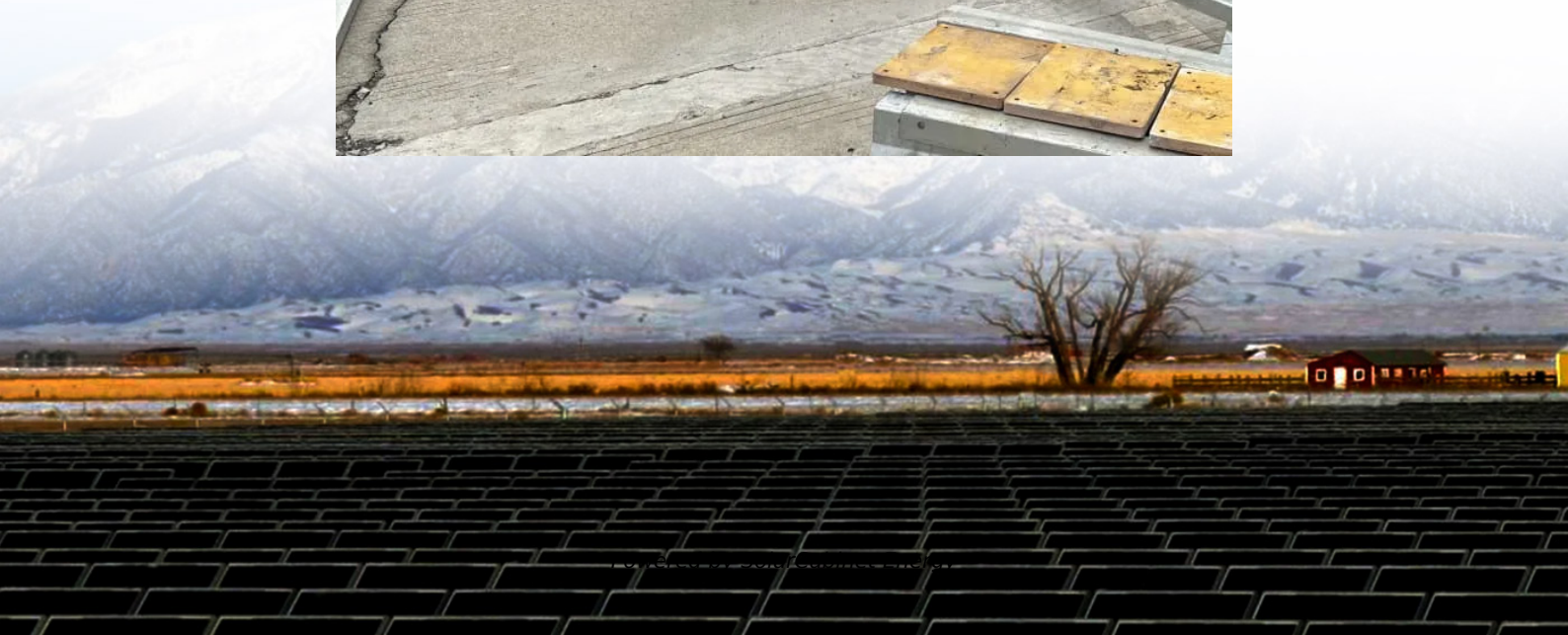


5g base station power consumption and power consumption





Overview

To understand this, we need to look closer at the base station power consumption characteristics (Figure 3). The model shows that there is significant energy consumption in the base station.

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.

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.

Why does 5G use so much power?

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. This necessitates a number of updates to existing networks, such as more powerful supplies and increased performance output from supporting facilities.

Should power consumption models be used in 5G networks?

This restricts the potential use of the power models, as their validity and accuracy remain unclear. Future work includes the further development of the power consumption models to form a unified evaluation framework that enables the quantification and optimization of energy consumption and energy efficiency of 5G networks.

How can we improve the energy efficiency of 5G networks?



To improve the energy efficiency of 5G networks, it is imperative to develop sophisticated models that accurately reflect the influence of base station (BS) attributes and operational conditions on energy usage.

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).



5g base station power consumption and power consumption

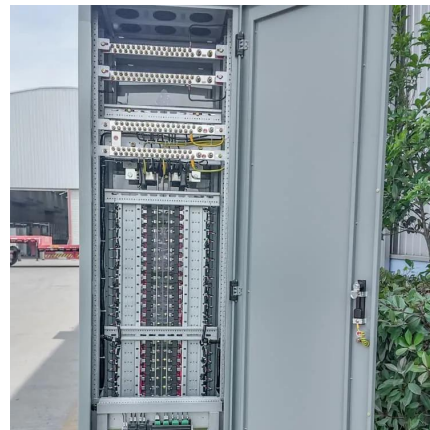


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However, there is still a need to understand the power consumption behavior of state-of-the-art base station architectures, such as multi-carrier



active antenna units (AAUs), as well as the ...

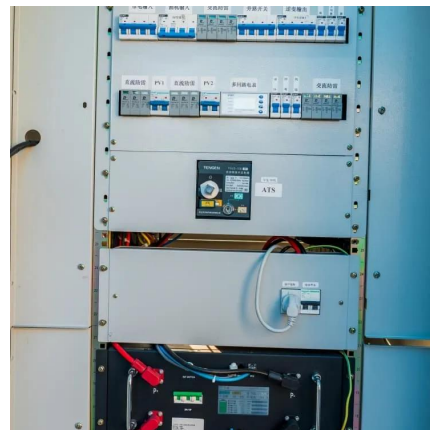


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