# The Doc's Battery Test Report

| Battery Details | |
|---|---|
| ***Brand*** | Grandcell RAM |
| ***Size*** | AAA AA C D 9V 6V |
| ***Type*** | Ni-MH Ni-Cd RAM Alkaline Titanium |
| ***Current in mAhs*** | |
| ***Stated Voltage*** | 1.5 volts 1.2 volts |
| ***Number of batteries*** | Single Set of 2 Set of 4 |
| ***Battery Set used*** | Sets 1 & 2 |
| ***Times charged before test started*** | |
| ***Charger used to charge*** | Various |
| ***Time Batteries charged in charger*** | |

| Test Procedures | |
|---|---|
| ***Spreadsheet name*** | |
| ***UBA file name*** | |
| ***Select Resistance 5 or 10 ohms*** | 5 ohms & 10 ohms |
| ***Voltage cut off*** | 3.5 volts 3.6 volts |
| ***Date of test*** | |

| Summary of test |
|---|
| ***Voltage*** |
| ***Test duration*** |
| ***Max Battery Temp*** |
| ***Min Battery Temp*** |

## *Methodology*

The methodology needed to be changed for these batteries, as only the Grandcell charger and Rezap are able to charge Rechargeable Alkaline Manganese batteries. Both the Rezap and the Grandcell recharging performance was similar.

