CLIMATIC Test Report

ONLY FOR THE INTERNAL APPLICATION

No. 31.05.05.001internal
for JREX IBOX P3 LV 733MHz

Test Laboratory:	Kontron Embedded Computers GmbH
	Oskar von Miller Straße 1 85386 Eching Germany
Applicant:	Kontron Embedded Computers GmbH
Purpose of Testing:	To show compliance with
	IEC 60068 PT2-1
	IEC 60068 PT2-2
	IEC 60068 PT2-14
	IEC 60068 PT2-30
Special Measurement:	none
	(see section "Reference Standards" for identical national standards)

Note:
The test data of this report relate only to the individual item tested.
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1. Table of Contents

2. Administrative Data

Equipment under test:	JREX IBOX
optional Equipment under test:	
Options/accessories:	None
Serial number:	None
Version of EUT:	JREX IBOX P3 LV 733 MHz AC
Applicant (full address):	Kontron Embedded Computers GmbH
Contract identification:	none
Contact person:	none
Manufacturer:	Kontron Embedded Computers GmbH
Receipt of EUT:	19.05.05
Date of test:	20.05.05
Date of report	31.05.05
Tested by:	Robert Hölzl
Test report by:	Robert Hölzl

3. Summary of Test Results

The tested sample fully complies with the requirements set forth in

IEC 60068 PT2-1

IEC 60068 PT2-2

IEC 60068 PT2-14

IEC 60068 PT2-30

(see section "Reference Standards" for identical national standards)

Karlheinz Schiege	Robert Hölzl
Technical Manager	Test Engineer

4. Data of Operation Mode and Configuration of EUT

Operation Mode

Special Susceptibility tests:	Burn IN
Susceptibility tests:	none

Configuration of Cables of EUT

Configuration of EUT

CPU-Board	JREX P3 Celeron LV 733 MHz 5V only
CPU:	P3 Celeron LV 733 MHz
Add on card:	JFLEX-COMMUNICATION1
Memory	256MB SDRAM
Hard disk drive:	20 GB 2,5“
Power supply:	XP ECM60US05
Operating-System	WIN XP

Configuration of Peripherals of EUT

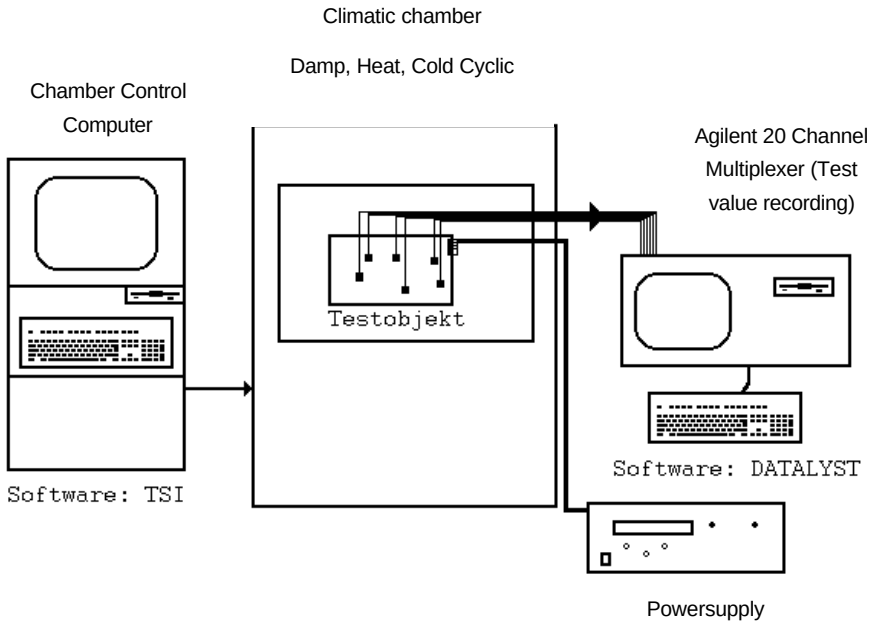
Channel Multiplexer	8 Channel
Keyboard:	Cherry
Mouse:	none
Monitor:	PM – EM – 9598.01
Configuration optional	none

5. Performed Tests and Results

Test	Classification/Result	Note
IEC 60068 PT2-1	The requirements are fulfilled	No degradation or loss of function or performance.
IEC 60068 PT2-2	The requirements are fulfilled	No degradation or loss of function or performance.
IEC 60068 PT2-14	The requirements are fulfilled	No degradation or loss of function or performance.
IEC 60068 PT2-30	The requirements are fulfilled	No degradation or loss of function or performance.

