

5G base stations consume a lot of power and are shut down one after another

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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).

Can 5G reduce energy consumption?

However, the energy consumption of 5G networks is today a concern. In recent years, the design of new methods for decreasing the RAN power consumption has attracted interest from both the research community and standardization bodies, and many energy savings solutions have been proposed.

Can network energy saving technologies mitigate 5G energy consumption?

This technical report explores how network energy saving technologies that have emerged since the 4G era, such as carrier shutdown, channel shutdown, symbol shutdown etc., can be leveraged to mitigate 5G energy consumption.

Is energy consumption a concern for 5G networks?

Abstract--The fifth generation of the Radio Access Network (RAN) has brought new services, technologies, and paradigms with the corresponding societal benefits. However, the energy consumption of 5G networks is today a concern.

Many methodologies like symbol shut down, carrier shutdown, deep sleep etc., have been reported in the literature. In this work, a parametric study of these methodologies has been ...

Aiming at the problem of mobile data traffic surge in 5G networks, this paper proposes an effective solution combining massive multiple-input multiple-output techniques ...

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 ...

The rapid development of 5G technology leads to increasing energy consumption in base stations (BSs). For the vision of green and sustainable communications, we

In low base station service load scenarios, such as idle hours at night and non-capacity cell scenarios, it can be considered to turn off the transmission power of some RF channels to ...

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After the channel is shut down, there will be degradation to the total transmit power and antenna gain that the power spectrum density of the remaining channel should be increased to ensure ...

Energy efficiency assumes it is of paramount importance for both User Equipment (UE) to achieve battery prologue and base stations to achieve savings in power and operation ...

An energy consumption optimization strategy of 5G base stations (BSs) considering variable threshold sleep mechanism (ECOS-BS) is proposed, which includes the initial ...

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