

DELTA Test Report



Supplementary type examination and testing of 210-FE non-automatic weighing indicator for EMC immunity according to EN 45501

Performed for Cardinal Scale Manufacturer Co.

DANAK-1910079

Project no.: A530485

Page 1 of 22

including 1 annex

25 February 2008

DELTA

Danish Electronics,
Light & Acoustics

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Title Supplementary type examination and testing of 210-FE non-automatic weighing indicator for EMC immunity according to EN 45501

Test object 210-FE non-automatic weighing indicator

Report no. DANAK-1910079

Project no. A530485

Test period 7 November 2007 and 23 January 2008

Client Cardinal Scale Manufacturer Co.
203 East Daugherty Street
Webb City
Michigan 64870
USA

Tel.: +1 417 6734631
Fax: +1 417 673 5001

Contact person Mr Stephen Langford
e-mail: slangford@mcardet.com

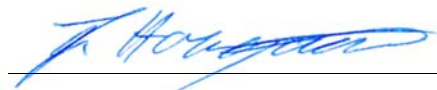
Manufacturer Cardinal Scale Manufacturer Co.

Specifications EN 45501:1992
WELMEC Guide 2.1:2001

Results The tested equipment fulfilled the requirements

Date 25 February 2008

Responsible



Jens Hovgård
Specialist, M.Sc.E.E.
Legal Metrology
DELTA
EU-Notified Body No. 0199

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1. Résumé and conclusion

The report is about supplementary type examination and testing of 210-FE non-automatic weighing indicator, manufactured by Cardinal Scale Manufacturer Co.

The 210-FE indicator is a new member of the 2xx family of non-automatic weighing indicators. Except for the display, it uses the same electronics and software as the other members of the family already tested according to EN 45501 as reported in DANAK-195782 and DANAK-199807. Therefore only a supplementary EMC immunity test is necessary to be performed on the 210-FE.

The examination and testing were performed according to EN 45501:1992 / International Recommendation OIML R 76: 1992, section B.3, Performance tests for disturbances.

OIML R 76-2:1993 has been the basis of the framework of the pattern evaluation report.

Information concerning the submitted test item, the tests performed and the test results appear in Annex 1.

The test item fulfilled relevant parts of EN 45501:1992 / OIML R76:1992, section B.3 for non-automatic weighing instruments - as described in Annex 1.

A brief summary of the essential results is as follows,

- Accuracy class III or IIII.
- $\leq 10,000$ verification scale intervals for connection to analogue load cell(s).
- $0.7 \mu\text{V}$ minimum input voltage per verification scale interval
- Temperature range $-10 / +40 \text{ }^\circ\text{C}$.

Annex 1

OIML R 76 test report with EMC disturbances test results

OIML R 76 TEST REPORT

ORGANISATION INTERNATIONALE DE MÉTROLOGIE LÉGALE

INTERNATIONAL RECOMMENDATION

OIML R 76

Non-automatic weighing instruments

Test item

210-FE

manufactured by

Cardinal Scale Manufacturing Co.

Task: A530485

Report No: DANAK-1910079

Date of Issue: 2008-02-25

Test laboratory: DELTA Danish Electronics, Light & Acoustics

Evaluator / Responsible: DELTA Weight laboratory
2007-11-07 to 2008-01-23

Authorized user of DTPR76: DELTA

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Summary of results

Application / Task: A530485
 Applicant name: Cardinal Scale Manufacturing Co.
 Type: 210-FE
 OIML: R76 accuracy Class III