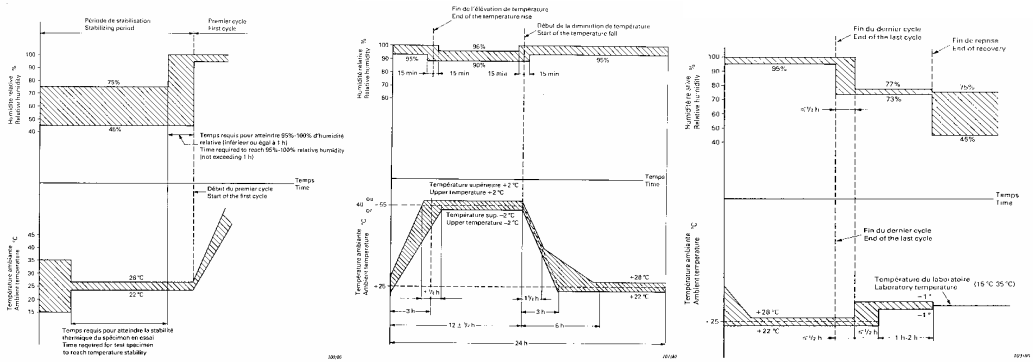
6. Annotations to Performed Tests and to CE certification

6.1 The Test in the Climatic Chamber



6.2 Basic evironmental tesing procedures - Test Db and guidance - damp heat, cyclic 12+12 HOUR CYCLE (IEC 60068 PT2-30)

The object of the test is to determine the suitability of components, equipment or other articles for use and/or storage under conditions of high humidity when combined with cyclic temperature changes. This test replaces the original Test D in the Publication 68-2-4 for future applications (the parameters takes from the page 14).



Stabilizing period Test Db – test cycle Recovery at controlled conditions

7. Referenced Regulations

(see section "Reference Standards" for identical national standards)

Regulation	Comment
IEC 60068 PT2-1 :1994	ENVIRONMENTAL TESTING - TESTS A: COLD Concerns cold tests on both non-heat-dissipating and heat-dissipating specimens.
IEC 60068 PT2-2 :1994 EN 60068 PT2-2 :1993	ENVIRONMENTAL TESTING - TESTS B: DRY HEAT Contains Test Ba: Dry heat for non-heat-dissipating specimen with sudden change of temperature; Test Bb: Dry heat for non-heat-dissipating specimen with gradual change of temperature; Test Bc: Dry heat for heat-dissipating specimen with sudden change of temperature; Test Bd: Dry heat for heat-dissipating specimen with gradual change of temperature. The 1987 reprint includes IEC No. 62-2-2A.
IEC 60068 PT2-14 :1984 EN 60068-2-14 :1999	ENVIRONMENTAL TESTING - PART 2-14 - TESTS - TEST N - CHANGE OF TEMPERATURE Determines the ability of components, equipment and other articles to withstand rapid changes of ambient temperature. The exposure times to accomplish this depend upon the nature of the specimen.
IEC 60068 PT2-30 :1980 EN 60068-2-30 :1999	BASIC ENVIRONMENTAL TESTING PROCEDURES - TEST DB AND GUIDANCE - DAMP HEAT, CYCLIC (12+12 HOUR CYCLE) Determines the suitability of components, equipment and other articles for use and/or storage under conditions of high humidity when combined with cyclic temperature changes.
Special standard	

