

UDC 62-1/-9

Shalev G.I.¹, Lushchin S.P.²

¹student of group E-410A, National University «Zaporizhzhia Polytechnic»

²PhD, associate professor National University «Zaporizhzhia Polytechnic»

DEVELOPMENT OF ACCUMULATOR BATTERIES FOR SMARTPHONES

First mobile phones were powered by Li-ion batteries. For their time, they were a brilliant power storage devices. Their voltage was from 2.5 V to 4.2 V. Specific energy consumption equals 120-270 kW/h. The only bad thing about these batteries was their high fire risk and low lifetime. Nowadays Li-ion batteries are rare in smartphones. They were replaced by Li-poly batteries. Their voltage is the same as in the Li-ion batteries and energy consumption hasn't changed either. But their lifetime has increased dramatically (Li-ion batteries started to lose their capacity after 1000 recharges, but Li-poly lost capacity only after 5000 recharges). Also the amount of self-discharge has changed from 10% per month for Li-ion up to 3.5% for Li-poly. This made Li-poly batteries cheaper to use and increased lifetime for smartphone (Fig. 1).

Also there were other batteries such as Ni-Cd and Ni-MH. But they were replaced very fast because of low voltage, low capacity and high amount of self-

discharge. In batteries lithium is used because of its chemical properties. It is light, compact and has high energy capacity.

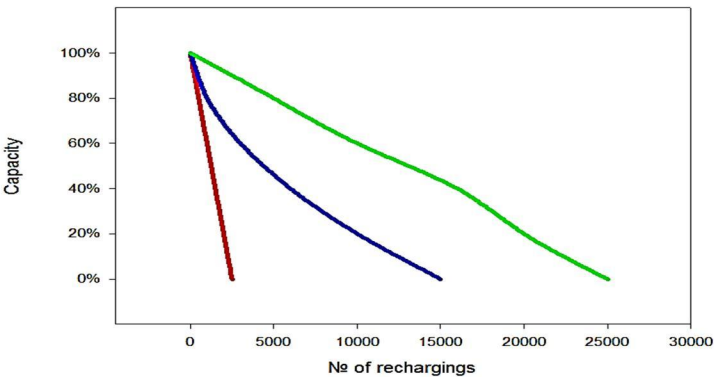


Figure 1 – The graph of capacity loss, depending on the number of recharges