
Power saving for base station of communication system

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).

What are the standardized energy-saving metrics for a base station?

(1) Energy-saving reward: after choosing a shallower sleep strategy for a base station, the system may save more energy if a deeper sleep mode can be chosen, and in this paper, the standardized energy-saving metrics are defined as (18) $R_{ie} = E_{SM=0} - E_{SM=i}$ $E_{SM=0} - E_{SM=1}$ $E_{SM=1} - E_{SM=2}$ $E_{SM=2} - E_{SM=3}$

Why do base stations waste so much energy?

When there is little or no communication activity, base stations typically consume more than 80% of their peak power consumption, leading to significant energy waste . This energy waste not only increases operational costs, but also burdens the environment, which is contrary to global sustainability goals .

Can a base station sleep strategy reduce energy consumption in UDN systems?

The goal of this paper is to find a base station sleep strategy in UDN systems that reduces the total system energy consumption while being able to guarantee QoS.

In today's 5G era, the energy efficiency (EE) of cellular base stations is crucial for sustainable communication. Recognizing this, Mobile Network Operators are actively prioritizing EE for ...

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 ...

The power consumption of the RF PA in wireless communication base stations are too large and the efficiency of RF PA is too low. In this paper, a new hybrid ET power supply ...

The analysis results of the example show that participation in grid-side dispatching through the flexible response capability of 5G communication base stations can enhance the ...

However, base station dense deployment leads to a significant increase in system energy consumption. In this paper, we develop a novel ultra-efficient energy-saving ...

On the basis of ensuring smooth user communication and normal operation of base stations, it realizes orderly regulation of energy storage for large-scale base stations, ...

In response to the current widespread issue of high energy consumption in 5G base stations, this article conducts overall design, hardware design, and software design of ...

Full length article Research on ventilation cooling system of communication base stations for energy saving and emission reduction Gangliang Wu a, Fanwei Zeng b, Ge Zhu c ...

This paper proposes a traffic-driven cell zooming technique, where the coverage area of Base Stations can expand and contract as per the traffic volume. This is done by ...

Network energy-saving techniques tune the parameters and protocols of networks for interference mitigation, resource optimization, and energy saving. It is a prerequisite to understand key ...

Web: <https://hakonatuurfotografie.nl>

