Temperature Test

Concept Box standard CB751

Version 1.1

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Date created: August, 10th 2009
Last changes: January, 19th 2010
File: ' Test_Temperature_protocol_STD_V1_1.doc'
Revision: 1.1
Status: Finally version

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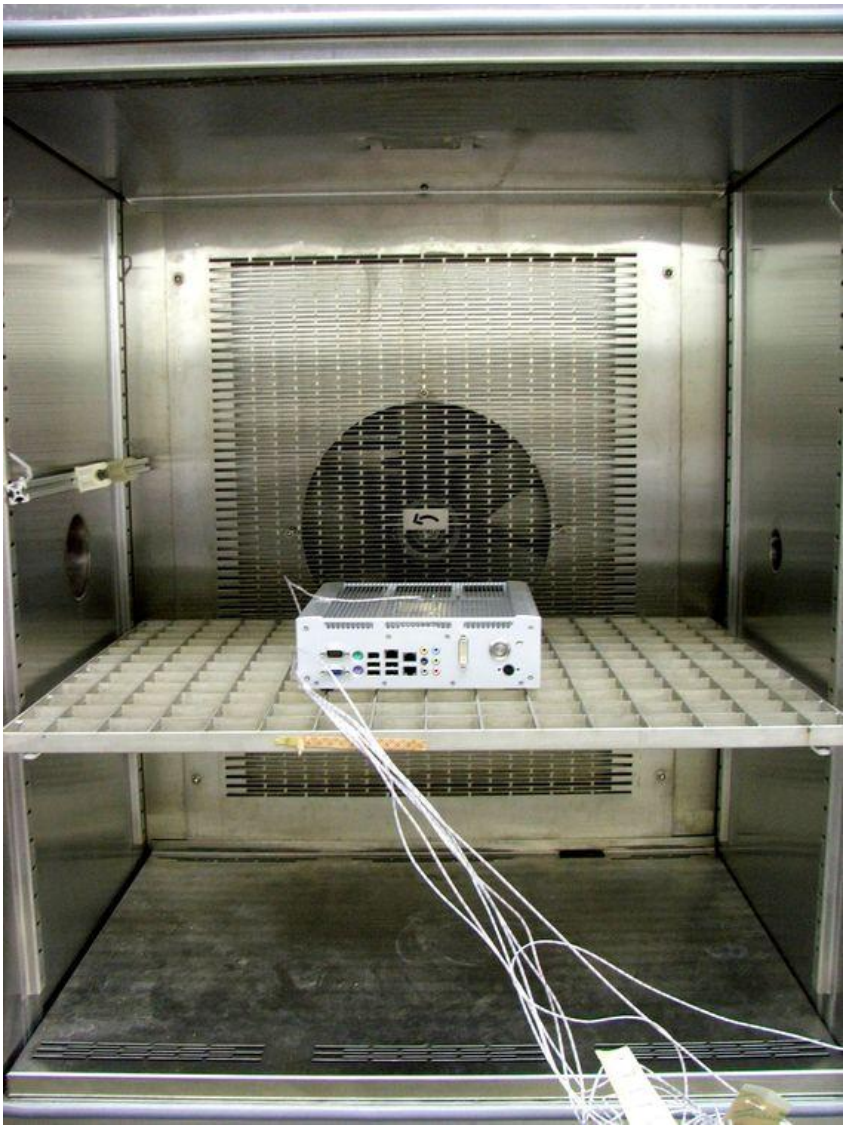
Table of contents

1. Administrative Data

Equipment under test:	CB751-y
Options/accessories:	FSP-150-ABA lock
Serial number:	2-A0CJ-2XXX
Version of EUT:	DC
Receipt of EUT:	27.7.2009
Date of test:	28.7.2009
Date of report	10.8.2009
Version of test report	1.1
Tested by:	Ladislav Michal, Zdenek Zahradka
Test report written by:	Zdenek Zahradka

