

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).

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 increase in the energy consumption of 5G base stations (BSs).

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.

The extended simulator is used to evaluate the throughput, power consumption, and signal-to-interference-and-noise ratio (SINR) of a nightly network with few active users. Simulations ...

Since mmWave base stations (gNodeB) are typically capable of radiating up to 200-400 meters in urban locality. Therefore, high density of these stations is required for actual 5G ...

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 ...

When 5G signals penetrate urban high-rises and reach remote rural areas, few people pay attention to the "energy core" behind it all-- the base station power system. Among the many ...

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 ...

The 5G NR standard allows more components to switch off or go to sleep when the base station is in idle mode and requires far fewer transmissions of always-on signaling transmissions.

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The development of 5G technology is still ongoing and not widely available, especially in middle- and lower-income countries. Thus, to study power-saving schemes in 5G New Radio (NR), ...

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 ...

Abstract--To achieve the expected 1000x data rates under the exponential growth of traffic demand, a large number of base stations (BS) or access points (AP) will be deployed in the ...

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