

The Doc's Battery Test Report

Carbon Zinc & Alkaline Battery Data

Introduction

For people to better understand the results of the Ni-MH and Ni-Cd battery tests, The Doc has decided to provide some more detailed data on carbon zinc and primary cell alkaline batteries. The Doc has data on both AAA and AA size batteries. The Methodology section of the website does give some basic graphs. This document gives more detailed data.

AAA battery sets

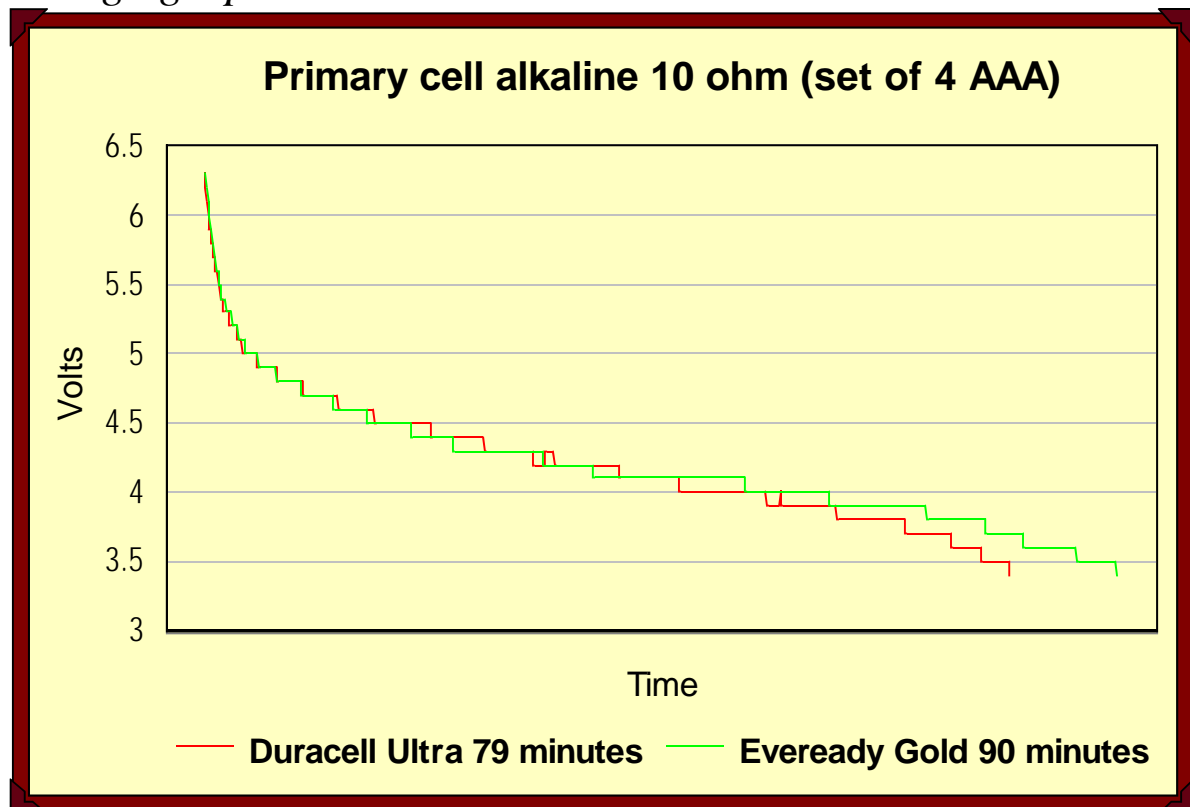
Two brands of batteries were tested, the Duracell Ultra and the Eveready Gold. Both being the premium alkaline battery from each manufacturer. The load placed on the batteries was 10 ohms (half that of the AA size batteries). The Doc graphs the voltage for each battery set during the test on the one graph. This is followed with various graphs of each battery sets' "battery temperature" plotted against "ambient air temperature". Batteries are drained down to 3.4 volts. Since they are primary cell batteries, ie "use once" and throw away (unless your have a Rezap RBC883!), who cares if you flatten the batteries completely?