2. Objective

To measure Temperatures of CB751-y based on IEC Standards



3. Test- and Measurement- Equipment

3.1 Test Software

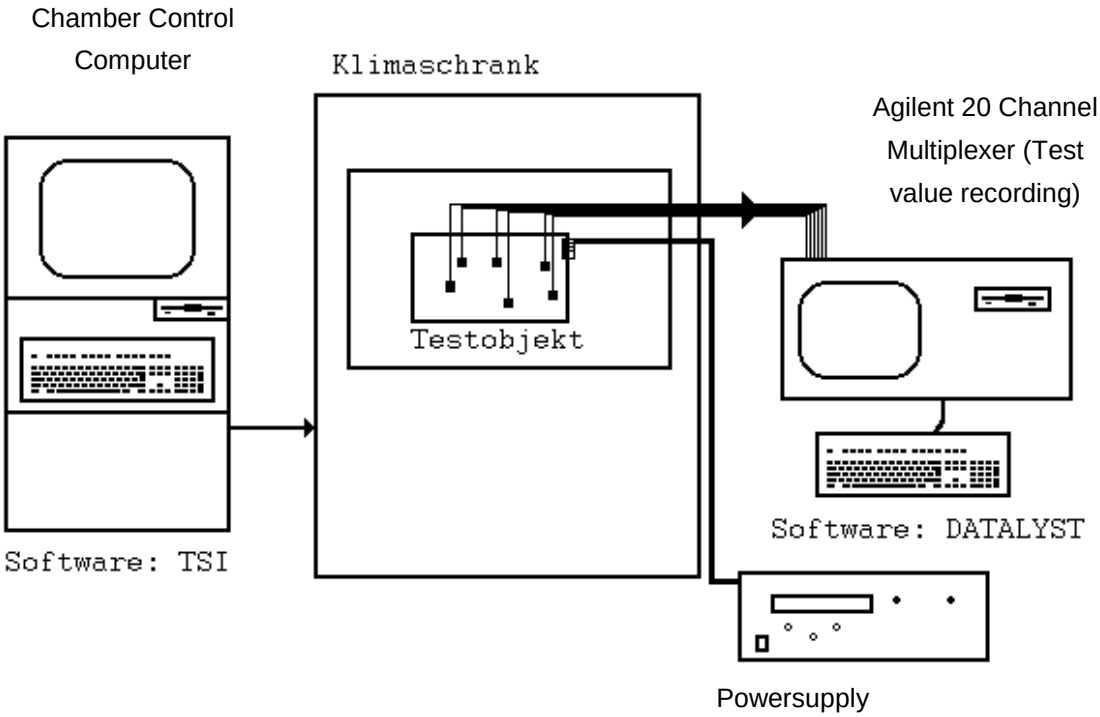
Component	*Model*	*Manufacturer*	*Ser. No.*	*Cal. until*
Testsoftware	Burn-in Test Pro 5.3	Passmark Software	-	-
MonitorSoftware	Monitor	Kontron		

3.2 Data of Operation Mode and Configuration of EUT

3.2.1 Configuration of EUT

Art. NR	Title	Ser. NR
9-9900-0040	986LCD-M/mITX BGA 1.66GHz ABS	00662329
1030-6924	BGPM UDIMM DDR2 1 GB MT8HTF12864AY-667	2 x
1022-5342	BGHD SATA150 2,5" 80GB MHY2080BH ESW	K44L92122NLC
1022-3341	BGSO ADD2-DVI-Dual PCI	00571052
1030-4974	BGNT M2-ATX-HV, 140W, 6-32V	
1030-7818	BGNT AC/DC 24V 150W FSP150-ABA lock	
	WXP Test Image	-
	SOWA 986LCD/mITX STD	

3.2.2 The Test in the Climatic Chamber



3.2.3 List of Test Equipment

	Equipment Type	Model	Equipment No.	Calibration valid until	Manufacturer
✓	Climatic Chamber	VUK 04-500	PM-EM-6160-1	08.99	Heraus-Vötsch
✓	Control computer	IPLite Color	PM-EM-9599.01	not requested	KONTRON Elektr.
✓	Measuring system	34970A	PM-EM-9519.01	not requested	HP/Agilent
✓	Control computer	Rx7000	PM-EM-9597.01	not requested	KONTRON Elrktr.

