

Can the serious power consumption of 5G base stations be solved

Can 3GPP reduce base station energy consumption in 5G NR BS?

Aiming at minimizing the base station (BS) energy consumption under low and medium load scenarios, the 3GPP recently completed a Release 18 study on energy saving techniques for 5G NR BSs . A broad range of techniques was evaluated in terms of the obtained network energy saving (NES) gain and their impact to the user-perceived throughput (UPT).

Are 5 G base stations energy efficient?

However,the construction and operation of 5G base stations face significant energy consumption challenges. Under full-load conditions,the power consumption of 5G base stations is approximately 3-4times that of 4G base stations,which has a notable impact on energy consumption and environmental concerns (Zhang et al.,2020,Feng et al.,2012).

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 5G base stations.

How does mobile data traffic affect the energy consumption of 5G base stations?

The explosive growth of mobile data traffic has resulted in a significant increasein the energy consumption of 5G base stations (BSs).

Accurate energy consumption modeling is essential for developing energy-efficient strategies, enabling operators to optimize resource uti-lization while maintaining network ...

Currently, the energy-saving strategies for individual 5 G base stations can be categorized into two main areas: hardware equipment and software management. In terms of hardware ...

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The explosive growth of mobile data traffic has resulted in a significant increase in the energy consumption of 5G base stations (BSs). However, the existing energy conservation ...

This paper conducts a literature survey of relevant power consumption models for 5G cellular network base stations and provides a comparison of the models. It highlights commonly ...

Energy efficiency constitutes a pivotal performance indicator for 5G New Radio (NR) networks and beyond, and achieving optimal efficiency necessitates the meticulous consideration of ...

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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 ...

Change Log This document contains Version 1.0 of the ITU-T Technical Report on "Smart Energy Saving of 5G Base Station: Based on AI and other emerging technologies to forecast and ...

At present, 5G mobile traffic base stations in energy consumption accounted for 60% ~ 80%, compared with 4G energy consumption increased three times. In the future, high-density ...

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