

How to view the power generation of mobile base station communication



Overview

How do base stations affect mobile cellular network power consumption?

Base stations represent the main contributor to the energy consumption of a mobile cellular network. Since traffic load in mobile networks significantly varies during a working or weekend day, it is important to quantify the influence of these variations on the base station 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.

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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Base station power consumption comparison for different loads values. The plot demonstrates how the power consumption of base station sites is ...

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), ...

Abstract: The Stable operation of mobile communication base stations depends on a

continuous and reliable power supply. Power outages can lead to a decrease in ...

The energy consumption of cellular networks, specifically of the fifth generation of mobile network technology (5G), is a major sustainability concern for network operators.

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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

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The reduction of the power consumption of mobile communication system is an important issue nowadays. Traditional base station structure is considered to consume too much energy and ...

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 ...

appropriate energy efficiency metric must be defined. One important figure of merit is the energy consumption of a network. In this work the electrical input power of macro and ...

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Base station power consumption comparison for different loads values. The plot demonstrates how the power consumption of base station sites is impacted by load. The reference site is a ...

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