

# The Doc's Battery Test Report

## Battery Details

Brand	Powerex 2200
Size	AAA AA C D 9V 6V
Type	Ni-MH Ni-Cd RAM Alkaline Titanium
Current in mAhs	2200
Stated Voltage	1.5 volts 1.2 volts
Number of batteries	Single Set of 2 Set of 4
Battery Set used	Set 2
Times charged before test started	11
Charger used to charge	Rezap RBC883 Vanson Speedy Box UBA4
Time Batteries charged in charger	See UBA graph on page 2.

## Test Procedures

Spreadsheet name	Powerex2200NiMH-AA-Set2.123 (Discharge data file)
UBA file name	Powerex2200NiMH-AA-Set2-11.uba (Charge file)
Select Resistance 5 or 10 ohms	5 ohms 10 ohms
Voltage cut off	3.5 volts 3.6 volts
Date of test	19/12/03

## Summary of test

Voltage	Starting voltage 5.8 volts, cut off voltage 3.6 volts
Test duration	8583 seconds or 143.05 minutes
Max Battery Temp	33.5 degrees Celsius
Min Battery Temp	30.1 degrees Celsius

## Methodology

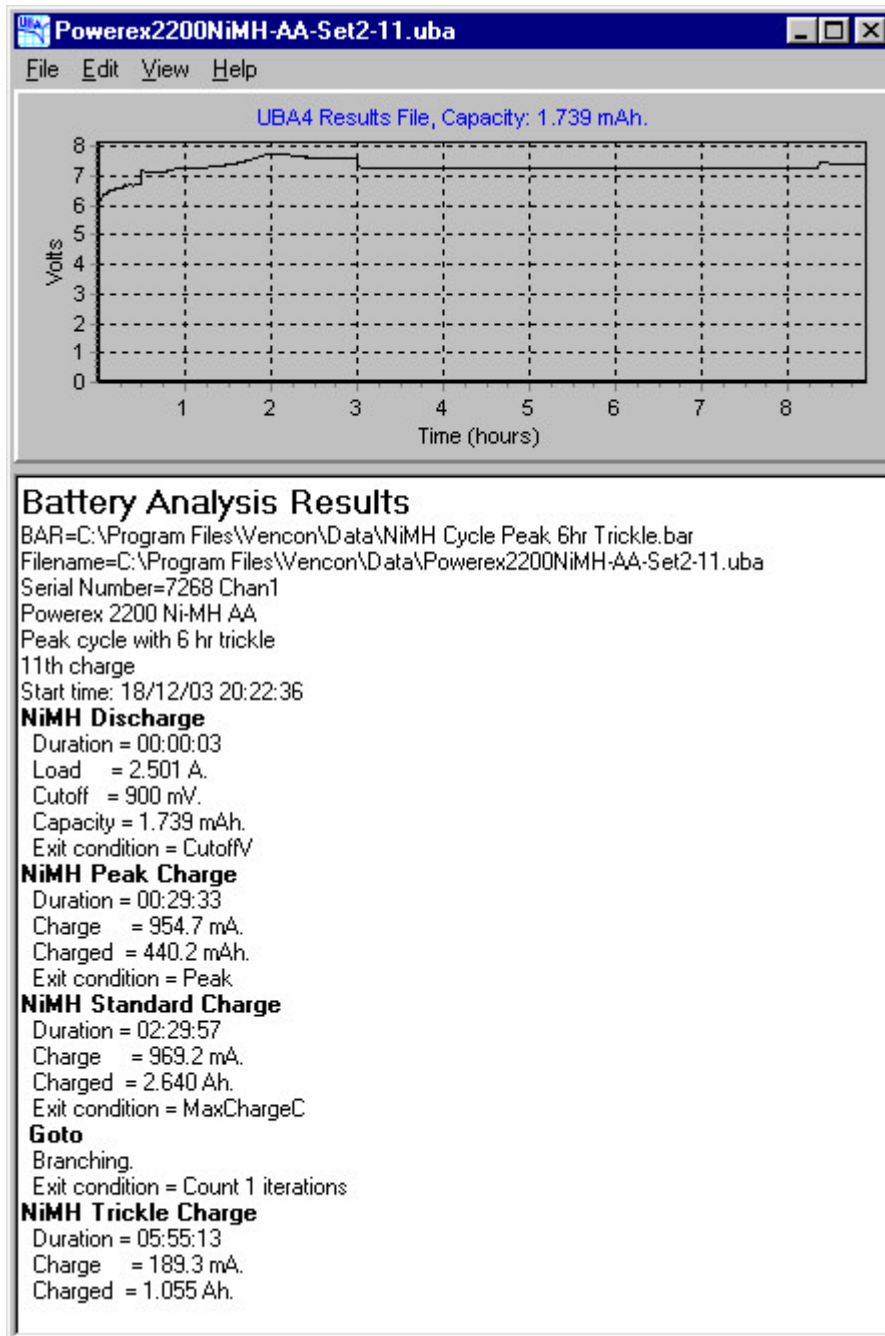
The battery set being tested has been charged at least 5 times. The charge actually used in the test is noted above. The battery set is charged in a Universal Battery Charger (UBA4). It is then tested under a load of 5 ohms, in the scientific dooverlackie. The following pages give various data, including:

1. charging information from the UBA4;
2. a graph of the voltage during the test (cut off voltage being 3.6 volts);
3. a graph of the battery temperature during the test; and
4. a graph of the battery temperature verse ambient air temperature during the test.

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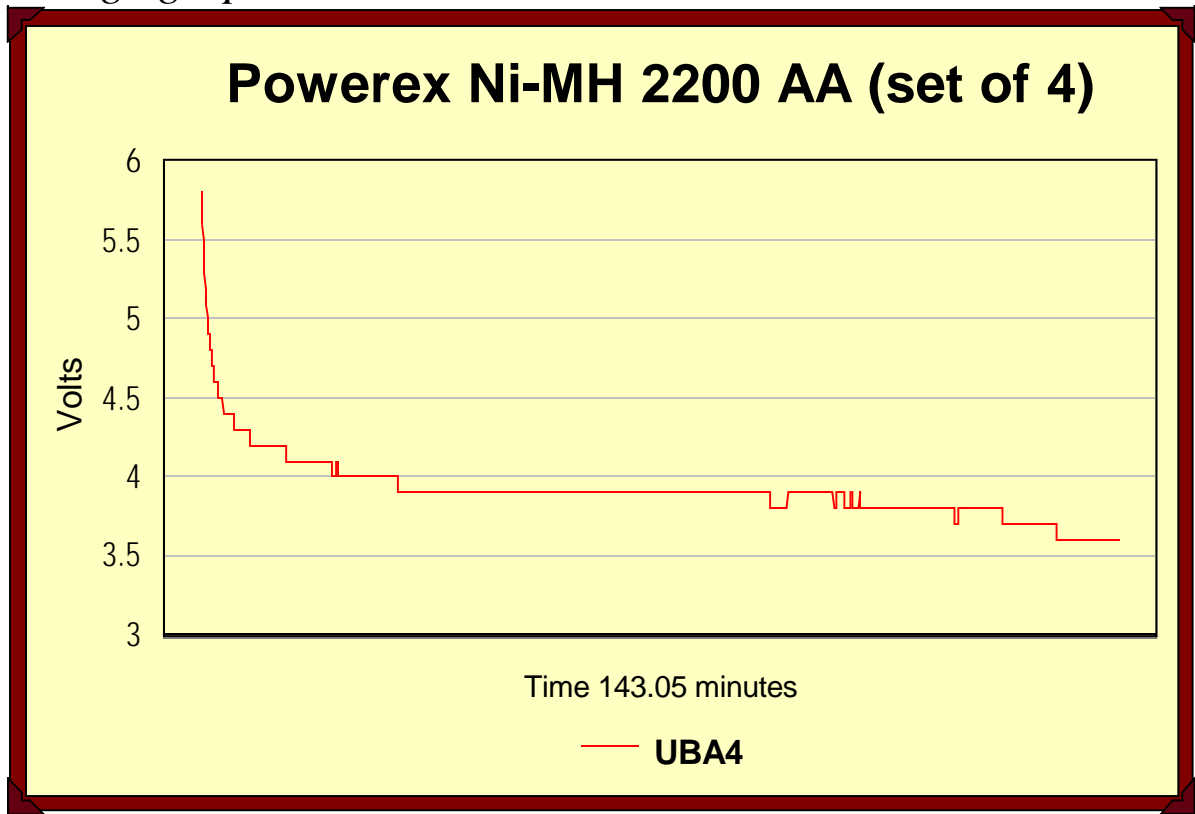
## UBA report

The graph and charging information from the UBA4.