AA battery sets

The AA size batteries are graphed in the same way with two exceptions: first, a K Mart carbon zinc battery is added to the mix. Secondly, the test load is 5 ohms, not 10 ohms.

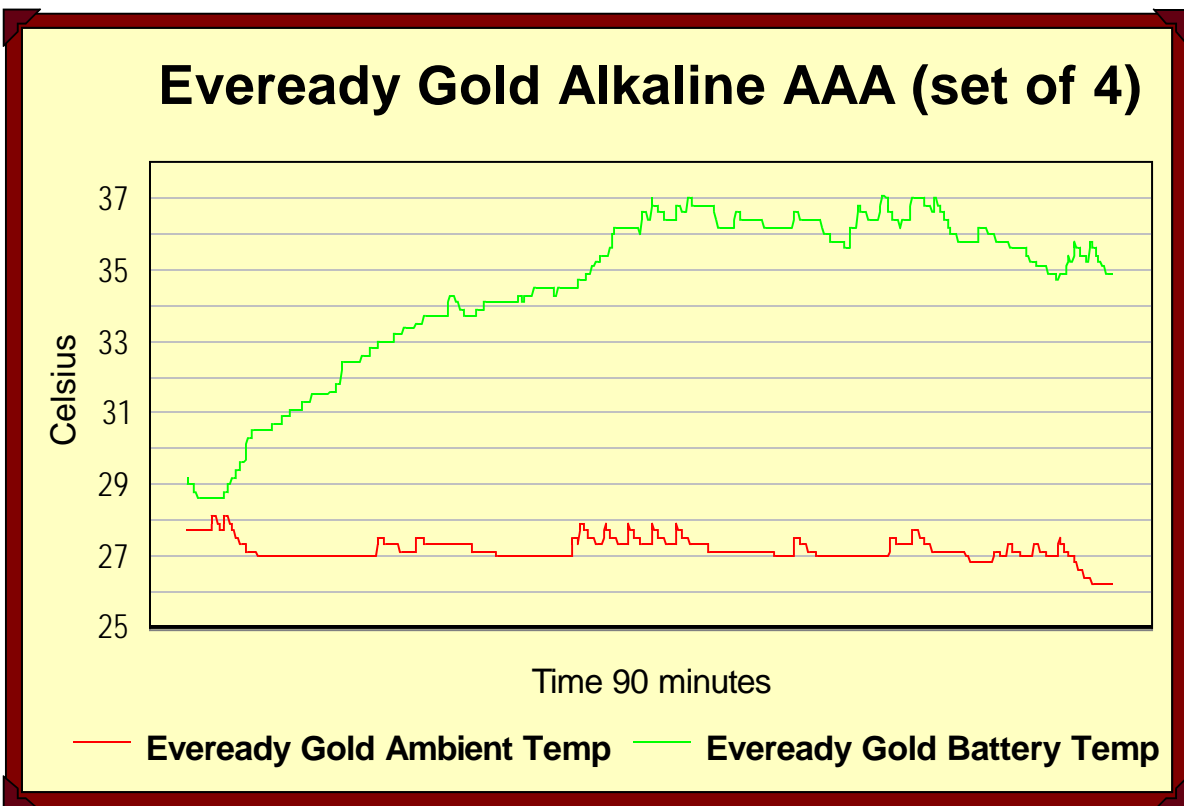
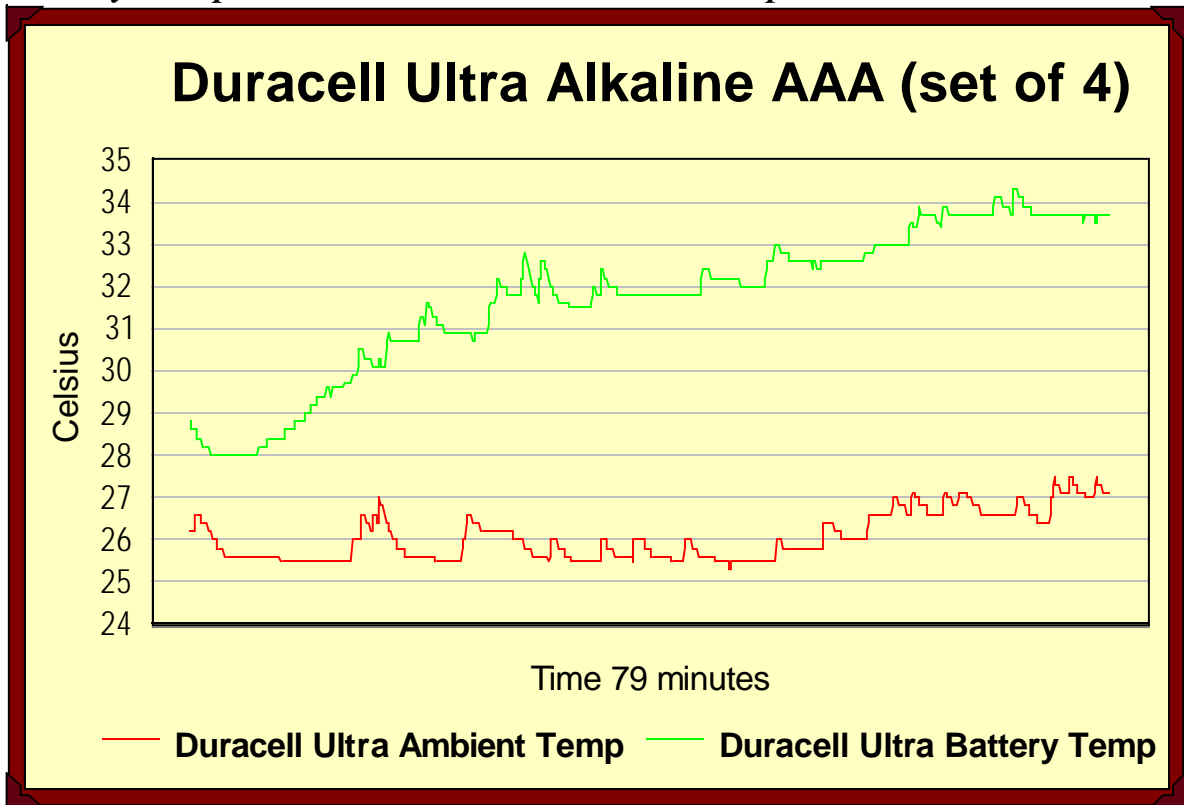
All data for the AAA size batteries is given, followed by the AA battery sets.