R76 N°	Tests	Input impedance	Report sheet	PASS	FAIL	Remarks
	Checking of zero setting	N/A	-			
1	Weighing performance	Calculation of intrinsic error	High	-		Not tested Conclusion for n = 10000
		Initial test at ref. temp. 20 °C	Low	-		
		Test at high temperature 40 °C	Low	T(2)		
		Test at low temperature -10 °C	Low	T(3)		
		Test at 5 °C	Low	T(4)		
		Final test at ref. temp. 20 °C	Low	-		
		Supplementary test		-		
					-	
2	Temperature effect on no-load indication	Low	-			
3	Eccentricity		-			
4	Discrimination		-			
5	Repeatability		-			
6.1	Zero return		-			
6.2	Creep		-			
7	Stability of equilibrium		-			
8	Tilting		-			
9	Tare		-			
10	Warm-up time	Low	-			
11	Voltage variations	Low	-			
12.1	Short time power reductions	High	EMC	X		Result: 0,6 [µV / VSI]
12.2	Electrical bursts	a) Power supply lines	High	EMC	X	
		b) I/O circuits and comms. Lines	High	EMC	X	
12.3	Electrostatic discharges	a) Direct application	High	EMC	X	
		b) Indirect application	High	EMC	X	
12.4	Immunity to RF fields	a) Radiated 3 V/m test	High	EMC	X	
		b) Conducted 3 V test		-		
13	Damp heat, steady state	a) Initial test at ref. conditions	Low	-		
		b) Test at high humidity and temp.	Low	-		
		c) Final test at ref. conditions	Low	-		
14	Span stability		-			
*)	Temperature effect on span		-			
			-			
*)	Load cell interface: Maximum cable length to the junction box for load cells Sense interruptions		-			
			-			
Examinations						
16	Examination of the construction		-			
17	Checklist		-			

In all: PASSED

*) WELMEC 2.1, Annex 5.

Authorized user of DTPR76: DELTA

Information concerning the instrument

Information submitted by the manufacturer.

Applicant name: Cardinal Scale Manufacturing Co.
 address: 203 E. Daugherty, Webb City, 64870 Michigan, USA
 Contact person: Steve Langford
 e-mail: slangford@cardet.com
 Telephone: +1 417 673 4631
 Manufacturer name: Cardinal Scale Manufacturing Co.
 address: 203 E. Daugherty, Webb City, 64870 Michigan, USA

Type: 210-FE
 Test item device: Indicator
 S/N: E22307-0406
 Type subject to EMC tests:
 S/N for test item subject to EMC tests:
 Separate load receptor, if submitted Type: Cardinal Capacity [kg]: 5 S/N:
 Load cell(s), if submitted: Type: TSC Manuf.: Cardinal Number: 1 S/N:
 Load cell class: C3 Capacity [kg]: 20 Cable[m]:
 Rated output: 2 [mV/V] $\Delta_{min} =$ [μV] per VSI

Accuracy class: OIML R76: III
 Optional for AWI, if applied: AWI class: 0
 "R61: Specified Ref. Class" (Not used)

Weighing range(s) specified: Single-interval
 Number (i) of Intervals / ranges specified: 1
 Change-over point for multi-range, if available: $Max_i + 9 e_i$
 Unit marked on test item: [g]

Internal resolution of measurements: > 75000
 Number of Verification Scale Intervals (n_i): 10000 $n_i = Max_i / e_i$
 Maximum capacity of partial ranges (Max_i): 10000 [g] Min: 20 [g]
 Verification Scale Interval (e_i): 1 [g] d: 0,1 [g]
 Fractional factor (p_i): 0,5
 Excitation voltage: 12 [Vdc]
 Minimum input-voltage per VSI (Δ_{min}): 0,60 [μV]
 Minimum dead load (D_{min}): 0 [mV]
 Maximum input range: 40 [mV]
 Rated maximum input-impedance for load cells: 1200 [ohm]
 Rated minimum input-impedance for load cells: 44 [ohm]
 Sense (6-wires) or no-sense (4-wires): Sense
 Maximum resistance of cable to JB for load cells: each wire [ohm]

