Operational model of supercapacitors in communication base stations

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Results show that the VLR model has better accuracy in predicting self-discharge of supercapacitors while offering comparable accuracy for charging and redistribution processes.

Implementation of effective SMSs will mitigate these problems by enabling accurate estimation of the internal states as well as effective management and protection of the supercapacitor cells in different ...

Based on the theoretical-integrated approach, a working model of the algorithm for the stable organization of the power supply system of the base stations of the mobile communication ...

In this report, two supercapacitor models are pre- sented. A simplified model that represents the supercapacitor as a voltage-dependent capacitor with a static internal resistance is first detailed.

Using the Proteus software, a simulation model of an uninterrupted power supply system for mobile communication base stations was developed. Based on this model, experimental tests were conducted.

Abstract: In this study, an analysis of the current status and available outages of the mobile communication base station power supply system was performed.

Supercapacitors are becoming a preferred medium of energy storage in the rapidly-growing transportation market. They have a long history of providing acceleration power and recapturing ...

Based on the theoretical-integrated approach, a working model of the algorithm for the stable organization of the power supply system of the base stations of the mobile communication system is ...

This work introduces a modeling guideline for supercapacitors for real-time simulations, proposing a tradeoff between the model accuracy and the required computational time to simulate it.

We demonstrate this using simulations on four different size (and type) supercapacitors and determine these efficient operation regions for each size supercapacitor.

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