm 0.25 e_i$ , both automatically (manual and/or automatic selection)(applicable only to the two above requirements marked *)			

Selection between load receptors, transmitting and measuring devices			Existent <input type="checkbox"/>	Non-existent <input type="checkbox"/>
4.11		compensation for unequal no-load effect		
4.11.1		zero-setting without ambiguity and in accordance with 4.5		
4.11.2		weighing impossible while selection		
4.11.3		combinations easy identifiable		
4.11.4				
Load cells			Existent <input type="checkbox"/>	Non-existent <input type="checkbox"/>
4.12.1		$E_{max} \geq Q \cdot \text{Max} \cdot R/N$		
4.12.2		$n_{LC} \geq n$		
		$n_{LC} \geq n_1$ (multiple range/multi-interval)		
		multi-interval $DR \leq 0.5 e_1 R/N$ or		
		$n_{LC} \geq \text{Max}/e_1$ if DR unknown		
		multiple range $DR \leq e_1 R/N$ or		
		$n_{LC} \geq 0.4 \text{Max}/e_1$ if DR unknown		
4.12.3		$v_{min} \leq e R/\sqrt{N}$ ( $e = e_1$ multiple range/multi-interval)		
"Plus and "minus" comparator instruments				
4.13.1		Distinction of zones:		
		by "+" and "-" signs (analogue indication)		
		by inscription (digital indication)		
4.13.2		Scale:		
		with at least one scale division $d = e$ on either side of zero and		
		value of $d = e$ shown at either end		
Mechanical counting instruments with unit weigh receptor				
4.18.1		Scale:		
		with at least one scale division $d = e$ on either side of zero and		
		value of $d = e$ shown on the scale		
4.18.2		Counting ratio:		
		shown clearly above each counting platform or		
		each counting scale mark		

## 17.2 Instruments for direct sales to the public and price computing and labelling instruments

Requirement	Testing procedures		PASSED	FAILED	Remarks
<b>Miscellaneous checkings (direct sales to the public)</b>					
4.5.4		Combined semi-automatic zero-setting device and semi-automatic tare-balancing device operated by the same key:			
		not allowed			
4.8.1		"Prewriteigh" position:			
		not allowed			
4.14.10		Counting ratio:			
		1/10 or 1/100 (mechanical counting instrument)			
4.14.5		Impossibility of weighing during:			
		locking operation			
		adding or subtracting weights			
4.14.7		Auxiliary and extended indicating device:			
		not allowed			
4.14.9		When significant fault has been detected (electronic instruments):			
		visible or audible alarm provided for customer and (1)			
		data transmission prevented (1)			
		until user takes action or cause disappears			
<b>Indication device (direct sales to the public)</b>					
4.14.6		Primary indications (4.14.1) to both vendor and customer:			
		Double display: Existent <input type="checkbox"/> Non-existent <input type="checkbox"/>			
		weight			
		information about correct zero position			
		tare operation			
		preset tare operation			
		Figures of primary indications:			
		same dimension and			
		high $\geq 9.5$ mm (digital devices)			
		Instruments to be used with weights:			
		value of weights possible to distinguish			
<b>Zero-setting device (direct sales to the public)</b>					
4.14.2		Non-automatic zero-setting:			
		with tool only			

(1) Checked by verifying the compliance with documents [ ] or by simulating faults [ ]; this check does not duplicate the disturbance tests 12.1 through 12.4.

Tare device (direct sales to the public)				
4.14.3		Tare on mechanical instrument with weights receptor:		
		not allowed		
		Public is allowed to see whether tare:		
		is in use		
		setting is altered		
		only one tare may be in operation at any given time		
		Recalling gross value:		
		with tare or preset tare in operation prohibited		
4.14.3.1		Non-automatic tare:		
		displacement of 5 mm at most e		
4.14.3.2		Semi-automatic tare:		
		reduction of value of tare not permitted and		
		cancelling of tare effect only if no load on the receptor		
		One of the following conditions fulfilled:		
		tare value indicated permanently in a separate display		
		indicated with sign "-" when no load on the receptor		
		effect cancelled automatically when unloading after net weighing		
4.14.3.3		Automatic tare:		
		not allowed		
4.14.4		Preset tare:		
		indicated on separate display clearly differentiated from weight display		
		reduction of tare value not permitted and		
		cancelling of tare effect only if no load on the receptor		
		impossible to operate if tare device in operation		
		cancelled at the same time as PLU if associated with PLU		
Price computing instruments and price scales (direct sales to the public)				
4.15.1		Visible to both vendor and customer (4.14.6):		
		unit price		
		price to pay		
		if applicable number, unit price and price to pay for non-weighed articles, price totals		
4.15.2 4.2 4.3.1-4.3.3		Price scales:		
		4.2 and 4.3.1 through 4.3.3 apply to unit price and price to pay scales		
		error of price scale $\ast W \cdot U \quad P \leq e \cdot U$		
4.15.3		Price computing:		
		multiplication of weight and unit price as indicated		
		rounding to nearest interval of price to pay		
		unit price: Price/(100 g or kg)		
		Indications of weights, unit price and price to pay visible:		
		for at least 1 s after stable weight indication after any introduction of unit price and while load on load receptor		
		freezing for $\leq 3$ s and not possible to introduce or change unit price (if indication has been stable before and would otherwise be zero)		
		printing weight, unit price and price to pay		



