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Title: Power load of communication base station

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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.

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.

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.

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.

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 energy ...

Therefore, this paper investigates changes in the instantaneous power consumption of GSM (Global System for Mobile Communications) and UMTS (Universal Mobile Telecommunications ...

First, it established a 5G base station load model considering the communication load and a 5G base station energy storage capacity schedulable model considering the energy storage ...

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 and ...

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, participates in ...

This paper conducts a literature survey of relevant power consumption models for 5G cellular network base stations and provides a comparison of the models. It highlights commonly ...

The load of a 5G base station primarily consists of communication equipment and auxiliary components. The communication equipment mainly includes Active Antenna Unit (AAU) and Base Band Unit ...

However, the widespread deployment of 5G base stations has led to increased energy consumption. Individual 5G base stations require 3-4 times more power than fourth-generation ...

Comparison of downlink load dependency of macro base station power consumption for Auer, Holtkamp, and Debaillie power models. Sleep mode power consumption for Auer and ...

This paper proposes an electric load demand model of the 5th generation (5G) base station (BS) in a distribution system based on data flow analysis. First, the electric load model of a ...

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