8. List of Test Equipment

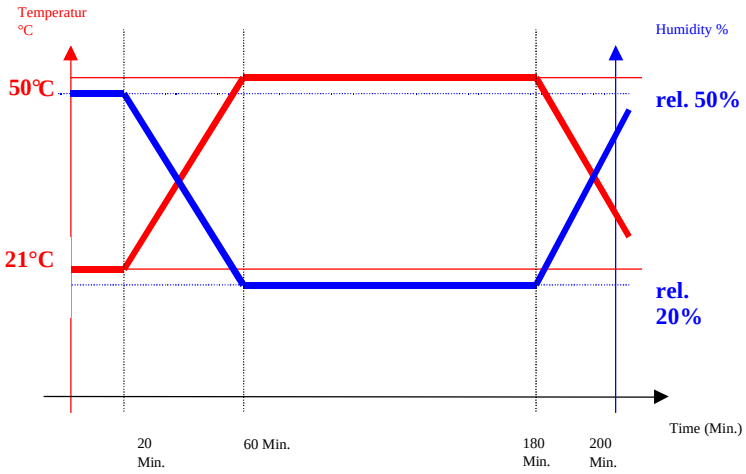
	Equipment Type	Model	Equipment No.	Calibration valid until	Manufacturer
✓	Climatic Chamber	VUK 04-500	PM-EM-6160-1	08.99	Heraus-Vötsch
✓	Control computer	IPLite Color	PM-EM-9599.01	not requested	KONTRON Elektr.
✓	Measuring system	34970A	PM-EM-9519.01	not requested	HP/Agilent
✓	Control computer	Inrave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