Voltage graph AAA batteries



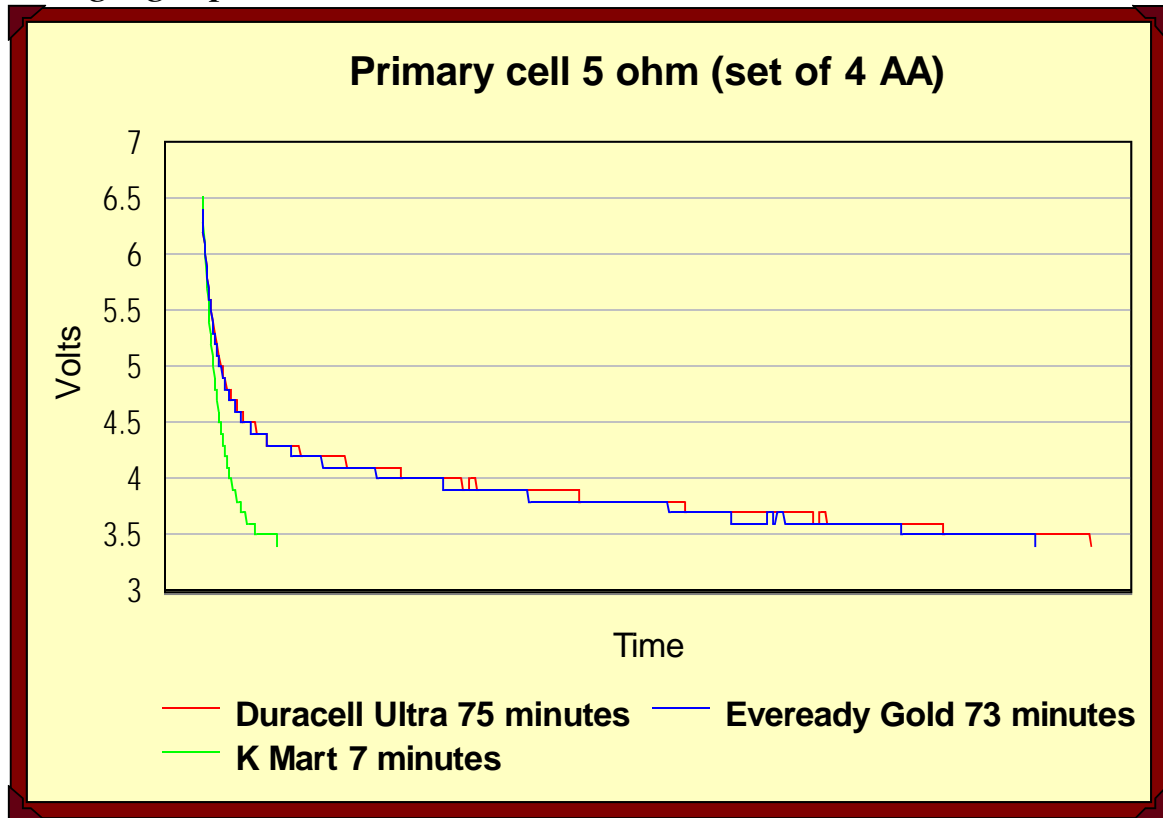
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Battery temperature -v- Ambient air temperature AAA

