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# Base station communication equipment power consumption calculation

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.

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.

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.

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The simulations indicate that construction materials and methods influence the energy efficiency of base stations, while ventilation and photo-voltaics can reduce ...

The study also explores power consumption models in new radio and idle power consumption modes. Furthermore, this paper investigates power consumption in wireless networks, ...

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For 5G base station software management strategies, there is already a certain amount of research available. Dynamic power consumption modeling for base stations is a ...

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Mathematical optimization of energy consumption requires a model of the problem at hand. In this thesis linear regression is compared with the gradient boosted trees method and a neural ...

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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