
Energy-saving design of outdoor base station

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) $R_{ie} = E_{SM=0} / E_{SM=i} / E_{SM=0}$
 $E_{SM=3}$

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.

Can a base station sleep strategy reduce energy consumption in UDN systems?

The goal of this paper is to find a base station sleep strategy in UDN systems that reduces the total system energy consumption while being able to guarantee QoS.

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.

Modern base station equipment is designed with energy-saving technologies such as high-efficiency power amplifiers, low-loss cables, and intelligent control systems.

25 million 5G base stations, and 9.96 million mobile communication base stations. According to 2021 National Development and Reform Commission Report, in 2020, China ...

The energy-saving system components of the base station utilize the temperature difference between indoor and outdoor temperatures to form heat exchange, relying on a large ...

In this paper, our goal is to minimize the total power consumption of the base station by dynamically controlling the switching status of the base station. This article first ...

The rapid development of Fifth Generation (5G) mobile communication system has resulted in a significant increase in energy consumption. Even with all the efforts made in ...

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 ...

Abstract--Energy saving in wireless networks is growing in importance due to increasing demand for evolving new-gen cellular networks, environmental and regulatory ...

In order to solve the poor heat dissipation in the outdoor mobile communication base station, especially in summer, high temperature alarm phenomenon occurs frequently, ...

Introduction The effect of global warming has started rising, thus we need to design and discover sustainable and energy-saving techniques. On the other hand the demand of ...

A base station control algorithm based on Multi-Agent Proximity Policy Optimization (MAPPO) is designed. In the constructed 5G UDN model, each base station is considered as ...

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