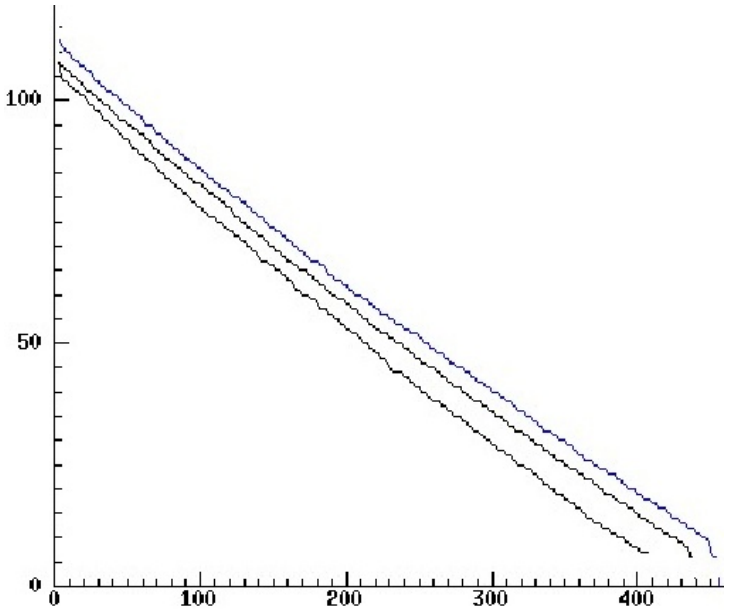
Testing three 90Whr Dell Batteries for Latitude E6410



I have been able, for complicated reasons, to test three batteries sold as 9cell 90Whr batteries for the Dell Latitude E6410 computer, one made by Sanyo, one made by Simplo and one made by Samsung. The results of the test are shown on the graph.

Each battery was fully charged then allowed to discharge while the laptop was on, and not doing very much, though it was connected to a wireless network and I occasionally logged in from another machine to check progress. I also occasionally did a little work on the laptop, though that does not seem to have shown up in the graphs.

The vertical axis is based on the product of the reading of remaining voltage and remaining charge, recorded every two minutes. (The actual units do not matter for the purpose of the comparison.)

The horizontal axis shows time in minutes. In each case I stopped the test when the remaining charge had got down to about 7% of maximum and the battery warning light was flashing.

1. The bottom graph shows a test of a battery made by Sanyo. It lasted 6 hours 50 minutes.

2. The middle graph shows a test of a battery made by Simplo. It lasted 7 hours 16 minutes.

3. The top graph shows a test of a battery made by Samsung. It lasted 7 hours 34 minutes.

The first two batteries (Sanyo and Simplo) were tested when they were brand new and had not been used except for testing. The Samsung battery was tested after it had been in use for a few weeks, though not constantly. Most of the time the laptop is used with an AC power supply. Its maximum charge appears to have dropped about 2.4% in the last two weeks, since the test reported here, which is somewhat alarming.

Another difference is that the Sanyo and Simplo batteries share a fault. If they are fully charged, then allowed to discharge for a short time, their charge cannot be replenished until they have fallen below some amount. I don't know the exact threshold, though it seems to be around 95%. If an attempt is made to recharge before they have fallen to that level they nothing happens: the bios display registers the battery as idle, not charging. This means that you cannot ensure that the battery is fully charged before a journey simply by connecting a charger and leaving it until charging stops. It may have to be further discharged first. Apart from the wasted time, this may shorten the lifce of the battery.

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