

# Communication base station 5MWH liquid cooling energy consumption

Is a 5 G base station energy-saving?

This paper proposes an energy-saving operation model of 5 G base station that incorporates communication caching and linearization techniques. On one hand, the model characterizes the electrical consumption characteristics within the 5 G base station, focusing on each electrical component.

Does a 5G base station have heat dissipation?

Currently, the majority of research concerning heat dissipation in 5G base stations is primarily focusing on passive cooling methods. Today, there is a clear gap in the literature in terms of research investigations that tend to quantify the temperature performances in 5G electronic devices.

What are the components of a 5 G base station?

Firstly, in terms of energy equipment, the electrical component characteristics of the 5G base station's constituent units are modeled, including air conditioning loads, power supply systems, and energy storage systems.

How can a 5G base station save energy?

(1) Incorporation of Communication Caching Technology: The model includes communication caching technology, which fully leverages the delay-tolerant characteristics of communication flows, further enabling energy saving in 5G base stations.

A literature review is presented on energy consumption and heat transfer in recent fifth-generation (5G) antennas in network base stations.

The precision and effectiveness of direct-to-chip cooling are making it a preferred choice for operators seeking to maximize base station reliability and minimize energy consumption.

(4) Energy saving: Liquid cooling systems save about 30% to 50% of electricity compared to air-cooled systems.

Studies show that 5G base stations using liquid cooling systems can reduce the energy consumption of refrigeration systems by 30%-50% compared to air-cooled base stations,

Heat stored in the liquid was released into the ventilation duct of the building, still providing annual cooling energy savings of 70%, when compared to air cooling.

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Fig. 1 is a schematic structural diagram of an energy-saving liquid cooling system of a 5G base station room using nanofluid as a medium according to the present invention.

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