

ContainerPower Energy Solutions

How much power does a 5G base station consume in one hour



Overview

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.

Why does 5G use more power than 4G?

The data here all comes from operators on the front lines, and we can draw the following valuable conclusions: 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).

How much power will a 5G base station use in 2025?

The Small Cell Forum predicts the installed base of small cells to reach 70.2 million in 2025 and the total installed base of 5G or multimode small cells in 2025 to be 13.1 million. "A 5G base station is generally expected to consume roughly three times as much power as a 4G base station.

How much energy does a 5G small cell BS consume?

Simulation results reveal that more than 50% of the energy is consumed by the computation power at 5G small cell BS's. Moreover, the computation power of 5G small cell BS can approach 800 watt when the massive MIMO (e.g., 128 antennas) is deployed to transmit high volume traffic.

Will 5G consume a lot of energy?

"A lurking threat behind the promise of 5G delivering up to 1,000 times as much data as today's networks is that 5G could also consume up to 1,000 times as much energy," Dexter Johnson in the IEEE Spectrum. Why?

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What is a 5G base station?

A 5G base station is mainly composed of the baseband unit (BBU) and the AAU — in 4G terms, the AAU is the remote radio unit (RRU) plus antenna. The role of the BBU is to handle baseband digital signal processing, while the AAU converts the baseband digital signal into an analog signal, and then modulates it into a high-frequency radio signal.

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