

# Mobile base station power supply calculation





## Overview

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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.

What are the main components of a base station Power model?

The main components are the baseband processing unit, analog frontend, power amplifier, and power supply as well as active cooling. 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.

What are base station models?

The base station models vary in their approaches and potential use cases. Hereafter, the models are grouped according to these aspects. Main component models only model the power consumption of the main base station components (power amplifier, analog frontend, baseband unit, active cooling, power supply) separately.

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.



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### [Matching calculation method of 5g base station power supply](#)

5g base station is composed of BBU and AAU. One base station is configured with one operator's three cells (1 BBU + 3 AAU). Assuming that the power consumption of 5g BBU ...

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### Measurements and Modelling of Base Station Power Consumption under Real

Abstract 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 ...

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### Comparison of Power Consumption Models for 5G Cellular Network Base

The work in [26] presents an assessment of the environmental impacts associated with mobile networks in Germany. Power consumption models for base stations are briefly ...

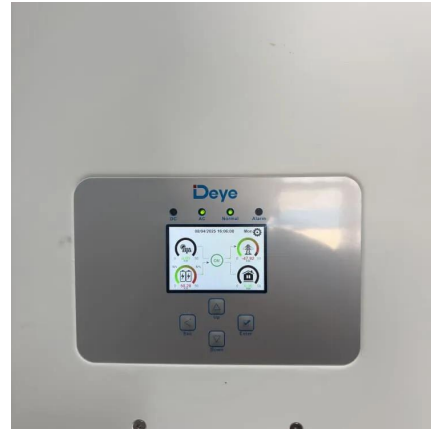
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### **Optimal sizing of photovoltaic-wind-diesel-battery power supply ...**

**Abstract** The paper proposes a novel planning approach for optimal sizing of standalone photovoltaic-wind-diesel-battery power supply for mobile telephony base stations. ...

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## Mathematical Modelling of the Power Supply System of a Mobile

The Stable operation of mobile communication base stations depends on a continuous and reliable power supply. Power outages can lead to a decrease in ...

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## Research on Design of Switching Power Supply Based on ...

Mobile base station number, unattended, therefore require communication power supply easy maintenance, simple operation, with remote monitoring and strong fault diagnosis ...

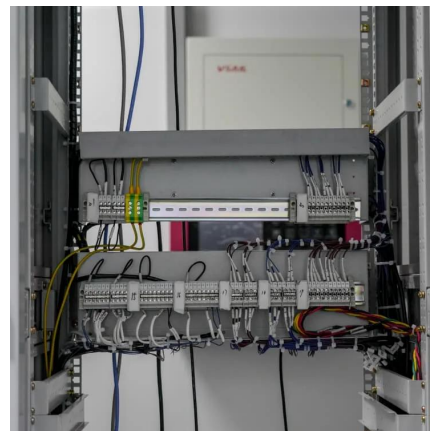
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## Measurements and Modelling of Base Station Power ...

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### Mathematical Modelling of the Power Supply System of ...

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

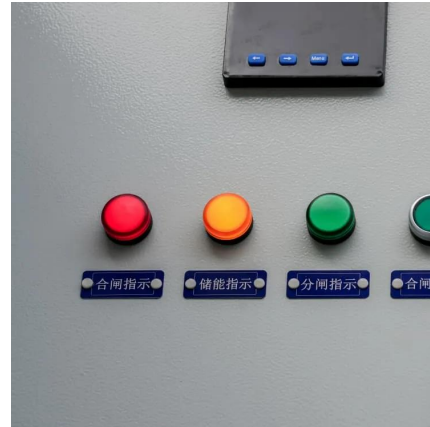
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### Optimization of Electricity Supply to Mobile Base Station ...

Mobile telephony and power supply structure:  
This chapter describes mobile telephony evolution with the various components involved in mobile communication. ...

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### DESIGN OF MOBILE BASE STATION COMMUNICATION POWER SUPPLY ...

Mobile base station photovoltaic power supply  
The paper proposes a novel planning approach for optimal sizing of standalone photovoltaic-wind-diesel-battery power supply for mobile ...

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