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Base station power and communication distance





Overview

Do base stations dominate the energy consumption of the radio access network?

Furthermore, the base stations dominate the energy consumption of the radio access network. Therefore, it is reasonable to focus on the power consumption of the base stations first, while other aspects such as virtualization of compute in the 5G core or the energy consumption of user equipment should be considered at a later stage.

Can a base station Power model be combined?

As the main components are common to most of the models, they can be easily combined to form a new model. Most of the base station power models are based on measurements of LTE (4G) hardware or theoretical assumptions. For the more recent models, based on measurements of 5G hardware, the parameter values are not publicly available.

What is a base station power consumption model?

In recent years, many models for base station power consumption have been proposed in the literature. The work in proposed a widely used power consumption model, which explicitly shows the linear relationship between the power transmitted by the BS and its consumed power.

What are base station models?

The base station models vary in their approaches and potential use cases. Hereafter, the models are grouped according to these aspects. Main component models only model the power consumption of the main base station components (power amplifier, analog frontend, baseband unit, active cooling, power supply) separately.



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Comparison of Power Consumption Models for 5G Cellular Network Base

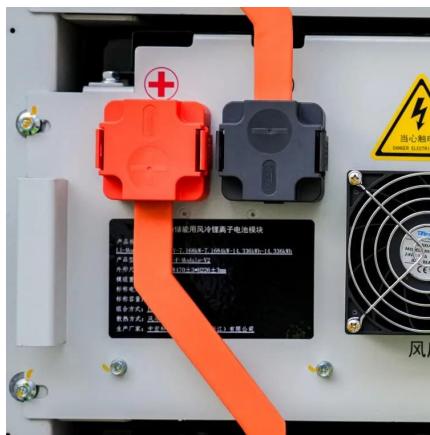
The work in [26] presents an assessment of the environmental impacts associated with mobile networks in Germany. Power consumption models for base stations are briefly ...

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[Energy Management of Base Station in 5G and B5G: Revisited](#)

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 ...

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On the basis of ensuring smooth user communication and normal operation of base stations, it realizes orderly regulation of energy storage for large-scale base stations, ...

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[Optimal energy-saving operation strategy of 5G base station ...](#)

To further explore the energy-saving potential of 5G base stations, this paper proposes an energy-saving operation model for 5G base stations that incorporates ...



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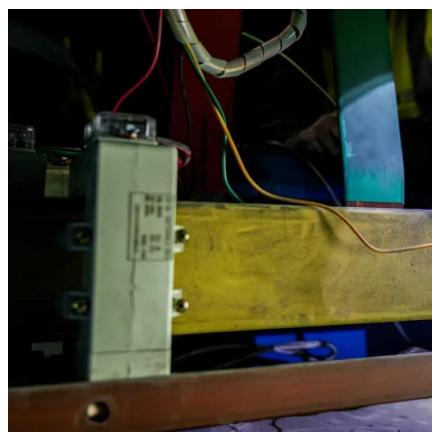
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[Power Consumption Modeling of 5G Multi-Carrier Base ...](#)

[Base Station \(BS\) Transmitter Power Level by Cell Radius ...](#)

The properties of the signal path that we consider here the distance between terminal and base station (BS), also the antenna high, base station transmitter power On ...

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[Distance Protection for Coexistence of 5G ...](#)

In this paper, we investigate the coexistence of the 5G communication network with a fixed-satellite service (FSS) in the 3.5 GHz and 26 GHz frequency bands. We analyze a distance protection scheme ...

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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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