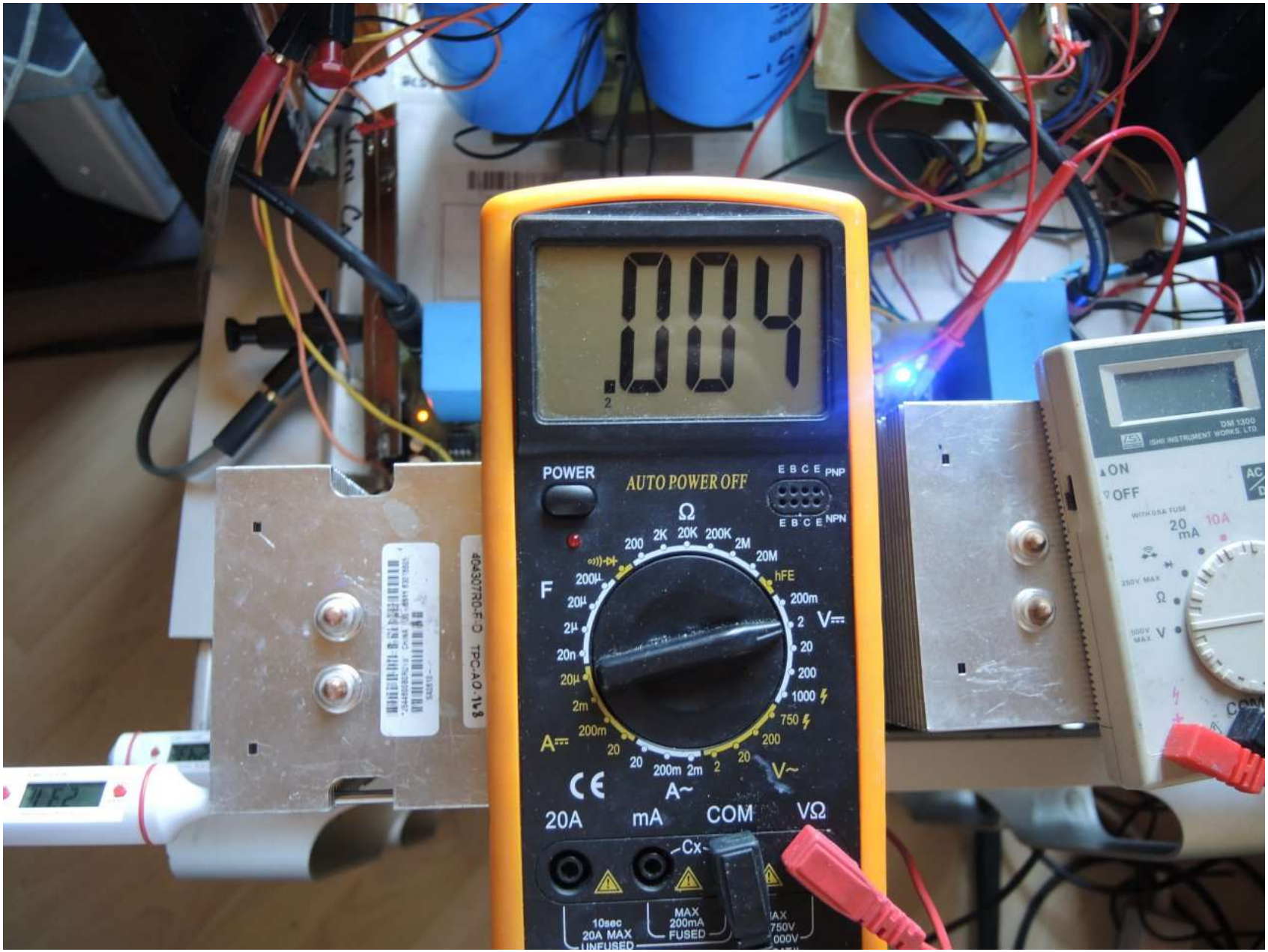
Class A Single End Full Transistors –
Heat Dissipation and Comparation & visa Versa Amp & DC Out

The Amp has been powered on at 09:00 even the Picture Time shows 09:27 – Camera time wrong..
So I took some heat measurements in several steps fist time 9:00 and then 3 minutes later and so on up to 1hour and 30 minutes, this also shows the efficiency of the Active Cooling heatsink where the output transistors are mounted on.

