

Solving the power consumption of 5G base stations

Do 5G base stations consume a lot of energy?

The energy consumption of the fifth generation (5G) of mobile networks is one of the major concerns of the telecom industry. However, there is not currently an accurate and tractable approach to evaluate 5G base stations' (BSs') power consumption.

How can we improve the energy efficiency of 5G networks?

To improve the energy efficiency of 5G networks, it is imperative to develop sophisticated models that accurately reflect the influence of base station (BS) attributes and operational conditions on energy usage.

Should power consumption models be used in 5G networks?

This restricts the potential use of the power models, as their validity and accuracy remain unclear. Future work includes the further development of the power consumption models to form a unified evaluation framework that enables the quantification and optimization of energy consumption and energy efficiency of 5G networks.

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.

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.

Is artificial neural networks a good power consumption model for 5G AAUs?

In this paper, we present a power consumption model for 5G AAUs based on artificial neural networks. We demonstrate that this model achieves good estimation performance, and it is able to capture the benefits of energy saving when dealing with the complexity of multi-carrier base stations architectures.

Power consumption models for base stations are briefly discussed as part of the development of a model for life cycle assessment. An overview of relevant base station power ...

A new power model structure is proposed in order to assess the power consumption of traditional base stations, their extensions, and alternative architectures such as large-scale ...

In this article, we propose a novel model for a realistic characterization of the power consumption of 5G multi-carrier BSs, which builds on a large data collection campaign.

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Recently, 5G communication base stations have steadily evolved into a key developing load in the distribution network. During the operation process, scientific dispatching ...

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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 ...

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The optimal solutions and comparative experiments demonstrate that the proposed model can provide reasonable and robust results to support 5G cellular network planning. ...

Importantly, this study item indicates that new 5G power consumption models are needed to accurately develop and optimize new energy saving solutions, while also considering the ...

