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Title: Power consumption of 5G base stations in North Korea

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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).

What is 5G base station?

1. Introduction 5G base station (BS), as an important electrical load, has been growing rapidly in the number and density to cope with the exponential growth of mobile data traffic. It is predicted that by 2025, there will be about 13.1 million BSs in the world, and the BS energy consumption will reach 200 billion kWh.

How can we improve the energy efficiency of 5G networks?

To improve the energy efficiency of 5G networks, it is imperative to develop sophisticated models that accurately reflect the influence of base station (BS) attributes and operational conditions on energy usage.

What is 5G NR?

The 5G NR standard has been designed based on the knowledge of the typical traffic activity in radio networks as well as the need to support sleep states in radio network equipment. By putting the base station into a sleep state when there is no traffic to serve i.e. switching off hardware components, it will consume less energy.

Why does the base station consume electricity? The following presents the results of professional frontline testing, with the power consumption of Huawei and ZTE 5G base ...

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 ...

Power consumption models for base stations are briefly discussed as part of the development of a model for

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life cycle assessment. An overview of relevant base station power ...

To address this, we propose a novel deep learning model for 5G base station energy consumption estimation based on a real-world dataset. Unlike existing methods, our approach integrates ...

To understand this, we need to look closer at the base station power consumption characteristics (Figure 3). The model shows that there is significant energy consumption in the ...

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 ...

Importantly, this study item indicates that new 5G power consumption models are needed to accurately develop and optimize new energy saving solutions, while also considering the ...

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

North Korea is reportedly conducting research on fifth-generation (5G) mobile communications using data from Japanese telecommunications company NTT DoCoMo.

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With 5G projected to increase capacity up to approximately 1000-fold and high frequency millimeter wave (mmWave) transmission driving exponentially higher cell density, this ...

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