At the end you will find a picture which compares two ways of measuring the heat. They differ because the lack on the handheld which refuses to measure bright and clean metal correctly.,. but this is just a minimum and can be ignored, as I only uses for fast measuring where I cannot insert the probe of the thermometer. Pictures are heat, Amp and DC at Speaker Terminal Output.

Amplifier has been powered up. This is BIAS at these Temps seen in the Picture above RE= 7.8 Ohm 400 Watts Rail +- 42 Volts

DC output in Millivolts



6. minutes later new measurements.

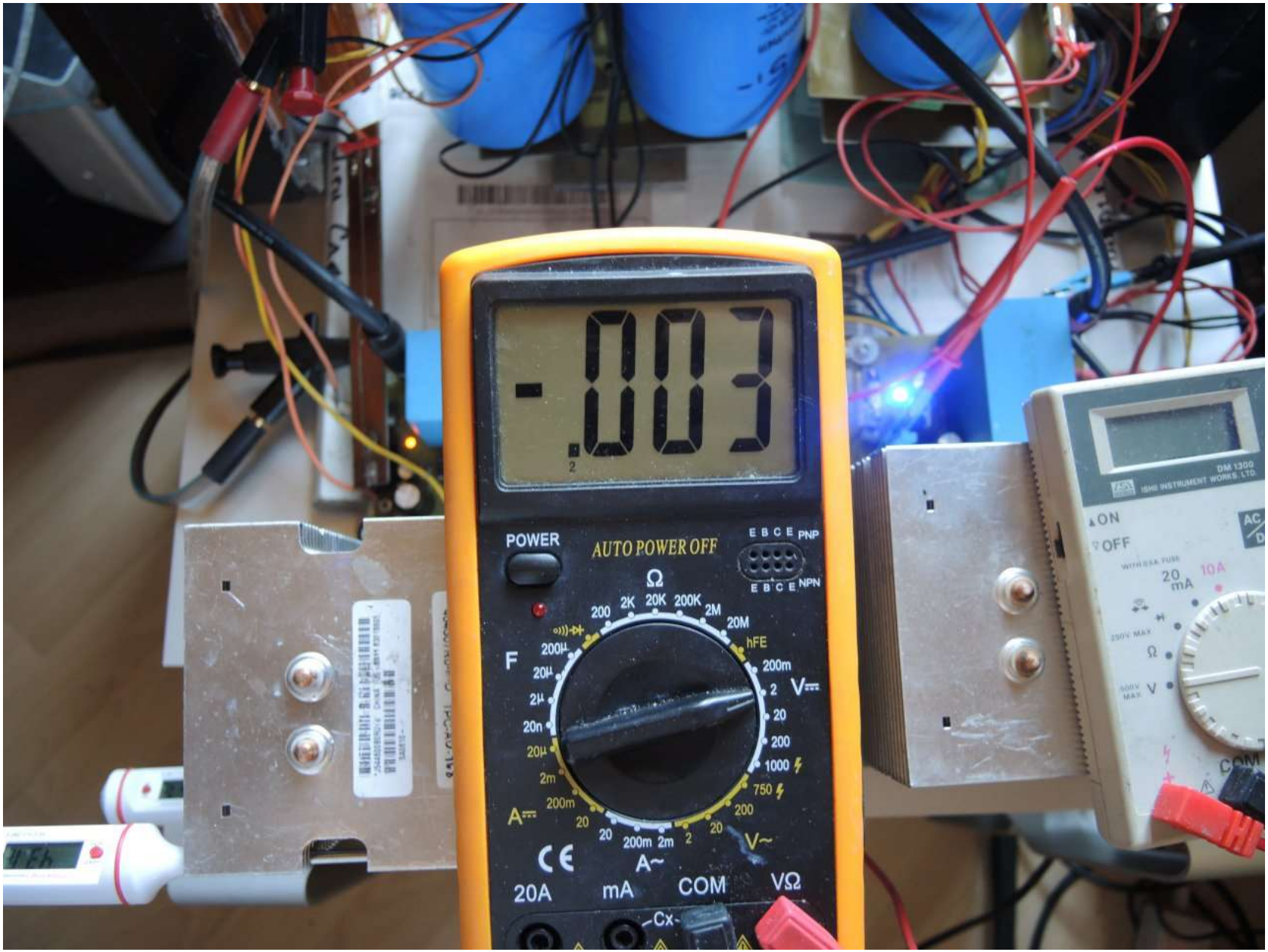
Another few Minutes Later

Ampere also has been changed as well as Rail voltage, which can be calculated by the Resistance of 7.8 Ohm
That's why there will be other Transformer needed. The max from Size I can place into the Case are 750VAC with 30 – 0 – 30 10 amps

