Load cells

Authority	:	NMi Certin B.V. Hugo de Grootplein 1 3314 EG DORDRECHT The Netherlands
In accordance with	:	OIML R60 edition 2000
Applicant	:	Mettler Toledo Heuwinkelstraqsse 8606 Nänikon Switzerland
Manufacturer	:	Mettler Toledo
Type	:	SLP331D
Test result	:	The test results are given on the following pages.

		Final technical evaluation	Final authorization
Name	:	C. Bontenbal	R. Scholten
Function	:	Approvals Expert	Senior Approvals Expert
Date	:	2012-03-08	

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TESTING
RvA L 029

Contents

GENERAL INFORMATION

Project information	
Application N°:	11200209
Pattern designation:	SLP331D
Manufacturer:	Mettler Toledo
Applicant:	Mettler Toledo
Instrument category:	Load cells

General information concerning the pattern

Pattern data OIML

Class:	C				
pLC-factor:	0.8				
Single- or multi-interval:	Multi-interval				
Direction of loading:	Single point				
Remote-sensing:	Yes				
Electronic load cell:	No				
Emin:	0	kg			
Emax:	50	kg			
Dmin:	0	kg			
Dmax:	50	kg			
nmax:	6000				
vmin:	0.0010	kg			
Y:	50000				
Z:	30000				
Maximum sensitivity:	50030.1	cts			
Safe load limit:	150	%			

Load cell excitation

Min:	-	V			
Recommended:	5	V			
Max:	5.25	V			
AC/DC:	DC				
Input impedance:	N.A.	Ω	±	N.A.	Ω
Output impedance:	N.A.	Ω	±	N.A.	Ω

NTEP

Accuracy class:	III
pLC-factor:	0.7
Single- or Multiple application:	S
Y:	7500
Z:	-

Test conditions

Interval time:	20 s	s
Temperature range:	-10 / +40	°C
Humidity conditions:	SH	
Electromagnetic conditions:	E2	

Evaluation period

Start of evaluation:	2011-08-17
End of evaluation:	2012-02-21
Date of report:	2012-03-08

GENERAL INFORMATION (continued)

Sample information				
Maximum capacity E_{max} kg	Y-value	E_{min} kg	Accuracy class and maximum number of load cell verification intervals	Z-value
50	50000	0	C6	30000

Load cell(s) submitted				
Model designation	Serial Number	Emax (kg)	Remote Sensing	Cable length [m]
SLP331D	30013763	50	Yes	N.A. (USB-cable)

Use this space to indicate additional remarks and/or information.
The EMC tests are performed on a sample with a wooden platform, see page 26 and 27.

INFORMATION CONCERNING THE TEST EQUIPMENT USED FOR PATTERN EVALUATION

Application N°: 11200209
Pattern designation: SLP331D

Force generating system

Function	Unit	Manufacturer	Type	Identification	Range
Deadweight machine	kg	NMi	NMI VSL 5kN	DB-02	0 - 550 kg

Readout instrument

Function	Unit	Manufacturer	Type	Identification	Range
Software		Mettler-Toledo			

Environmental equipment:

Function	Unit	Manufacturer	Type	Identification	Range
Temperature	°C	Vaisala	HMP75B	21000046	-10 / +50 °C
Relative humidity	%RH	Vaisala	HMP75B	21000046	10 / 95 %RH
Barometric pressure	hPa	Druck	DPI 265	1220/95-3	850 / 1150 hPa

EMC equipment

Function	Unit	Manufacturer	Type	Identification	Range
Anechoic room		Comtest		-	0 - 30 V/m
EMI Signal generator	dBm	Marconi	2032	119500/019	10 kHz - 5.4 GHz
EMI Amplifier		Bonn	BTA 0122-1000	04-9403	10 kHz - 220 MHz, 1000 W
EMI Amplifier		Prana	AP32 MT215	0411-0042	80 MHz - 1 GHz, 150W
EMI Amplifier		Milmega	AS0102-65	1009959	1 - 2 GHz, 65 W
EMI Powermeter	dB	Boonton	4232A	121502	
EMI Antenna		Schwarzbach	VULB 9163-219	-	25 MHz - 4 GHz

Traceability The measurements have been executed using standards for which the traceability to primary standards, (inter)national standards and/or properties of pure substances has been demonstrated.

Acceleration of gravity at test location:

[X] Lab 31 / 32 [9.81225] m/s^2

Summary of pattern evaluation

Application N°: 11200209
Pattern designation: SLP331D

Tests	page	Passed	Failed	N.A.
D.1 Load test data (EL)	7			X
D.2 Load cell errors (EL) calculation	11	X		
D.3 Repeatability error (ER) calculation	13	X		
D.4 Temperature effects on MDLO (CM) calculation	14	X		
D.5 Creep (CC) and DR (CDR)	16	X		
D.10 Summary of results - Load cells equipped with electronics	25			X
D.16.1 Electromagnetic susceptibility	26	X		

The following table checks the required calculations as per the General notes provisions of C.3:

No.	Test description	n_{max}		n_{max}-500		n_{max}-1000	
		Pass	Fail	Pass	Fail	Pass	Fail
C.4.2 C.4.3 C.4.5	Check all calculations using values of n at n_{max} and at lower than n_{max} (*)	X		X		X	
C.4.4	Check that $v_{min} \leq \frac{D_{max} - D_{min}}{n_{max}}$	0.001 kg ≤ 0.008 kg				Pass	

(*) The load cell errors at nmax, nmax-500 and nmax-1000 can be evaluated with the graph at page D.5 Creep (CC) and DR (CDR).

(**) Worst case figure for minimum dead load output return error = DR = 0.0007 and Z = 35738

D.1 Load test data (EL)

Ref.: A.4.1.1 to A.4.1.11.

Application N°:	11200209
Pattern designation:	SLP331D
Evaluator:	CB
Date:	2011-08-08

	At start	At end	
Temp LC:	22.4	22.4	°C
Bar.pres:	1000.8	1001.0	hPa
Humidity:	48.2	48.4	%RH
Temp IND:	20.7	20.6	°C

Test load kg	Preloading: Indication cts	Time
0	-0.5	08:34:24
50	50029.8	08:34:54
0	-0.4	08:35:24
50	50030.1	08:35:54
0	-0.4	08:36:24
50	50029.9	08:36:54
0	-0.4	08:37:24

Test load kg	Run N° 1 Indication cts	Time	Run N° 2 Indication cts	Time	Run N° 3 Indication cts	Time	Run N° 4 Indication cts	Time	Run N° 5 Indication cts	Time	Average indication cts	E_R v
0	0.0	08:42:24	-0.2	08:44:34	0.0	08:46:44					* -0.1	0.024
5	5005.5	08:42:34	5006.4	08:44:44	5005.7	08:46:54					5005.9	0.108
10	10008.2	08:42:44	10008.2	08:44:54	10008.6	08:47:04					10008.3	0.048
20	20014.5	08:42:54	20014.8	08:45:04	20014.8	08:47:14					20014.7	0.036
30	30020.2	08:43:04	30020.7	08:45:14	30021.0	08:47:24					30020.6	0.096
40	40025.5	08:43:14	40025.9	08:45:24	40025.9	08:47:34					40025.8	0.048
50	50030.1	08:43:24	50030.8	08:45:34	50031.0	08:47:44					50030.6	0.108
40	40025.7	08:43:34	40026.1	08:45:44	40026.3	08:47:54					40026.0	0.072
30	30021.5	08:43:44	30022.2	08:45:54	30022.3	08:48:04					30022.0	0.096
20	20015.3	08:43:54	20015.6	08:46:04	20015.8	08:48:14					20015.6	0.060
10	10009.1	08:44:04	10009.2	08:46:14	10009.2	08:48:24					10009.2	0.012
5	5004.4	08:44:14	5005.8	08:46:24	5004.2	08:48:34					5004.8	0.192
0	-0.1	08:44:24	-0.1	08:46:34	-0.1	08:48:44					-0.1	0.000

Notes: * = Average initial minimum test load indication.

Remarks:

D.1 Load test data (EL)

Ref.: A.4.1.1 to A.4.1.11.

Application N°:	11200209
Pattern designation:	SLP331D
Evaluator:	CB
Date:	2011-08-09

	At start	At end	
Temp LC:	39.0	39.0	°C
Bar.pres:	1014.1	1014.5	hPa
Humidity:	20.4	20.5	%RH
Temp IND:	20.6	20.6	°C

Test load kg	Preloading: Indication cts	Time
0	-0.3	07:48:39
50	50030.7	07:49:09
0	-1.0	07:49:39
50	50031.8	07:50:09
0	-1.2	07:50:39
50	50031.8	07:51:09
0	-1.2	07:51:39

Test load kg	Run N° 1 Indication cts	Time	Run N° 2 Indication cts	Time	Run N° 3 Indication cts	Time	Run N° 4 Indication cts	Time	Run N° 5 Indication cts	Time	Average indication cts	E_R v
0	-1.1	07:56:39	-1.3	07:58:49	-1.3	08:00:59					* -1.2	0.024
5	5003.8	07:56:49	5004.0	07:58:59	5003.5	08:01:09					5003.8	0.060
10	10007.3	07:56:59	10006.0	07:59:09	10007.1	08:01:19					10006.8	0.156
20	20013.9	07:57:09	20011.9	07:59:19	20013.5	08:01:29					20013.1	0.240
30	30020.2	07:57:19	30017.6	07:59:29	30020.0	08:01:39					30019.3	0.312
40	40026.0	07:57:29	40023.6	07:59:39	40025.8	08:01:49					40025.1	0.288
50	50031.6	07:57:39	50029.4	07:59:49	50031.6	08:01:59					50030.9	0.264
40	40025.9	07:57:49	40023.4	07:59:59	40025.7	08:02:09					40025.0	0.300
30	30021.0	07:57:59	30019.0	08:00:09	30020.4	08:02:19					30020.1	0.240
20	20014.4	07:58:09	20012.8	08:00:19	20014.2	08:02:29					20013.8	0.192
10	10008.0	07:58:19	10006.5	08:00:29	10008.8	08:02:39					10007.8	0.276
5	5002.5	07:58:29	5003.7	08:00:39	5003.1	08:02:49					5003.1	0.144
0	-1.3	07:58:39	-1.5	08:00:49	-1.5	08:02:59					-1.4	0.024

Notes: * = Average initial minimum test load indication.

Remarks:

D.1 Load test data (EL)

Ref.: A.4.1.1 to A.4.1.11.

Application N°:	11200209
Pattern designation:	SLP331D
Evaluator:	CB
Date:	2011-08-10

	At start	At end	
Temp LC:	-10.2	-10.4	°C
Bar.pres:	1025.1	1025.1	hPa
Humidity:	--	--	%RH
Temp IND:	20.5	20.4	°C

Test load kg	Preloading: Indication cts	Time
0	1.0	08:45:22
50	50027.4	08:45:52
0	0.5	08:46:22
50	50026.5	08:46:52
0	0.2	08:47:22
50	50025.4	08:47:52
0	0.4	08:48:22

Test load kg	Run N° 1 Indication cts	Time	Run N° 2 Indication cts	Time	Run N° 3 Indication cts	Time	Run N° 4 Indication cts	Time	Run N° 5 Indication cts	Time	Average indication cts	E_R v
0	0.5	08:53:22	0.6	08:55:32	0.5	08:57:42					* 0.5	0.012
5	5005.4	08:53:32	5005.4	08:55:42	5005.6	08:57:52					5005.5	0.024
10	10007.8	08:53:42	10006.3	08:55:52	10006.6	08:58:02					10006.9	0.180
20	20012.9	08:53:52	20011.6	08:56:02	20011.8	08:58:12					20012.1	0.156
30	30018.3	08:54:02	30016.2	08:56:12	30016.6	08:58:22					30017.0	0.252
40	40022.5	08:54:12	40020.3	08:56:22	40021.0	08:58:32					40021.3	0.264
50	50025.7	08:54:22	50024.4	08:56:32	50024.9	08:58:42					50025.0	0.156
40	40022.0	08:54:32	40020.7	08:56:42	40020.7	08:58:52					40021.1	0.156
30	30018.8	08:54:42	30017.4	08:56:52	30017.4	08:59:02					30017.9	0.168
20	20013.1	08:54:52	20012.4	08:57:02	20012.2	08:59:12					20012.6	0.108
10	10008.0	08:55:02	10006.9	08:57:12	10006.9	08:59:22					10007.3	0.132
5	5003.8	08:55:12	5004.2	08:57:22	5004.7	08:59:32					5004.2	0.108
0	0.3	08:55:22	0.4	08:57:32	0.9	08:59:42					0.5	0.072

Notes: * = Average initial minimum test load indication.

Remarks:

D.1 Load test data (EL)

Ref.: A.4.1.1 to A.4.1.11.

Application N°:	11200209
Pattern designation:	SLP331D
Evaluator:	CB
Date:	2011-08-11

	At start	At end	
Temp LC:	20.4	20.5	°C
Bar.pres:	1012.7	1012.7	hPa
Humidity:	54.4	54.4	%RH
Temp IND:	20.7	20.5	°C

Test load kg	Preloading: Indication cts	Time
0	-0.3	08:42:11
50	50027.5	08:42:41
0	-1.3	08:43:11
50	50025.8	08:43:41
0	-1.3	08:44:11
50	50025.5	08:44:41
0	-1.4	08:45:11

Test load kg	Run N° 1 Indication cts	Time	Run N° 2 Indication cts	Time	Run N° 3 Indication cts	Time	Run N° 4 Indication cts	Time	Run N° 5 Indication cts	Time	Average indication cts	E_R v
0	-1.1	08:50:11	-1.3	08:52:21	-1.2	08:54:31					* -1.2	0.024
5	5003.8	08:50:21	5004.0	08:52:31	5003.4	08:54:41					5003.7	0.072
10	10006.7	08:50:31	10006.1	08:52:41	10006.1	08:54:51					10006.3	0.072
20	20012.2	08:50:41	20011.8	08:52:51	20011.4	08:55:01					20011.8	0.096
30	30017.8	08:50:51	30016.7	08:53:01	30016.4	08:55:11					30017.0	0.168
40	40022.4	08:51:01	40021.7	08:53:11	40021.4	08:55:21					40021.8	0.120
50	50026.8	08:51:11	50026.1	08:53:21	50025.8	08:55:31					50026.2	0.120
40	40022.0	08:51:21	40021.4	08:53:31	40021.2	08:55:41					40021.5	0.096
30	30018.3	08:51:31	30017.8	08:53:41	30017.7	08:55:51					30017.9	0.072
20	20012.8	08:51:41	20012.6	08:53:51	20012.7	08:56:01					20012.7	0.024
10	10007.0	08:51:51	10006.8	08:54:01	10006.4	08:56:11					10006.7	0.072
5	5004.6	08:52:01	5004.0	08:54:11	5003.2	08:56:21					5003.9	0.168
0	-1.4	08:52:11	-1.4	08:54:21	-1.9	08:56:31					-1.6	0.060

Notes: * = Average initial minimum test load indication.

Remarks:

D.2 Load cell errors (EL) calculation

Ref.: 5.1.1; A.4.1.12 to A.4.1.14; C.2.2.

