Burn in of the voltage reference for the 22-bit Delta-Sigma converter, v. 10.1

Burn-in

The internal reference, LTZ1000, should normally be burned-in (for ageing purposes) using a special setup in an oven.

The documentation of the burn-in card to be used can be found here:

\\cern.ch\dfs\Departments\TE\Groups\EPC\Sections\HPM\ADCs-DVMs-4808\22bit DS ADC\LTZ1000 burn in card

The data for the previously burnt-in LTZ1000 can be found in Gunnar's logbook entry from 29.07.2005.

The testpoints and the jumper settings can be checked either in the card's schematic, either through the writings on the card itself (names of testpoints and jumper's is written by hand on the card - position 6)

The burn-in procedure is the following:

- Put all the measurement probes on the testpoints corresponding to VB1
- Set the heater OFF by using the appropriate jumper switch
- Set the oven to 80ºC
- After the temperature of the oven is stabilised (some hours), measure and note down VB1
- Set oven to 120ºC
- After the temperature of the oven is stabilised (some hours), measure and note down VB1
- Set oven to 130ºC
- After the temperature of the oven is stabilised (some hours), measure and note down VB1
- Put the heater ON and change the measurement probes to measure the value of the current – I . This current is measured through a 10Ohm resistor.
- Set the oven to 80ºC and let the temperature of the oven stabilise (some hours).
- Adjust the current "I" through the use of the potentiometer box, to a value of 19mA.
- Change the measurement probes to measure the value of VB1, wait the necessary time for the temperature to stabilise (if you were forced to open the oven door) and then measure and note down VB1. This value should be within the interval VB1@120ºC and VB1@130ºC

- Adjust the heater current using the potentiometer box to have on VB1 the average value between VB1@120ºC and VB1@130ºC.
- Measure the current on I testpoint and note it down. It should be close to 19mA
- Keep the setup at 80ºC during 3..4 weeks but pulsing the supply voltage to have the heater + zener powered during 45minutes and unpowered during 15minutes per hour. Each 2 days, adjust the current to the value corresponding to a VB1 which is the average value between VB1@120ºC and VB1@130ºC.