✓ (check mark in 1st column) = tested with

3.2.4 Photographs of EUT and Test Setup

Picture01: IEC Climatic Chamber

3.3 Performed Tests

3.3.1 Low Temperature Operating

Pre-test parameter

Parameter	*Values, [References]*
Checks, measurements	▪ Visual inspection ▪ Functional test

Test parameter

Parameter	*Values, [References]*
Conditions	▪ Standard: IEC 60068-2-1 ▪ Test category: Ad ▪ Temperature: 0 °C ± 3 °C ▪ Duration: 2 h ▪ Gradient: 20 K / h]
Sample status	▪ Non operating and Operating (refer to Fig. 1)
Checks, measurements	▪ Functional test

Temperature Diagram

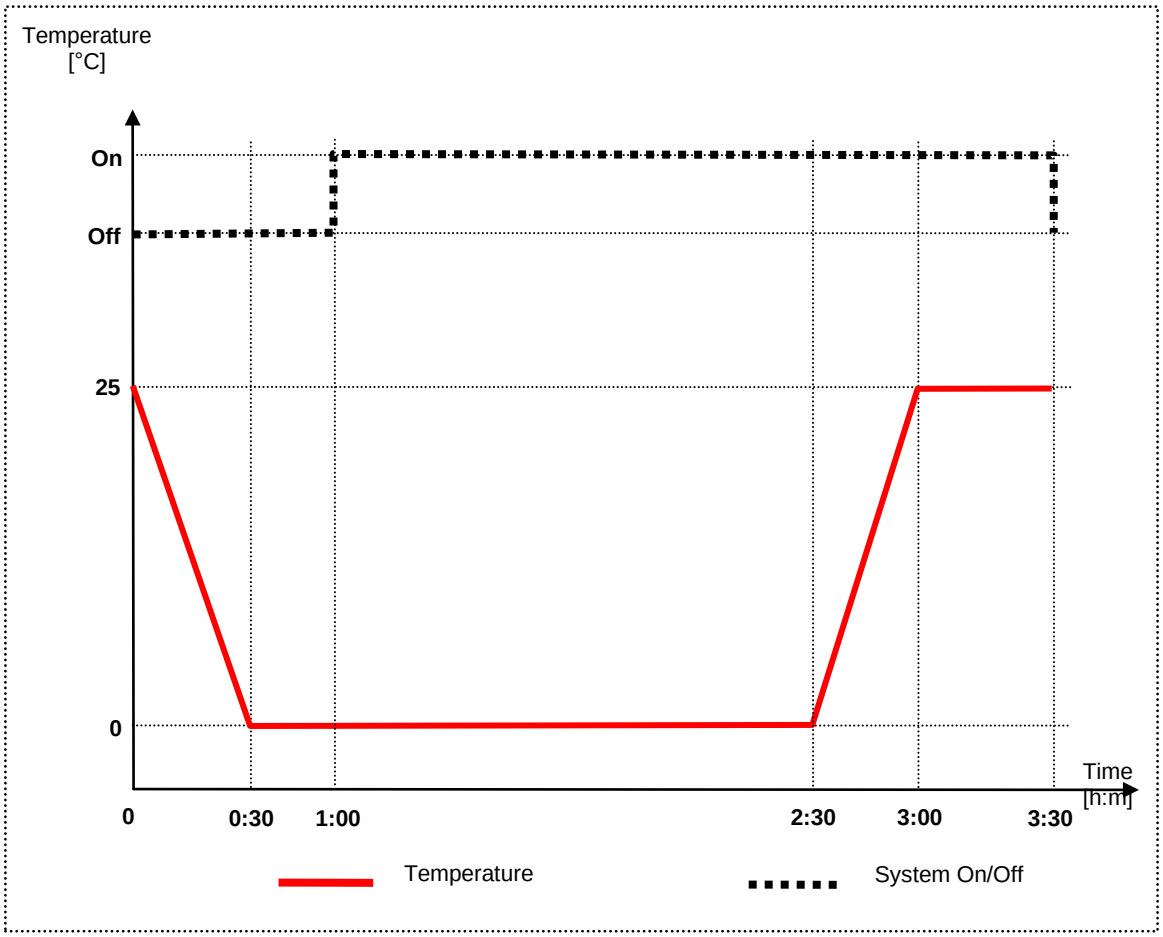


Fig 1: Temperature diagram: Low Temperature

Post-test parameter

Parameter	***Values, [References]***
Checks, measurements	▪ Visual inspection ▪ Functional test