Amps


DIGITAL MULTIMETER
PDM 300 C2
5.31
PARKSIDE
SELECT
HOLD
Ω
V~
V⎓
OFF
μA≈
mA≈
A≈
OFF
AUTO POWER OFF
10A
COM

DC out



One hour later

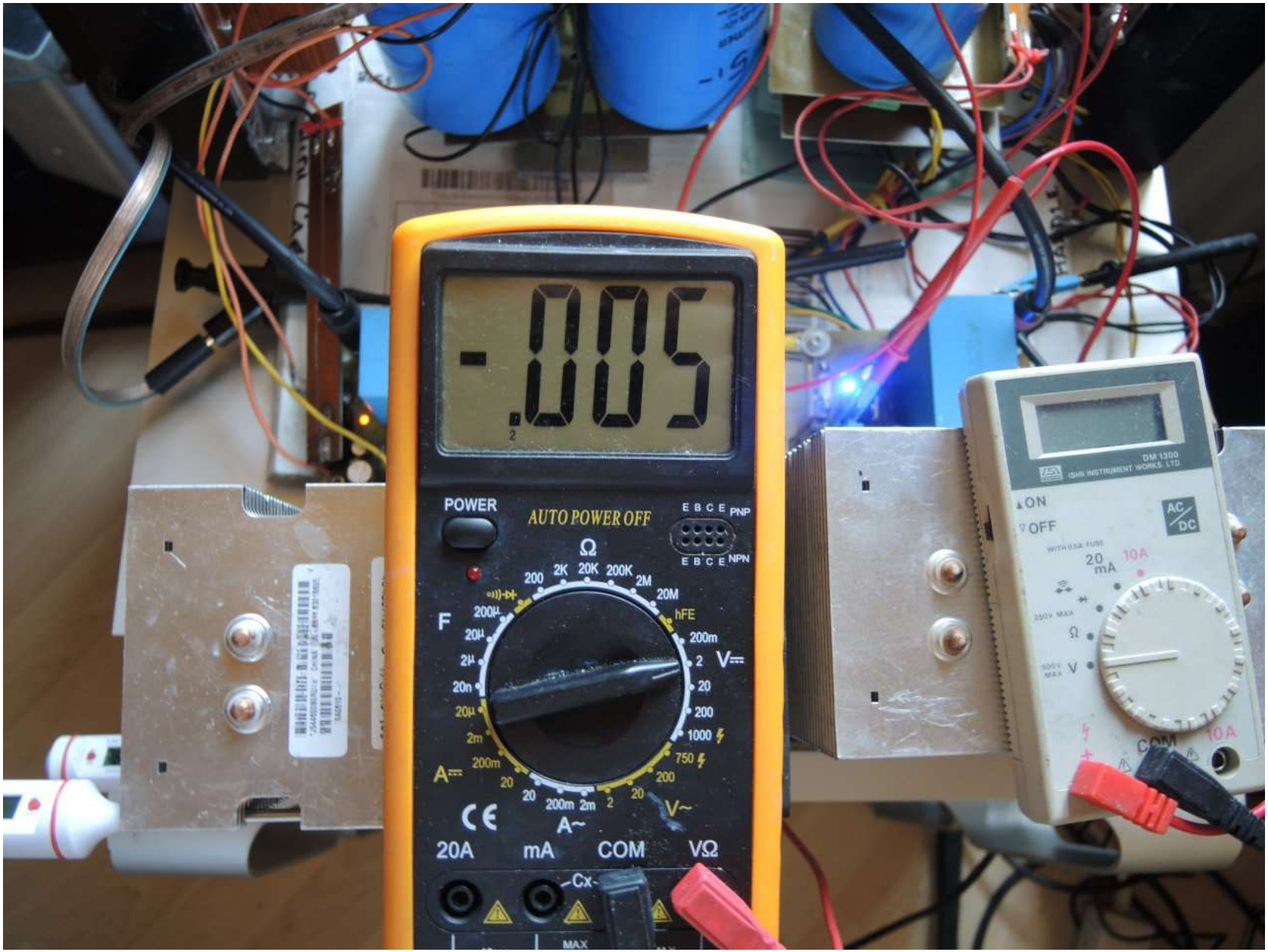
Amps

90 minutes later after powering the amplifier on
Sorry, for the Bad quality of this pic, it reads 44.5C

Amps

Already down by 176 milliamps but still large just for BIAS on 2 Output transistors, where with a regular heatsink you would need 10 pieces in parallel because otherwise it would be far over 100 degrees and Transistors would be fried.