Zero-setting devices	Range [% of Max]	Tare devices
Nonautomatic: <input type="checkbox"/>		Tare balancing: <input checked="" type="checkbox"/>
Semi-automatic: <input checked="" type="checkbox"/>	-2 +2	Tare Weighing: <input type="checkbox"/>
Automatic zero-setting: <input type="checkbox"/>		Preset tare device: <input checked="" type="checkbox"/>
Initial zero-setting: <input checked="" type="checkbox"/>	20	Subtractive tare: <input checked="" type="checkbox"/>
Zero-tracking (+/- 0.25e): <input checked="" type="checkbox"/>	-2 +2	Additive tare: <input type="checkbox"/>
Combined zero/tare device: <input type="checkbox"/>		Max. Tare effect: 100 [% of Max]

Operating temperature range
 Min: -10
 Max: 40

Power voltage supply [Vac]
 Un: 50/60 [Hz] External supply
 Umin: 94
 Umax: 264

Battery supply [Vdc]
 Un:
 Umin:
 Umax:

Load cell linearizing, if available:

Printer subject to test: Non present, but connectable

No. of interfaces: 1

Specification of interfaces available

Connections during electrical disturbance tests: x

Interface No. 1 (applied for recording of measurements during tests)
 format / standard: RS232
 protective or not: Protective
 Connecting cables
 cable length: 2 [m]
 shield/no shield: shielded

Peripheral equipment: Printer

Remarks:

Serial interface

RS 232 setup	
Com port	1
Baud rate	9600
Data bits	8
Stop bits	1
Parity	None
EOS	10
Buffer size	100

Input filter	
PreRead	
Min. Length	8
Search position	8
Filter: Mean of #	1
Line select pos.	0
Line select char	

Test setup

Application / Task: A530485
 Applicant name: Cardinal Scale Manufacturing Co.
 address: 203 E. Daugherty, Webb City, 64870 Michigan, USA

Contact person: Steve Langford
 e-mail: slangford@cardet.com
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Manufacturer name: Cardinal Scale Manufacturing Co.
 address: 203 E. Daugherty, Webb City, 64870 Michigan, USA

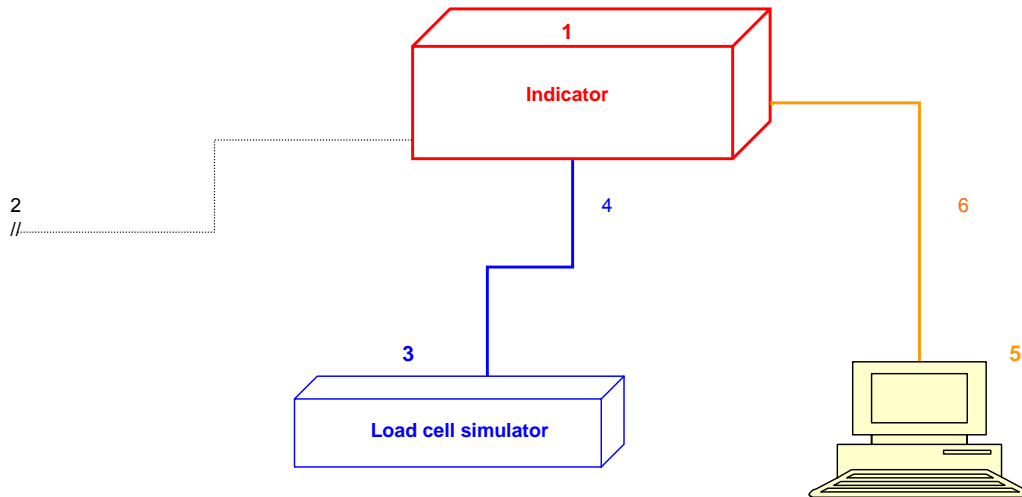
Test ref.: **Performance tests according to OIML R76 and WELMEC 2.1**

Maximum permissible error: MPE (see Intrinsic) for performance tests and influence factors (R76: 3.5)

Setup

Pos	Devices	Type	Serial No.	Configuration	Remarks
1	Indicator	210-FE	E22307-0406	Indication (Max1): 10000 [count] Verification scale interval (e1) = 1 [count] Input-voltage (Δu_{min}): 0,6 [μ V]	
2	Connection to mains supply			External supply	
3	Load cell simulator	HBM, K3608	58924	1 [mV/V], 0-100 [%]	
4	Interface cable to load cell sim.			2,5 [m] shielded	
5	PC for recording of weight Indications				Instead of a PC a printer was connected
6	Interface cable to PC	RS232		2 [m] shielded	See above

Illustration of a typical setup.
 The items listed above may overrule this basic illustration.