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

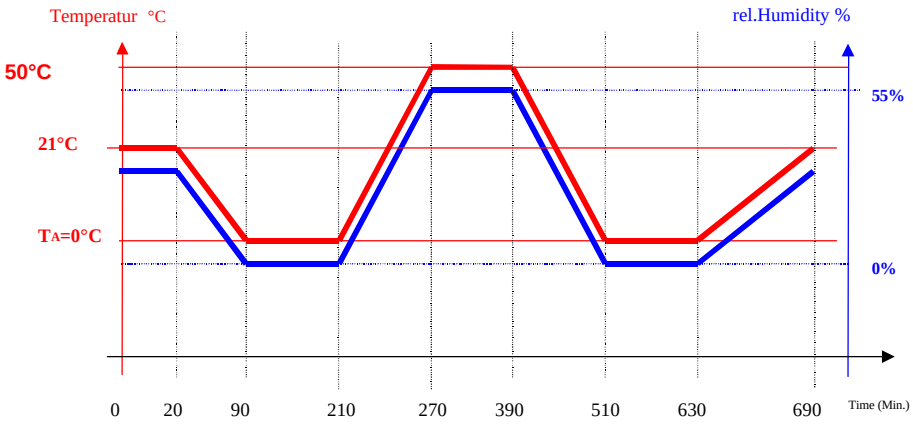
9. Photographs of EUT and Test Setup

Picture01: IEC Climatic Chamber

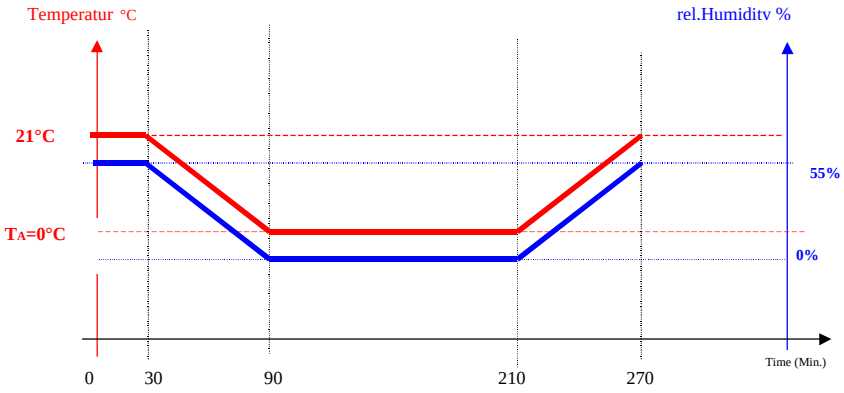
10. Climatic conditions to IEC 60068



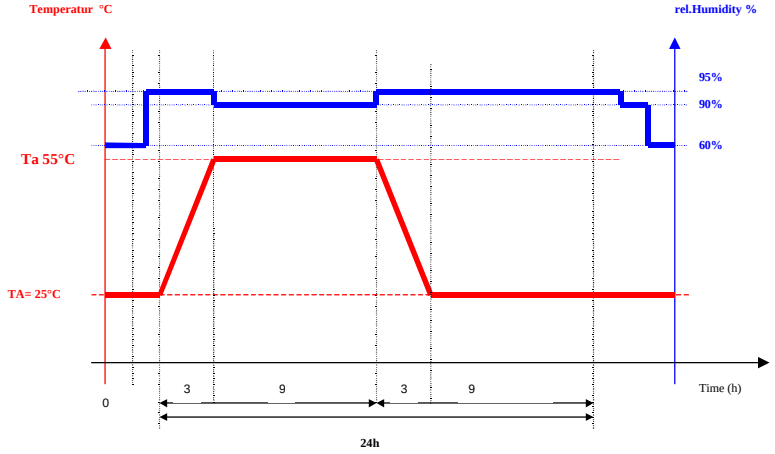
IEC 60068 PT2-2 Test Bb: Dry heat for non-heat-dissipating specimen with gradual change of temperature



IEC 60068 PT2-14 Test Nb: Change of temperature with specified rate of change



IEC 60068 PT2-1 Test Ab: Cold for non heat-dissipating specimen with gradual change of temperature



