

## SolarInnovate Energy Solutions

# How does a 5G base station consume power



## Overview

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Today we see that a major part of energy consumption in mobile networks comes from the radio base station sites and that the consumption is stable. We can also see that even in densely deployed networks, as i.

How much power does a 5G station use?

The power consumption of a single 5G station is 2.5 to 3.5 times higher than that of a single 4G station. The main factor behind this increase in 5G power consumption is the high power usage of the active antenna unit (AAU). Under a full workload, a single station uses nearly 3700W.

What is 5G base station?

1. Introduction 5G base station (BS), as an important electrical load, has been growing rapidly in the number and density to cope with the exponential growth of mobile data traffic . It is predicted that by 2025, there will be about 13.1 million BSs in the world, and the BS energy consumption will reach 200 billion kWh .

Is 5G more energy efficient than 4G?

Although the absolute value of the power consumption of 5G base stations is increasing, their energy efficiency ratio is much lower than that of 4G stations. In other words, with the same power consumption, the network capacity of 5G will be as dozens of times larger than 4G, so the power consumption per bit is sharply reduced.

How does mobile data traffic affect the energy consumption of 5G base stations?

The explosive growth of mobile data traffic has resulted in a significant increase in the energy consumption of 5G base stations (BSs).

What is 5G BS power consumption?

The 5G BS power consumption mainly comes from the active antenna unit (AAU) and the base band unit (BBU), which respectively constitute BS dynamic

and static power consumption. The AAU power consumption changes positively with the fluctuation of communication traffic, while the BBU power consumption remains basically unchanged , , .

Why are 5G base stations being powered off every day?

Selected 5G base stations in China are being powered off every day from 21:00 to next day 9:00 to reduce energy consumption and lower electricity bills. 5G base stations are truly large consumers of energy such that electricity bills have become one of the biggest costs for 5G network operators.

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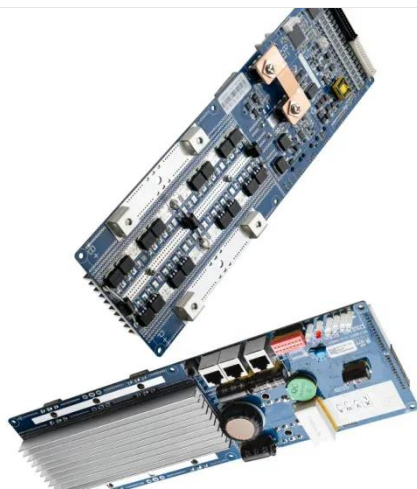


### 5G network deployment and the associated energy consumption ...

Jul 1, 2022 · The simulation results show that 700 MHz and 26 GHz will play an important role in 5G deployment in the UK, which allow base stations to meet short-term and long-term data ...

## How much power does a 5G base station consume? It is ...

Apr 7, 2024 · The operation of 5G base stations is also difficult to achieve a stable level. Although the network speed has increased compared with 4G, the growth rate is very limited. Therefore, ...



### Comparison of Power Consumption Models for 5G Cellular Network Base

Jul 1, 2024 · This paper conducts a literature survey of relevant power consumption models for 5G cellular network base stations and provides a comparison of the models. It highlights ...

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