Remarks:

[Empty yellow box for remarks]

Test setup

Electrical disturbance tests

Application / Task: A530485
 Applicant name: Cardinal Scale Manufacturing Co.
 address: 203 E. Daugherty, Webb City, 64870 Michigan, USA
 Contact person: Steve Langford
 e-mail: slangford@cardet.com
 Telephone: +1 417 673 4631

Manufacturer name: Cardinal Scale Manufacturing Co.
 address: 203 E. Daugherty, Webb City, 64870 Michigan, USA

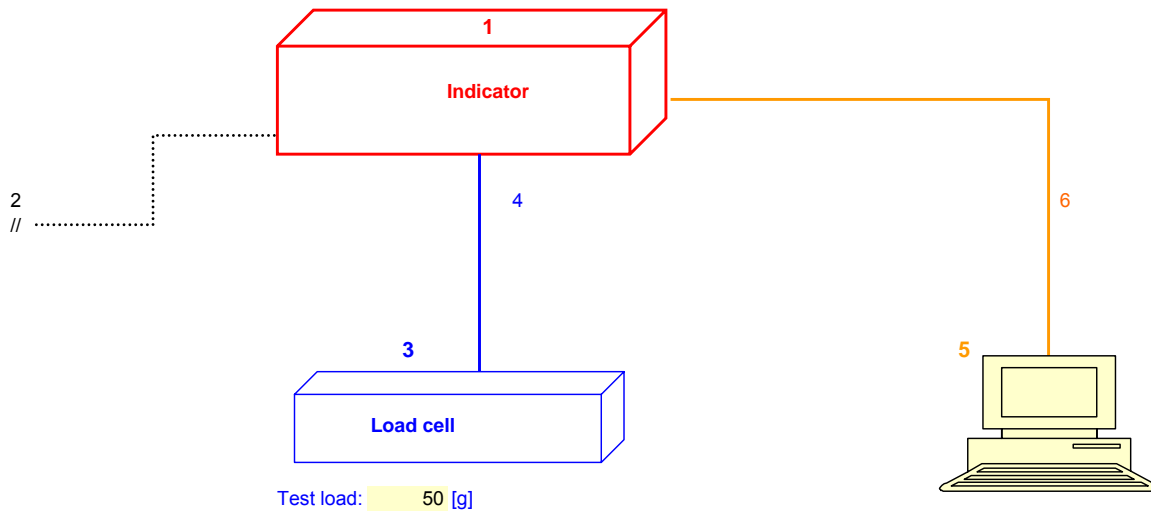
Test ref.: **Electrical disturbance tests according to OIML R76**
 Maximum permissible error: (+/-) 1,5 [count] Error up to 1.5*e is acceptable at extended resolution, similar to the rounding at standard resolution.
 Resolution during test: 0,1 [count]

Setup

Pos	Devices and interfaces	Type	Serial No.	Configuration and cables	Remarks
1	Indicator	210-FE		Indication (Max1): 10000 [count] Verification scale interval (e1) = 1 [count] Input-voltage (Δumin): 0,6 [μV]	
2	Connection to mains supply			External supply	
3	Load cell	TSC	0		
4	Connection to load cell			2 m, shielded	
5	PC for recording of weight Indications				Instead of a PC a printer was connected
6	Interface cable to PC	RS232		2 [m] m, shielded	See above

Illustration of a typical setup.

The items listed above may overrule this basic illustration.