IEC 60068 PT2-30,Test Db: 12+12 Hour Cycle

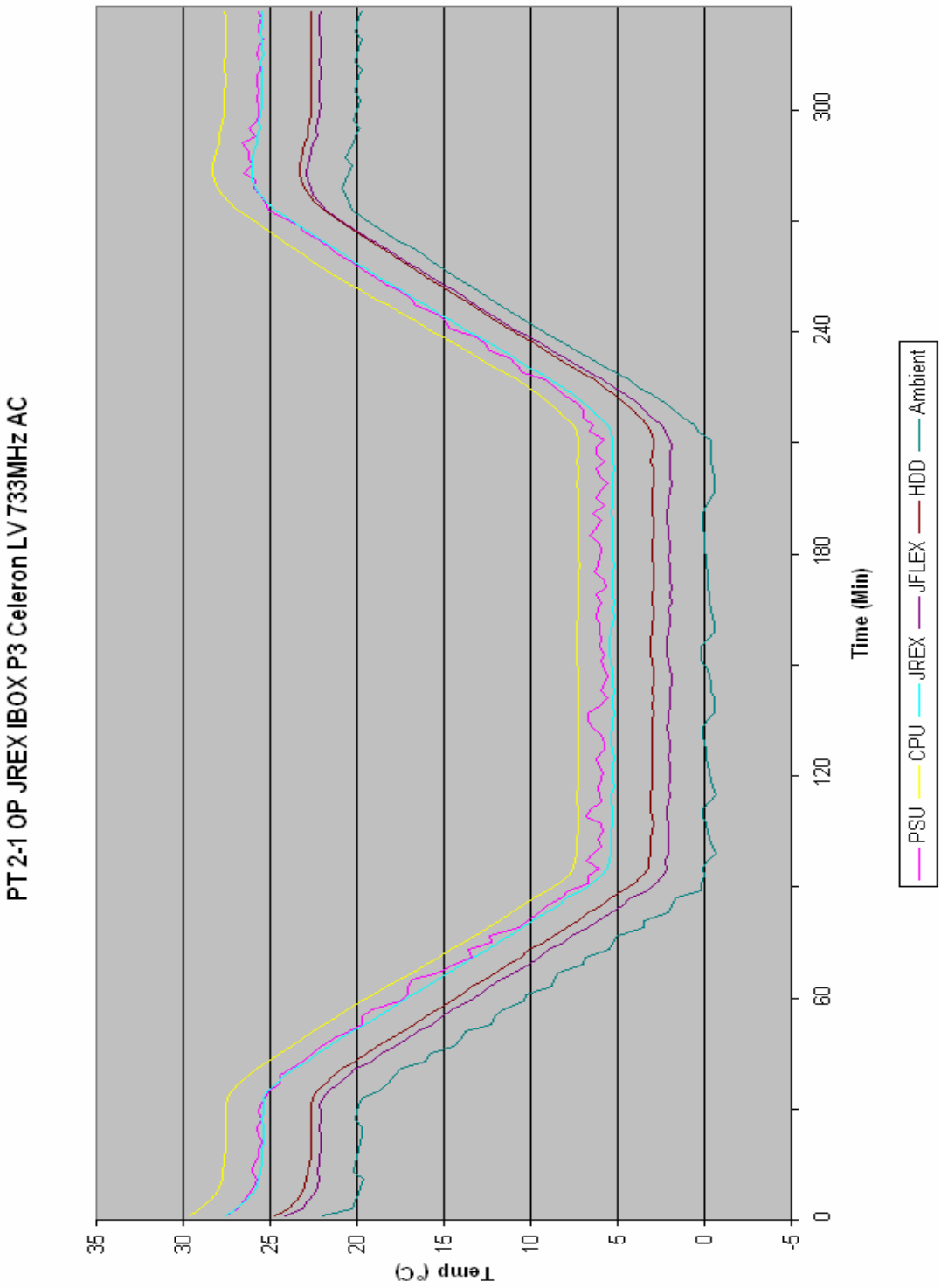
11. Temperature measurements

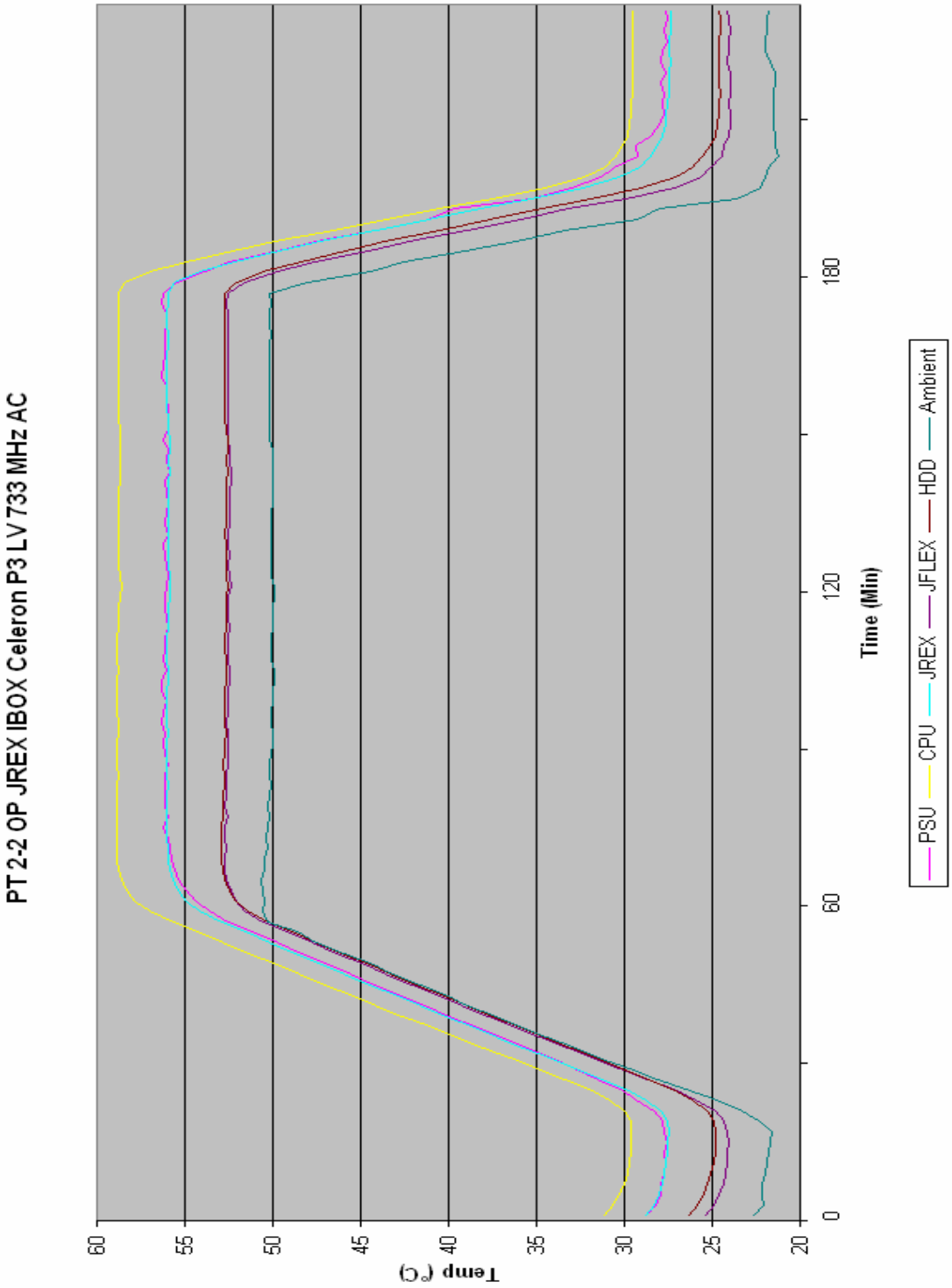
Inquiry of the temperature limits at temperature critical components.