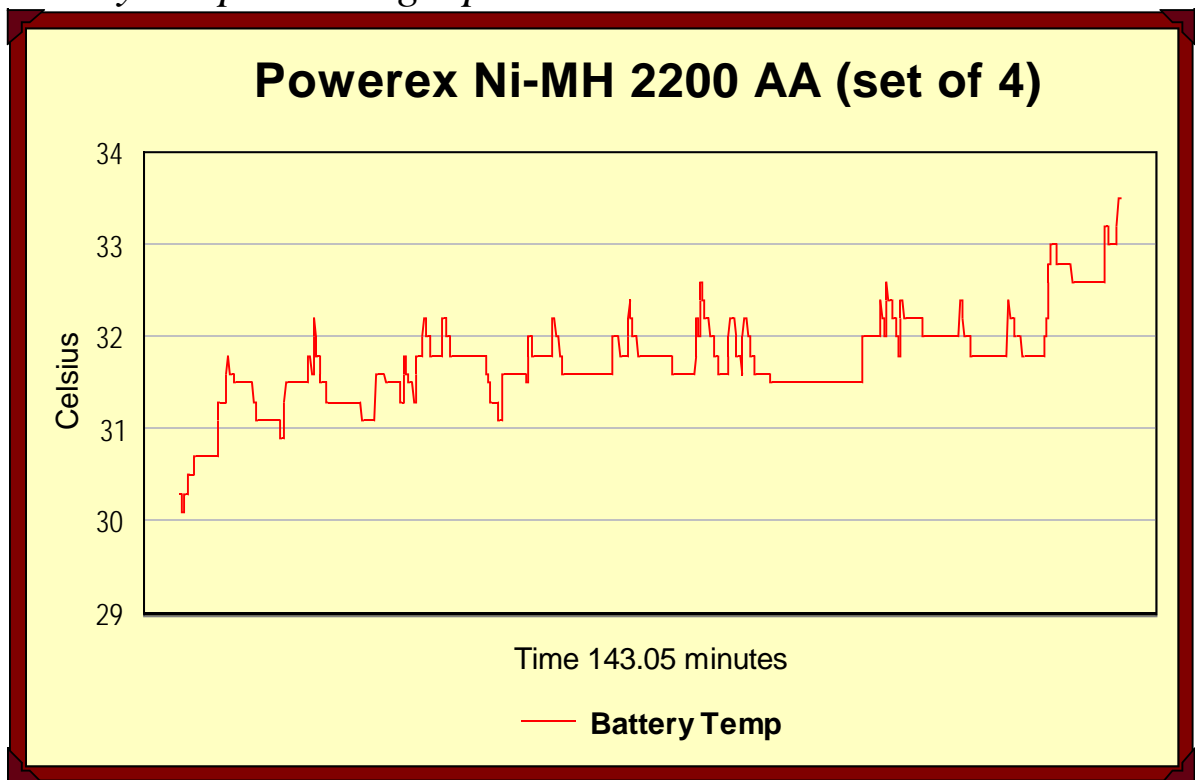


# The Doc's Battery Test Report

*Voltage graph*



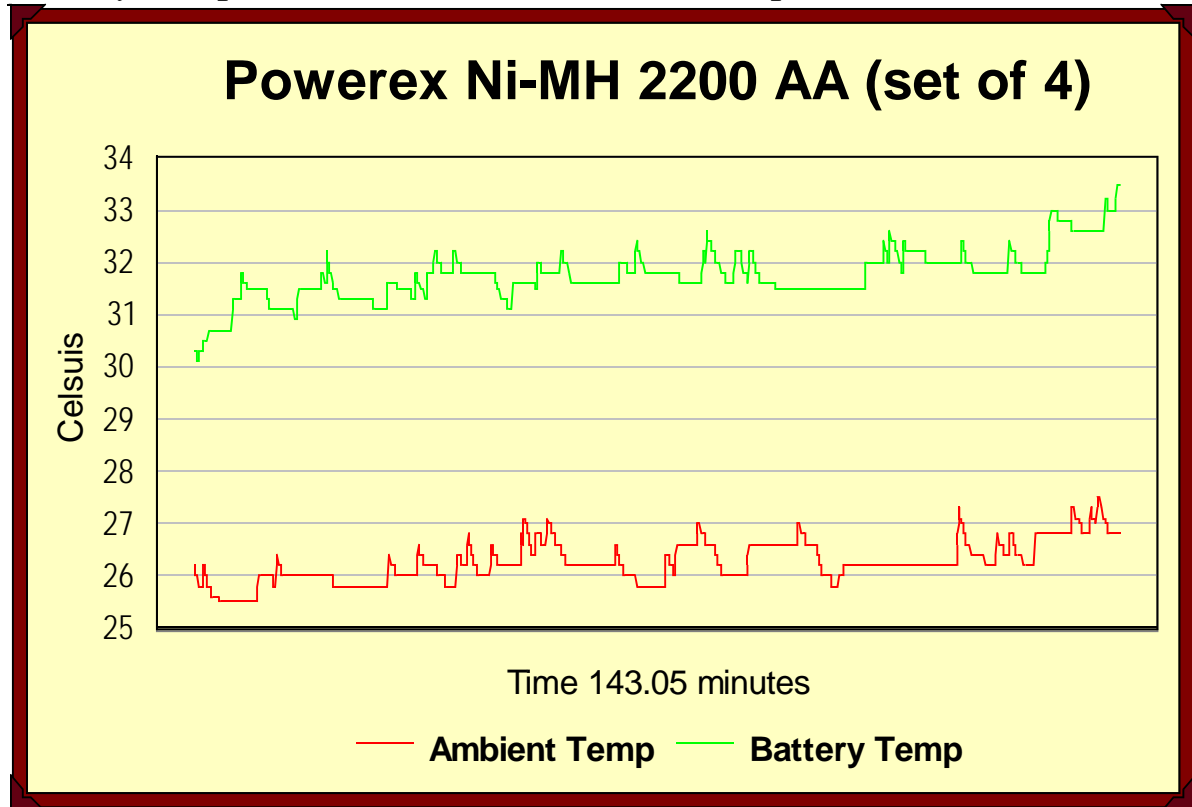
*Battery temperature graph*



Note the battery temperature rises as the battery discharges more energy.

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*Battery temperature -v- Ambient air temperature*



## *Conclusion*

Arguably the most confusing batteries the Doc has tested. The UBA4 is a good charger to use for tests, because of its accuracy and consistency in charging. However, with the Powerex 2200 the results were not consistent. The Doc tested 2 sets of batteries and both produced inconsistent results. Some charges lasted longer than 143.05 minutes, and others very much shorter. The Doc thought that maybe the batteries had not had enough charge cycles, but that did not seem to be the answer. There was also great variation between the different chargers, so the Doc did not include that data.

The Doc is very sceptical of ratings over 2000 mAh (from any manufacturer). The demand for performance leadership perhaps leads to a case of “mine is more powerful than yours”. It does not help when a reliable source told the Doc that one Chinese manufacturer just relabeled a 1800 mAh battery as a 2100 mAh battery! While these batteries lasted the longest, the Sanyo 2100's were much more consistent and therefore they are still have the Doc's performance award. The battery and ambient air temperature was higher for the final test, than some other tests. But some of the worst results occurred at lower temperatures. The Doc is confused! Maybe the batteries will be more consistent with more charge cycles, only time will tell.

<b>Run Time (5 ohm)</b>	<b>143.05 minutes</b>
<b>Battery build quality</b>	<b>Good</b>
<b>Place of Origin</b>	<b>Taiwan</b>
<b>Cost (set of 4)</b>	<b>Not commonly available in Australia</b>

*Report date: 19 December 2003*

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