



WALMER ENERGY

5G base station power saving technology





Overview

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.

Does a 5G base station need a sleep strategy?

Abstract: For time and space constraints, 5G base stations will have more serious energy consumption problems in some time periods, so it needs corresponding sleep strategies to reduce 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.

What is the energy-saving technology of base stations?

This technical report focuses on energy-saving technology of base stations. Some energy saving technologies since 4G era will be explained in details, while artificial intelligence and big data technology will be introduced in response to the requirement of an intelligent and self-adaptive energy saving solution.



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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 ...

Optimal energy-saving operation strategy of 5G base station ...

Dec 1, 2025 · To further explore the energy-saving potential of 5G base stations, this paper proposes an energy-saving operation model for 5G base stations that incorporates ...

Intelligent Energy Saving Solution of 5G Base ...

Jul 26, 2021 · This article identifies energy-saving potential of the fifth generation (5G) Radio Access Network, and describes main energy ...

Base Station Energy Saving based on Imitation Learning in 5G ...

Sep 1, 2024 · Abstract With the rapid development of communication technology, the large-scale deployment of base stations (BSs) has led to an increase in power consumption. To reduce ...

Energy Saving Technology of 5G Base Station Based on ...

Feb 13, 2020 · For time and space constraints, 5G base stations will have more serious energy consumption problems in some time periods, so it needs corresponding sleep strategies to ...

Evaluation of the power-saving effect of 5G base station ...

May 29, 2025 · The research and application of energy-saving technology for 5G wireless networks are significant for the emission-reduction work of Communication Operators. The ...

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 ...

Intelligent Energy Saving Solution of 5G Base Station Based ...

Jul 26, 2021 · This paper introduces the basic energy-saving technology of 5G base station, and puts forward the intelligent energy-saving solutions based on artificial intelligence (AI) and big ...

Intelligent Energy Saving Solution of 5G Base Station Based ...

Jul 26, 2021 · This article identifies energy-saving potential of the fifth generation (5G) Radio Access Network, and describes main energy-saving principles and technologies.

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 ...



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

Dec 2, 2025 · With the rapidly expanding coverage of the mobile Internet, the large-scale deployment of 5G base stations (BSs) has accelerated significantly. However, the substantial ...

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