LINC-NIRVANA

The **L**BT **IN**terferometric **C**amera and
Near-**I**nfra**R**ed / **V**isible **A**daptive
i**N**terferometer for **A**stronomy

A collaborative project of the MPIA Heidelberg, INAF-Arcetri,
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LINC-NIRVANA

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Detector temperature front and back side

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Issue	Date	Section/ Paragraph Affected	Reasons / Remarks
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1 Scope

The detector temperature was measured on the front and the backside. Due to the heat dissipation inside the fan out board a thermal gradient between the heat sink on the back side and the detector itself does occur.

2 Applicable documents

No.	**Title**	**Number & Issue**

3 Acronyms and abbreviations

4 Test set up

The detector was mounted inside the IR test cryostat. Two temperature control loops were used. One for the control of the base plate temperature and one for the detector backside temperature. The base plate was set on a constant temperature of 60 K. The detector temperature set point was changed. A chip carrier with a glued on M3 brass screw was used for mounting a DT670 silicon diode. For comparison the read out of the board was in one run switched of, in the next run switched on.

5 Results

5.1 Fan out board off

	Setpoint	Det front	Det back	Difference
1	65,0	66,45	65,0	1,5
2	67,5	67,60	67,5	0,1
3	70,0	69,90	70,0	-0,1
4	72,5	72,17	72,5	-0,3
5	75,0	74,41	75,0	-0,6
6	77,5	76,65	77,5	-0,8
7	80,0	78,89	80,0	-1,1
8	82,5	81,15	82,5	-1,3

Table 1: Detector back and frontside temperature, fan out board off, base plate temperature 60 K

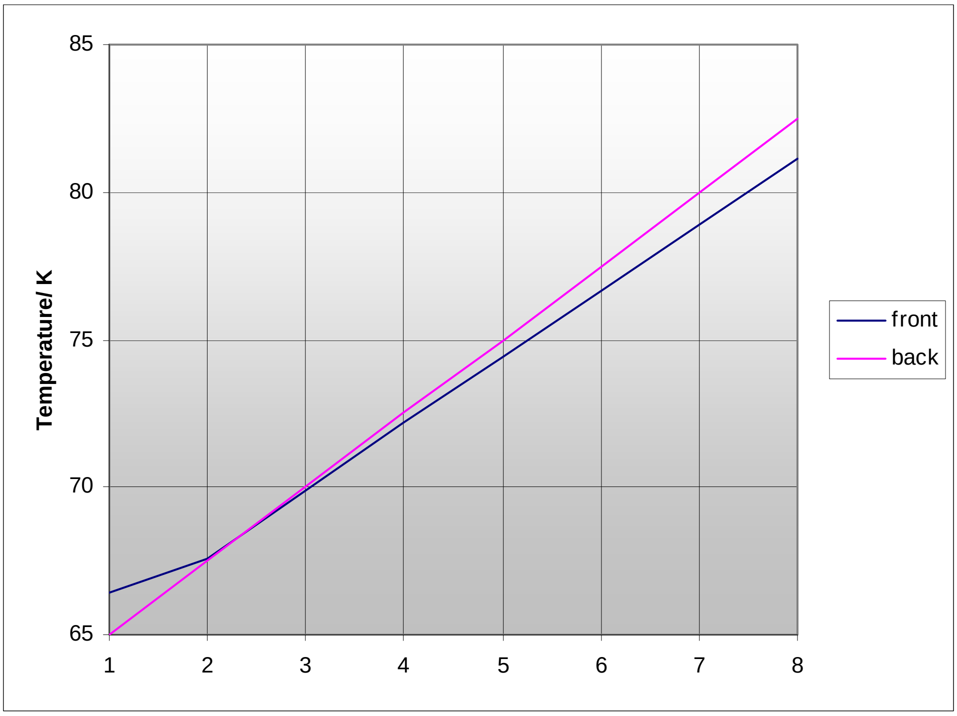

Diagram 1: Detector back and frontside temperature, fan out board off, base plate temperature 60 K