DC output at Speaker Terminals.

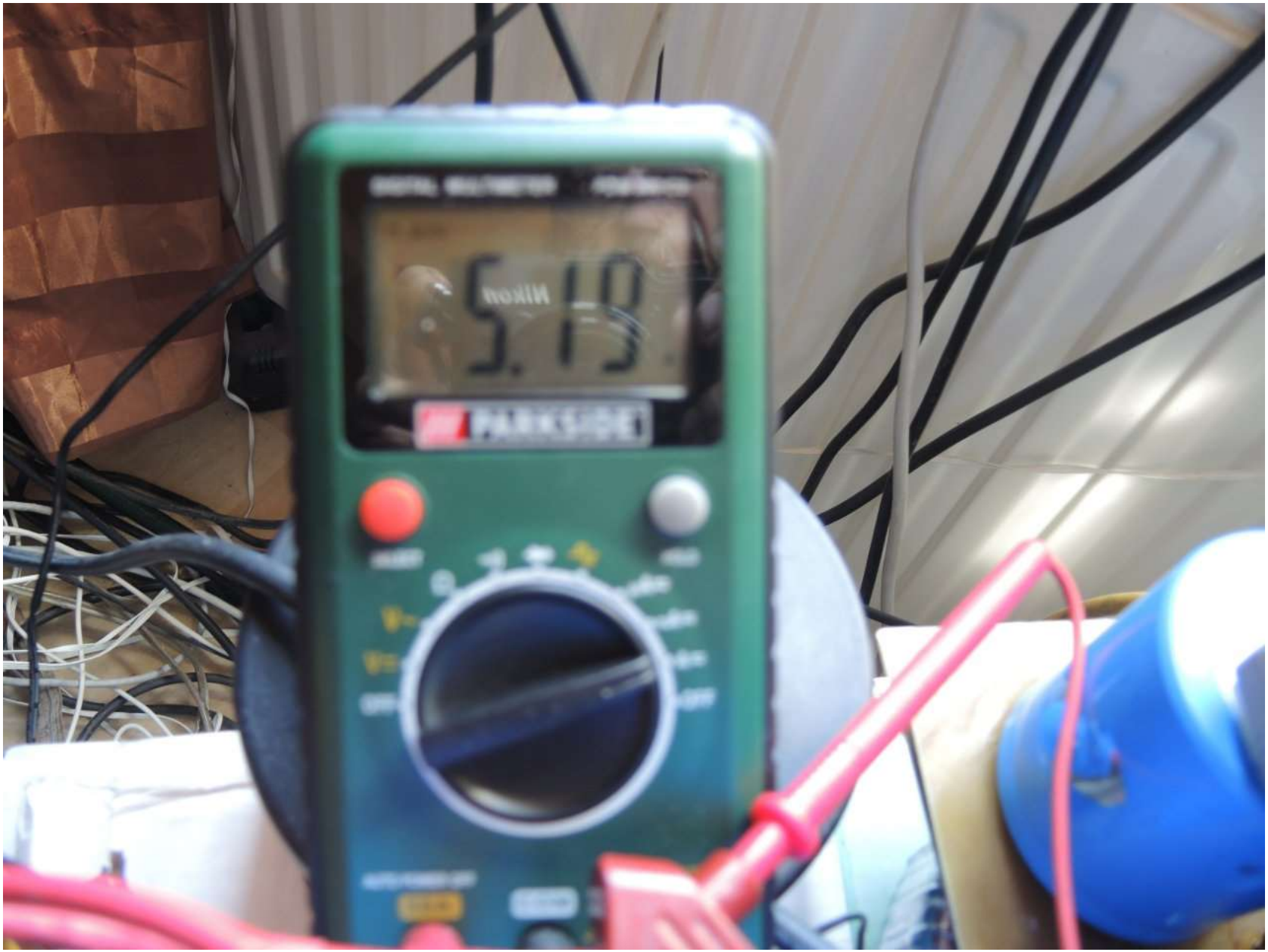


Still within the implied limits of +- 20 millivolts. This amp doesn't care about if there is a signal or not, open input or not or short input or not. Again, sometime later. Heat comparison from Handheld to the one stuck into between heatsinks

As Mark puts it in his post, it's very important that you use this not on Shiny surfaces, I know this for a long time, because you will not get accurate reading. But if its beam is placed where its reflection is made by a dark surface then it can be used. In all my amps I use the sticky Thermometers screwed onto the heatsinks.

