



SolarTech Power Solutions

Discussion on smart power solutions for 5G base stations



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).

Why are small cells a new part of 5G?

The need to increase the number of base stations to provide wider and more dense coverage has led to the creation of small cells. Small cells are a new part of the 5G platform that increase network capacity and speed, while also having a lower deployment cost than macrocells.

How to choose a 5G energy-optimised network?

Certain factors need to be taken into consideration while dealing with the efficiency of energy. Some of the prominent factors are such as traffic model, SE, topological distribution, SINR, QoS and latency. To properly examine an energy-optimised network, it is very crucial to select the most suitable EE metric for 5G networks.

Can network energy saving technologies mitigate 5G energy consumption?

This technical report explores how network energy saving technologies that have emerged since the 4G era, such as carrier shutdown, channel shutdown, symbol shutdown etc., can be leveraged to mitigate 5G energy consumption.

Is a 5G energy saving solution enough?

It also analyses how enhanced technologies like deep sleep, symbol aggregation shutdown etc., have been developing in the 5G era. This report aims to detail these fundamentals. However, it is far away from being enough, a revolutionized energy saving solution should be taken into consideration.

Is artificial neural networks a good power consumption model for 5G AAUs?

In this paper, we present a power consumption model for 5G AAUs based on artificial neural networks. We demonstrate that this model achieves good estimation performance, and it is able to capture the benefits of energy saving when dealing with the complexity of multi-carrier base stations architectures.

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