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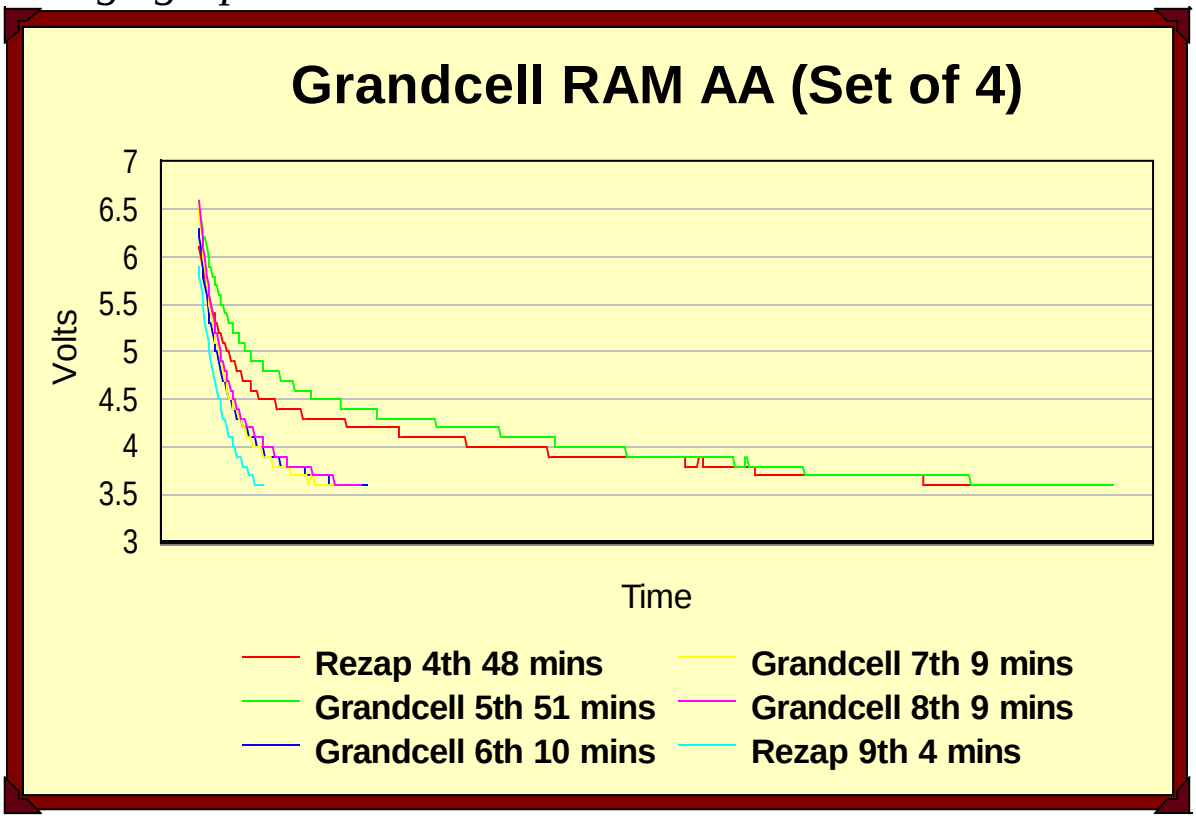
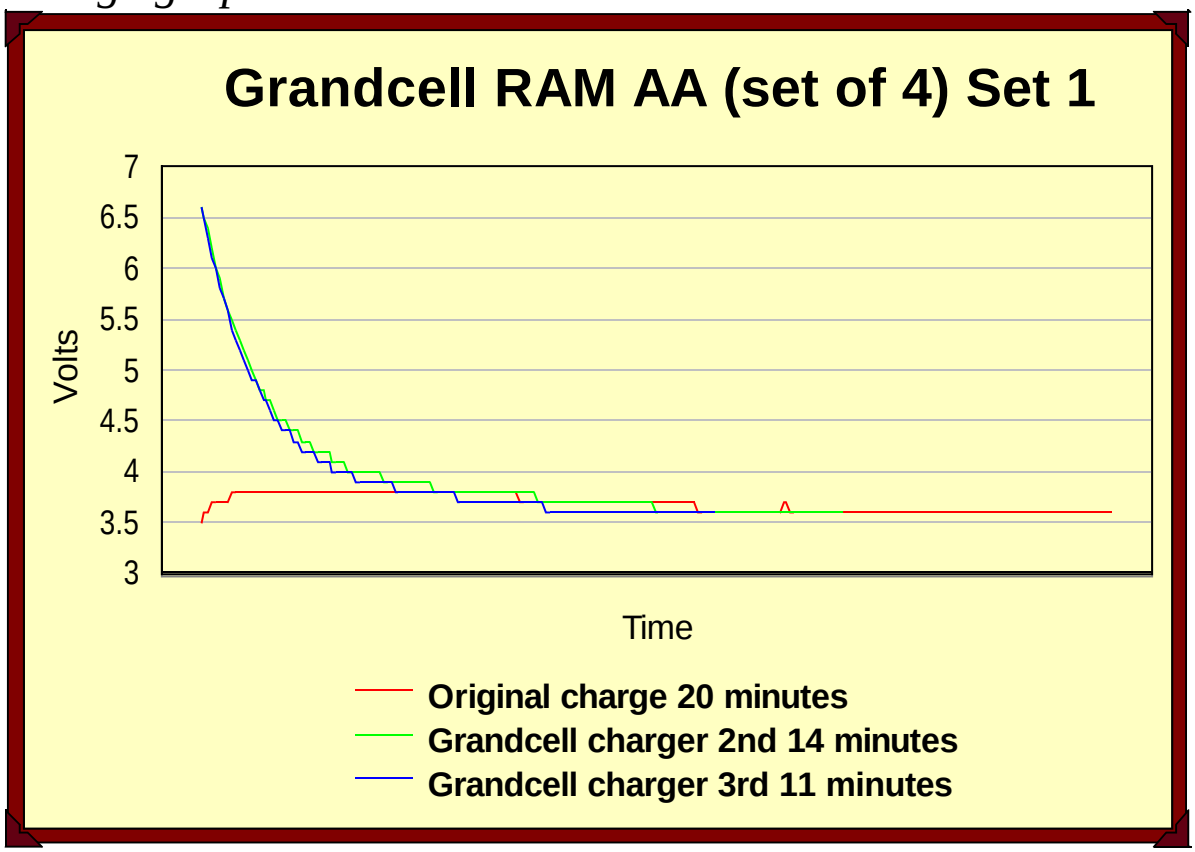
*Voltage graph Set 1*