Remarks:

TEST: Electrical Disturbances (OIML R76: B.3)

WELMEC 2.1

Application / task: A530485
 Type designation: 210-FE
 Test item: Indicator
 Serial No.: E22307-0406
 Accuracy class: III
 Max: 10000 [count]
 Verification scale interval, e: 1 [count]
 No. of verification scale intervals, n: 10000
 Resolution during test: 0,1 [count]
 Simulator applied:

Test load: See the respective tests.

Input-voltage per VSI (Δ_{min}): 0,6 [μV]

Note: See "Set(T)" page for the configuration of the test setup.

Load cell number and input impedance: load cell(s) corresponding to [Ohm]**Summary of results**

Section	Test	Max. Error		MPE		P/F	Remarks
		[count]	[μV]	[count]	[μV]		
B.3.1	Short time power reductions	0	0	1,5	0,9	P	
B.3.2	Electrical bursts						
	a) Power supply lines: 1 [kV]	0	0	1,5	0,9	P	
	b) I/O circuits and data lines: 0,5 [kV]	0	0	1,5	0,9	P	
B.3.3	Electrostatic discharges						
(B.3.4)	a) Direct application:	0	0	1,5	0,9	P	
	b) Indirect application:	0	0	1,5	0,9	P	
B.3.4	Immunity to electromagnetic fields (emc)						
(B.3.5)	a) Radiated Field strength: 3 [V / m]	1,5	0,9	1,5	0,9	P	
(B.3.6)	b) Conducted Level: 3 [V]			1,5	0,9		
(B.3.3)	Surge						
	a) Power supply lines: 2 [kV]			1,5	0,9		
	b) I/O circuits and data lines: - [kV]			1,5	0,9		

Overall: Passed / Failed: **Passed** for **0,60 [μV / VSI]** and also **Passed for** **0,6 [μV / VSI]**

Test location: EMC room 1 & EMC room 3
 Test laboratory: DELTA Hørsholm
 EMC report no.: -
 Date of EMC report: -
 Responsible person: Jens Hovgård
 Remarks:

TEST: Short time power reductions (OIML R76:1992/R76:2006 B.3.1)

WELMEC 2.1

Application / task: A530485
 Type designation: 210-FE
 Test item: Indicator
 Serial No.: E22307-0406
 Accuracy class: III
 Max: 10000 [count]
 Verification scale interval, e: 1 [count]
 No. of verification scale intervals, n: 10000
 Resolution during test: 0,1 [count]
 Load cell applied

	Begin	End
Temp.[°C]:	21,7	
Rel. H.[%]:	36	
Time:	13:00	
Date:	07-11-2007	

Input-voltage per VSI (ΔU_{\min}): 0,6 [μ V]

Note: See "Set(T)" page for the configuration of the test setup.

Load cell number and input impedance: 1 load cell(s) 350 [Ohm]

Marked nominal voltage U_n or voltage range: 94 - 264 [V]

Load: 50 [g]

No disturbance Indication I1 [count]	Disturbance				Result		Remarks
	Amplitude % of U_n	Duration cycles	Number of disturbances	Repetition interval [s]	Indication I2 [count]	Error I2-I1 [count]	
100,1	0	0,5	10	10	100,1	0	
100,1	50	1	10	10	100,1	0	
	0	1	10	10			
	40	10	10	10			
	70	25	10	10			
	80	250	10	10			
	0	250	10	10			

/Max. Error: 0

Passed / Failed: **Passed**

Tested in accordance with the method specified in **OIML R76**

Observer: Jens Hovgård
 Remarks: Tested according to OIML R76:1992/EN 45501:1992

TEST: Electrical bursts (OIML R76: B.3.2)

WELMEC 2.1

Application / task: A530485
 Type designation: 210-FE
 Test item: Indicator
 Serial No.: E22307-0406
 Accuracy class: III
 Max: 10000 [count]
 Verification scale interval, e: 1 [count]
 No. of verification scale intervals, n: 10000
 Resolution during test: 0,1 [count]
 Load cell applied

	Begin	End
Temp.[°C]:	21,7	
Rel. H.[%]:	36	
Time:	13:30	
Date:	07-11-2007	

Input-voltage per VSI (ΔU_{\min}): 0,6 [μ V]

Note: See "Set(T)" page for the configuration of the test setup.

