

Temperature Analysis of RM3100 Magnetometer calibration run 07/27/2020

The first plot is temperature at the sensor board in degrees C during the one hour run. The next three plots are X, Y and Z axis value during the same period, as plotted with Open Office Calc using the unedited log file Cal7-27a-07272020-runMag.

The magnetometer Y axis was driven by a +/- 50nT 0.001Hz sine wave in a single axis Helmholtz coil. The RM3100 was mounted on one of Dave Witten's original adapter boards which also contained an i2c bus temperature sensor. A 100 foot run of CAT5E shielded cable connected the test site to a Raspberry Pi using two SparkFun differential i2c extenders with 5 volts from the Pi to the remote extender board which supplied 3.3 volt regulated to the 3100 adapter board.

The first plot is temperature variation over the run. The morning sun was warming the test area. Note that the temperature rise over the hour is accompanied by a rising X value and Z value while the mean of the Y axis (the stimulated axis) shows an inverse relation to temperature.

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