3.3.2 High Temperature Operating

Pre-test parameter

Parameter	*Values, [References]*
Checks, measurements	▪ Visual inspection ▪ Functional test

Test parameter

Parameter	*Values, [References]*
Conditions	▪ Standard: IEC 60068-2-2 ▪ Test category: Bd ▪ Temperature: + 40 °C ± 2 °C ▪ Duration: 2 h ▪ Gradient: 20 K / h
Sample status	▪ Non operating / Operating (refer to Fig. 2)
Checks, measurements	▪ Functional test

Temperature Diagram

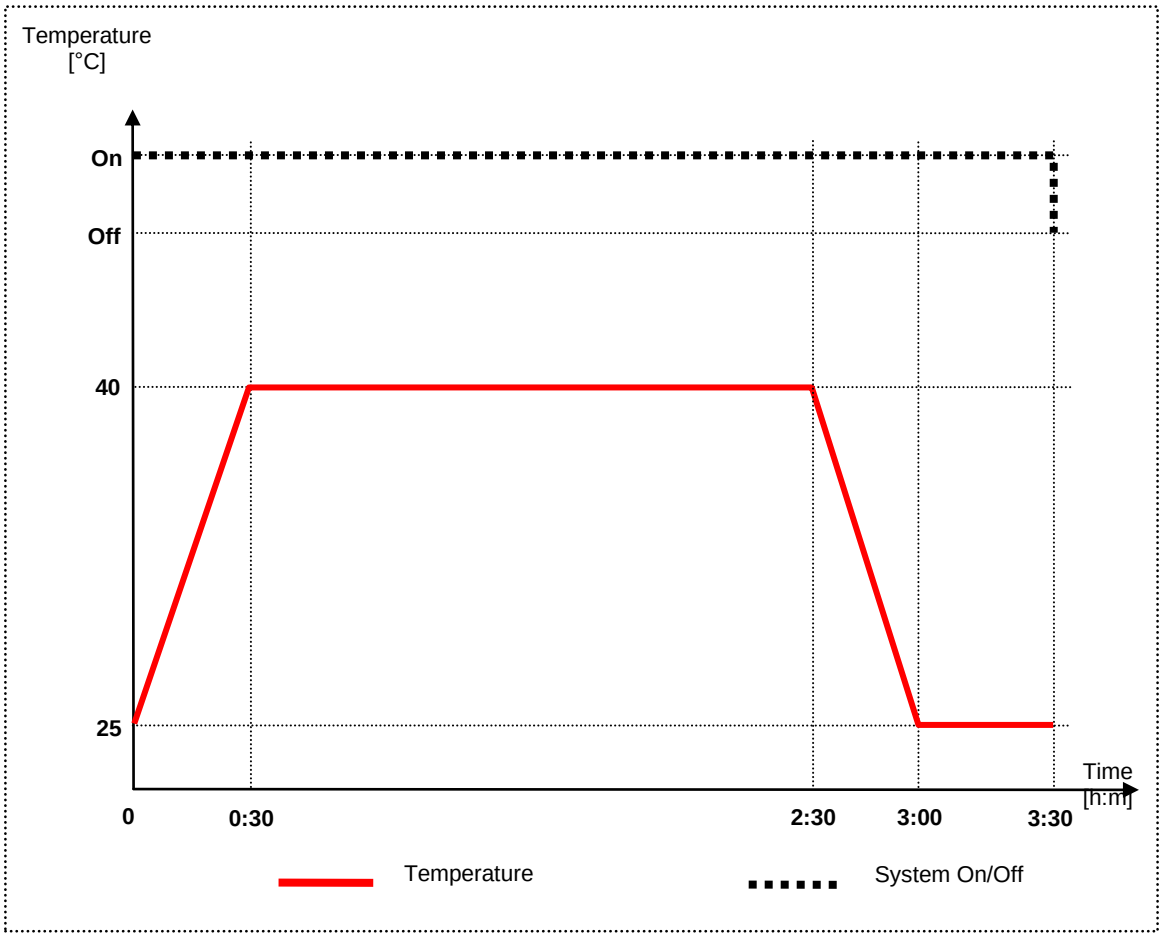


Fig 2: Temperature diagram: High Temperature

Post-test parameter

Parameter	***Values, [References]***
Checks, measurements	▪ Visual inspection ▪ Functional test