Application N°:	11200209	75% test load:	37.5 kg
Pattern designation:	SLP331D	Reference indication at 75% test load:	37524.5 cts
Evaluator:	CB	Conversion factor, f:	8.338789

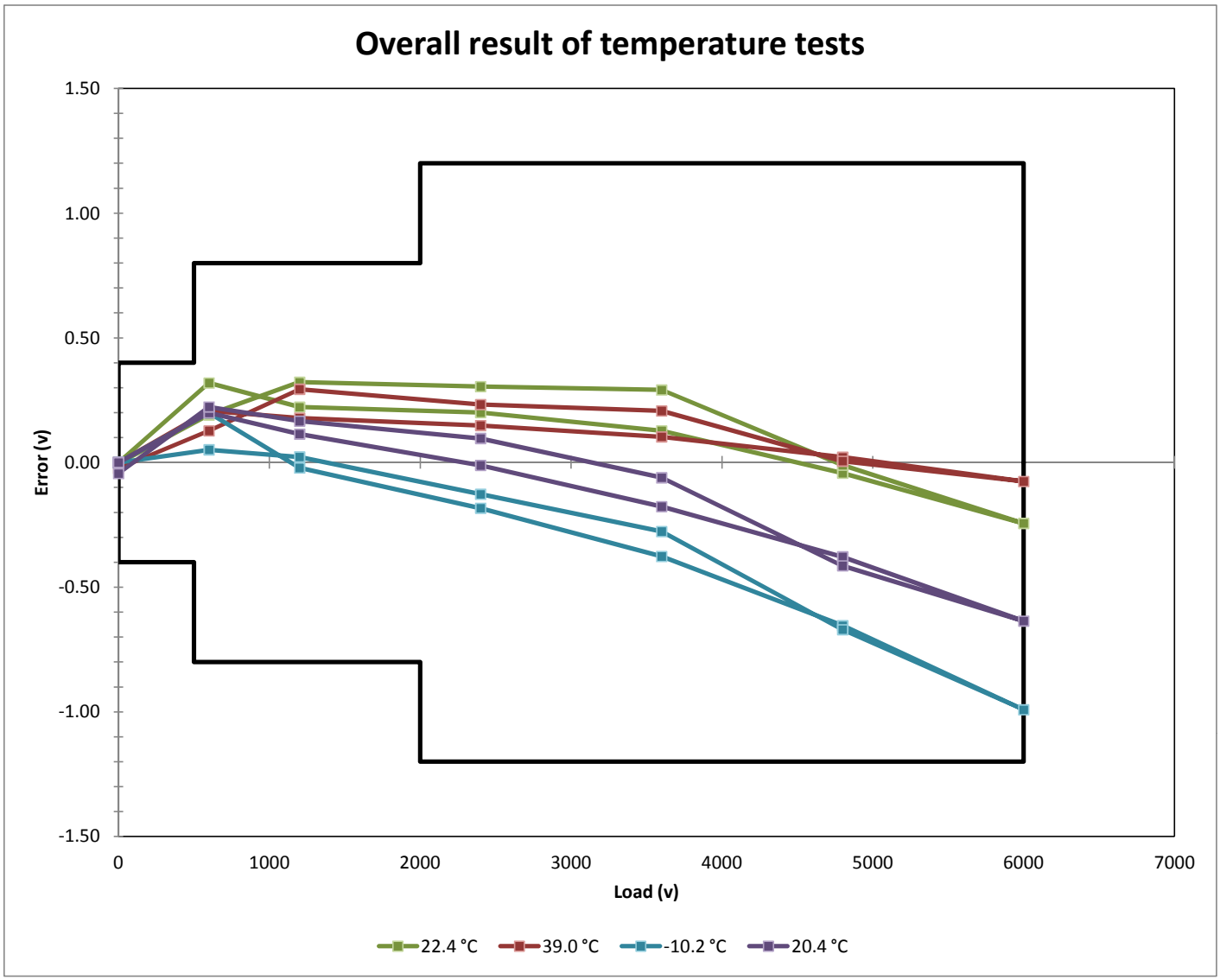
Test load	Reference indication	22.4 °C		39.0 °C		-10.2 °C		20.4 °C		mpe
		Average indication	Error	Average indication	Error	Average indication	Error	Average indication	Error	
kg	cts	cts	(v)	cts	(v)	cts	(v)	cts	(v)	(v)
0	0.0	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	0.400
5	5003.3	5005.9	0.319	5005.0	0.207	5004.9	0.199	5004.9	0.199	0.800
10	10006.5	10008.4	0.222	10008.0	0.178	10006.4	-0.022	10007.5	0.114	0.800
20	20013.1	20014.8	0.201	20014.3	0.149	20011.6	-0.183	20013.0	-0.011	1.200
30	30019.6	30020.7	0.127	30020.5	0.103	30016.5	-0.377	30018.2	-0.177	1.200
40	40026.2	40025.8	-0.042	40026.4	0.022	40020.7	-0.654	40023.0	-0.378	1.200
50	50032.7	50030.7	-0.244	50032.1	-0.076	50024.5	-0.991	50027.4	-0.636	1.200
40	40026.2	40026.1	-0.010	40026.2	0.006	40020.6	-0.670	40022.7	-0.414	1.200
30	30019.6	30022.1	0.291	30021.4	0.207	30017.3	-0.277	30019.1	-0.061	1.200
20	20013.1	20015.6	0.305	20015.0	0.233	20012.0	-0.127	20013.9	0.097	1.200
10	10006.5	10009.2	0.322	10009.0	0.294	10006.7	0.022	10007.9	0.166	0.800
5	5003.3	5004.9	0.191	5004.3	0.127	5003.7	0.051	5005.1	0.223	0.800
0	0.0	0.0	-0.004	-0.2	-0.024	0.0	0.000	-0.4	-0.044	0.400

Notes:
1 Load/reference indications: if a 75 % load point was not obtained, a straight line interpolation between the adjacent higher and lower load point indications is used (see 5.2.2 and calculation procedures in C.2.2).
2 Error, E_L: the difference between the test indication and the reference indication divided by the conversion factor, f.
3 Test load values are values above minimum test load, D_{min}.

[X] Passed [ ] Failed

Remarks:

D.2 Load cell errors (EL) calculation (diagram)



D.3 Repeatability error (ER) calculation

Ref.: 5.4; A.4.1.13; C.2.3.

Application N°: 11200209
Pattern designation: SLP331D
Evaluator: CB

Conversion factor, f: 8.338789

Test load	22.4 °C		39.0 °C		-10.2 °C		20.4 °C		mpe
	Repeatability Error	Error	Repeatability Error	Error	Repeatability Error	Error	Repeatability Error	Error	
kg	cts	v	cts	v	cts	v	cts	v	v
0	0.2	0.024	0.2	0.024	0.1	0.012	0.2	0.024	0.400
5	0.9	0.108	0.5	0.060	0.2	0.024	0.6	0.072	0.800
10	0.4	0.048	1.3	0.156	1.5	0.180	0.6	0.072	0.800
20	0.3	0.036	2.0	0.240	1.3	0.156	0.8	0.096	1.200
30	0.8	0.096	2.6	0.312	2.1	0.252	1.4	0.168	1.200
40	0.4	0.048	2.4	0.288	2.2	0.264	1.0	0.120	1.200
50	0.9	0.108	2.2	0.264	1.3	0.156	1.0	0.120	1.200
40	0.6	0.072	2.5	0.300	1.3	0.156	0.8	0.096	1.200
30	0.8	0.096	2.0	0.240	1.4	0.168	0.6	0.072	1.200
20	0.5	0.060	1.6	0.192	0.9	0.108	0.2	0.024	1.200
10	0.1	0.012	2.3	0.276	1.1	0.132	0.6	0.072	0.800
5	1.6	0.192	1.2	0.144	0.9	0.108	1.4	0.168	0.800
0	0.0	0.000	0.2	0.024	0.6	0.072	0.5	0.060	0.400

Notes: 1 Error, E_R: the repeatability error divided by the conversion factor f.

[X] Passed [ ] Failed

Remarks:

D.4 Temperature effects on MDLO (CM) calculation

Ref.: 5.5.1.3; A.4.1.14; C.2.4.

Application N°: 11200209
Pattern designation: SLP331D
Evaluator: CB

Conversion factor, f: 8.338789

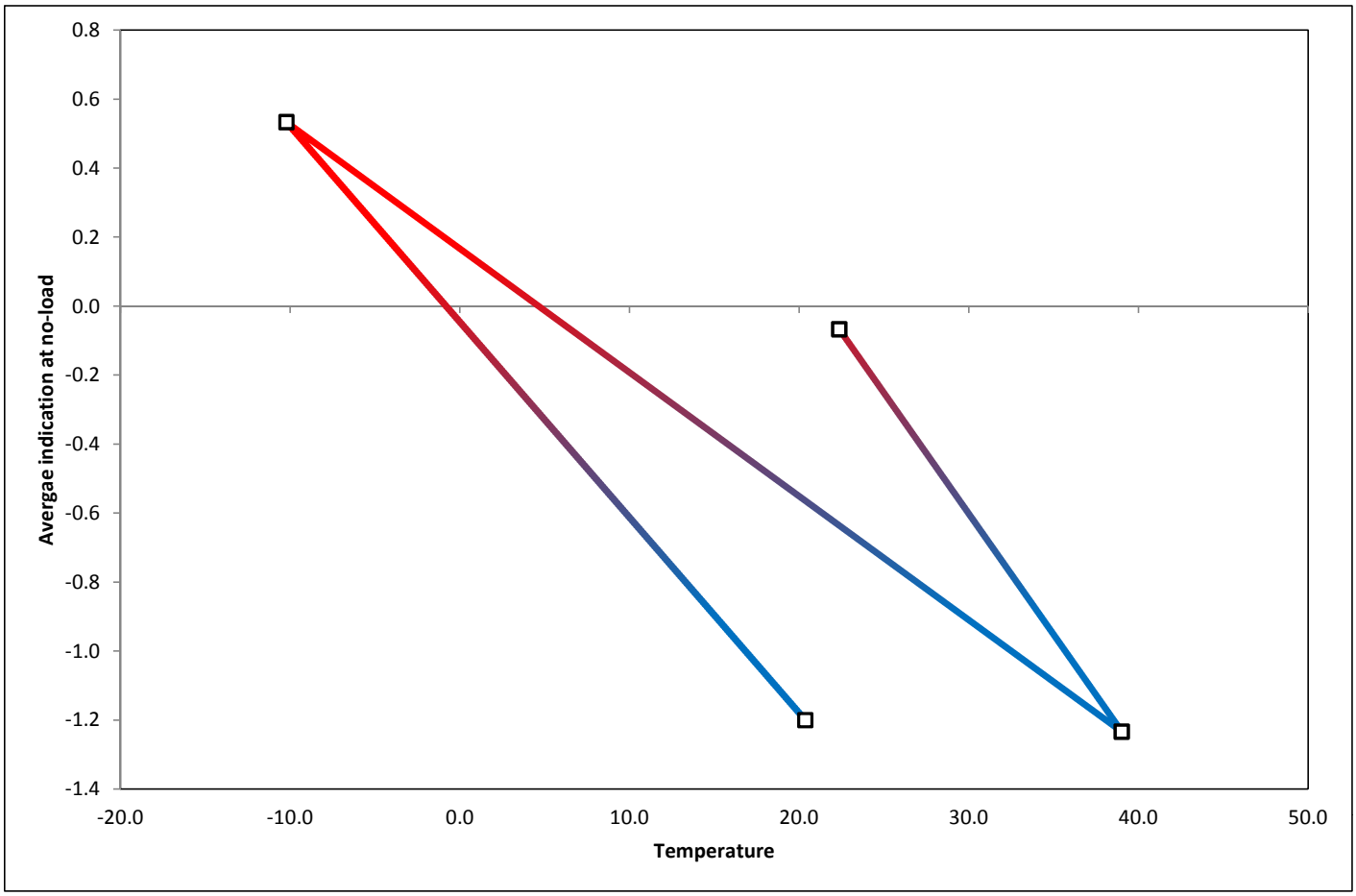
Temperature °C	Date	(Average) indication cts	Change (C_M) (v / 5°C)	Change (v_{min} / 5°C)	mpc (v_{min} / 5°C)
22.4	2011-08-08	-0.1			
39.0	2011-08-09	-1.2	-0.042	-0.350	0.800
-10.2	2011-08-10	0.5	-0.022	-0.179	0.800
20.4	2011-08-11	-1.2	-0.034	-0.283	0.800

Notes:
1 MDLO: minimum dead load output.
2 Indication: the average initial minimum test load indication obtained from Table D.1.
3 The maximum permissible change (mpc) allowed is: (v_{min} / 5 °C) for classes B, C, and D; (v_{min} / 2 °C) for class A.
4 Change, C_M (v): the difference between the observed indications, and the indications at the prior temperature, divided by the conversion factor, f.

[X] Passed [ ] Failed

Remarks:

D.4 Temperature effects on MDLO (CM) calculation (diagram)



D.5 Creep (CC) and DR (CDR)

Ref.: 5.3.1, 5.3.2; A.4.2, A.4.3.

Application N°:	11200209
Pattern designation:	SLP331D
Evaluator:	CB
Date (Creep)	2011-08-08
Date (MDLOR)	2011-08-08

	Creep		MDLOR		
	At start	At end	At start	At end	
Temp LC:	22.5	22.5	22.5	22.6	°C
Bar.pres:	1001.5	1002.0	1002.0	1002.4	hPa
Humidity:	48.4	48.4	48.4	48.3	%RH
Temp IND:	20.8	20.4	20.4	20.3	°C

Conversion factor, f: 8.338789

Test load kg	Preloading (Creep): Indication cts	Preloading (Creep): Time	Preloading (MDLOR): Indication cts	Preloading (MDLOR): Time
0				
50				
0				
50				
0				
50				
0				