		<b>Stored in memory:</b>			
		before printing			
		same data not to be printed twice for customer			
4.15.4		<b>Additional functions for trade and management:</b>			
		if all transactions are printed for customer and shall not lead to confusion			
4.15.4.1		<b>Prices-to-pay (positive or negative) of non-weighed articles:</b>			
		weight indication zero or			
		weighing mode inoperative			
		prices shall be shown on price-to-pay display			
		<b>Prices for more than one equal articles:</b>			
		number of articles shown on weight or supplementary display and without being taking for a weight and			
		article price shown on unit price or supplementary display			
4.15.4.2		<b>Totalization of transactions on one or several tickets:</b>			
		price total indicated on price-to-pay display and			
		printed accompanied by a special word or symbol and			
		reference to commodities whose prices are totalized if a separate ticket is issued for total			
		all prices-to-pay shall be printed and price total shall be the algebraic sum of these prices			
		<b>Totalization of transactions from linked instruments:</b>			
		price-to-pay scale intervals of all connected instruments identical			
4.15.4.3		<b>Instrument used by several vendors or to serve more than one customer at the same time:</b>			
		connection between transactions and vendor or customer identified			
4.15.4.4		<b>Cancelling previous transactions:</b>			
		price-to-pay cancelled shall be printed with comment (transaction already printed)			
		transaction clearly differentiated from normal transactions (transaction displayed to customer)			
4.15.4.5		<b>Printing additional information:</b>			
		clearly correlated to transaction and			
		does not interfere with assignment of weight value to unit symbol			
4.15.5		<b>Self-service instruments:</b>			
		designation of product			
<b>Price labelling Instruments</b>					
4.17		<b>Display:</b>			
		for weight			
		possibly to verify values of unit price and preset tare during the use of the instrument			
		<b>Printing:</b>			
		prevention of printing below Min			
		labels with fixed values of weight, unit price and price-to-pay allowed provided weighing mode made inoperative			

## 17.3 Electronic weighing instruments

Requirement	Testing procedures		PASSED	FAILED	Remarks
<b>Disturbances</b>					
5.1.1		not confusing with other messages that appear in the display			
5.2		<b>Acting upon significant faults in case 5.1.1, b):</b>			
		instrument made automatically inoperative (1), or			
		visual or audible indication until user takes action or fault disappears (1)			
<b>Display check</b>					
5.3.1		<b>Upon switch-on:</b>			
		signs of indication are active and non-active long enough to be checked by operator			
<b>External equipment</b>					
5.3.6		<b>Interface shall not allow:</b>			
		- functions and measuring data to be inadmissibly influenced by peripheral devices or other connected instrument or disturbance			
5.3.6.1		- displaying data which could be mistaken for weighing result			
		- falsifying weighing results (displayed, processed, stored)			
		- changing adjustment factor or adjusting the instrument (except authorized cases)			
		- falsifying displayed primary indications (direct sales)			
5.3.6.2		need not be secured if functions in 5.3.6.1 cannot be performed or initiated			
5.3.6.3		shall transmit data so that peripheral device can meet requirements			
5.3.6		Functions performed or initiated through the interface meet relevant requirements of clause 4			
5.3.7		<b>Battery operated instrument: if voltage below manufacturer's specified value</b>			
		continues to function correctly or			
		indicates no weight			

(1) Checked by verifying the compliance with documents [ ] or by simulating faults [ ]; this check does not duplicate the disturbance tests 12.1 through 12.4.