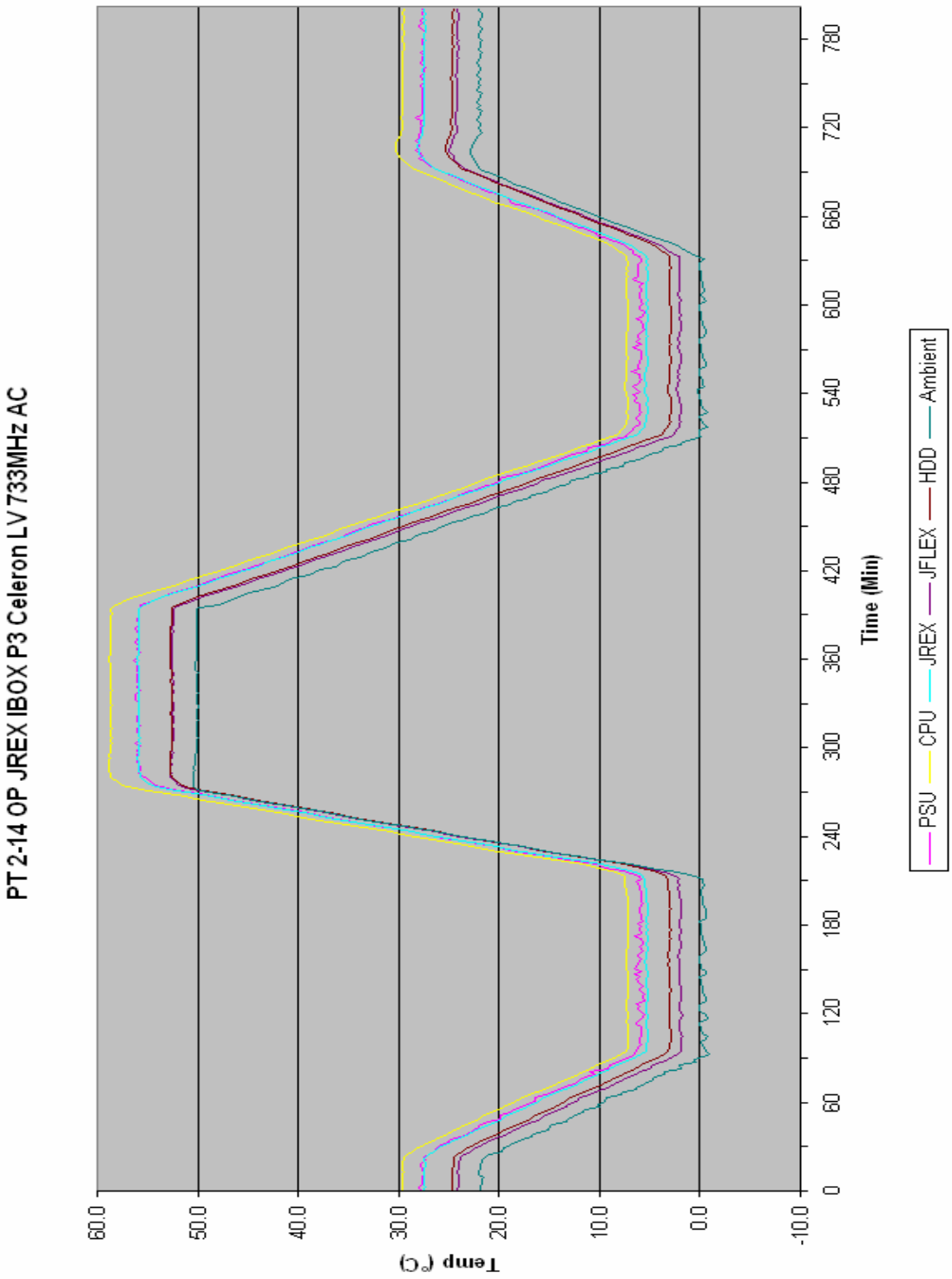
Chosen critical components:

