
Reducing the power consumption of 5G base stations

What is the energy consumption of a 5G network?

The energy consumption of 5G networks is one of the pressing concerns in green communications. Recent research is focused towards energy saving techniques of base stations (BSs). BSs are one of the most power consuming elements of a 5G network. It is important to model their energy consumption for analyzing overall energy efficiency of a network.

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.

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).

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 ...

With the rapidly expanding coverage of the mobile Internet, the large-scale deployment of 5G base stations (BSs) has accelerated significantly. However, the substantial ...

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Simulation results demonstrated the effectiveness of the proposed technology in reducing energy consumption and improving energy efficiency in 5G base station networks.

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 ...

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To reduce the extra power consumption due to frequent sleep mode switching of base stations, a sleep

mode switching decision algorithm is proposed. The algorithm reduces ...

However, there is still a need to understand the power consumption behavior of state-of-the-art base station architectures, such as multi-carrier active antenna units (AAUs), ...

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