

SolarTech Power Solutions

Battery overcurrent and overvoltage in communication base stations



Overview

Is there a mismatch between backup batteries and power outages?

Our real trace-driven data analysis clearly reveals that in the battery allocation strategy currently used in practice, there exists a mismatch between the supporting ability of backup batteries and the power outage situations in each base station. The mismatch can lead to serious problems in base stations.

Why do cellular communication base stations need a battery alloc?

Current cellular communication base stations are facing serious problems due to the mismatch between the power outage situations and the backup battery supporting abilities. In this paper, we proposed BatAlloc, a battery allocation framework to address this issue.

What happens if a battery group is mismatched?

The mismatch can lead to serious problems in base stations. First, due to the limited numbers and capacities of backup battery groups, long time power outages can result in service interruptions in many base stations.

How does a battery group work in a base station?

The equipment in base stations is usually supported by the utility grid, where the battery group is installed as the backup power. In case that the utility grid interrupts, the battery discharges to support the communication switching equipment during the period of the power outage.

How reliable are battery groups?

Their reliability and availability heavily depend on the electrical power supply. Battery groups are installed as backup power in most of the base stations in case of power outages due to severe weathers or human-driven accidents, particularly in remote areas.

Can a base station predict a power outage?

Though each single power outage of one given base station is truly hard to predict precisely, the statistical long-term power outage trends (e.g., in every year) can have a very similar pattern (e.g., a base station built in cold area may suffer from several power outages due to the heavy snow every year).

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