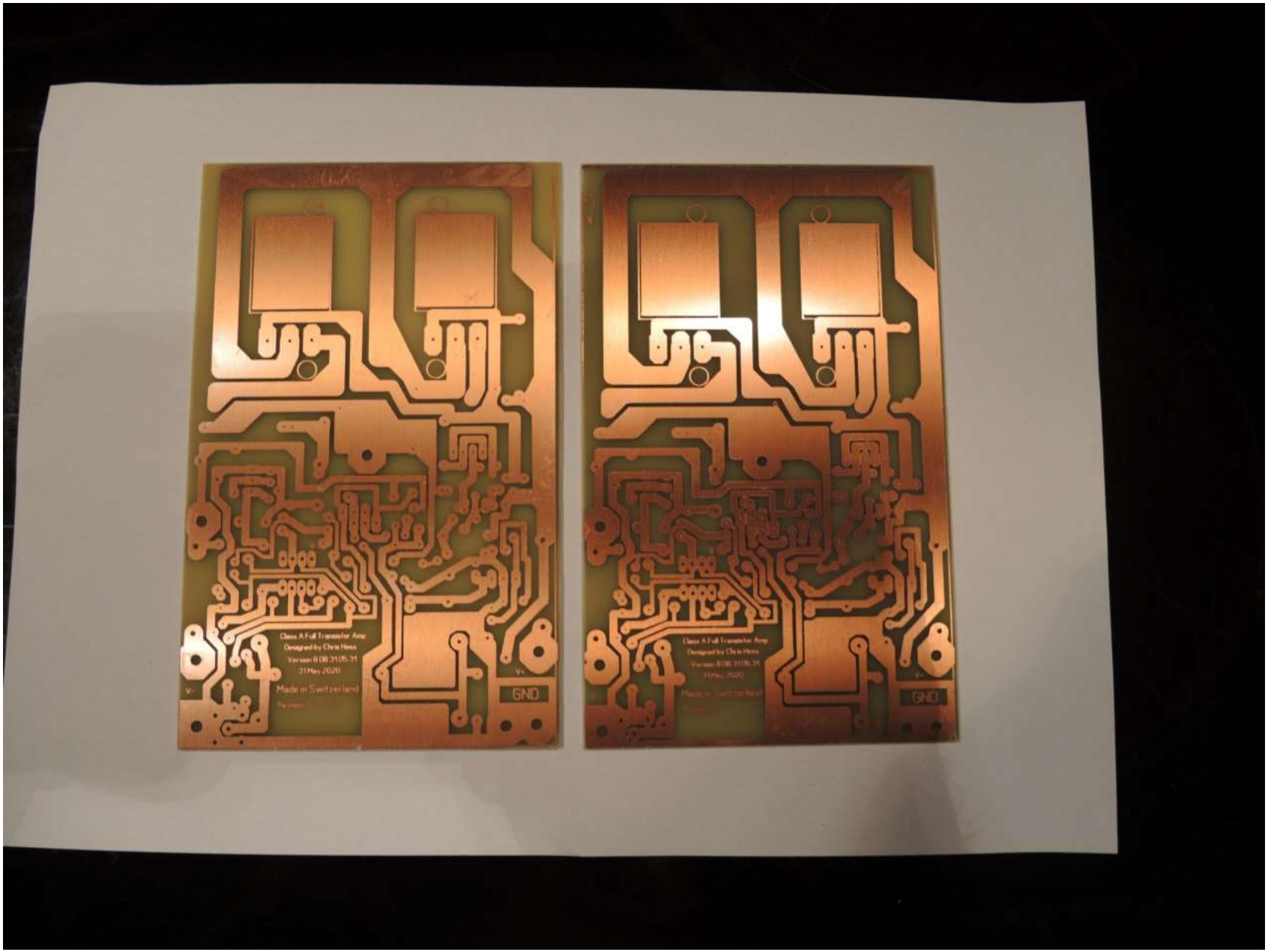
Last but not least sometime later again measuring.. (wasting my time with heat measurements, but these are very important because I don't like to have to repair the Amp because of heat failures or say overheating. So extensive tests have to be made.