Load cell number and input impedance: load cell(s) [Ohm]
 Load: [g]

a) Power supply lines

Power supply lines: test voltage : kV, duration of the test 1 minute at each polarity

No disturbance Indication I1 [count]	Disturbance			Polarity	Result		Remarks
	phase ↓ ground	neutral ↓ ground	protec.earth ↓ ground		Indication I2 [count]	Error I2-I1 [count]	
100,1	X			pos	100,1	0	
100,1	X			neg	100,1	0	
100,1		X		pos	100,1	0	
100,1		X		neg	100,1	0	
100,1			X	pos			
100,1			X	neg			

Max. Error: 0

Passed / Failed: **Passed**

Tested in accordance with the method specified in **OIML R76**

Observer: Jens Hovgård
 Remarks: Tested according to OIML R76:1992/EN 45501:1992

b) I/O circuits and communication lines.

I/O signals, data and control lines: test voltage : kV, duration of the test 1 minute at each polarity

No disturbance Indication I1 [count]	Cable/Interface	Polarity	Result		Remarks
			Indication I2 [count]	Error I2-I1 [count]	
100,1	Connection to load cell 2 m, shielded	pos	100,1	0	
100,1		neg	100,1	0	
100,1	RS232 cable 2 [m]	pos	100,1	0	
100,1		neg	100,1	0	

Max. Error: 0

Passed / Failed: **Passed**

Tested in accordance with the method specified in **OIML R76**

Observer: Jens Hovgård
 Remarks: Tested according to OIML R76:1992/EN 45501:1992

TEST: Electrical Surge (OIML R76:2006 B.3.3)

WELMEC 2.1

Application / task: A530485
 Type designation: 210-FE
 Test item: Indicator
 Serial No.: E22307-0406
 Accuracy class: III
 Max: 10000 [count]
 Verification scale interval, e: 1 [count]
 No. of verification scale intervals, n: 10000
 Resolution during test: 0,1 [count]
 Load cell applied

	Begin	End
Temp.[°C]:		
Rel. H.[%]:		
Time:		
Date:		

Input-voltage per VSI (ΔU_{min}): 0,6 [μ V]

Note: See "Set(T)" page for the configuration of the test setup.

Load cell number and input impedance: load cell(s) [Ohm]
 Load: 50 [g]

a) Power supply lines

Power supply lines: 3 positive and 3 negative surges

No disturbance	Disturbance			Polarity	Result		
Indication I1 [count]	Applied on	amplitude [kV]	angle [°]		Indication I2 [count]	Error I2-I1 [count]	Remarks
	L - N	1	0° 90° 180° 270°	pos			
	L - N	1	0° 90° 180° 270°	neg			
	L - PE	2	0° 90° 180° 270°	pos			
	L - PE	2	0° 90° 180° 270°	neg			
	N - PE	2	0° 90° 180° 270°	pos			
	N - PE	2	0° 90° 180° 270°	neg			

Max. Error:

Passed / Failed:

Tested in accordance with the method specified in OIML R76

Observer:
 Remarks: Not Applicable for OIML R76:1992/EN 45501:1992

b) I/O circuits and communication lines.

I/O signals, data and control lines: Only for industri and cables > 30m, test voltage 0.5 kV.

