

Energy consumption analysis of uninterrupted power supply for communication base stations



Overview

This paper conducts a literature survey of relevant power consumption models for 5G cellular network base stations and provides a comparison of the models. Practice shows that the existing energy supply sources - the power grid, diesel generators and batteries - do not allow for effective operation in conditions of short-term outages. Power outages can lead to a decrease in communication quality or even complete service interruptions, negatively affecting users and threatening system reliability. 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. However, there is not currently an accurate and tractable approach to evaluate 5G base stations (BSs) power consumption.

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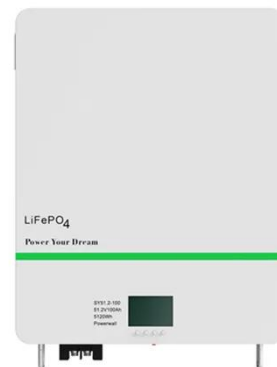


Power consumption analysis of access network in 5G mobile ...

The network power efficiency with the consideration of propagation environment and network constraints is investigated to identify the energy-efficient architecture for the 5G mobile ...

Algorithms for uninterrupted power supply to mobile ...

In this article, an algorithm for automatic control of energy sources was developed to improve the uninterrupted power supply of mobile communication base stations. Based on the proposed ...



INVESTIGATORY ANALYSIS OF ENERGY REQUIREMENT OF A ...

This study examines the energy requirements of a multi-tenant BTS, focusing on power consumption patterns, key energy-intensive components, and optimization strategies.

Measurements and Modelling of

Base Station 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 ...



Comparison of Power Consumption Models for 5G Cellular Network ...

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

Power consumption based on 5G communication

This paper proposes a power control algorithm based on energy efficiency, which combines cell breathing technology and base station sleep technology to reduce base station energy consumption ...



ANALYSIS OF METHODS OF PROVIDING UNINTERRUPTED ...

In this work, an analysis of methods for providing mobile communication base stations with uninterrupted power supply

was conducted. As a result of the analysis, the shortcomings and ...



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· Abstract--Reducing the power consumption of base transceiver stations (BTSs) in mobile communications networks is typically achieved through energy saving techniques,



Mathematical Modelling of the Power Supply System of a Mobile

Therefore, there is a growing need for energy management approaches based on mathematical modelling to ensure an uninterrupted power supply and improve overall system efficiency. In this ...

Machine Learning and Analytical Power Consumption Models for ...

When symbol shutdown is activated, the AAU switches off the MCPAs, and its power consumption is reduced to the sum of the baseline power consumption,

P0, the baseband processing power ...



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