

5G base station power saving





Overview

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.

Are base stations energy saving?

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. Additionally, the energy efficiency of a modeling approach itself must also be considered.

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.



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[Research and Verification of Power Saving Technology in ...](#)

Jul 1, 2022 · Abstract. With the development of 5G networks, the scale of 5G base stations is rapidly expanding, and the energy consumption of equipment is increasing rapidly. This paper ...

Threshold-based 5G NR base station management for energy saving

Mar 1, 2025 · In spite of promising outcomes in optimizing energy usage for Radio Access Network (RAN) Base Station (BS) hardware, deployment, and resource management, existing ...



[Final draft of deliverable D.WG3-02-Smart Energy Saving ...](#)

May 7, 2021 · Change Log This document contains Version 1.0 of the ITU-T Technical Report on "Smart Energy Saving of 5G Base Station: Based on AI and other emerging technologies to ...

Energy Saving of 5G Base Stations Based on Symbol Shutdown and Power

Jun 12, 2025 · The rapid development of 5G technology leads to increasing energy consumption in base stations (BSs). For the vision of green and sustainable communications, we propose a ...



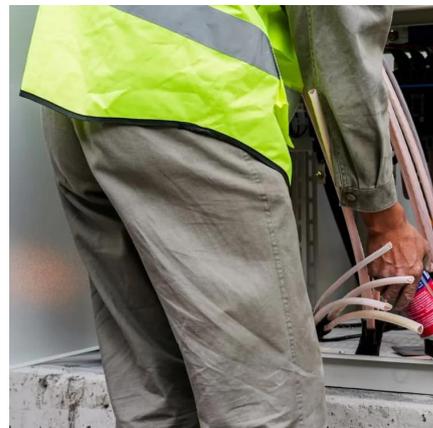
Research on energy-saving technology of 5G base stations in ...

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A Power Consumption Model and Energy Saving Techniques for 5G ...

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AI-based energy consumption modeling of 5G base stations: an energy

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