No disturbance	Cable/Interface	Test voltage	Polarity	Result		
Indication I1 [count]		[kV]		Indication I2 [count]	Error I2-I1 [count]	Remarks
	Connection to load cell		pos			
	2 m, shielded		neg			
	RS232 cable		pos			
	2 [m]		neg			

Max. Error:

Passed / Failed:

Tested in accordance with the method specified in OIML R76

Observer:
 Remarks: Not Applicable for OIML R76:1992/EN 45501:1992

TEST: Electrostatic discharges (OIML R76: B.3.3)

WELMEC 2.1

Application / task: A530485
 Type designation: 210-FE
 Test item: Indicator
 Serial No.: E22307-0406
 Accuracy class: III
 Max: 10000 [count]
 Verification scale interval, e: 1 [count]
 No. of verification scale intervals, n: 10000
 Resolution during test: 0,1 [count]
 Load cell applied

	Begin	End
Temp.[°C]:	22,1	
Rel. H.[%]:	36	
Time:	14:30	
Date:	07-11-2007	

Input-voltage per VSI (ΔU_{min}): 0,6 [μ V]

Note: See "Set(T)" page for the configuration of the test setup.

Load cell number and input impedance: load cell(s) [Ohm]
 Load: 50 [g]

a) Direct application.

Contact discharges Paint penetration
 Air discharges Polarity(*): pos neg
 (*) IEC 801-2 specifies that the test shall be conducted in the most sensitive polarity

No disturbance	Disturbance			Result		Remarks
Indication I1 [count]	Test Voltage [kV]	Number of discharges ≥ 10	Repetition interval [s]	Indication I2 [count]	Error I2-I1 [count]	
100,1	2	10	10	100,1	0	
100,1	4	10	10	100,1	0	
100,1	6	10	10	100,1	0	
100,1	8 (air discharge)	10	10	100,1	0	

Max. Error: 0

Passed / Failed: **Passed**

Tested in accordance with the method specified in **OIML R76**

Observer: Jens Hovgård
 Remarks:

b) Indirect application (contact discharges only)

Polarity(*): pos neg
 (*) IEC 801-2 specifies that the test shall be conducted in the most sensitive polarity

Horizontal coupling plane

No disturbance	Disturbance			Result		Remarks
Indication I1 [count]	Test Voltage [kV]	Number of discharges ≥ 10	Repetition interval [s]	Indication I2 [count]	Error I2-I1 [count]	
100,1	2	10	10	100,1	0	
100,1	4	10	10	100,1	0	
100,1	6	10	10	100,1	0	

Vertical coupling plane

No disturbance	Disturbance			Result		Remarks
Indication I1 [count]	Test Voltage [kV]	Number of discharges ≥ 10	Repetition interval [s]	Indication I2 [count]	Error I2-I1 [count]	
100,1	2	10	10	100,1	0	
100,1	4	10	10	100,1	0	
100,1	6	10	10	100,1	0	

Max. Error: 0

Passed / Failed: **Passed**

Tested in accordance with the method specified in **OIML R76**

Observer: Jens Hovgård
 Remarks:

TEST: Radiated electromagnetic fields (OIML R76: B.3.4)

WELMEC 2.1

Application / task:	A530485	Temp.[°C]:	Begin 21	End 33
Type designation:	210-FE	Rel. H.[%]:	33	
Test item:	Indicator	Time:	09:00	
Serial No.:	E22307-0406	Date:	23-01-2008	
Accuracy class:	III			
Max:	10000	[count]		
Verification scale interval, e:	1	[count]		
No. of verification scale intervals, n:	10000			
Resolution during test:	0,1	[count]		
Load cell applied				

Input-voltage per VSI (ΔU_{min}): 0,6 [μ V]

Note: See "Set(T)" page for the configuration of the test setup.

Load cell number and input impedance:	1	load cell(s)	350	[Ohm]
Load:	50	[g]		
Size of test item:	Height:	[mm]	Width:	Depth: [mm]
Field strength:	3	[V/m]		
Antenna test distance:	2,5	[m]		
Rate of sweep:	0,0014	[oct./s]		
Material load:				
Modulation:	80% AM, 1 kHz sine wave			

Antenna: Bilog		Disturbance			Result		
No disturbance	Frequency range	Polarization	Field lowered to comply	Antenna facing EUT	Indication I2	Error I2-I1	Remarks
[count]	[Mhz]		[V/m]		[count]	[count]	
100,1	26-200	Vertical		Front	100,2	0,1	
100,1			Right	100,1	0		
100,1			Left	100	-0,1		
100,1			Rear	100,2	0,1		
100,1		Horizontal	Front	98,6	-1,5		
100,1			Right	99,3	-0,8		
100,1			Left	99,4	-0,7		
100,1			Rear	99,8	-0,3		

