

PDEOZE PowerContainer

Energy consumption formula of communication base station



Overview

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 model for base stations of both technologies.

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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 network to see how well they are able to predict energy consumption from field data of 5G radio base stations.

This thesis presents a comprehensive analysis of power consumption models of base stations. The research delves into the distribution of power consumption across different types of base stations, highlighting the significant role of power amplifiers in macro stations and baseband processing units.

Therefore, this paper investigates changes in the instantaneous power consumption of GSM (Global System for Mobile Communications) and UMTS (Universal Mobile Telecommunications System) base stations according to their respective traffic load. The real data in terms of the power consumption and.

A linear equation is developed is $Y = 1.713 \times X + 1.274$, where Y is power consumption and X is traffic generated, which shows that the power consumption of base stations linearly depends on the traffic generated. What is a base station power consumption model?

In recent years, many models for base.

The increasing total energy consumption of information and communication

technology (ICT) poses the challenge of developing sustainable solutions in the area of distributed computing. Current communication network technologies, such as wireless cellular networks, are required for applications and.

In order to solve high energy consumption caused by massive micro base stations deployed in multi-cells, a joint beamforming and power allocation optimization algorithm is proposed in Multiple-Input Multiple-Output orthogonal frequency-division multiplexing (MIMO-OFDM) system. By obtaining the.

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How do you calculate energy consumption of wireless communication systems?The first step when modeling the energy consumption of wireless communication systems is to derive ...

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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 ...

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Power consumption models for base stations are briefly discussed as part of the development of a model for life cycle assessment.

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In this work, we propose an approach for minimizing the network's energy consumption based on Mixed-Integer Linear Programming (MILP), which expands upon state of the art solutions in ...

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 ...

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