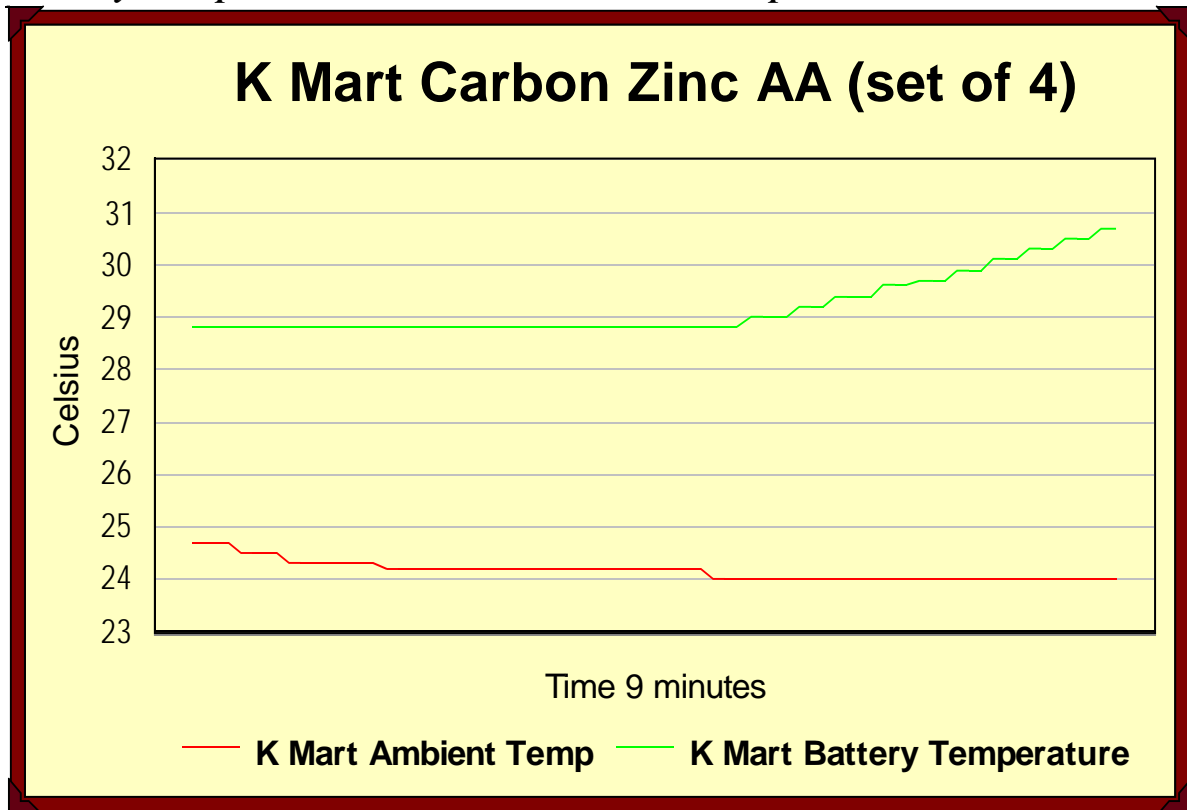


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Voltage graph AA batteries

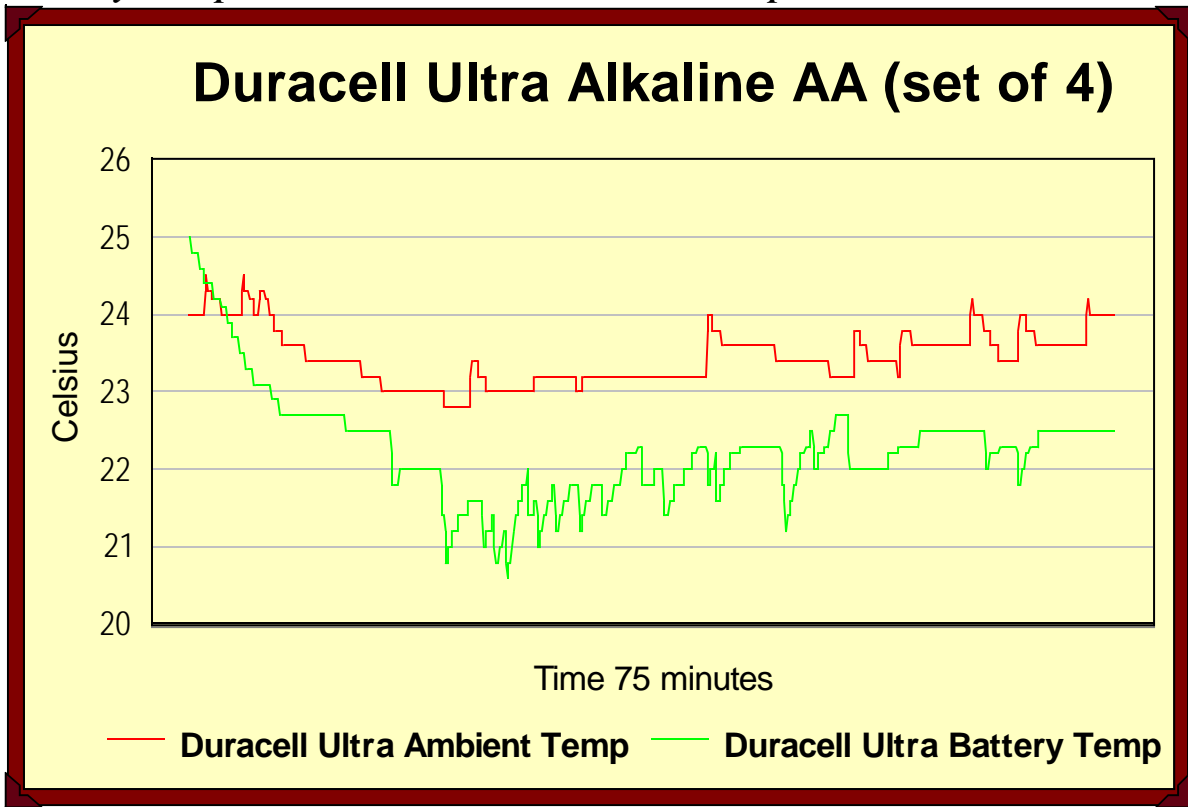