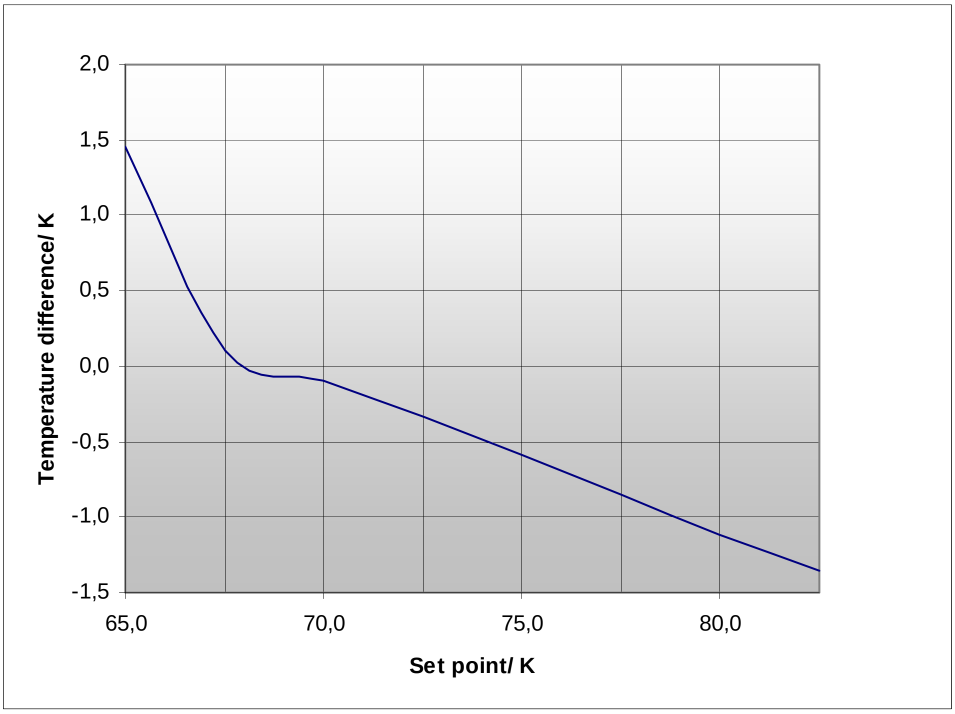

Diagram 2: Temperature difference between front and backside, fan out board off

5.2 Fan out board on

	Setpoint	Det front	Det back	Difference
1	65,0	72,50	70,0	2,5
2	67,5	74,70	72,5	2,2
3	70,0	76,90	75,0	1,9
4	72,5	79,20	77,5	1,7
5	75,0	81,40	80,0	1,4
6	77,5	83,60	82,5	1,1

Table 2: Detector back and frontside temperature, fan out board on, base plate temperature 60 K

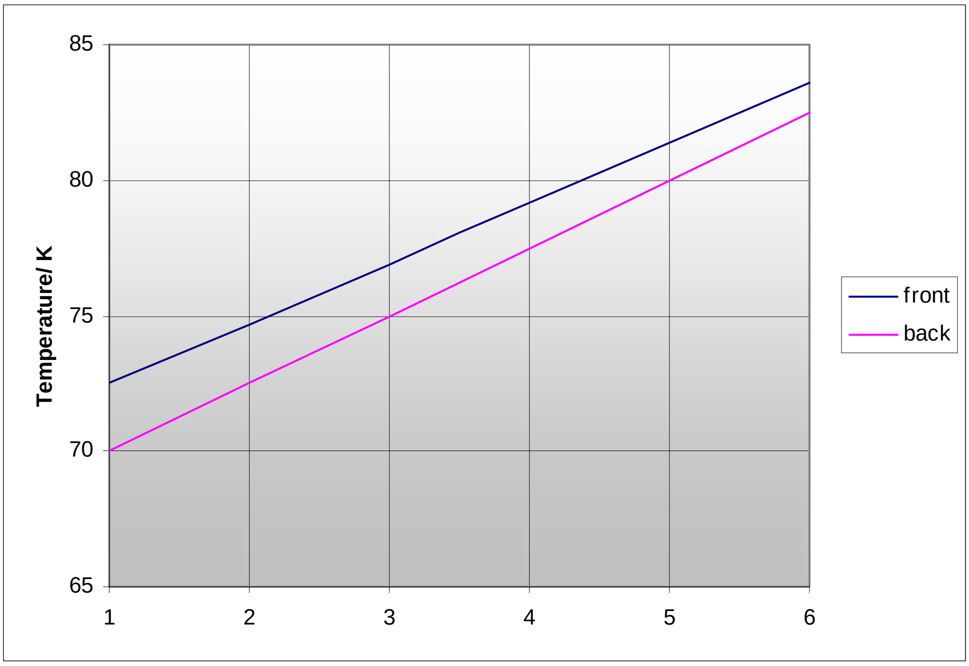

Diagram 3: Detector back and frontside temperature, fan out board on, base plate temperature 60 K

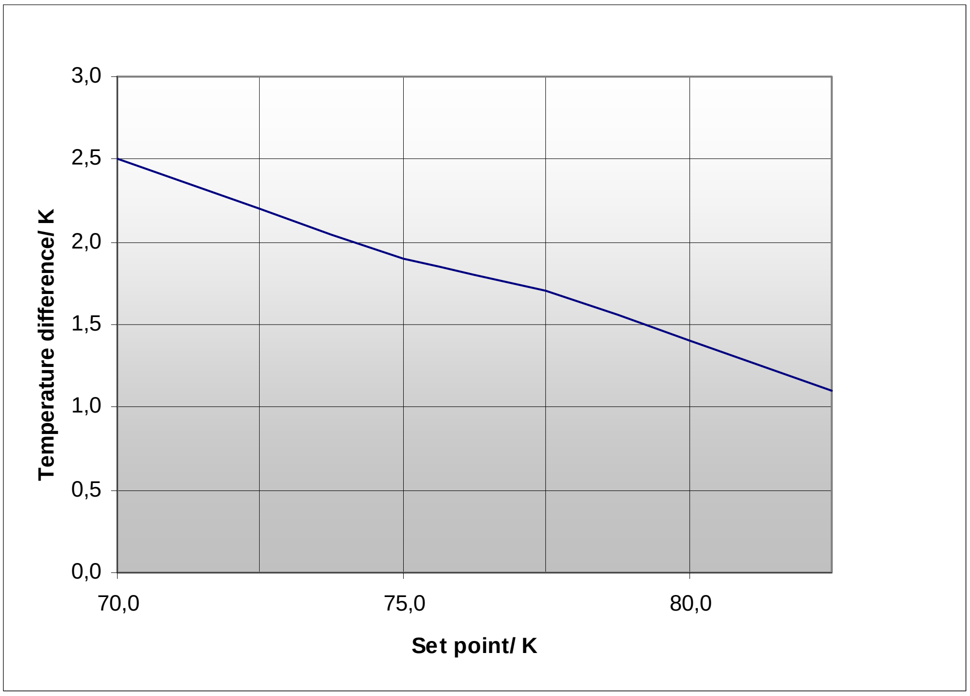

Diagram 4: Temperature difference between front and backside, fan out board on