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Power consumption parameters of 5g base stations



Overview

Is 5G base station power consumption accurate?

esan@huawei.comAbstract—The energy consumption of the fifth generation (5G) of mobile networks is one of the major concerns of the telecom industry. However, there is not currently an accurate and tractable approach to evaluate 5G base stations (BSs) power consumption. In this article, we pr.

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.

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).

Does a balanced dataset improve energy prediction of 5G base stations?

For energy prediction of 5G base stations, this thesis finds that using a more balanced dataset, in terms of the number of samples for each product, has a positive impact for the ANN and the Gradient Boosted Trees model while the linear regression performs worse.

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Mathematical optimization of energy consumption requires a model of the problem at hand. In this thesis linear regression is compared with the gradient boosted trees method and a neural ...

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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, the ...

According to the characteristics of high energy consumption and large number of 5G base stations, the large-scale operation of 5G base stations will bring an increase in electricity ...

This paper proposes a novel 5G base stations energy consumption modelling method by learning from a real-world dataset used in the ITU 5G Base Station Energy ...

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The power consumption of a 5G base station using massive MIMO is dominated by the power consumption of the radio units whose power amplifier(s) consume most of the ...

Within the context of 5G, Ultra-Dense Networks (UDNs) are regarded as an important

network deployment strategy, employing a large number of low-power small cells to ...

This paper proposes two modified power consumption models that would accurately depict the power consumption for a 5G base station in a standalone network and a novel ...

In this paper, a distributed collaborative optimization approach is proposed for power distribution and communication networks with 5G base stations. Firstly, the model of 5G ...

At present, 5G mobile traffic base stations in energy consumption accounted for 60% ~ 80%, compared with 4G energy consumption increased three times. In the future, high ...

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 ...

In wireless cellular networks, optimising the energy efficiency (EE) of base stations (BSs) has been a major architectural challenge. The ...

Accurate energy consumption modeling is essential for developing energy-efficient strategies, enabling operators to optimize resource utilization while maintaining network ...

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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