

Title: Energy method for outdoor communication base station acceptance

Generated on: 2026-03-18 21:24:52

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Are base stations a threat to the safe operation of electric network?

Abstract: The ultra-dense deployment of base stations (BSs) results in significant energy costs, while the increasing use of fluctuating renewable energy sources (RESs) threatens the safe operation of electric network (EN). These issues can be addressed by coordinating BSs' active/sleep states with RES generation.

Is a 5 G base station energy-saving?

This paper proposes an energy-saving operation model of 5 G base station that incorporates communication caching and linearization techniques. On one hand, the model characterizes the electrical consumption characteristics within the 5 G base station, focusing on each electrical component.

How can a 5G base station save energy?

(1) Incorporation of Communication Caching Technology: The model includes communication caching technology, which fully leverages the delay-tolerant characteristics of communication flows, further enabling energy saving in 5 G base stations.

What is the objective of a 5 G base station?

The objective function is to maximize the average energy efficiency of the 5 G base station, while ensuring that the traffic demand of the user group is met.

This paper develops a method to consider the multi-objective cooperative optimization operation of 5G communication base stations and Active Distribution Network (ADN) and constructs a ...

This paper aims to consolidate the work carried out in making base station (BS) green and energy efficient by integrating renewable energy sources (RES). Clean and green technologies are ...

To further explore the energy-saving potential of 5 G base stations, this paper proposes an energy-saving operation model for 5 G base stations that incorporates communication caching and ...

Since the sites we visited were all outdoors, there wasn't much more equipment consuming the energy besides the radio units and the base band units, therefore we constructed regression models to ...

The chapter details modern energy-efficient technologies and methods of using renewable energy sources, the implementation of which is ...

Telecom operators and equipment vendors have developed multiple approaches to improve base station energy efficiency. These range from hardware upgrades to software ...

In today's 5G era, the energy efficiency (EE) of cellular base stations is crucial for sustainable communication. Recognizing this, Mobile Network Operators are actively prioritizing EE for both ...

In this paper, we design an electric-cellular collaborative network (ECCN) and formulate a joint optimization problem to minimize electric supply and QoS degradation costs, subjecting to EN's ...

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