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## Electricity helps 5G base stations

Can 3GPP reduce base station energy consumption in 5G NR BS?

Aiming at minimizing the base station (BS) energy consumption under low and medium load scenarios, the 3GPP recently completed a Release 18 study on energy saving techniques for 5G NR BSs. A broad range of techniques was evaluated in terms of the obtained network energy saving (NES) gain and their impact to the user-perceived throughput (UPT).

What equipment is used in a 5G base station?

AAU is the most energy-consuming equipment in 5G base stations, accounting for up to 90% of their total energy consumption. Auxiliary equipment includes power supply equipment, monitoring and lighting equipment. The power supply equipment manages the distribution and conversion of electrical energy among equipment within the 5G base station.

What is a 5G base station energy consumption prediction model?

According to the energy consumption characteristics of the base station, a 5G base station energy consumption prediction model based on the LSTM network is constructed to provide data support for the subsequent BSES aggregation and collaborative scheduling.

What is a 5G base station energy storage device?

During main power failures, the energy storage device provides emergency power for the communication equipment. A set of 5G base station main communication equipment is generally composed of a baseband BBU unit and multiple RF AAU units. Equation 1 serves as the base station load model:

The number of 5G base stations has reached 5.94 million, and the number of 5G users is over 1.87 billion. To deal with the high energy consumption, telecom operators are ...

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Under the condition that the electricity market is gradually building mature, gaining revenue through auxiliary service payment will be able to effectively reduce the base station ...

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An energy consumption optimization strategy of 5G base stations (BSs) considering variable threshold sleep mechanism (ECOS-BS) is proposed, which includes the initial ...

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In this paper, a framework is developed to study the impact of different power model assumptions on energy saving in a 5G separation architecture comprising high power ...

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 ...

With the rapidly expanding coverage of the mobile Internet, the large-scale deployment of 5G base stations (BSs) has accelerated significantly. However, the substantial ...

In today's 5G era, the energy efficiency (EE) of cellular base stations is crucial for sustainable communication. Recognizing this, Mobile Network Operators are actively prioritizing EE for ...

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