

PDEOZE PowerContainer

Power consumption of 5G base stations in Mozambique



Overview

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).

Should power consumption models be used in 5G networks?

This restricts the potential use of the power models, as their validity and accuracy remain unclear. Future work includes the further development of the power consumption models to form a unified evaluation framework that enables the quantification and optimization of energy consumption and energy efficiency of 5G networks.

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 3GPP base station model?

The central specification body of cellular networks, the 3GPP, presents a base station model to facilitate energy efficiency improvements for 3GPP Release 18 in . It is based on the user equipment power model of the 3GPP in structure, presentation, and approach.

Do base stations dominate the energy consumption of the radio access network?

Furthermore, the base stations dominate the energy consumption of the radio access network. Therefore, it is reasonable to focus on the power consumption of the base stations first, while other aspects such as virtualization of compute

in the 5G core or the energy consumption of user equipment should be considered at a later stage.

What is a LTE power consumption model?

The model by Auer et al. described in [1], was developed as part of the EARTH (Energy Aware Radio and neTwork tecHnologies) project. It is based on measurements of LTE hardware. Most notably, the model proposes a linear increase of power consumption with the output power (or load) of the base station.

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The fifth generation of the Radio Access Network (RAN) has brought new services, technologies, and paradigms with the corresponding societal benefits. However,

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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 base station ...

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 ...

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 ...

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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 ...

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