3.3.3 Temperature Cycling Operating

Pre-test parameter

Parameter	*Values, [References]*
Checks, measurements	▪ Visual inspection ▪ Functional test

Test parameter

Parameter	*Values, [References]*
Conditions	▪ Standard: IEC 60068-2-14 ▪ Test category: Nb ▪ Temperature: between 0 °C to + 40 °C ± 2 °C ▪ Duration: 2 cycles (2 h) ▪ Gradient: 20 K / h
Sample status	▪ Operating (refer to Fig. 3)
Checks, measurements	▪ Functional test

Temperature Diagram

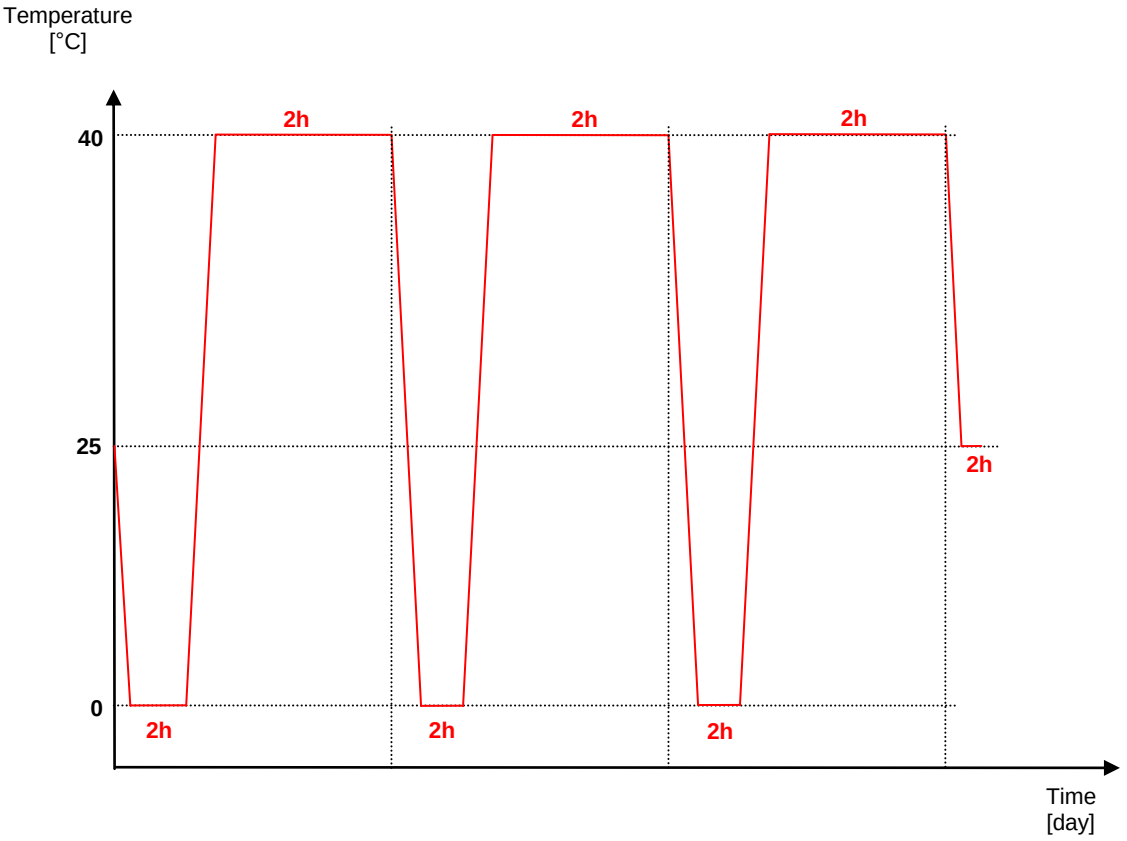


Fig 3: Temperature diagram: Thermal Cycle

Post-test parameter

Parameter	***Values, [References]***
Checks, measurements	▪ Visual inspection ▪ Functional test