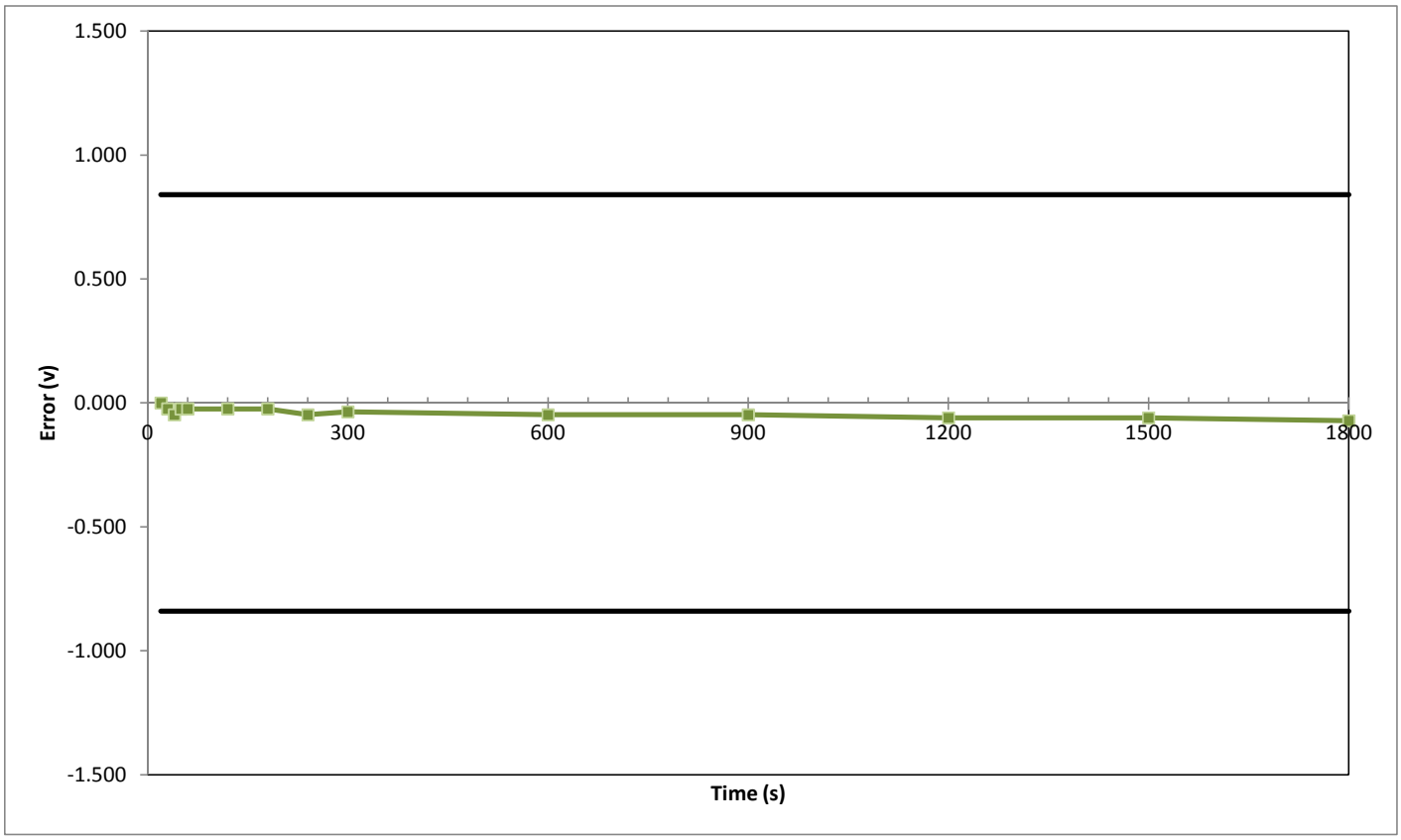
Test load kg	Indication cts	Time	Time after start	Ref	Barometric Pressure (hPa)	Change (v)	mpc (v)
0	-938.3	09:53:42			1001.5		
50	50035.5	09:54:02	10		1001.5		
50	50035.4	09:54:12	20	**	1001.5	0.000	0.840
50	50035.2	09:54:22	30		1001.5	-0.024	0.840
50	50035.0	09:54:32	40		1001.6	-0.048	0.840
50	50035.2	09:54:42	50		1001.6	-0.024	0.840
50	50035.2	09:54:52	60		1001.6	-0.024	0.840
50	50035.2	09:55:52	120		1001.6	-0.024	0.840
50	50035.2	09:56:52	180		1001.6	-0.024	0.840
50	50035.0	09:57:52	240		1001.6	-0.048	0.840
50	50035.1	09:58:52	300		1001.7	-0.036	0.840
50	50035.0	10:03:52	600		1001.7	-0.048	0.840
50	50035.0	10:08:52	900		1001.8	-0.048	0.840
50	50034.9	10:13:52	1200		1001.9	-0.060	0.840
50	50034.9	10:18:52	1500		1001.9	-0.060	0.840
50	50034.8	10:23:52	1800		1002.0	-0.072	0.840
0	-938.0	10:24:12	10		1002.0		
0	-937.9	10:24:22	20	***	1002.0	0.048	0.500
0	-937.9	10:24:32	30		1002.0	0.048	0.500
0	-938.0	10:24:42	40		1002.0	0.036	0.500
0	-938.0	10:24:52	50		1002.1	0.036	0.500
0	-938.0	10:25:02	60		1002.1	0.036	0.500
					30 - 20 minute creep difference:	-0.012	0.180

Notes:
1 Change (v) for creep: the observed indication minus the initial "load" indication (**) divided by the conversion factor, f.
2 Determine the difference between the reading obtained at 20 minutes and the reading obtained at 30 minutes (see 5.3.1).
3 Change (v) for DR: the initial indication (***) minus the initial "no load" indication (*) divided by the conversion factor, f.
4 Absolute (not relative) time shall be recorded.

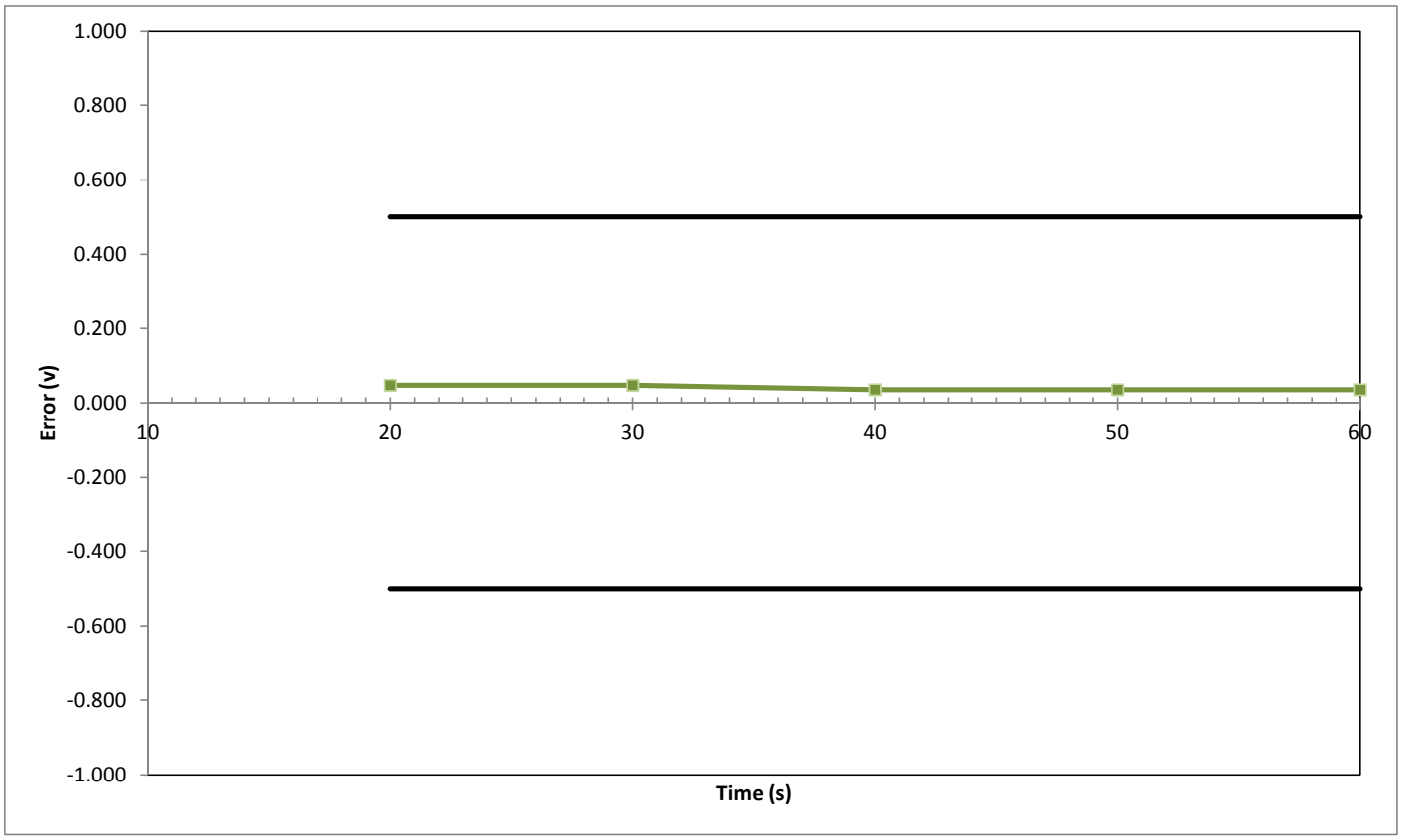
[X] Passed [ ] Failed

Remarks:

D.5 Creep (CC) (diagram)



D.5 DR (CDR) (diagram)



D.5 Creep (CC) and DR (CDR)

Ref.: 5.3.1, 5.3.2; A.4.2, A.4.3.

Application N°:	11200209
Pattern designation:	SLP331D
Evaluator:	CB
Date (Creep)	2011-08-09
Date (MDLOR)	2011-08-09

	Creep		MDLOR		
	At start	At end	At start	At end	
Temp LC:	39.0	39.0	39.0	39.0	°C
Bar.pres:	1015.2	1015.7	1015.7	1016.2	hPa
Humidity:	20.4	20.3	20.3	20.1	%RH
Temp IND:	20.7	20.5	20.5	20.3	°C

Conversion factor, f: 8.338789

Test load kg	Preloading (Creep): Indication cts	Preloading (Creep): Time	Preloading (MDLOR): Indication cts	Preloading (MDLOR): Time
0				
50				
0				
50				
0				
50				
0				

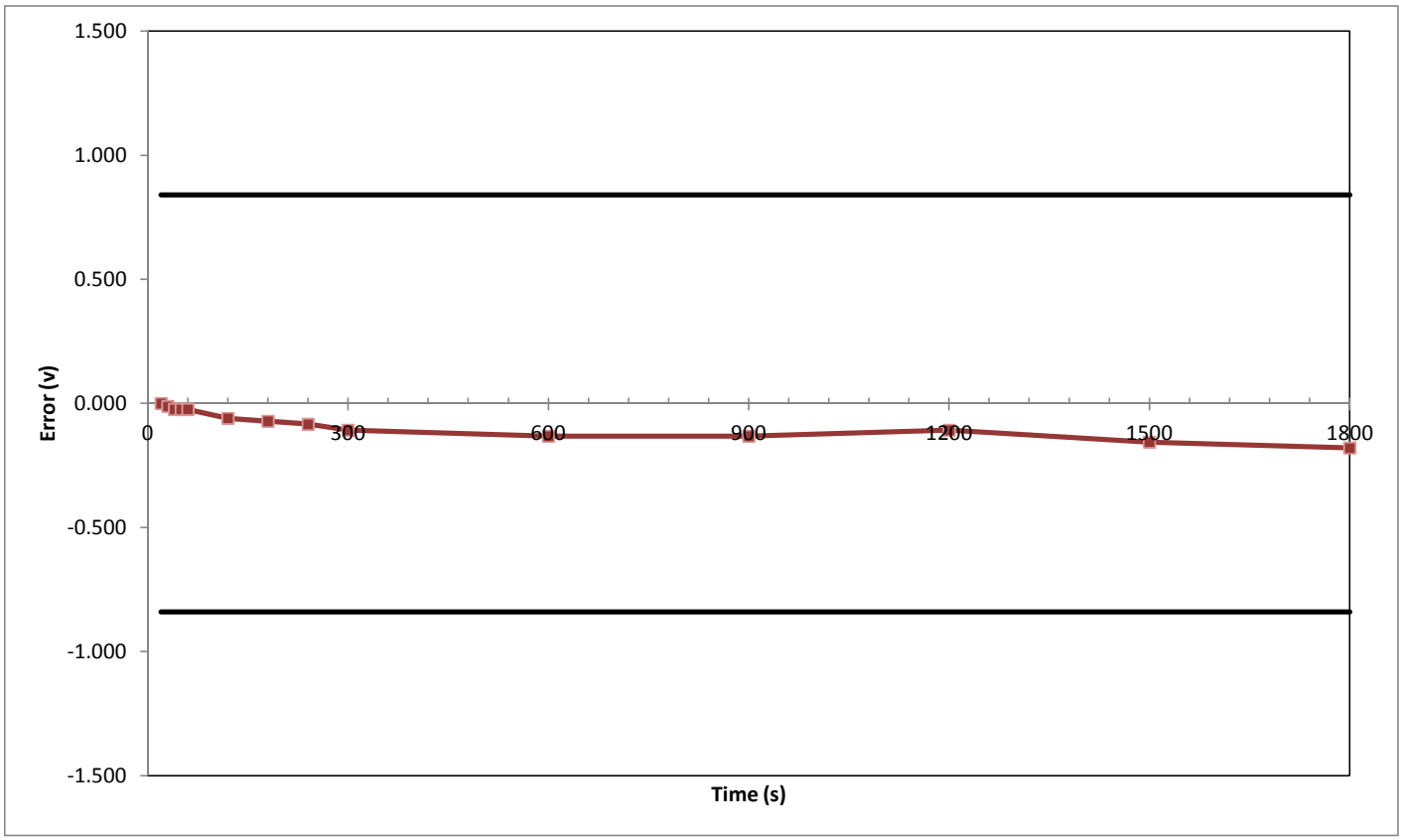
Test load kg	Indication cts	Time	Time after start	Ref	Barometric Pressure (hPa)	Change (v)	mpc (v)
0	-939.3	09:08:09			1015.2		
50	26906.9	09:08:29	10		1015.2		
50	50036.0	09:08:39	20	**	1015.2	0.000	0.840
50	50035.9	09:08:49	30		1015.2	-0.012	0.840
50	50035.8	09:08:59	40		1015.3	-0.024	0.840
50	50035.8	09:09:09	50		1015.3	-0.024	0.840
50	50035.8	09:09:19	60		1015.3	-0.024	0.840
50	50035.5	09:10:19	120		1015.3	-0.060	0.840
50	50035.4	09:11:19	180		1015.3	-0.072	0.840
50	50035.3	09:12:19	240		1015.3	-0.084	0.840
50	50035.1	09:13:19	300		1015.4	-0.108	0.840
50	50034.9	09:18:19	600		1015.4	-0.132	0.840
50	50034.9	09:23:19	900		1015.5	-0.132	0.840
50	50035.1	09:28:19	1200		1015.6	-0.108	0.840
50	50034.7	09:33:19	1500		1015.7	-0.156	0.840
50	50034.5	09:38:19	1800		1015.7	-0.180	0.840
0	-938.6	09:38:39	10		1015.7		
0	-939.6	09:38:49	20	***	1015.8	-0.036	0.500
0	-939.6	09:38:59	30		1015.8	-0.036	0.500
0	-939.7	09:39:09	40		1015.8	-0.048	0.500
0	-939.7	09:39:19	50		1015.8	-0.048	0.500
0	-939.7	09:39:29	60		1015.8	-0.048	0.500
					30 - 20 minute creep difference:	-0.072	0.180

Notes:
1 Change (v) for creep: the observed indication minus the initial "load" indication (**) divided by the conversion factor, f.
2 Determine the difference between the reading obtained at 20 minutes and the reading obtained at 30 minutes (see 5.3.1).
3 Change (v) for DR: the initial indication (***) minus the initial "no load" indication (*) divided by the conversion factor, f.
4 Absolute (not relative) time shall be recorded.