- Surroundings temperature
- CPU
- HDD
- JREX
- JFLEX
- PSU

11.1 Temperature diagrams into dependence of the surroundings to IEC 60068 (temperature, atmospheric humidity)







12. View done tests

	Cycles	Operating	Non Operating	Recording	failure	Remark
PT 2-1	1	x		yes	no	
PT2-2	1	x		yes	no	
PT2-14	2	x		yes	no	
PT2-30	6		x	no	no	No Recording, because all curves are identical

13. Reference Standards

Tested standard	Reference Standard (identical/similar to)
IEC 60068 PT2-1	Identical with: BS EN 60068 PT2-1 DIN EN 60068 PT2-1 DIN IEC 68 PT2-1 EN 60068 PT2-1 HD 323.2.1 JIS-C0020 NEN 10068-2-1 NFC 20-701 NF EN 60068-2-1 SEN 43 16 01 SS EN 60068
IEC 60068 PT2-2	Technical Equivalent to: AS 1099:PT2BA AS 1099:PT2BB AS 1099:PT2BC AS 1099:PT2BD JIS-C8938 Identical with: BS EN 60068 PT2-2 DIN EN 60068 PT2-2 DIN IEC 68 PT2-2 EN 60068 PT2-2 HD 323.2.2 JIS-C0021 JIS C0039 NEN 10068-2-2 NFC 20-702 NF EN 60068-2-2 SEN 43 16 02 SS EN 60068

IEC 60068 PT2-14	Technical Equivalent to: AS 1099:PT2N AS 1099:PT2NA AS 1099:PT2NB AS 1099:PT2NC DIN EN 60068-2-14 JIS-C0025 Identical with: BS 2011:PT2.1N(1985) BS EN 60068-2-14 DIN IEC 60068-2-14 DIN IEC 68 PT2-14 EN 60068-2-14 HD 323.2.14 NEN 10068-2-14 NEN EN IEC 60068-2-14 NFC 20-714 NF EN 60068-2-14 SEN 43 16 13 SS EN 60068
IEC 60068 PT2-30	Technical Equivalent to: AS 1099:PT2DB JIS-C0027 Identical with: BS 2011:PT2.1DB(1981) BS EN 60068-2-30 DIN EN 60068-2-30 DIN IEC 60068-2-30 DIN IEC 68 PT2-30 EN 60068-2-30 HD 323.2.30 NEN 10068-2-30 NEN EN IEC 60068-2-30 NFC 20-730 SS EN 60068