Battery temperature -v- Ambient air temperature AA

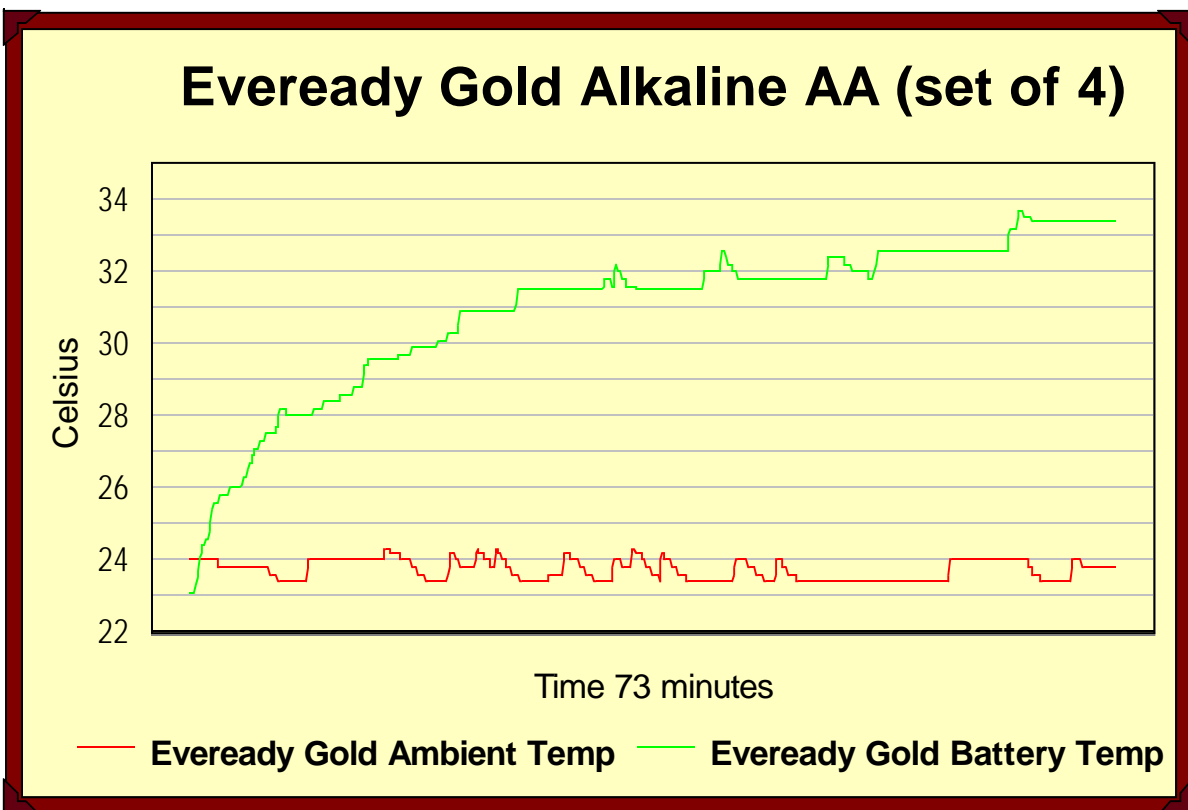


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Battery temperature -v- Ambient air temperature AA