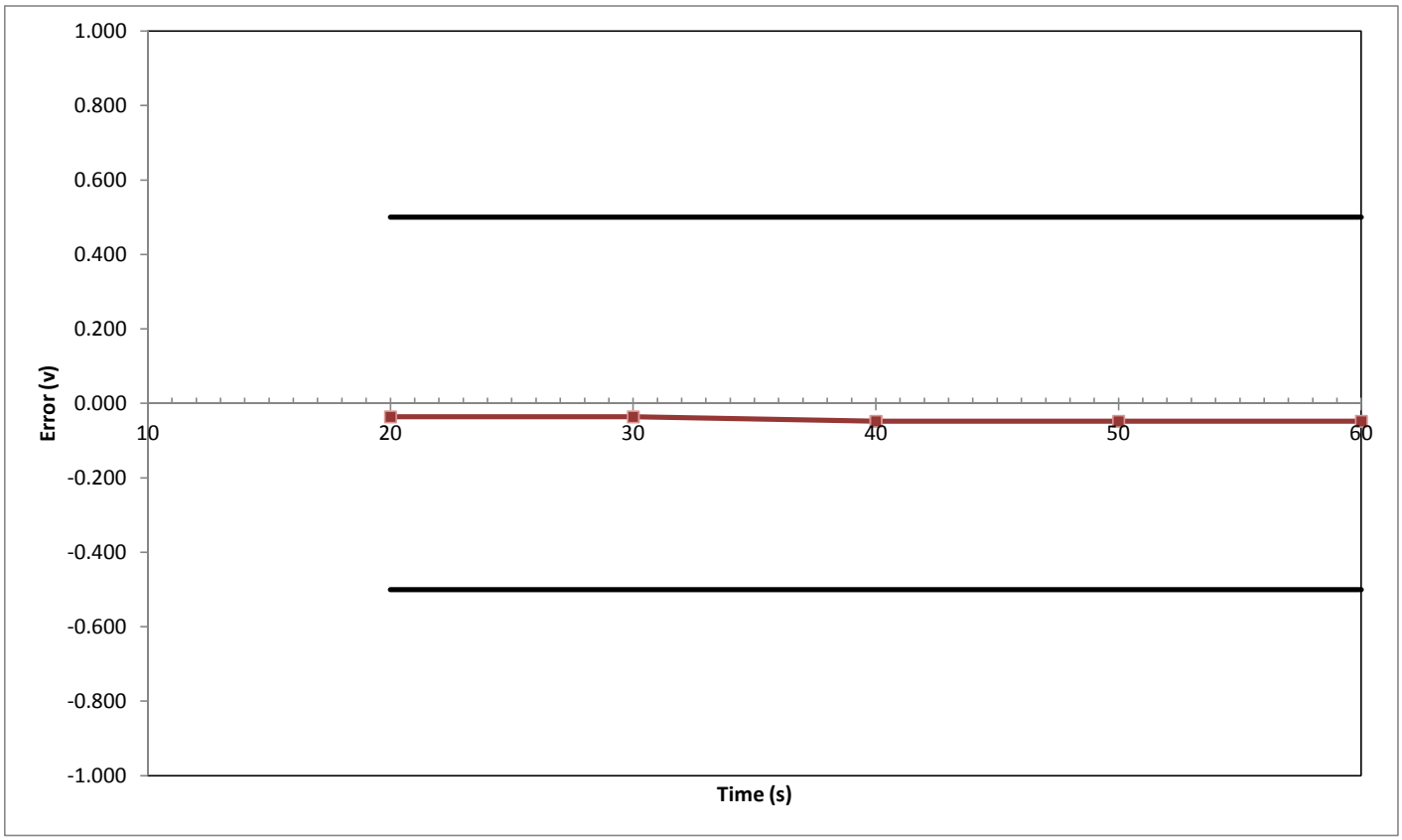
[X] Passed [ ] Failed

Remarks:

D.5 Creep (CC) (diagram)



D.5 DR (CDR) (diagram)



D.5 Creep (CC) and DR (CDR)

Ref.: 5.3.1, 5.3.2; A.4.2, A.4.3.

Application N°:	11200209
Pattern designation:	SLP331D
Evaluator:	CB
Date (Creep)	2011-08-10
Date (MDLOR)	2011-08-10

	Creep		MDLOR		
	At start	At end	At start	At end	
Temp LC:	-10.2	-10.1	-10.1	-10.0	°C
Bar.pres:	1024.3	1024.2	1024.2	1023.5	hPa
Humidity:	--	--	--	--	%RH
Temp IND:	20.0	19.9	19.9	19.9	°C

Conversion factor, f: 8.338789

Test load kg	Preloading (Creep): Indication cts	Preloading (Creep): Time	Preloading (MDLOR): Indication cts	Preloading (MDLOR): Time
0				
50				
0				
50				
0				
50				
0				

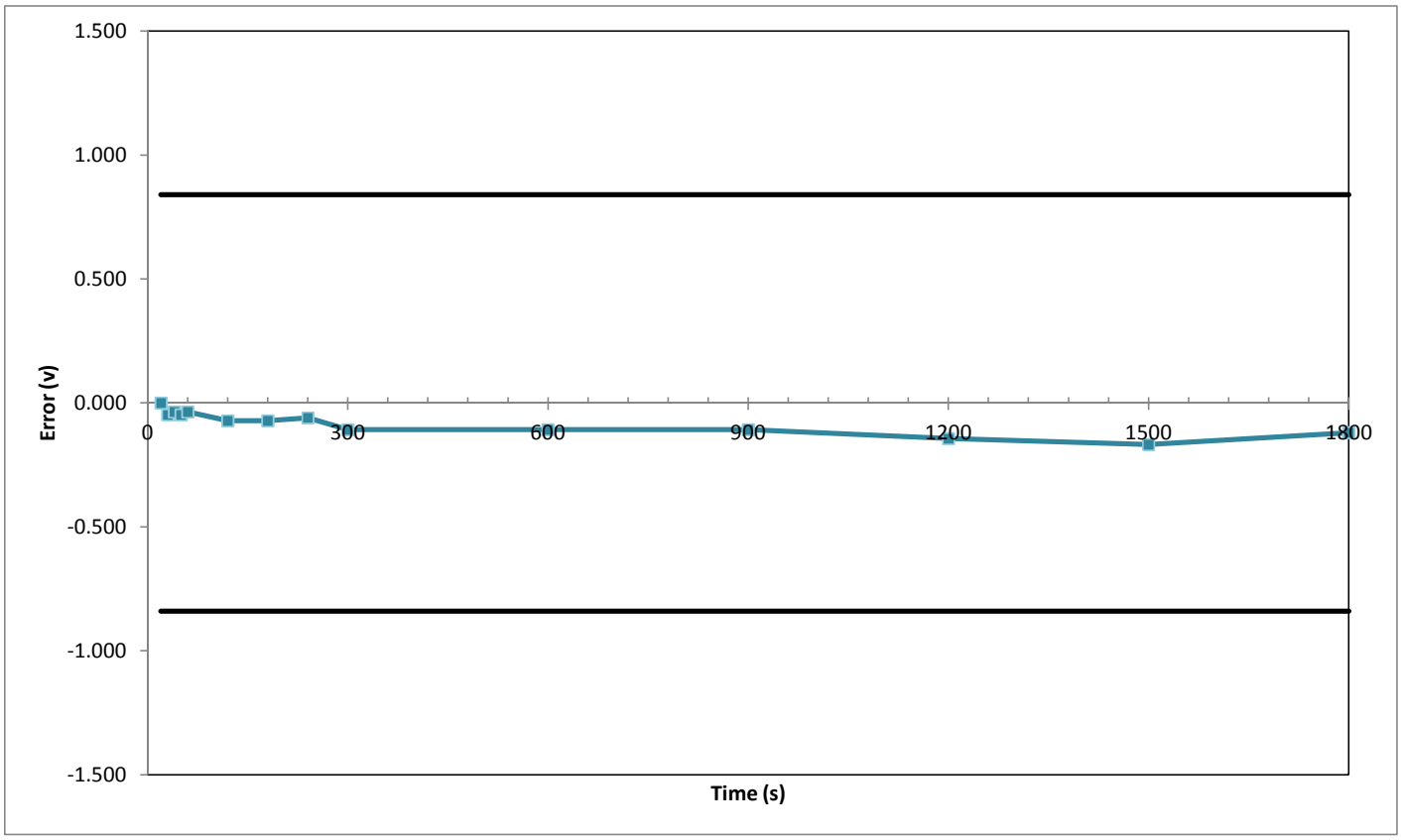
Test load kg	Indication cts	Time	Time after start	Ref	Barometric Pressure (hPa)	Change (v)	mpc (v)
0	-938.5	10:05:46			1024.3		
50	50036.0	10:06:06	10		1024.3		
50	50036.5	10:06:16	20	**	1024.3	0.000	0.840
50	50036.1	10:06:26	30		1024.3	-0.048	0.840
50	50036.2	10:06:36	40		1024.3	-0.036	0.840
50	50036.1	10:06:46	50		1024.3	-0.048	0.840
50	50036.2	10:06:56	60		1024.3	-0.036	0.840
50	50035.9	10:07:56	120		1024.3	-0.072	0.840
50	50035.9	10:08:56	180		1024.2	-0.072	0.840
50	50036.0	10:09:56	240		1024.2	-0.060	0.840
50	50035.6	10:10:56	300		1024.2	-0.108	0.840
50	50035.6	10:15:56	600		1024.2	-0.108	0.840
50	50035.6	10:20:56	900		1024.2	-0.108	0.840
50	50035.3	10:25:56	1200		1024.2	-0.144	0.840
50	50035.1	10:30:56	1500		1024.2	-0.168	0.840
50	50035.5	10:35:56	1800		1024.2	-0.120	0.840
0	-939.3	10:36:16	10		1024.2		
0	-939.2	10:36:26	20	***	1024.2	-0.084	0.500
0	-939.1	10:36:36	30		1024.2	-0.072	0.500
0	-939.1	10:36:46	40		1024.3	-0.072	0.500
0	-939.1	10:36:56	50		1024.3	-0.072	0.500
0	-939.0	10:37:06	60		1024.3	-0.060	0.500
					30 - 20 minute creep difference:	0.024	0.180

Notes:
1 Change (v) for creep: the observed indication minus the initial "load" indication (**) divided by the conversion factor, f.
2 Determine the difference between the reading obtained at 20 minutes and the reading obtained at 30 minutes (see 5.3.1).
3 Change (v) for DR: the initial indication (***) minus the initial "no load" indication (*) divided by the conversion factor, f.
4 Absolute (not relative) time shall be recorded.

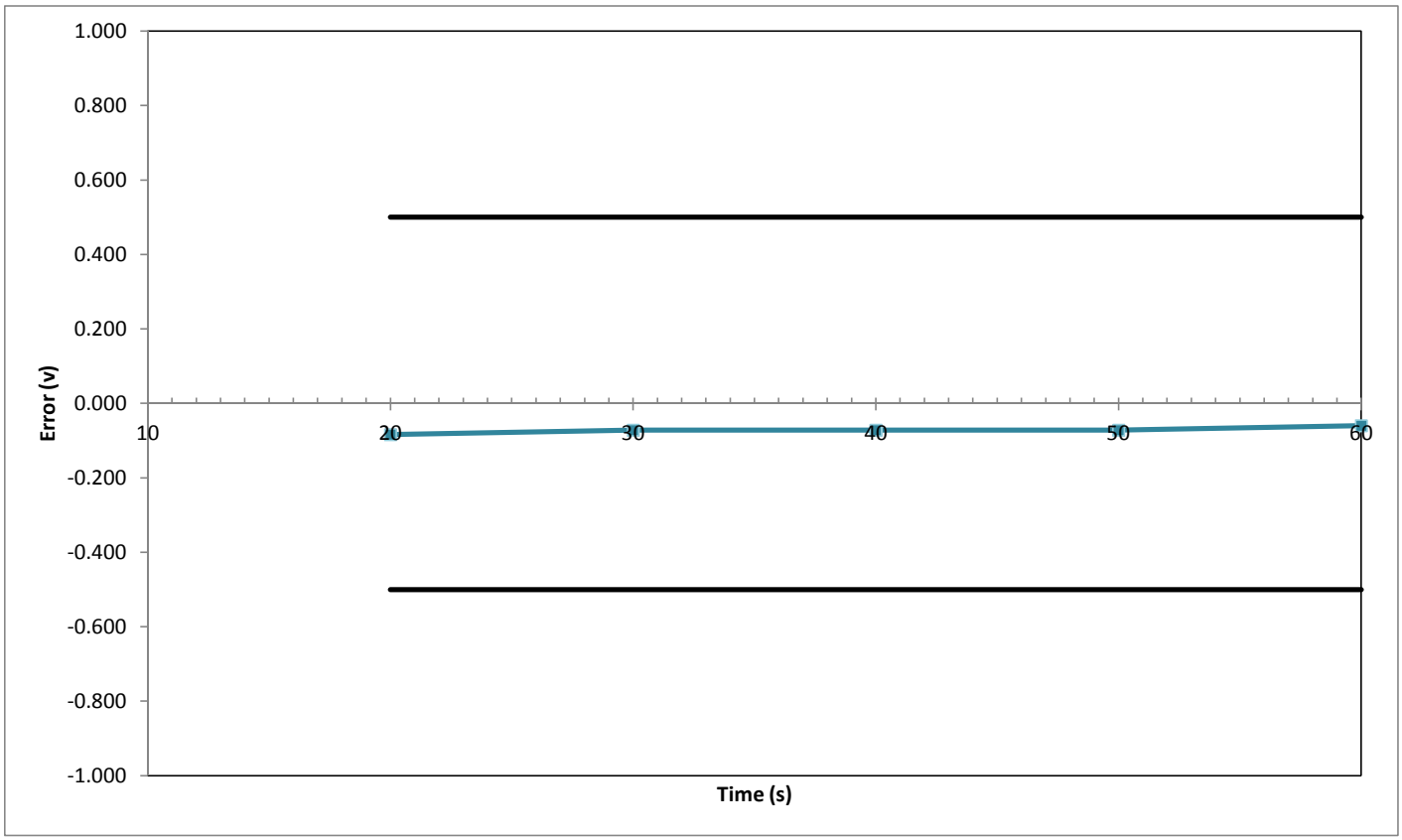
[X] Passed [ ] Failed

Remarks:

D.5 Creep (CC) (diagram)



D.5 DR (CDR) (diagram)



D.10 Summary of results - Load cells equipped with electronics

Ref.: Clause 6.

Tests	page	Passed	Failed	N.A.
D.10 Summary of results - Load cells equipped with electronics	25			X
D.16.1 Electromagnetic susceptibility	26			X

D.16.1 Electromagnetic susceptibility

Ref.: 6.3.5; A.4.7.7.

Application N°:	11200209
Pattern designation:	SLP331D
Evaluator:	AL
Date:	2011-08-03

	At start	At end	
Temp LC:	21.2	21.0	°C
Bar.pres:	1014.0	1013.8	hPa
Humidity:	54.7	55.0	%RH
Temp IND:	21.2	21.0	°C

Conversion factor, f: 8.338789

Rate of sweep:	3	s
Load:	0.010	kg
Material load:	Steel	

Disturbance				Result				
Antenna	Frequency range [MHz]	Polarization	Facing EUT	Indication I cts	Time	Difference (v)	Significant fault > v_{min} No	Yes
without disturbance				0.010	09:00:00			
1	26 - 80	Vertical	Front	0.010		0.000	X	
			Right	0.010		0.000	X	
			Left	0.010		0.000	X	
			Rear	0.010		0.000	X	
		Horizontal	Front	0.010		0.000	X	
			Right	0.010		0.000	X	
			Left	0.010		0.000	X	
			Rear	0.010	10:50:00	0.000	X	
	80 - 1000	Vertical	Front	0.010	10:50:00	0.000	X	
			Right	0.010		0.000	X	
			Left	0.010		0.000	X	
			Rear	0.010		0.000	X	
		Horizontal	Front	0.010		0.000	X	
			Right	0.010		0.000	X	
			Left	0.010		0.000	X	
			Rear	0.010	11:55:00	0.000	X	

Note: If EUT fails, the frequency at which this occurs shall be recorded.

Frequency range:	26 - 2000	MHz
Field strength:	10	V/m
Modulation:	80 % AM, 1 kHz sine wave	

Notes: 1 If the load cell fails, the test point at which this occurs shall be recorded.

[X] Passed [ ] Failed

Remarks:

D.16.2 Electromagnetic susceptibility (continued) - description of the test set-up

Ref.: D.16.1.