3.3.4 Humidity

Pre-test parameter

Parameter	*Values, [References]*
Checks, measurements	▪ Visual inspection ▪ Functional test

Test parameter

Parameter	*Values, [References]*
Conditions	▪ Standard: IEC 60068-2-30 ▪ Test category: Db ▪ Temperature: + 40 °C ± 2 °C ▪ Humidity: 95% ▪ Duration: 12+12 h ▪ Gradient: 20 K / h
Sample status	▪ Operating (refer to Fig. 3)
Checks, measurements	▪ Functional test

Temperature Diagram

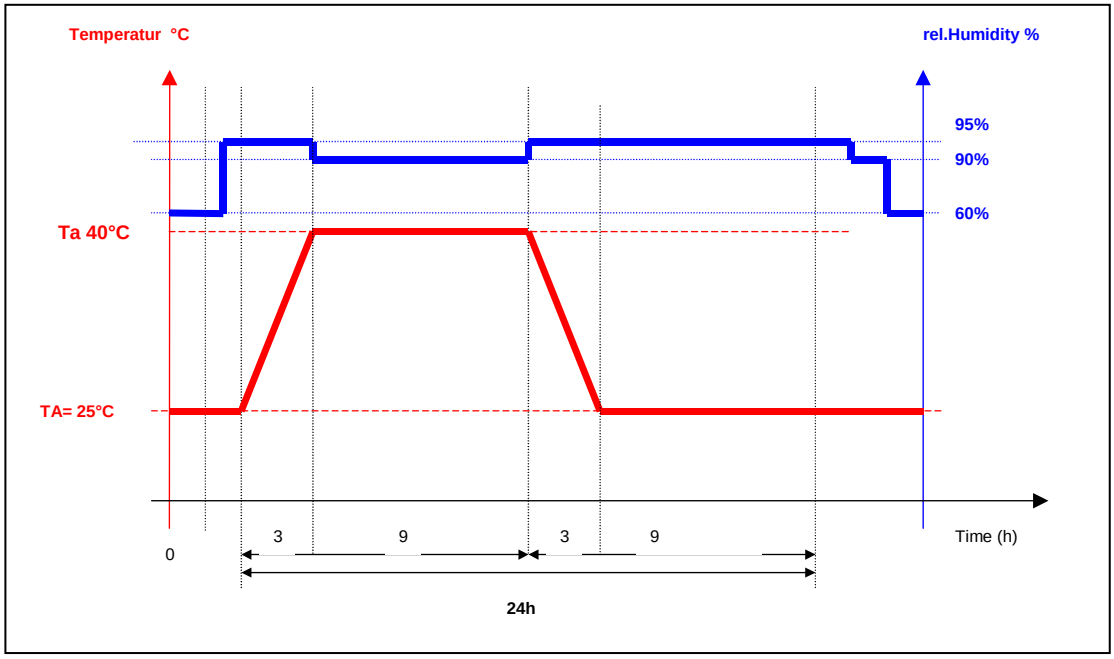


Fig 3: Temperature diagram: Humidity

Post-test parameter

Parameter	***Values, [References]***
Checks, measurements	▪ Visual inspection ▪ Functional test

3.3.5 Low Temperature Non-Operating

Pre-test parameter

Parameter	*Values, [References]*
Checks, measurements	▪ Visual inspection ▪ Functional test

Test parameter

Parameter	*Values, [References]*
Conditions	▪ Temperature: -20 °C ± 3 °C ▪ Duration: 16 h ▪ Gradient: 20 K / h
Sample status	▪ Non operating (refer to Fig. 4)
Checks, measurements	▪ Functional test