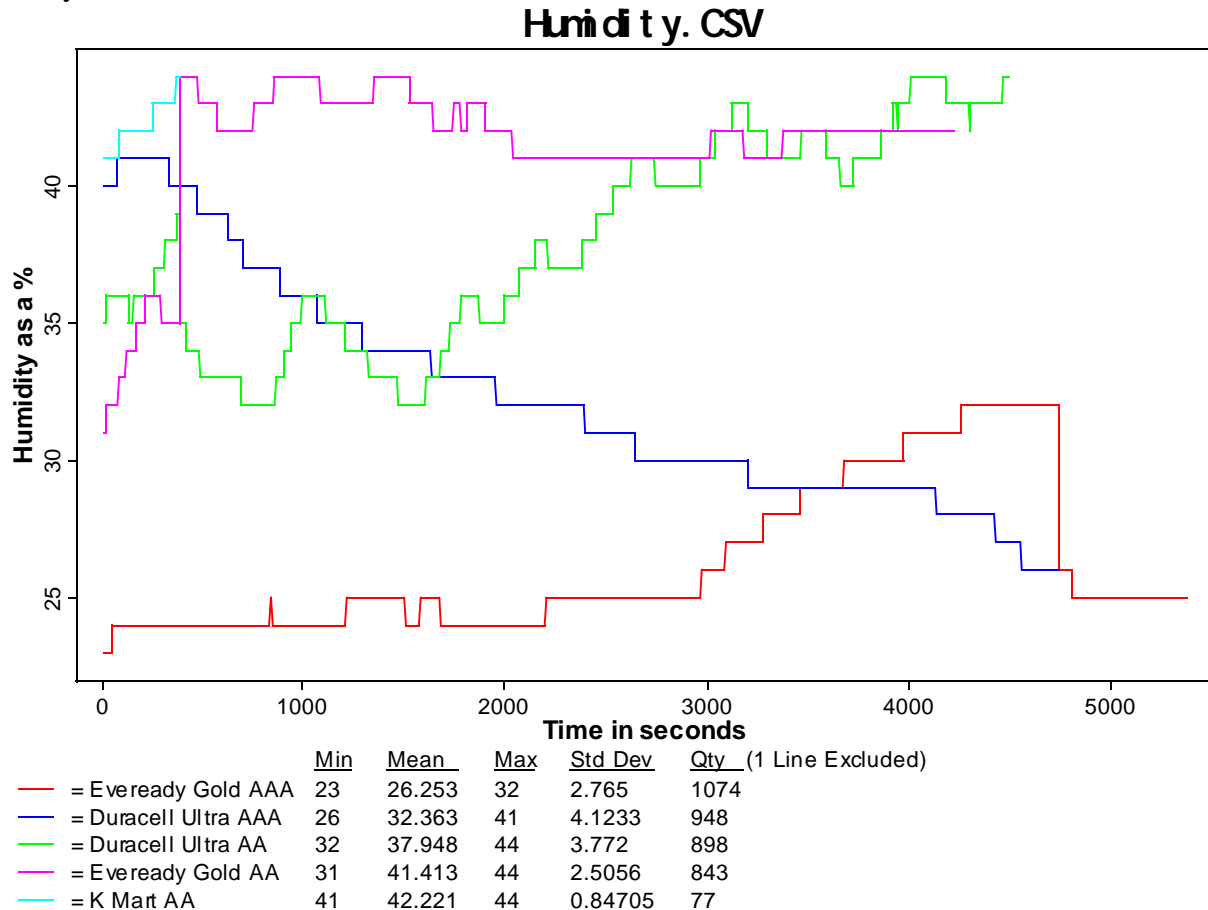
Important: the battery temperature sensor became detached during the test, so the battery temperature data is incorrect and should be ignored.



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Humidity

Humidity readings are also taken during the tests. So The Doc thought he might throw in a little graph for all 5 battery sets. Additional statical information can be found below the graph, including Minimum, Maximum and Mean humidity levels for each set. The Qty column represents each cell in the spreadsheet when readings are taken during each test, and that is every 5 seconds.



Conclusion

A couple of broad observations are possible. First, in performance terms AAA alkaline battery sets and Ni-MH battery sets are almost equivalent – ignoring the number of recharges and the costs savings they represent.

Secondly, carbon zinc batteries are useless under heavy loads. Primary cell alkaline do a bit better, but they are left in the wake of high powered Ni-MH batteries like the Sanyo 2100. Lastly, why do people continue to throw money away by using primary cell batteries?

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