Application N°: 11200209
Pattern designation: SLP331D

Describe the set-up of the test and equipment, e.g. by photos or sketches:

Annex A. NTEP test results

Application N°: 11200209
Pattern designation: SLP331D

Type Evaluation Summary Table:

	Test temperature	Critical result	Tolerance	Result / Tolerance	Page number(s)
Load Cell Error	-10.2 °C	0.991	1.750	0.57	33
Repeatability Error	39.0 °C	0.276	0.700	0.39	35
Temperature effect on Min. Dead Load Output	22.4 °C to 39.0 °C	0.053	0.800	0.07	36
Maximum Creep	-10.2 °C	-0.216	1.050	-0.21	38, 42, 46
20 - 30 minute Creep	-10.2 °C	0.024	0.180	0.13	38, 42, 46
Min. Load Output Return	-10.1 °C	-0.084	0.700	-0.12	39, 43, 47
Effect of Barometric Pressure	-	-	-	-	-

Notes:
The critical result is the test result that gives the greatest ratio of result-to-tolerance. There may be other errors of greater absolute value but that give smaller ratios of result-to-tolerance.

The critical ratio is the absolute value of the critical result divided by the tolerance. A ratio higher than 1.00 indicates that the load cell fails the test.

D.1 Load test data (EL)

Application N°:	11200209
Pattern designation:	SLP331D
Evaluator:	CB
Date:	2011-08-08

	At start	At end	
Temp LC:	22.4	22.4	°C
Bar.pres:	1000.8	1001.0	hPa
Humidity:	48.2	48.4	%RH
Temp IND:	20.7	20.6	°C

Test load kg	Preloading: Indication cts	Time
0	-0.5	08:34:24
50	50029.8	08:34:54
0	-0.4	08:35:24
50	50030.1	08:35:54
0	-0.4	08:36:24
50	50029.9	08:36:54
0	-0.4	08:37:24

Test load kg	Run N° 1 Indication cts	Time	Run N° 2 Indication cts	Time	Run N° 3 Indication cts	Time	Run N° 4 Indication cts	Time	Run N° 5 Indication cts	Time	Average indication cts	E_R v
0	0.0	08:42:24	-0.2	08:44:34	0.0	08:46:44					* -0.1	0.024
5	5005.5	08:42:34	5006.4	08:44:44	5005.7	08:46:54					5005.9	0.108
10	10008.2	08:42:44	10008.2	08:44:54	10008.6	08:47:04					10008.3	0.048
20	20014.5	08:42:54	20014.8	08:45:04	20014.8	08:47:14					20014.7	0.036
30	30020.2	08:43:04	30020.7	08:45:14	30021.0	08:47:24					30020.6	0.096
40	40025.5	08:43:14	40025.9	08:45:24	40025.9	08:47:34					40025.8	0.048
50	50030.1	08:43:24	50030.8	08:45:34	50031.0	08:47:44					50030.6	0.108
40	40025.7	08:43:34	40026.1	08:45:44	40026.3	08:47:54					40026.0	0.072
30	30021.5	08:43:44	30022.2	08:45:54	30022.3	08:48:04					30022.0	0.096
20	20015.3	08:43:54	20015.6	08:46:04	20015.8	08:48:14					20015.6	0.060
10	10009.1	08:44:04	10009.2	08:46:14	10009.2	08:48:24					10009.2	0.012
5	5004.4	08:44:14	5005.8	08:46:24	5004.2	08:48:34					5004.8	0.192
0	-0.1	08:44:24	-0.1	08:46:34	-0.1	08:48:44					-0.1	0.000

Notes: * = Average initial minimum test load indication.

Remarks:

D.1 Load test data (EL)

Application N°:	11200209
Pattern designation:	SLP331D
Evaluator:	CB
Date:	2011-08-09

	At start	At end	
Temp LC:	39.0	39.0	°C
Bar.pres:	1014.1	1014.5	hPa
Humidity:	20.4	20.5	%RH
Temp IND:	20.6	20.6	°C

Test load kg	Preloading: Indication cts	Time
0	-0.3	07:48:39
50	50030.7	07:49:09
0	-1.0	07:49:39
50	50031.8	07:50:09
0	-1.2	07:50:39
50	50031.8	07:51:09
0	-1.2	07:51:39

Test load kg	Run N° 1 Indication cts	Time	Run N° 2 Indication cts	Time	Run N° 3 Indication cts	Time	Run N° 4 Indication cts	Time	Run N° 5 Indication cts	Time	Average indication cts	E_R v
0	-1.1	07:56:39	-1.3	07:58:49	-1.3	08:00:59					* -1.2	0.024
5	5003.8	07:56:49	5004.0	07:58:59	5003.5	08:01:09					5003.8	0.060
10	10007.3	07:56:59	10006.0	07:59:09	10007.1	08:01:19					10006.8	0.156
20	20013.9	07:57:09	20011.9	07:59:19	20013.5	08:01:29					20013.1	0.240
30	30020.2	07:57:19	30017.6	07:59:29	30020.0	08:01:39					30019.3	0.312
40	40026.0	07:57:29	40023.6	07:59:39	40025.8	08:01:49					40025.1	0.288
50	50031.6	07:57:39	50029.4	07:59:49	50031.6	08:01:59					50030.9	0.264
40	40025.9	07:57:49	40023.4	07:59:59	40025.7	08:02:09					40025.0	0.300
30	30021.0	07:57:59	30019.0	08:00:09	30020.4	08:02:19					30020.1	0.240
20	20014.4	07:58:09	20012.8	08:00:19	20014.2	08:02:29					20013.8	0.192
10	10008.0	07:58:19	10006.5	08:00:29	10008.8	08:02:39					10007.8	0.276
5	5002.5	07:58:29	5003.7	08:00:39	5003.1	08:02:49					5003.1	0.144
0	-1.3	07:58:39	-1.5	08:00:49	-1.5	08:02:59					-1.4	0.024

Notes: * = Average initial minimum test load indication.

Remarks:

D.1 Load test data (EL)

Application N°:	11200209
Pattern designation:	SLP331D
Evaluator:	CB
Date:	2011-08-10

	At start	At end	
Temp LC:	-10.2	-10.4	°C
Bar.pres:	1025.1	1025.1	hPa
Humidity:	--	--	%RH
Temp IND:	20.5	20.4	°C

Test load kg	Preloading: Indication cts	Time
0	1.0	08:45:22
50	50027.4	08:45:52
0	0.5	08:46:22
50	50026.5	08:46:52
0	0.2	08:47:22
50	50025.4	08:47:52
0	0.4	08:48:22

Test load kg	Run N° 1 Indication cts	Time	Run N° 2 Indication cts	Time	Run N° 3 Indication cts	Time	Run N° 4 Indication cts	Time	Run N° 5 Indication cts	Time	Average indication cts	E_R v
0	0.5	08:53:22	0.6	08:55:32	0.5	08:57:42					* 0.5	0.012
5	5005.4	08:53:32	5005.4	08:55:42	5005.6	08:57:52					5005.5	0.024
10	10007.8	08:53:42	10006.3	08:55:52	10006.6	08:58:02					10006.9	0.180
20	20012.9	08:53:52	20011.6	08:56:02	20011.8	08:58:12					20012.1	0.156
30	30018.3	08:54:02	30016.2	08:56:12	30016.6	08:58:22					30017.0	0.252
40	40022.5	08:54:12	40020.3	08:56:22	40021.0	08:58:32					40021.3	0.264
50	50025.7	08:54:22	50024.4	08:56:32	50024.9	08:58:42					50025.0	0.156
40	40022.0	08:54:32	40020.7	08:56:42	40020.7	08:58:52					40021.1	0.156
30	30018.8	08:54:42	30017.4	08:56:52	30017.4	08:59:02					30017.9	0.168
20	20013.1	08:54:52	20012.4	08:57:02	20012.2	08:59:12					20012.6	0.108
10	10008.0	08:55:02	10006.9	08:57:12	10006.9	08:59:22					10007.3	0.132
5	5003.8	08:55:12	5004.2	08:57:22	5004.7	08:59:32					5004.2	0.108
0	0.3	08:55:22	0.4	08:57:32	0.9	08:59:42					0.5	0.072

Notes: * = Average initial minimum test load indication.

Remarks:

D.1 Load test data (EL)

Application N°:	11200209
Pattern designation:	SLP331D
Evaluator:	CB
Date:	2011-08-11

	At start	At end	
Temp LC:	20.4	20.5	°C
Bar.pres:	1012.7	1012.7	hPa
Humidity:	54.4	54.4	%RH
Temp IND:	20.7	20.5	°C

Test load kg	Preloading: Indication cts	Time
0	-0.3	08:42:11
50	50027.5	08:42:41
0	-1.3	08:43:11
50	50025.8	08:43:41
0	-1.3	08:44:11
50	50025.5	08:44:41
0	-1.4	08:45:11

Test load kg	Run N° 1 Indication cts	Time	Run N° 2 Indication cts	Time	Run N° 3 Indication cts	Time	Run N° 4 Indication cts	Time	Run N° 5 Indication cts	Time	Average indication cts	E_R v
0	-1.1	08:50:11	-1.3	08:52:21	-1.2	08:54:31					* -1.2	0.024
5	5003.8	08:50:21	5004.0	08:52:31	5003.4	08:54:41					5003.7	0.072
10	10006.7	08:50:31	10006.1	08:52:41	10006.1	08:54:51					10006.3	0.072
20	20012.2	08:50:41	20011.8	08:52:51	20011.4	08:55:01					20011.8	0.096
30	30017.8	08:50:51	30016.7	08:53:01	30016.4	08:55:11					30017.0	0.168
40	40022.4	08:51:01	40021.7	08:53:11	40021.4	08:55:21					40021.8	0.120
50	50026.8	08:51:11	50026.1	08:53:21	50025.8	08:55:31					50026.2	0.120
40	40022.0	08:51:21	40021.4	08:53:31	40021.2	08:55:41					40021.5	0.096
30	30018.3	08:51:31	30017.8	08:53:41	30017.7	08:55:51					30017.9	0.072
20	20012.8	08:51:41	20012.6	08:53:51	20012.7	08:56:01					20012.7	0.024
10	10007.0	08:51:51	10006.8	08:54:01	10006.4	08:56:11					10006.7	0.072
5	5004.6	08:52:01	5004.0	08:54:11	5003.2	08:56:21					5003.9	0.168
0	-1.4	08:52:11	-1.4	08:54:21	-1.9	08:56:31					-1.6	0.060

Notes: * = Average initial minimum test load indication.

Remarks:

D.2 Load cell errors (EL) calculation

Application N°:	11200209	75% test load:	37.5 kg
Pattern designation:	SLP331D	Reference indication at 75% test load:	37524.5 cts
Evaluator:	CB	Conversion factor, f:	8.338789

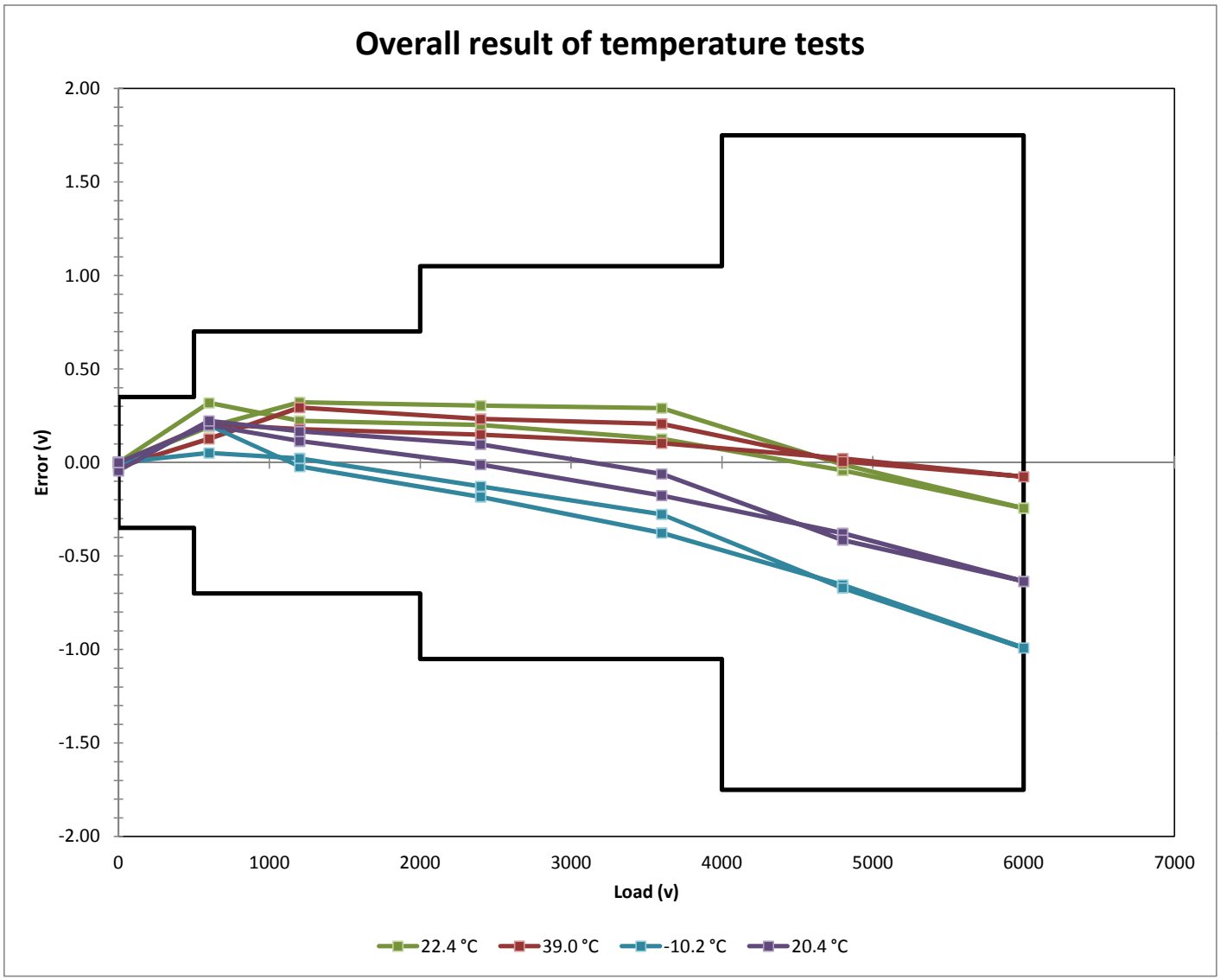
Test load	Reference indication	22.4 °C		39.0 °C		-10.2 °C		20.4 °C		mpe
		Average indication	Error	Average indication	Error	Average indication	Error	Average indication	Error	
kg	cts	cts	(v)	cts	(v)	cts	(v)	cts	(v)	(v)
0	0.0	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	0.350
5	5003.3	5005.9	0.319	5005.0	0.207	5004.9	0.199	5004.9	0.199	0.700
10	10006.5	10008.4	0.222	10008.0	0.178	10006.4	-0.022	10007.5	0.114	0.700
20	20013.1	20014.8	0.201	20014.3	0.149	20011.6	-0.183	20013.0	-0.011	1.050
30	30019.6	30020.7	0.127	30020.5	0.103	30016.5	-0.377	30018.2	-0.177	1.050
40	40026.2	40025.8	-0.042	40026.4	0.022	40020.7	-0.654	40023.0	-0.378	1.750
50	50032.7	50030.7	-0.244	50032.1	-0.076	50024.5	-0.991	50027.4	-0.636	1.750
40	40026.2	40026.1	-0.010	40026.2	0.006	40020.6	-0.670	40022.7	-0.414	1.750
30	30019.6	30022.1	0.291	30021.4	0.207	30017.3	-0.277	30019.1	-0.061	1.050
20	20013.1	20015.6	0.305	20015.0	0.233	20012.0	-0.127	20013.9	0.097	1.050
10	10006.5	10009.2	0.322	10009.0	0.294	10006.7	0.022	10007.9	0.166	0.700
5	5003.3	5004.9	0.191	5004.3	0.127	5003.7	0.051	5005.1	0.223	0.700
0	0.0	0.0	-0.004	-0.2	-0.024	0.0	0.000	-0.4	-0.044	0.350

Notes:
1 Load/reference indications: if a 75 % load point was not obtained, a straight line interpolation between the adjacent higher and lower load point indications is used (see 5.2.2 and calculation procedures in C.2.2).
2 Error, E_L: the difference between the test indication and the reference indication divided by the conversion factor, f.
3 Test load values are values above minimum test load, D_{min}.

