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Title: 5g base station power consumption survey

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What is the energy consumption of a 5G network?

The energy consumption of 5G networks is one of the pressing concerns in green communications. Recent research is focused towards energy saving techniques of base stations (BSs). BSs are one of the most power consuming elements of a 5G network. It is important to model their energy consumption for analyzing overall energy efficiency of a network.

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.

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.

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 ...

Power consumption models for base stations are briefly discussed as part of the development of a model for life cycle assessment. An overview of relevant base station power ...

A new power model structure is proposed in order to assess the power consumption of traditional base stations, their extensions, and alternative architectures such as large-scale ...

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 ...

Abstract: The energy consumption of 5G networks is one of the pressing concerns in green communications. Recent research is focused towards energy saving techniques of ...

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

In this thesis linear regression is compared with the gradient boosted trees method and a neural network to see how well they are able to predict energy consumption from field data of 5G ...

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 ...

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 ...

When symbol shutdown is activated, the AAU switches off the MCPAs, and its power consumption is reduced to the sum of the baseline power consumption, P_0 , the baseband ...

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