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# Power consumption monitoring of Podgorica base station

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 the largest energy consumer in a base station?

The largest energy consumer in the BS is the power amplifier, which has a share of around 65% of the total energy consumption [7]. Of the other base station elements, significant energy consumers are: air conditioning (17.5%), digital signal processing (10%) and AC/DC conversion elements (7.5%) [8].

Is there a direct relationship between base station traffic load and power consumption?

The real data in terms of the power consumption and traffic load have been obtained from continuous measurements performed on a fully operated base station site. Measurements show the existence of a direct relationship between base station traffic load and power consumption.

Can machine learning predict energy consumption for 5G/4G radio base stations?

To further develop energy modelling methodology and attempt to answer the questions presented in the previous section, different machine learning algorithm's ability to predict energy consumption is investigated for 5G/4G radio base stations.

This paper presents the design and implementation of a cloud-based energy monitoring system specifically developed for 5G base stations, with a focus on optimizing ...

The real data in terms of the power consumption and traffic load have been obtained from continuous measurements performed on a fully operated base station site. ...

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 ...

4.1. Research on IoT data collection technology Energy consumption data from base stations are collected in real time via edge gateways and sensors, supporting protocols such as MQTT and ...

However, the deployment of numerous small cells results in a linear increase in energy consumption in wireless communication systems. To enhance system efficiency and ...

Energy consumed in telecommunication base stations is a significant part of the cellular network energy footprint. Efficient energy use, renewable energy sources, and ...

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 ...

Future-Proofing Through Quantum Leaps While current systems focus on consumption tracking, tomorrow's solutions will predict and prevent waste. The EU's Horizon Europe program is ...

Abstract This paper addresses the issue of energy consumption management in 5G base stations and proposes a solution in the form of an AI-based energy supervision cloud ...

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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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