[X] Passed [ ] Failed

Remarks:

D.2 Load cell errors (EL) calculation (diagram)



D.3 Repeatability error (ER) calculation

Application N°: 11200209
Pattern designation: SLP331D
Evaluator: CB

Conversion factor, f: 8.338789

Test load	22.4 °C		39.0 °C		-10.2 °C		20.4 °C		mpe
	Repeatability Error	Error	Repeatability Error	Error	Repeatability Error	Error	Repeatability Error	Error	
kg	cts	v	cts	v	cts	v	cts	v	v
0	-0.1	0.024	-1.2	0.024	0.5	0.012	-1.2	0.024	0.350
5	5005.9	0.108	5003.8	0.060	5005.5	0.024	5003.7	0.072	0.700
10	10008.3	0.048	10006.8	0.156	10006.9	0.180	10006.3	0.072	0.700
20	20014.7	0.036	20013.1	0.240	20012.1	0.156	20011.8	0.096	1.050
30	30020.6	0.096	30019.3	0.312	30017.0	0.252	30017.0	0.168	1.050
40	40025.8	0.048	40025.1	0.288	40021.3	0.264	40021.8	0.120	1.750
50	50030.6	0.108	50030.9	0.264	50025.0	0.156	50026.2	0.120	1.750
40	40026.0	0.072	40025.0	0.300	40021.1	0.156	40021.5	0.096	1.750
30	30022.0	0.096	30020.1	0.240	30017.9	0.168	30017.9	0.072	1.050
20	20015.6	0.060	20013.8	0.192	20012.6	0.108	20012.7	0.024	1.050
10	10009.2	0.012	10007.8	0.276	10007.3	0.132	10006.7	0.072	0.700
5	5004.8	0.192	5003.1	0.144	5004.2	0.108	5003.9	0.168	0.700
0	-0.1	0.000	-1.4	0.024	0.5	0.072	-1.6	0.060	0.350

Notes: 1 Error, E_R: the repeatability error divided by the conversion factor f.

[X] Passed [ ] Failed

Remarks:

D.4 Temperature effects on MDLO (CM) calculation

Application N°: 11200209
Pattern designation: SLP331D
Evaluator: CB

Conversion factor, f: 8.338789

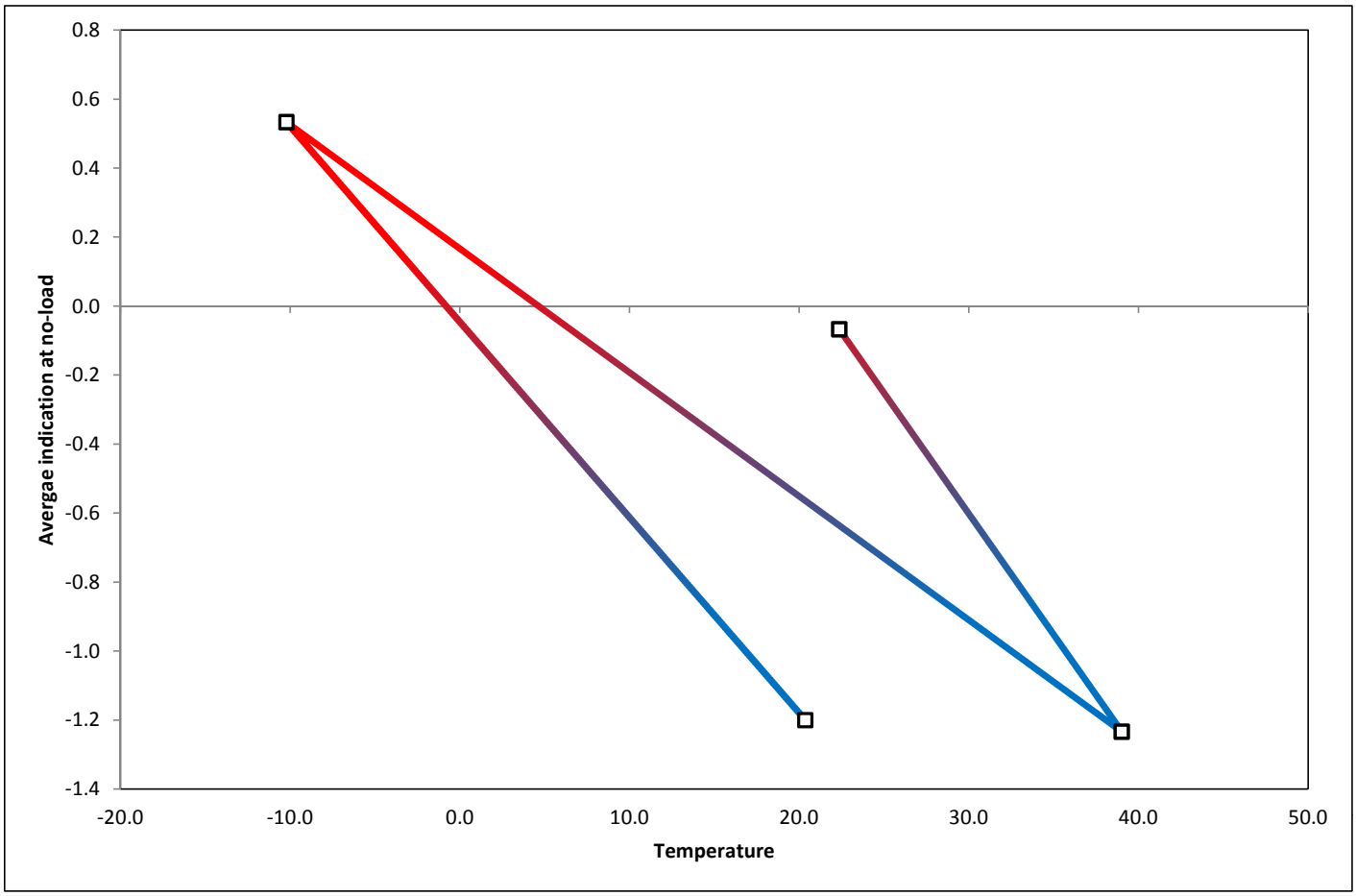
Temperature °C	Date	(Average) indication cts	Change (C_M) (v / 5°C)	Change (v_{min} / 5°C)	mpc (v_{min} / 5°C)
22.4	2011-08-08	-0.1			
39.0	2011-08-09	-1.2	-0.042	-0.053	0.800
-10.2	2011-08-10	0.5	-0.022	-0.027	0.800
20.4	2011-08-11	-1.2	-0.034	-0.042	0.800

Notes:
1 MDLO: minimum dead load output.
2 Indication: the average initial minimum test load indication obtained from Table D.1.
3 The maximum permissible change (mpc) allowed is: (v_{min} / 5 °C) for classes B, C, and D; (v_{min} / 2 °C) for class A.
4 Change, C_M (v): the difference between the observed indications, and the indications at the prior temperature, divided by the conversion factor, f.

[X] Passed [ ] Failed

Remarks:

D.4 Temperature effects on MDLO (CM) calculation (diagram)



D.5 Creep (CC) and DR (CDR)

Application N°:	11200209
Pattern designation:	SLP331D
Evaluator:	CB
Date (Creep)	2011-08-08

	Creep		
	At start	At end	
Temp LC:	22.5	22.5	°C
Bar.pres:	1001.5	1002.0	hPa
Humidity:	48.4	48.4	%RH
Temp IND:	20.8	20.4	°C

Conversion factor, f: 8.338789

Test load kg	Preloading (Creep): Indication cts	Preloading (Creep): Time	Preloading (MDLOR): Indication cts	Preloading (MDLOR): Time
0				
50				
0				
50				
0				
50				
0				

Test load kg	Indication cts	Time	Time after start	Ref	Barometric Pressure (hPa)	Change (v)	mpc (v)
0	-938.3	09:53:42			1001.5		
50	50035.5	09:54:02	10		1001.5		
50	50035.4	09:54:12	20	**	1001.5	0.000	1.050
50	50035.2	09:54:22	30		1001.5	-0.024	1.050
50	50035.0	09:54:32	40		1001.6	-0.048	1.050
50	50035.2	09:54:42	50		1001.6	-0.024	1.050
50	50035.2	09:54:52	60		1001.6	-0.024	1.050
50	50035.2	09:55:52	120		1001.6	-0.024	1.050
50	50035.2	09:56:52	180		1001.6	-0.024	1.050
50	50035.0	09:57:52	240		1001.6	-0.048	1.050
50	50035.1	09:58:52	300		1001.7	-0.036	1.050
50	50035.1	09:59:52	360		1001.7	-0.036	1.050
50	50034.9	10:00:52	420		1001.7	-0.060	1.050
50	50035.0	10:01:52	480		1001.7	-0.048	1.050
50	50035.0	10:02:52	540		1001.7	-0.048	1.050
50	50035.0	10:03:52	600		1001.7	-0.048	1.050
50	50034.9	10:04:52	660		1001.7	-0.060	1.050
50	50034.9	10:05:52	720		1001.7	-0.060	1.050
50	50034.9	10:06:52	780		1001.8	-0.060	1.050
50	50035.0	10:07:52	840		1001.8	-0.048	1.050
50	50035.0	10:08:52	900		1001.8	-0.048	1.050
50	50034.9	10:09:52	960		1001.8	-0.060	1.050
50	50034.9	10:10:52	1020		1001.8	-0.060	1.050
50	50035.0	10:11:52	1080		1001.8	-0.048	1.050
50	50035.1	10:12:52	1140		1001.8	-0.036	1.050
50	50034.9	10:13:52	1200		1001.9	-0.060	1.050
50	50034.9	10:14:52	1260		1001.9	-0.060	1.050
50	50035.1	10:15:52	1320		1001.9	-0.036	1.050
50	50034.9	10:16:52	1380		1001.9	-0.060	1.050
50	50035.0	10:17:52	1440		1001.9	-0.048	1.050
50	50034.9	10:18:52	1500		1001.9	-0.060	1.050
50	50034.9	10:19:52	1560		1001.9	-0.060	1.050
50	50035.1	10:20:52	1620		1001.9	-0.036	1.050
50	50034.7	10:21:52	1680		1001.9	-0.084	1.050
50	50034.8	10:22:52	1740		1002.0	-0.072	1.050
50	50034.8	10:23:52	1800		1002.0	-0.072	1.050
					30 - 20 minute creep difference:	-0.012	0.180 *

[X] Passed [ ] Failed

D.5 Creep (CC) and DR (CDR)

Application N°: 11200209
Pattern designation: SLP331D
Evaluator: CB
Date (MDLOR) 2011-08-08

	MDLOR At start	MDLOR At end	
Temp LC:	22.5	22.6	°C
Bar.pres:	1002.0	1002.4	hPa
Humidity:	48.4	48.3	%RH
Temp IND:	20.4	20.3	°C

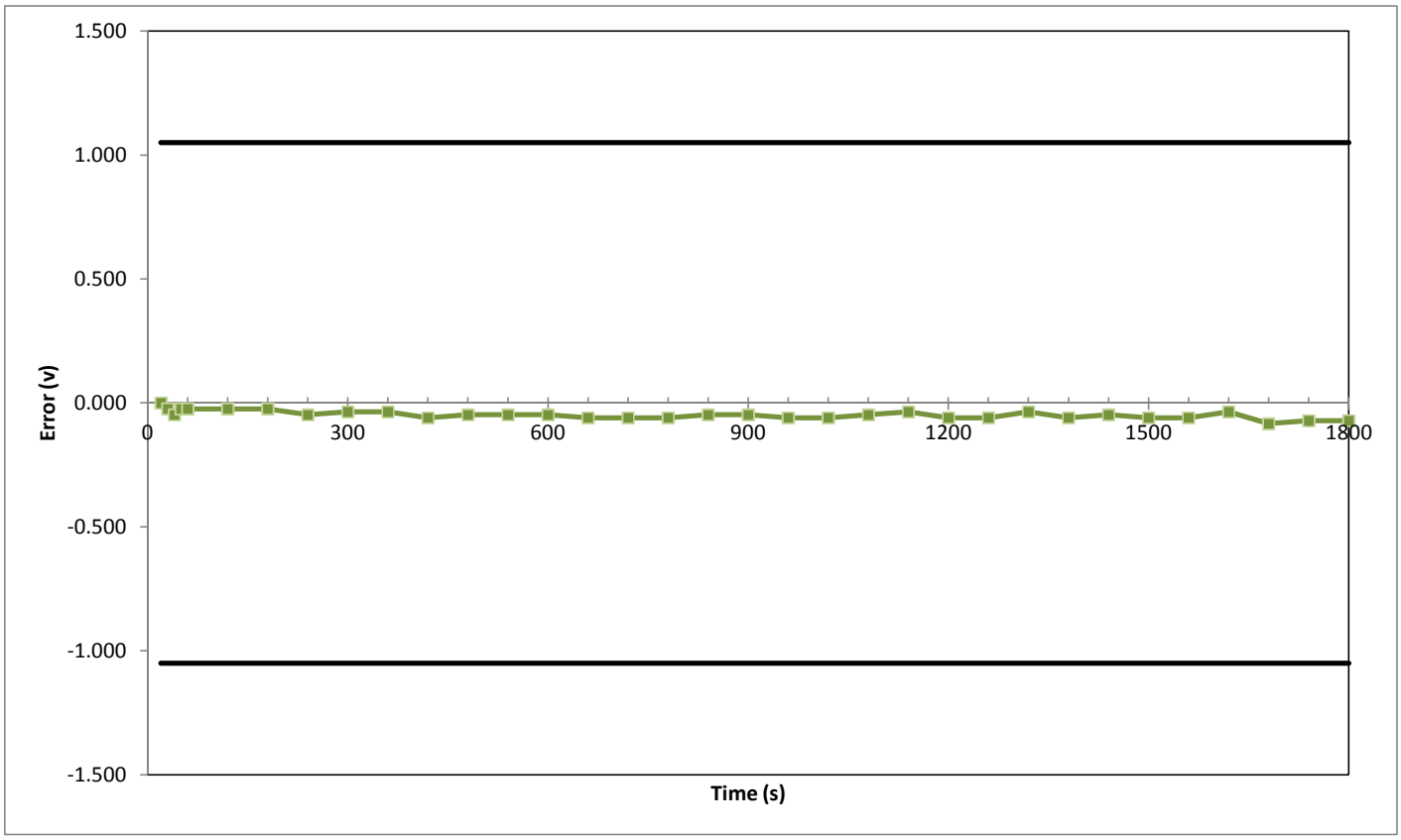
Conversion factor, f: 8.338789

Test load kg	Preloading (Creep): Indication cts	Preloading (Creep): Time	Preloading (MDLOR): Indication cts	Preloading (MDLOR): Time
0				
50				
0				
50				
0				
50				
0				