Temperature Diagram

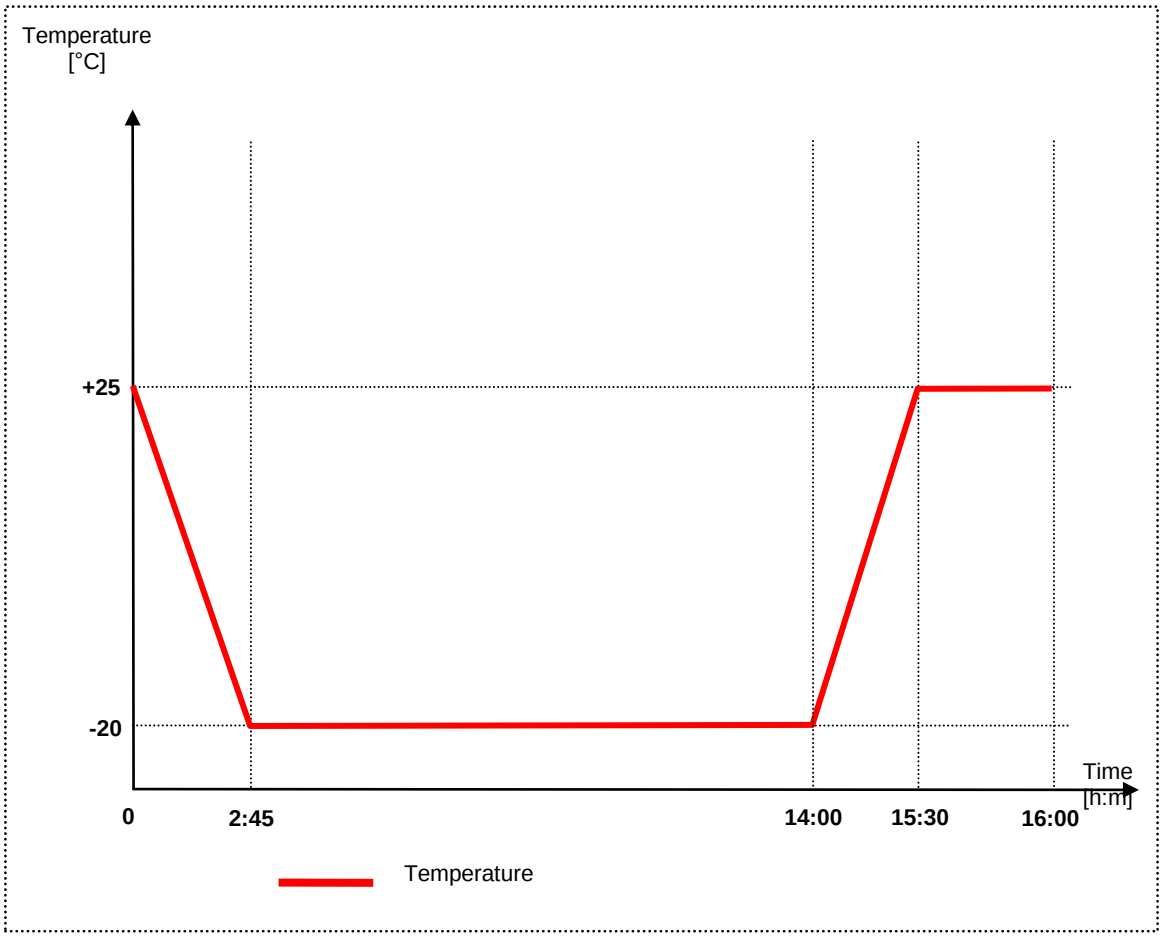


Fig 4: Temperature diagram: Low Temperature Non-Operating

Post-test parameter

Parameter	***Values, [References]***
Checks, measurements	▪ Visual inspection ▪ Functional test

3.3.6 High Temperature Non-Operating

Pre-test parameter

Parameter	*Values, [References]*
Checks, measurements	▪ Visual inspection ▪ Functional test

Test parameter

Parameter	*Values, [References]*
Conditions	▪ Temperature: + 70 °C ± 2 °C ▪ Duration: 16 h ▪ Gradient: 20 K / h
Sample status	▪ Non operating (refer to Fig. 5)
Checks, measurements	▪ Functional test

