
Mobile Base Station Energy Management

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) $R_{i,e} = E_{S,M=0} - E_{S,M=i} = E_{S,M=0} - E_{S,M=3}$

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.

In Xiong'an New Region, China Mobile's low-carbon initiatives like cooling cubes and outdoor base stations are saving hundreds of thousands of kWh annually, making a big ...

NGMN unveils a common language for base station antennas to simplify 5G deployment and boost industry collaboration.

Considering the exponential increase in mobile traffic, requiring denser cellular access networks, the use of renewable energy (RE) to power base stations (BSs) may ...

Power consumption in mobile communication networks constitutes 20-40% of the operating expenditure. The energy footprint is especially high at the radio access network ...

This survey specifically covers a variety of energy efficiency techniques, the utilization of renewable energy sources, interaction with the smart grid (SG), and the ...

Abstract Energy consumption in mobile communication base stations (BTS) significantly impacts operational costs and the ...

The number of 5G base stations (BSs) has soared in recent years due to the exponential growth in demand for high data rate mobile communication traffic from various ...

Abstract Energy consumption in mobile communication base stations (BTS) significantly impacts operational costs and the environmental footprint of mobile networks.

We develop a prototype of a proposed mobile base station and test its operation in an outdoor environment. The experimental results ...

Base Station Energy Efficiency: Key Strategies for Sustainable NetworksIn today's hyper-connected world, the demand for ...

To achieve low latency, higher throughput, larger capacity, higher reliability, and wider connectivity, 5G base stations (gNodeB) need to be deployed in mmWave. Since ...

The standalone renewable powered rural mobile base station is essential to enlarge the coverage area of telecommunication networks, as well as protect the ecological ...

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