

# Power consumption of China Mobile base station equipment





## Overview

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How do base stations affect mobile cellular network power consumption?

Base stations represent the main contributor to the energy consumption of a mobile cellular network. Since traffic load in mobile networks significantly varies during a working or weekend day, it is important to quantify the influence of these variations on the base station power consumption.

How many base stations are there in China?

The network traffic data cover 12,264 4G base stations and 2,159 5G base stations. Monthly data on the numbers of base stations and mobile users in each province are released by the Ministry of Industry and Information Technology of the People's Republic of China<sup>27</sup>.

How does a 5G base station consume energy?

In terms of energy consumption, 5G base stations require continuous operation and stability, which leads to significant electricity consumption (Guo et al., 2022a). This power is mainly supplied by transmission equipment and auxiliary equipment, such as transformers, UPS power supplies, and cooling equipment.

How to estimate the capacity of mobile networks in each province?

We apply the Monte Carlo method to estimate the capacity of mobile networks in each province. We repeatedly and randomly sample base stations from the Nanchang set according to the number of 4G base stations and 5G base stations in each province. The Monte Carlo simulations are performed 1,000 times for each province.



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### Application of AI technology 5G base station

Dec 9, 2020 · 1 Hardware Energy It is based on lowering the basic energy consumption of the base station. By modifying the hardware architecture design, improving the

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### China mobile base station energy storage

How many 5G base stations are there in China? According to the white paper of the China Center for Information Industry Development on 5G industry development, the number of 5G base

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### Carbon emissions of 5G mobile networks in China

Dec 21, 2023 · China Mobile's measurement report9 indicates that the energy consumption of a 5G base station is 4.3 kWh, which is four times that of a 4G base station at 1.1 kWh.

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### Measurements and Modelling of Base Station Power Consumption under Real

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### Low-Carbon Sustainable Development of 5G Base Stations in China

May 4, 2024 · Core network equipment power consumption is similar to that of 4G, while the power consumption of 5G wireless access network equipment, particularly the typical value of ...

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### Power Consumption Modeling of 5G Multi-Carrier Base ...

Jan 23, 2023 · 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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### Power consumption based on 5G communication

Oct 17, 2021 · At present, 5G mobile traffic base stations in energy consumption accounted for 60% ~ 80%, compared with 4G energy consumption increased three times. In the future, high ...

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### China Mobile - Renewable energy and green base station ...

Aug 7, 2025 · Green transformation of network architecture: China Mobile is actively advancing CRAN deployment and streamlining base station upgrades. By simplifying the network,

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### China Mobile Stacked PV Base Stations was Successful ...

The energy consumption of 5G base stations has been a major concern, primarily due to the high power consumption of CU/DU and AAU equipment, which significantly increases overall ...

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### Remake Green 5G



Nov 10, 2022 · The task of achieving carbon neutrality is short and challenging. As an important infrastructure for digital transformation, the mobile communication network focuses on three ...

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