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Energy-saving installation standard for supercapacitors in communication base stations

Overview

What are the standardized energy-saving metrics for a base station?

(1) Energy-saving reward: after choosing a shallower sleep strategy for a base station, the system may save more energy if a deeper sleep mode can be chosen, and in this paper, the standardized energy-saving metrics are defined as (18) $R\ i\ e = E\ S\ M = 0 - E\ S\ M = i\ E\ S\ M = 0 - E\ S\ M = 3$.

What is the power consumption of a base station?

The power consumption of each base station is considered about the number of mobile subscribers and random mobility to minimize the energy-saving cost of the cellular network.

Why does network sensitivity affect the energy consumption of base stations?

In addition, the high sensitivity of the existing policies to network conditions during the period when the network load is relatively smooth may lead to unnecessary and frequent switching of the sleep mode of the base stations, thus adding non-negligible additional energy consumption.

Why do base stations waste so much energy?

When there is little or no communication activity, base stations typically consume more than 80% of their peak power consumption, leading to significant energy waste . This energy waste not only increases operational costs, but also burdens the environment, which is contrary to global sustainability goals .

What is threshold-based base station sleep strategy?

Threshold-based base station sleep strategy is a common base station management method in wireless communication networks, which adjusts the operating state of the base station to save energy and improve resource utilization by dynamically setting appropriate thresholds.

What is base station dormancy?

In response to the problem of high network energy consumption caused by the dense deployment of SBS, the base station dormancy technique is seen as an effective solution, as it does not require changes to the current network architecture and is relatively simple to implement. This technique was first proposed in the IEEE 802.11b protocol .

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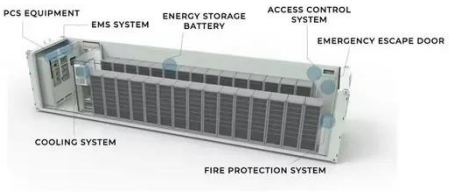

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