Cooling application of wind power in communication base stations

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Are data centres and telecommunication base stations energy-saving?
Data centres (DCs) and telecommunication base stations (TBSs) are energy intensivewith ~40% of the energy consumption for cooling. Here,we provide a comprehensive review on recent research on energy-saving technologies for cooling DCs and TBSs,covering free-cooling,liquid-cooling,two-phase cooling and thermal energy storage based cooling.

How does a heat pipe based cooling system work?
Wang et al. developed a heat pipe based cooling system containing a phase change material (PCM) unit to extend the effective cooling time of the heat pipe and to maximize the use of the outdoor cooling source. This PCM unit was integrated with a condenser,absorbing cold energy from the external environment.

What are the different phase change cooling technologies in data centres?
Yuan et al. reviewed the technical principles, advantages, and limitations of four major phase change cooling technologies in data centres, namely, stand-alone heat pipe cooling, integrated heat pipe cooling, two-phase immersion cooling and phase change cold energy storage.

How does a DC & TBS cooling system work?
Cooling methods and performance The cooling of DCs and TBSs is mainly achieved using computer room air conditioning(CRAC) units,which consists of a vapour compression refrigeration system for cooling and a cold/hot aisle layout (Fig. 3) (Nada et al.,2016).

that can achieve secondary recovery of heat using heat pipes with a more obvious energy saving advantage. The cited literature concluded that the use of cooling system can reduce the ...

Four most promising energy-saving cooling technologies including free cooling, liquid cooling, two-phase cooling and TES-based cooling are reviewed for the evaluation of their ...

Inefficient cooling systems and rudimentary control methods are accountable for the significant cooling energy consumption in telecommunication base stations (TBSs).

This paper proposes a novel ventilation cooling system of communication base station (CBS), which combines

with the chimney ventilation and the air conditioner cooling.

Developing a innovative cooling methods specifically designed for OTN equipment. The energy efficiency ratio of the MAVAC system increases by approximately 20%. The cooling systems ...

China Mobile"s pilot in Shenzhen demonstrates what"s possible: By integrating immersion cooling with waste heat recycling, they achieved negative PUE (Power Usage Effectiveness) values--essentially ...

Cooling below ambient is necessary to extend the life of back-up batteries, and temperature stabilization is required to maintain peak performance. Many base stations and cell ...

The air-conditioning system of the base station operates 24 hours a day resulting in huge energy consumption, and there is an urgent need for effective energy-s

Battery direction of wind power in communication base stations The paper proposes a novel planning approach for optimal sizing of standalone photovoltaic-wind-diesel-battery power supply for mobile ...

This paper attempts to offer optimization of power consumption on the cooling system by using a Knowledge Base Temperature System (KBTS), and finds a reduced power consumption for a cooling ...

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