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Microcell base station power consumption

Overview

How to reduce the power consumption of cellular base stations?

In order to reduce the power consumption of cellular base stations (BSs), the following BS architectures have been developed: micro cell BSs, and remote radio head (RRH)-based BSs. In this paper, we propose a novel BS power consumption model for comparing the power consumption and energy efficiency of above three different BS architectures.

Can power models be used for macro and micro base stations?

In this paper we developed such power models for macro and micro base stations relying on data sheets of several GSM and UMTS base stations with focus on component level, e.g., power amplifier and cooling equipment. In a first application of the model a traditional macro cell deployment and a heterogeneous deployment are compared.

How does a small cell base station affect a smartphone's battery life?

When a mobile device is close to a small-cell base station, the power needed to transmit the signal is much lower compared to the power needed to transmit a signal from a cell tower far away, thus extending smartphone battery life.

Why are small cells better than a cell tower?

Small cells are smaller and cheaper than a cell tower and can be installed in a variety of areas, bringing more base stations closer to users. A large number of base stations increases the number of people a network can support, while reduced distance to users decreases latency, enabling even faster connectivity.

Microcell base station power consumption

Small Cells, Big Impact: Designing Power Soutions for 5G ...

Small cells are smaller and cheaper than a cell tower and can be installed in a variety of areas, bringing more base stations closer to users. A large number of base stations ...

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Modeling of Power Consumption for Macro-, Micro-, and RRH-Based Base

In order to reduce the power consumption of cellular base stations (BSs), the following BS architectures have been developed: micro cell BSs, and remote radio head ...

Modelling the Energy Efficiency of Microcell Base Stations

The power consumption of microcell base stations is about 70-77% lower than for macrocell base stations but a macrocell base station is more energy-efficient than a microcell ...

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Power consumption model for macrocell and microcell base stations

In this paper, a power consumption model for both macrocell and microcell base stations is proposed. This model is validated by temporal power measurements on actual base ...

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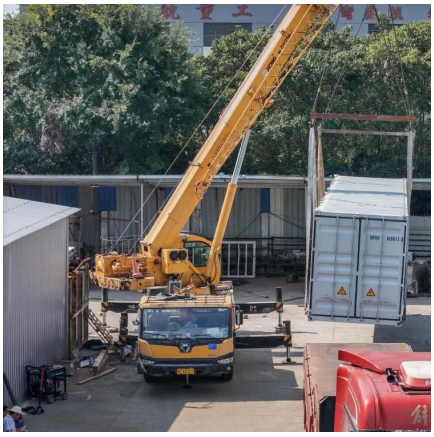

Power Consumption Model for Macrocell and Microcell ...

The power consumption of the macrocell base station is thus 4.4 times higher than for the microcell base station due to the higher power consumption of its air conditioning, its ...

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Energy-efficient microcell base station power control in ...

Power consumption modeling of different base station types ...

In wireless communications micro cells are potentially more energy efficient than conventional macro cells due to the high path loss exponent. Also, heterogeneous ...

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Power consumption model for macrocell and microcell base stations

The proposed model shows a macrocell base station consumes about 4.4 times more power than a microcell. GRAND tool optimizes energy-efficient network design for a predefined area using ...

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However, the dense deployment of small cell base stations (BSs) inevitably triggers a tremendous escalation of energy consumption. In this paper, we investigate the energy ...

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Power consumption model for macrocell and microcell base stations

However, a microcell base station is less energy efficient than a macrocell base station because of its lower coverage range. Despite this, it is still useful to introduce them in ...

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Power Consumption Modeling of Different Base Station ...

The power consumption model for macro base stations is introduced, followed by the power consumption model for micro base stations. In Section 3 the parameters of the two ...

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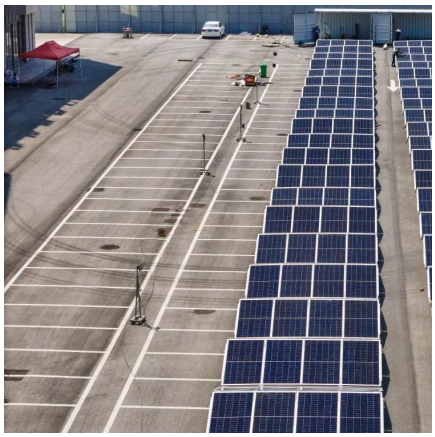

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