Temperature Diagram

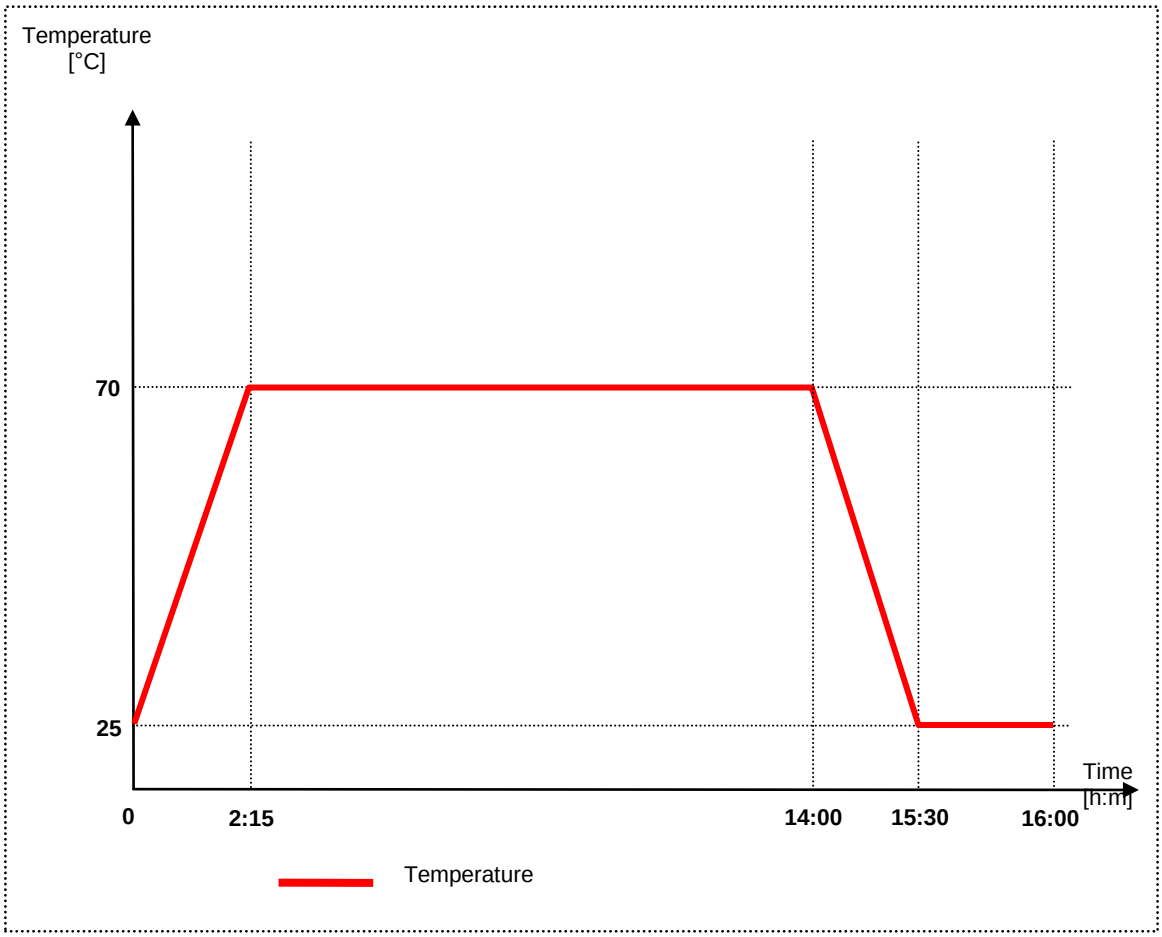


Fig 5: Temperature diagram: High Temperature Non-Operating

Post-test parameter

Parameter	***Values, [References]***
Checks, measurements	▪ Visual inspection ▪ Functional test

4. Conclusion

Test results

Nr.	*Test*	*Result*	*Comments*
1	Low Temperature operating, Temperature: 0 °C	Pass	System works without any deviation
2	High Temperature operating, Temperature: + 40 °C	Pass	System works without any deviation
3	Cycles, Temperature: 0 to + 40 °C	Pass	System works without any deviation
4	Humidity Temperature: 0 to + 40 °C Humidity: 95%	Pass	System works without any deviation
5	Low Temperature non-operating, Temperature: -20 °C	Pass	System works without any deviation
6	High Temperature non-operating Temperature: + 70 °C	Pass	System works without any deviation

5. Appendix