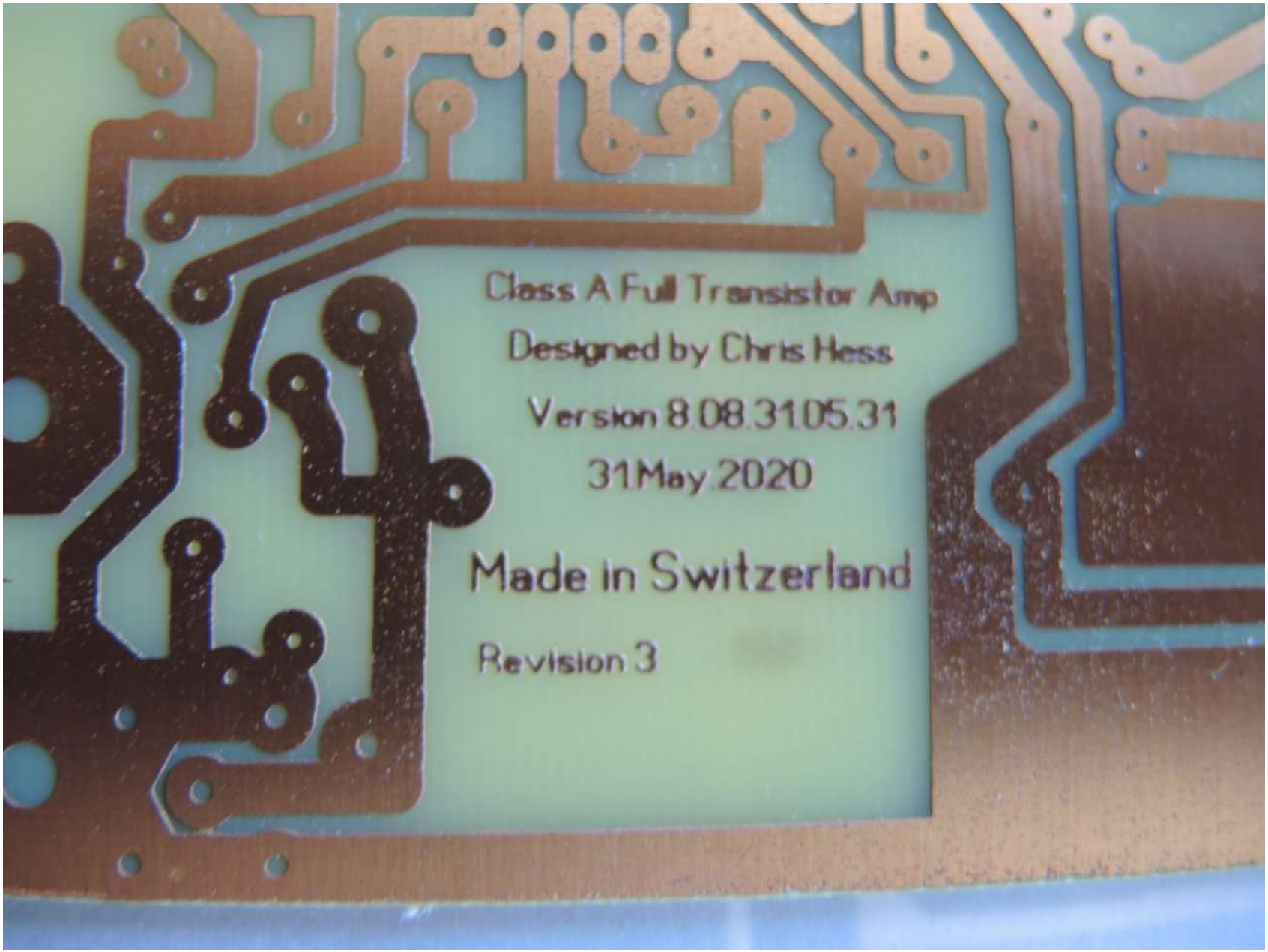
As at the top the heat gets up, at the bottom where the Transistors have been fitted to, it slowly reduces the heat.
Amp



After 16 hour it will be as low as 5.13 and it will stay there even if the amp is powered up 24 hours.

Here a quick view on the Version 3 Boards of this Amplifier where I already corrected layout design error.. if there is need I will draw a version 4.





These board haven't been worked on yet,, there will be a final clearance check, as I see some spot where it didn't edge all of the nor usable Copper away. It was 11 Pm last night when I made the boards.. this shall not be an excuse..
Thanks for reading.