

PDEOZE PowerContainer

Load changes in power supply to communication base stations



Overview

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.

Does communication volume affect the power consumption of a base station?

For the power consumption of the base station, this paper focuses on the effect of communication volume on the power consumption of the base station, while the distance between the user and the base station is regarded as a fixed value, which is an assumption that differs from the actual situation.

Does base station energy storage participate in the load power supply?

At this time, the base station energy storage not only participates in the load power supply, but also has certain absorption of wind-solar output when the wind-solar output is larger than the load demand (13:00,16:00). For scenario 3, it can be seen that the scenario has obvious complementary characteristics of the wind-solar power (5:00~20:00).

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.

Does a base station energy storage model improve the utilization rate?

Where traffic is high, less base station energy storage capacity is available. Compared with the fixed backup time, the base station energy storage model proposed in this article not only improves the utilization rate of base station

energy storage, but also reduces the power loss load and power loss cost in the distribution network fault area.

What is a base station energy storage capacity model?

Based on the base station energy storage capacity model established in contribution (1), an objective function is established to minimize the system operating cost in the fault area, and the base station energy storage owned by mobile operators is used as an emergency power source to participate in power supply restoration.

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

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