*Voltage graph Set 2*



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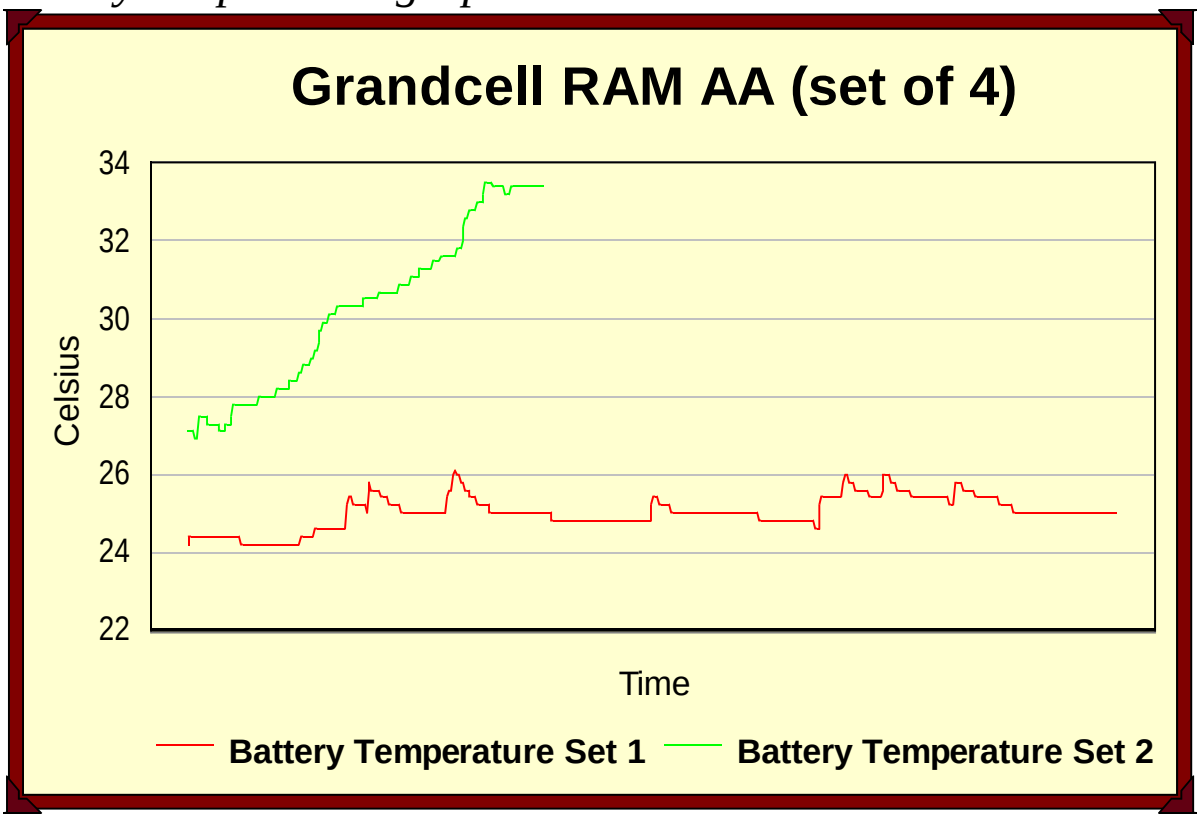
Because of the results of Set 1, The Doc bought a second of batteries to test. Set 1 was tested at 5 ohms and Set 2 at 10 ohms. A few observations; first, the start out voltage of the second set was an extraordinarily low 3.5 volts (unfortunately The Doc did not run the test on the original charge of Set 1). Secondly, both sets quickly lost the ability to take a full charge. Set 1 lasted about 5 charges, but Set 2 only one charge, due to the higher load on the batteries during testing. Not only is the performance of the Grandcell's poor for high drain devices, they will only last a few cycles under the lighter load of 5 ohms. The Doc doubts the manufacturer's claim that they can last up to 25 recharges (using either 5 or 10 ohms). Lastly, Grandcell's RAM batteries are definitely not suitable for high drain devices.

## *Battery temperature graph*




The battery set copes well with a load of 10 ohms, but when increased to 5 ohms the internal battery temperature rises quickly. This would suggest the battery chemistry is unable to supply power under heavy load for sustained periods.

