
The key to reducing power consumption of 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).

How does mobile data traffic affect the energy consumption of 5G base stations?

The explosive growth of mobile data traffic has resulted in a significant increase in the energy consumption of 5G base stations (BSs).

Can 5G reduce energy consumption?

However, the energy consumption of 5G networks is today a concern. In recent years, the design of new methods for decreasing the RAN power consumption has attracted interest from both the research community and standardization bodies, and many energy savings solutions have been proposed.

Can network energy saving technologies mitigate 5G energy consumption?

This technical report explores how network energy saving technologies that have emerged since the 4G era, such as carrier shutdown, channel shutdown, symbol shutdown etc., can be leveraged to mitigate 5G energy consumption.

1. This study integrates solar power and battery storage into 5G networks to enhance sustainability and cost-efficiency for IoT applications. The approach minimizes ...

A portion of the dataset is published on GitHub. We develop high-accuracy models to profile 4G and 5G base station energy consumption, revealing 5G inefficiencies under low ...

However, there is still a need to understand the power consumption behavior of state-of-the-art base station architectures, such as multi-carrier active antenna units (AAUs), ...

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In this context, fully exploring the flexible regulation potential of 5 G base stations in terms of load power consumption, communication equipment is of great significance for ...

Change Log This document contains Version 1.0 of the ITU-T Technical Report on "Smart Energy Saving of 5G Base Station: Based on AI and other emerging technologies to ...

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

This paper conducts a literature survey of relevant power consumption models for 5G cellular network base stations and provides a comparison of the models. It highlights ...

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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To reduce the extra power consumption due to frequent sleep mode switching of base stations, a sleep mode switching decision algorithm is proposed. The algorithm reduces ...

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