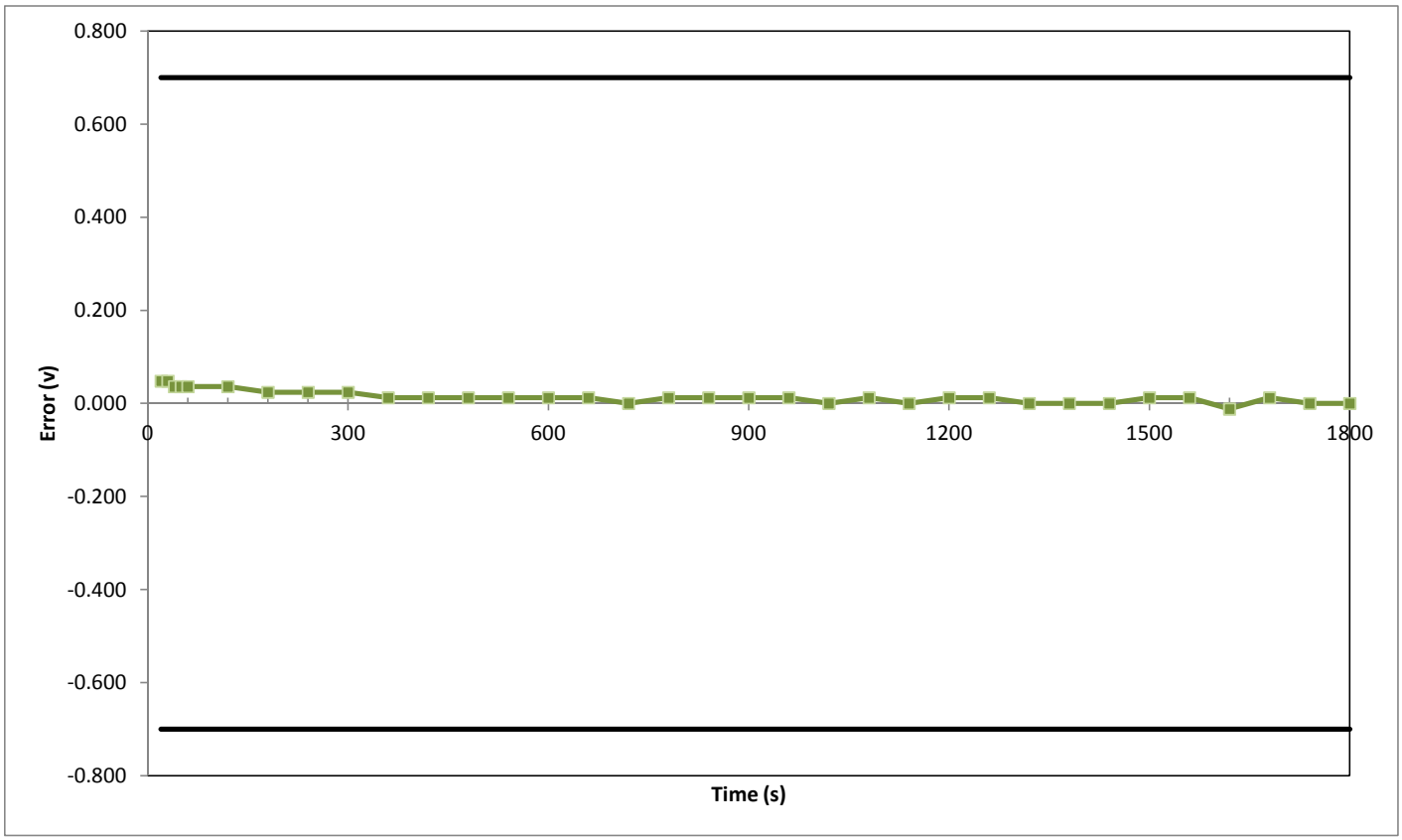
Test load kg	Indication cts	Time	Time after start	Ref	Barometric Pressure (hPa)	Change (v)	mpc (v)
0	-938.3	09:53:42			1001.5		
0	-938.0	10:24:12	10		1002.0		
0	-937.9	10:24:22	20	***	1002.0	0.048	0.700
0	-937.9	10:24:32	30		1002.0	0.048	0.700
0	-938.0	10:24:42	40		1002.0	0.036	0.700
0	-938.0	10:24:52	50		1002.1	0.036	0.700
0	-938.0	10:25:02	60		1002.1	0.036	0.700
0	-938.0	10:26:02	120		1002.1	0.036	0.700
0	-938.1	10:27:02	180		1002.1	0.024	0.700
0	-938.1	10:28:02	240		1002.1	0.024	0.700
0	-938.1	10:29:02	300		1002.1	0.024	0.700
0	-938.2	10:30:02	360		1002.2	0.012	0.700
0	-938.2	10:31:02	420		1002.2	0.012	0.700
0	-938.2	10:32:02	480		1002.2	0.012	0.700
0	-938.2	10:33:02	540		1002.2	0.012	0.700
0	-938.2	10:34:02	600		1002.2	0.012	0.700
0	-938.2	10:35:02	660		1002.2	0.012	0.700
0	-938.3	10:36:02	720		1002.2	0.000	0.700
0	-938.2	10:37:02	780		1002.2	0.012	0.700
0	-938.2	10:38:02	840		1002.2	0.012	0.700
0	-938.2	10:39:02	900		1002.2	0.012	0.700
0	-938.2	10:40:02	960		1002.2	0.012	0.700
0	-938.3	10:41:02	1020		1002.3	0.000	0.700
0	-938.2	10:42:02	1080		1002.3	0.012	0.700
0	-938.3	10:43:02	1140		1002.3	0.000	0.700
0	-938.2	10:44:02	1200		1002.3	0.012	0.700
0	-938.2	10:45:02	1260		1002.3	0.012	0.700
0	-938.3	10:46:02	1320		1002.3	0.000	0.700
0	-938.3	10:47:02	1380		1002.3	0.000	0.700
0	-938.3	10:48:02	1440		1002.3	0.000	0.700
0	-938.2	10:49:02	1500		1002.3	0.012	0.700
0	-938.2	10:50:02	1560		1002.3	0.012	0.700
0	-938.4	10:51:02	1620		1002.4	-0.012	0.700
0	-938.2	10:52:02	1680		1002.4	0.012	0.700
0	-938.3	10:53:02	1740		1002.4	0.000	0.700
0	-938.3	10:54:02	1800		1002.4	0.000	0.700

[X] Passed [ ] Failed

D.5 Creep (CC) (diagram)



D.5 DR (CDR) (diagram)



D.5 Creep (CC) and DR (CDR)

Application N°: 11200209
Pattern designation: SLP331D
Evaluator: CB
Date (Creep) 2011-08-09

	Creep		
	At start	At end	
Temp LC:	39.0	39.0	°C
Bar.pres:	1015.2	1015.7	hPa
Humidity:	20.4	20.3	%RH
Temp IND:	20.7	20.5	°C

Conversion factor, f: 8.338789

Test load kg	Preloading (Creep): Indication cts	Preloading (Creep): Time	Preloading (MDLOR): Indication cts	Preloading (MDLOR): Time
0				
50				
0				
50				
0				
50				
0				

Test load kg	Indication cts	Time	Time after start	Ref	Barometric Pressure (hPa)	Change (v)	mpc (v)
0	-939.3	09:08:09			1015.2		
50	26906.9	09:08:29	10		1015.2		
50	50036.0	09:08:39	20	**	1015.2	0.000	1.050
50	50035.9	09:08:49	30		1015.2	-0.012	1.050
50	50035.8	09:08:59	40		1015.3	-0.024	1.050
50	50035.8	09:09:09	50		1015.3	-0.024	1.050
50	50035.8	09:09:19	60		1015.3	-0.024	1.050
50	50035.5	09:10:19	120		1015.3	-0.060	1.050
50	50035.4	09:11:19	180		1015.3	-0.072	1.050
50	50035.3	09:12:19	240		1015.3	-0.084	1.050
50	50035.1	09:13:19	300		1015.4	-0.108	1.050
50	50035.2	09:14:19	360		1015.4	-0.096	1.050
50	50035.2	09:15:19	420		1015.4	-0.096	1.050
50	50035.1	09:16:19	480		1015.4	-0.108	1.050
50	50035.0	09:17:19	540		1015.4	-0.120	1.050
50	50034.9	09:18:19	600		1015.4	-0.132	1.050
50	50035.1	09:19:19	660		1015.4	-0.108	1.050
50	50034.8	09:20:19	720		1015.4	-0.144	1.050
50	50035.2	09:21:19	780		1015.5	-0.096	1.050
50	50035.1	09:22:19	840		1015.5	-0.108	1.050
50	50034.9	09:23:19	900		1015.5	-0.132	1.050
50	50034.9	09:24:19	960		1015.5	-0.132	1.050
50	50034.8	09:25:19	1020		1015.5	-0.144	1.050
50	50035.1	09:26:19	1080		1015.5	-0.108	1.050
50	50034.9	09:27:19	1140		1015.6	-0.132	1.050
50	50035.1	09:28:19	1200		1015.6	-0.108	1.050
50	50034.5	09:29:19	1260		1015.6	-0.180	1.050
50	50034.7	09:30:19	1320		1015.6	-0.156	1.050
50	50034.7	09:31:19	1380		1015.6	-0.156	1.050
50	50034.8	09:32:19	1440		1015.6	-0.144	1.050
50	50034.7	09:33:19	1500		1015.7	-0.156	1.050
50	50034.6	09:34:19	1560		1015.7	-0.168	1.050
50	50034.5	09:35:19	1620		1015.7	-0.180	1.050
50	50034.6	09:36:19	1680		1015.7	-0.168	1.050
50	50034.8	09:37:19	1740		1015.7	-0.144	1.050
50	50034.5	09:38:19	1800		1015.7	-0.180	1.050
					30 - 20 minute creep difference:	-0.072	0.180 *

[X] Passed [ ] Failed

D.5 Creep (CC) and DR (CDR)

Application N°:	11200209
Pattern designation:	SLP331D
Evaluator:	CB
Date (MDLOR)	2011-08-09

	MDLOR At start	MDLOR At end	
Temp LC:	39.0	39.0	°C
Bar.pres:	1015.7	1016.2	hPa
Humidity:	20.3	20.1	%RH
Temp IND:	20.5	20.3	°C

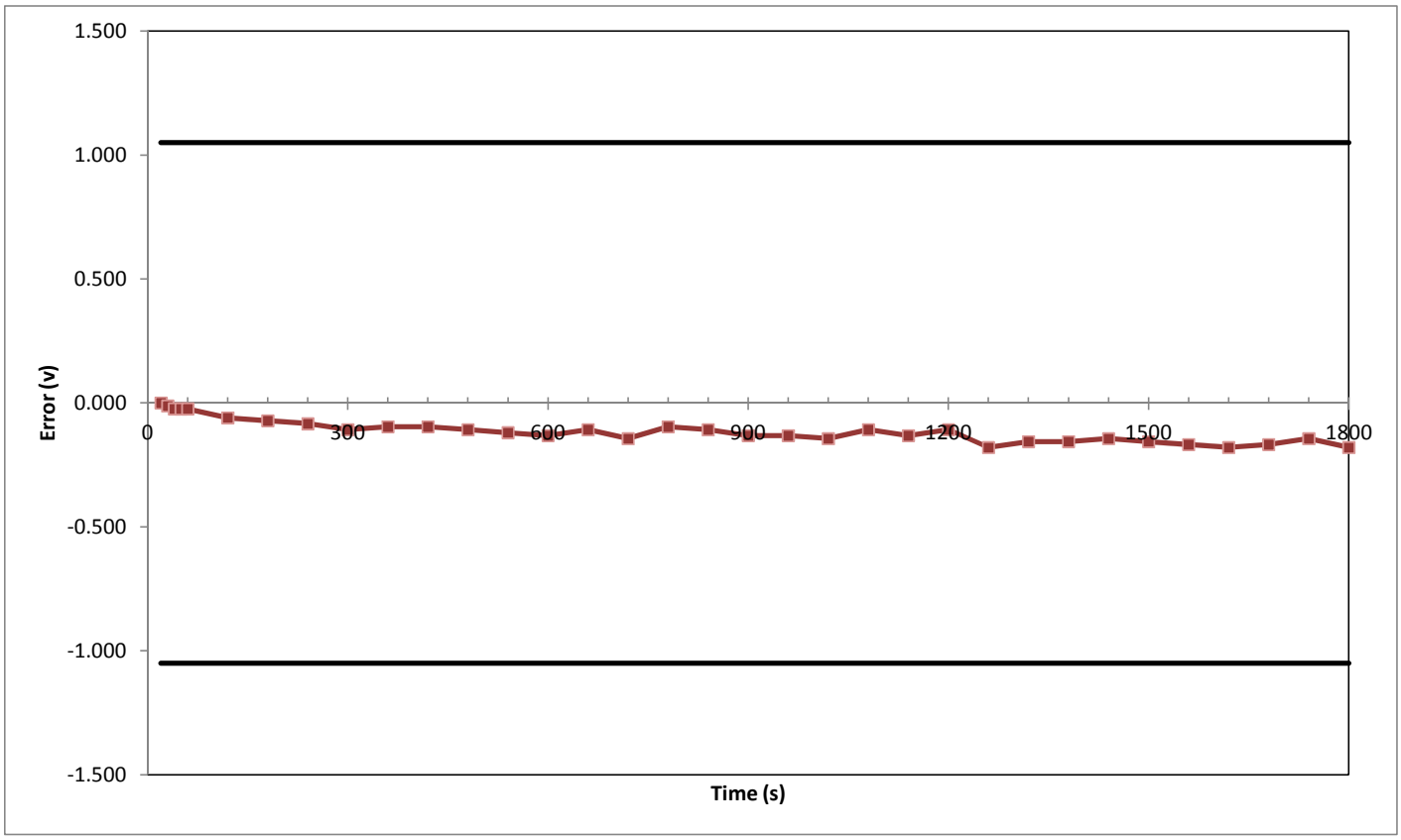
Conversion factor, f: 8.338789

Test load kg	Preloading (Creep): Indication cts	Preloading (Creep): Time	Preloading (MDLOR): Indication cts	Preloading (MDLOR): Time
0				
50				
0				
50				
0				
50				
0				

