

Base station power module calculation method





Overview

To understand this, we need to look closer at the base station power consumption characteristics (Figure 3). The model shows that there is significant energy consumption in the base station even at t .

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 [1] proposed a widely used power consumption model, which explicitly shows the linear relationship between the power transmitted by the BS and its consumed power.

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 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.

What are the main components of a base station Power model?

The main components are the baseband processing unit, analog frontend, power amplifier, and power supply as well as active cooling. 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.

Is there a direct relationship between base station traffic load and power consumption?



The real data in terms of the power consumption and traffic load have been obtained from continuous measurements performed on a fully operated base station site. Measurements show the existence of a direct relationship between base station traffic load and power consumption.

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.



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Measurements and Modelling of Base Station Power Consumption under Real

Measurements show the existence of a direct relationship between base station traffic load and power consumption. According to this relationship, we develop a linear power consumption ...

[Matching calculation method of 5g base station power supply](#)

From the above calculation, it can be seen that after adding a set of 5g equipment in the original station, the capacity expansion shall be considered from the storage battery, switching power ...



[Dispatching strategy of base station backup power supply ...](#)

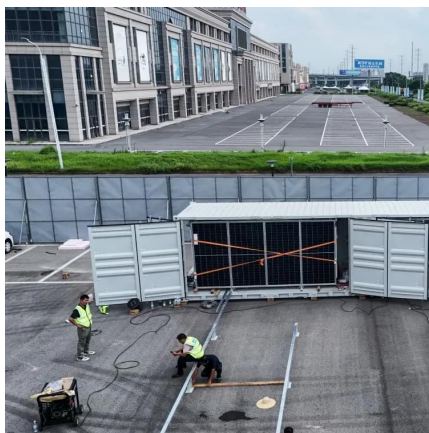
Abstract: With the mass construction of 5G base stations, the backup batteries of base stations remain idle for most of the time. It is necessary to explore these massive 5G base station ...

[Comparison of Power Consumption Models for 5G Cellular Network Base](#)

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 ...



Power consumption models of base station : measurements and...

These insights highlight the need for ongoing research into better methods for accurately measuring and optimizing power consumption in base stations. This research is crucial for ...

Power Consumption Modeling of 5G Multi-Carrier Base ...

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 ...



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