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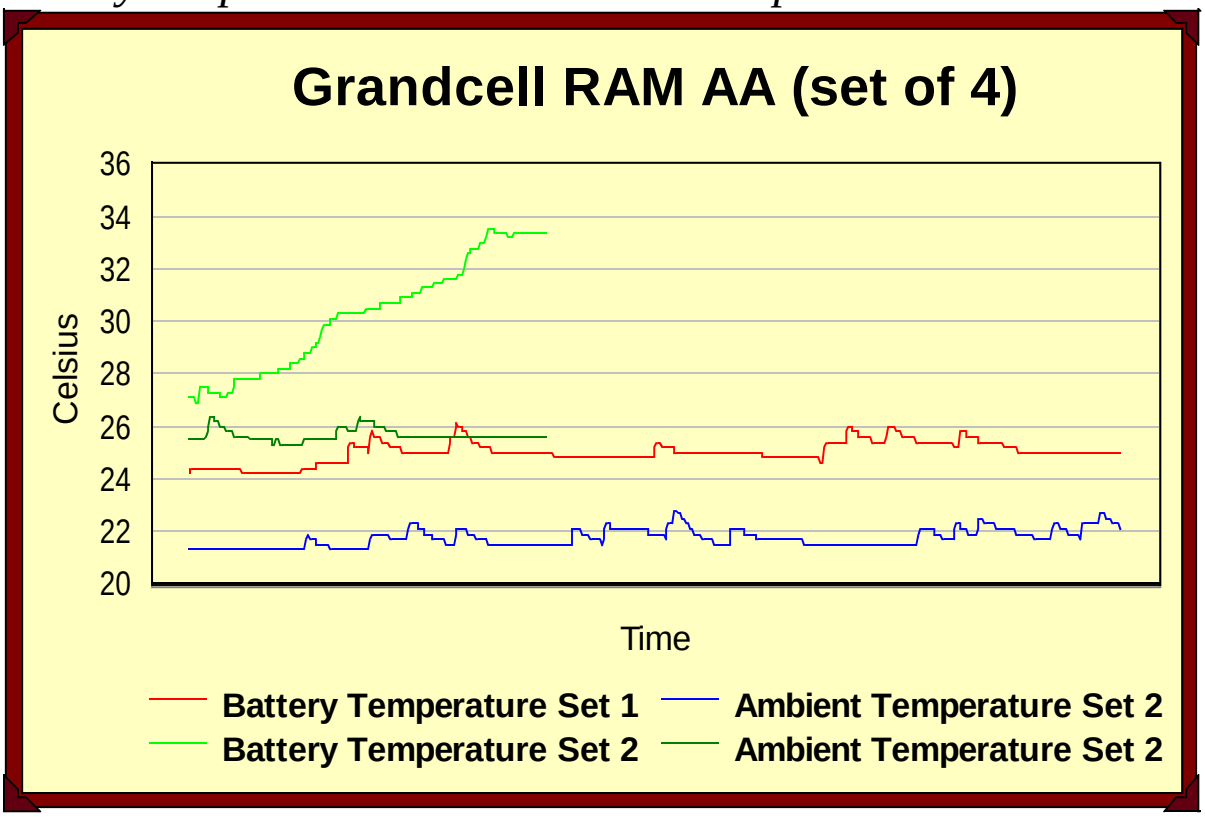
*Battery temperature -v- Ambient air temperature*




## *Conclusion*

The Grandcell's are poor performers under heavy loads is not much better under lighter loads. The number of recharges are limited to say the least. You can get a greater number of recharges out of non-rechargeable alkalines! While their shelf life is longer than Ni-MH and Ni-Cd batteries, this is not enough to make up for the poor performance. The Doc is aware that the manufacturer stated to Choice Magazine that more recharges are possible if the discharge cut off point is higher. That is all well and good, but how is a user suppose to determine that in every day use? It also it means the time you can use the batteries plunges. The Grandcell's are a poor choice, look elsewhere for performance under heavy loads.

| | |
|---|---|
| **Battery build quality** | **Fair** |
| **Place of Origin** | **Malaysia** |
| **Cost (set of 4)** | **AUD$12.00** |

*Report date: 25 January 2004*

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