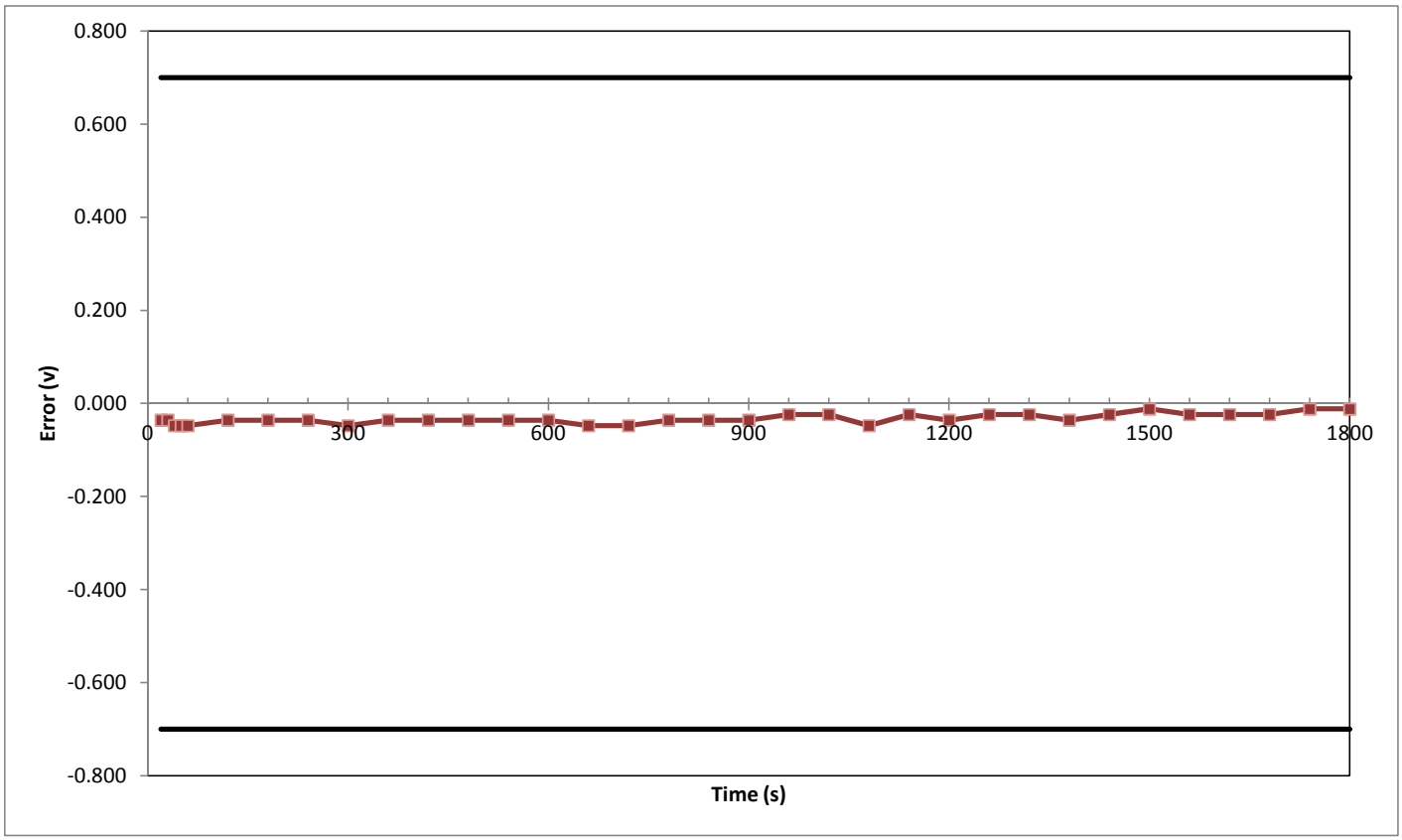
Test load kg	Indication cts	Time	Time after start	Ref	Barometric Pressure (hPa)	Change (v)	mpc (v)
0	-939.3	09:08:09			1001.5		
0	-938.6	09:38:39	10		1015.7		
0	-939.6	09:38:49	20	***	1015.8	-0.036	0.700
0	-939.6	09:38:59	30		1015.8	-0.036	0.700
0	-939.7	09:39:09	40		1015.8	-0.048	0.700
0	-939.7	09:39:19	50		1015.8	-0.048	0.700
0	-939.7	09:39:29	60		1015.8	-0.048	0.700
0	-939.6	09:40:29	120		1015.8	-0.036	0.700
0	-939.6	09:41:29	180		1015.8	-0.036	0.700
0	-939.6	09:42:29	240		1015.8	-0.036	0.700
0	-939.7	09:43:29	300		1015.9	-0.048	0.700
0	-939.6	09:44:29	360		1015.9	-0.036	0.700
0	-939.6	09:45:29	420		1015.9	-0.036	0.700
0	-939.6	09:46:29	480		1015.9	-0.036	0.700
0	-939.6	09:47:29	540		1015.9	-0.036	0.700
0	-939.6	09:48:29	600		1015.9	-0.036	0.700
0	-939.7	09:49:29	660		1016.0	-0.048	0.700
0	-939.7	09:50:29	720		1016.0	-0.048	0.700
0	-939.6	09:51:29	780		1016.0	-0.036	0.700
0	-939.6	09:52:29	840		1016.0	-0.036	0.700
0	-939.6	09:53:29	900		1016.0	-0.036	0.700
0	-939.5	09:54:29	960		1016.0	-0.024	0.700
0	-939.5	09:55:29	1020		1016.0	-0.024	0.700
0	-939.7	09:56:29	1080		1016.0	-0.048	0.700
0	-939.5	09:57:29	1140		1016.0	-0.024	0.700
0	-939.6	09:58:29	1200		1016.1	-0.036	0.700
0	-939.5	09:59:29	1260		1016.1	-0.024	0.700
0	-939.5	10:00:29	1320		1016.1	-0.024	0.700
0	-939.6	10:01:29	1380		1016.1	-0.036	0.700
0	-939.5	10:02:29	1440		1016.1	-0.024	0.700
0	-939.4	10:03:29	1500		1016.1	-0.012	0.700
0	-939.5	10:04:29	1560		1016.1	-0.024	0.700
0	-939.5	10:05:29	1620		1016.2	-0.024	0.700
0	-939.5	10:06:29	1680		1016.2	-0.024	0.700
0	-939.4	10:07:29	1740		1016.2	-0.012	0.700
0	-939.4	10:08:29	1800		1016.2	-0.012	0.700

[X] Passed [ ] Failed

D.5 Creep (CC) (diagram)



D.5 DR (CDR) (diagram)



D.5 Creep (CC) and DR (CDR)

Application N°: 11200209
Pattern designation: SLP331D
Evaluator: CB
Date (Creep) 2011-08-10

	Creep		
	At start	At end	
Temp LC:	-10.2	-10.1	°C
Bar.pres:	1024.3	1024.2	hPa
Humidity:	--	--	%RH
Temp IND:	20.0	19.9	°C

Conversion factor, f: 8.338789

Test load kg	Preloading (Creep): Indication cts	Preloading (Creep): Time	Preloading (MDLOR): Indication cts	Preloading (MDLOR): Time
0				
50				
0				
50				
0				
50				
0				

Test load kg	Indication cts	Time	Time after start	Ref	Barometric Pressure (hPa)	Change (v)	mpc (v)
0	-938.5	10:05:46			1024.3		
50	50036.0	10:06:06	10		1024.3		
50	50036.5	10:06:16	20	**	1024.3	0.000	1.050
50	50036.1	10:06:26	30		1024.3	-0.048	1.050
50	50036.2	10:06:36	40		1024.3	-0.036	1.050
50	50036.1	10:06:46	50		1024.3	-0.048	1.050
50	50036.2	10:06:56	60		1024.3	-0.036	1.050
50	50035.9	10:07:56	120		1024.3	-0.072	1.050
50	50035.9	10:08:56	180		1024.3	-0.072	1.050
50	50036.0	10:09:56	240		1024.2	-0.060	1.050
50	50035.6	10:10:56	300		1024.2	-0.108	1.050
50	50035.6	10:11:56	360		1024.2	-0.108	1.050
50	50035.7	10:12:56	420		1024.2	-0.096	1.050
50	50035.5	10:13:56	480		1024.2	-0.120	1.050
50	50035.3	10:14:56	540		1024.2	-0.144	1.050
50	50035.6	10:15:56	600		1024.2	-0.108	1.050
50	50035.7	10:16:56	660		1024.2	-0.096	1.050
50	50035.3	10:17:56	720		1024.2	-0.144	1.050
50	50035.4	10:18:56	780		1024.2	-0.132	1.050
50	50035.4	10:19:56	840		1024.2	-0.132	1.050
50	50035.6	10:20:56	900		1024.2	-0.108	1.050
50	50035.2	10:21:56	960		1024.2	-0.156	1.050
50	50035.4	10:22:56	1020		1024.2	-0.132	1.050
50	50035.2	10:23:56	1080		1024.2	-0.156	1.050
50	50035.5	10:24:56	1140		1024.2	-0.120	1.050
50	50035.3	10:25:56	1200		1024.2	-0.144	1.050
50	50035.2	10:26:56	1260		1024.2	-0.156	1.050
50	50034.7	10:27:56	1320		1024.2	-0.216	1.050
50	50035.6	10:28:56	1380		1024.2	-0.108	1.050
50	50035.4	10:29:56	1440		1024.2	-0.132	1.050
50	50035.1	10:30:56	1500		1024.2	-0.168	1.050
50	50035.2	10:31:56	1560		1024.2	-0.156	1.050
50	50035.2	10:32:56	1620		1024.2	-0.156	1.050
50	50035.2	10:33:56	1680		1024.2	-0.156	1.050
50	50035.5	10:34:56	1740		1024.2	-0.120	1.050
50	50035.5	10:35:56	1800		1024.2	-0.120	1.050
					30 - 20 minute creep difference:	0.024	0.180 *

[X] Passed [ ] Failed

D.5 Creep (CC) and DR (CDR)

Application N°:	11200209
Pattern designation:	SLP331D
Evaluator:	CB
Date (MDLOR)	2011-08-10

	MDLOR At start	MDLOR At end	
Temp LC:	-10.1	-10.0	°C
Bar.pres:	1024.2	1023.5	hPa
Humidity:	--	--	%RH
Temp IND:	19.9	19.9	°C

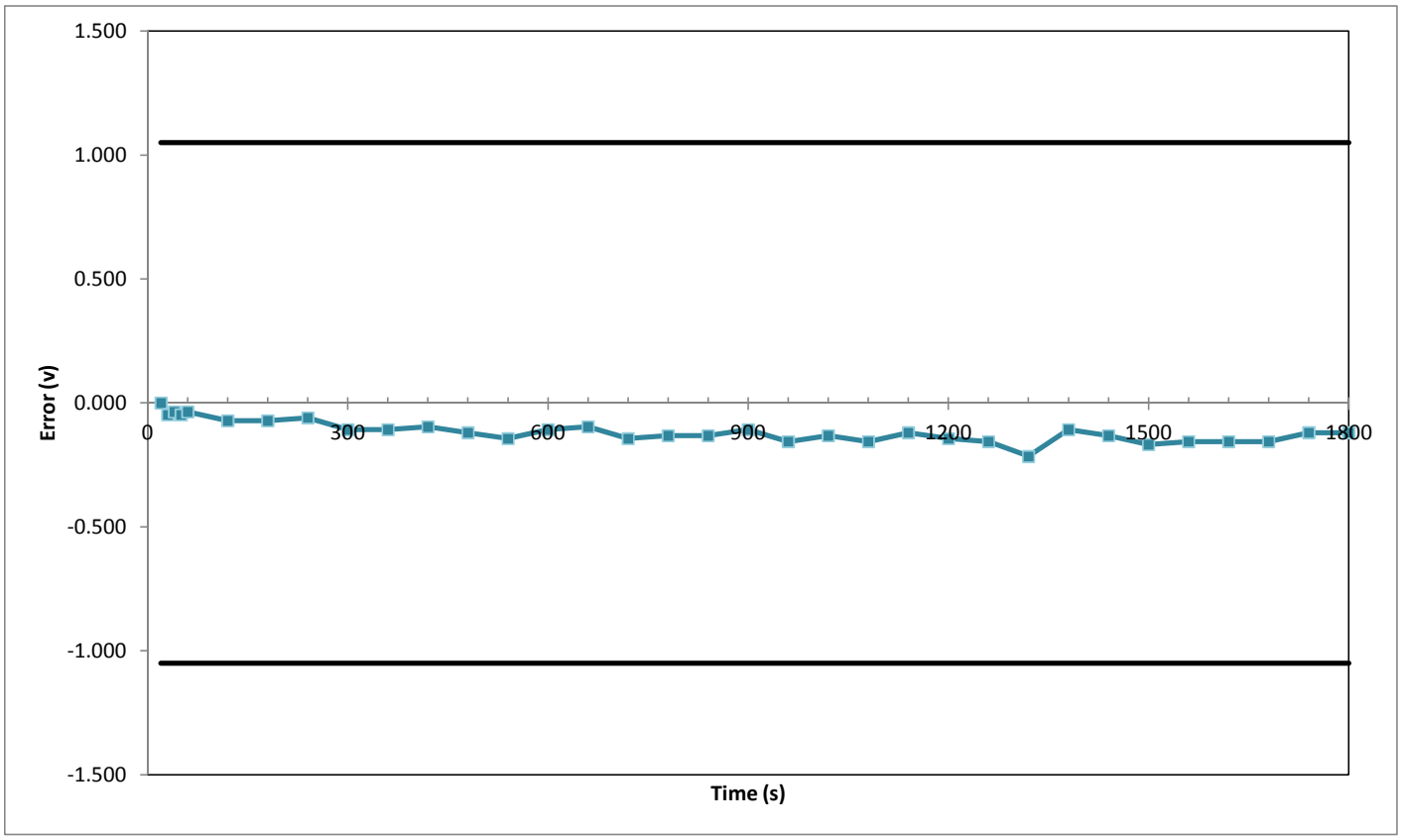
Conversion factor, f: 8.338789

Test load kg	Preloading (Creep): Indication cts	Preloading (Creep): Time	Preloading (MDLOR): Indication cts	Preloading (MDLOR): Time
0				
50				
0				
50				
0				
50				
0				

Test load kg	Indication cts	Time	Time after start	Ref	Barometric Pressure (hPa)	Change (v)	mpc (v)
0	-938.5	10:05:46			1001.5		
0	-939.3	10:36:16	10		1024.2		
0	-939.2	10:36:26	20	***	1024.2	-0.084	0.700
0	-939.1	10:36:36	30		1024.2	-0.072	0.700
0	-939.1	10:36:46	40		1024.3	-0.072	0.700
0	-939.1	10:36:56	50		1024.3	-0.072	0.700
0	-939.0	10:37:06	60		1024.3	-0.060	0.700
0	-938.9	10:38:06	120		1024.3	-0.048	0.700
0	-938.8	10:39:06	180		1024.3	-0.036	0.700
0	-938.7	10:40:06	240		1024.3	-0.024	0.700
0	-938.8	10:41:06	300		1024.3	-0.036	0.700
0	-938.7	10:42:06	360		1024.3	-0.024	0.700
0	-938.8	10:43:06	420		1024.3	-0.036	0.700
0	-938.6	10:44:06	480		1024.3	-0.012	0.700
0	-938.6	10:45:06	540		1024.3	-0.012	0.700
0	-938.6	10:46:06	600		1024.3	-0.012	0.700
0	-938.5	10:47:06	660		1024.4	0.000	0.700
0	-938.4	10:48:06	720		1024.4	0.012	0.700
0	-938.6	10:49:06	780		1024.4	-0.012	0.700
0	-938.5	10:50:06	840		1024.4	0.000	0.700
0	-938.5	10:51:06	900		1024.4	0.000	0.700
0	-938.5	10:52:06	960		1024.4	0.000	0.700
0	-938.4	10:53:06	1020		1024.4	0.012	0.700
0	-938.6	10:54:06	1080		1024.4	-0.012	0.700
0	-938.4	10:55:06	1140		1024.4	0.012	0.700
0	-938.4	10:56:06	1200		1024.5	0.012	0.700
0	-938.5	10:57:06	1260		1024.5	0.000	0.700
0	-938.5	10:58:06	1320		1024.5	0.000	0.700
0	-938.5	10:59:06	1380		1024.5	0.000	0.700
0	-938.5	11:00:06	1440		1024.5	0.000	0.700
0	-938.4	11:01:06	1500		1024.5	0.012	0.700
0	-938.4	11:02:06	1560		1024.5	0.012	0.700
0	-938.4	11:03:06	1620		1024.5	0.012	0.700
0	-938.4	11:04:06	1680		1024.5	0.012	0.700
0	-938.2	11:05:06	1740		1024.5	0.036	0.700
0	-938.3	11:06:06	1800		1024.5	0.024	0.700

[X] Passed [ ] Failed

D.5 Creep (CC) (diagram)



D.5 DR (CDR) (diagram)