Antenna: Bilog		Disturbance			Result		
No disturbance	Frequency range	Polarization	Field lowered to comply	Antenna facing EUT	Indication I2	Error I2-I1	Remarks
[count]	[Mhz]		[V/m]		[count]	[count]	
100,1	80-1000	Vertical		Front	100,3	0,2	
100,1			Right	100,2	0,1		
100,1			Left	100,2	0,1		
100,1			Rear	100,1	0		
100,1		Horizontal	Front	100,1	0		
100,1			Right	100,1	0		
100,1			Left	100,1	0		
100,1			Rear	100,1	0		

Max. Error: 1,5

Passed / Failed: **Passed**

Tested in accordance with the method specified in OIML R76

Observer:	Jens Hovgård
Remarks:	Tested according to OIML R76:1992/EN 45501:1992

TEST: Conducted electromagnetic fields (OIML R76:2006 B.3.6)

Application / task:	A530485			Temp.[°C]:	Begin	End
Type designation:	210-FE			Rel. H.[%]:		
Test item:	Indicator			Time:		
Serial No.:	E22307-0406			Date:		
Accuracy class:	III					
Max:	10000		[count]			
Verification scale interval, e:	1		[count]			
No. of verification scale intervals, n:	10000					
Resolution during test:	0,1		[count]			
Load cell applied						

Input-voltage per VSI (Δu_{min}): 0,6 [μ V]

Note: See "Set(T)" page for the configuration of the test setup.

Load cell number and input impedance:	1	load cell(s)	350	[Ohm]
Load:	50	[g]		
Level:	3	[Vrms]		
Rate of sweep:	0,005	[oct./s]		
Modulation:	80% AM, 1 kHz sine wave			

No disturbance	Disturbance			Result		
Indication I1 [count]	Cable / interface	Frequency range [Mhz]	Level lowered to [V]	Indication I2 [count]	Error I2-I1 [count]	Remarks
	Power supply cable	0.15 - 80				
	Connection to load cell	0.15 - 80				
	RS232 cable	0.15 - 80				

Max. Error:

Passed / Failed:

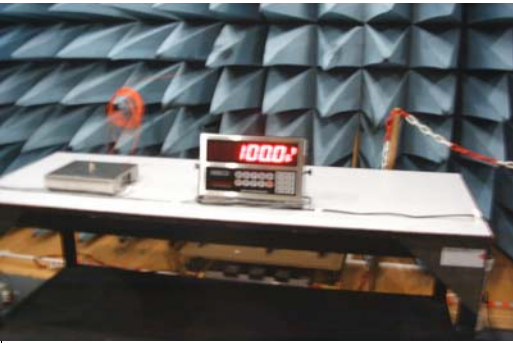
Tested in accordance with the method specified in **OIML R76**

Observer:

Remarks: Not Applicable for OIML R76:1992/EN 45501:1992

Conditional Passed:

Photographs from the electrical disturbance tests.



Radiated electromagnetic susceptibility



Voltage dips



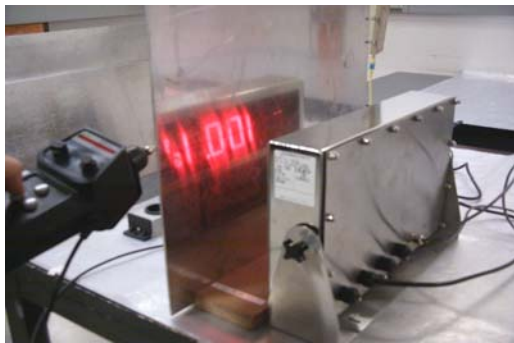
Bursts



Bursts



ESD



ESD



ESD



ESD

Remarks:

