

5g upstream communication green base station





Overview

The emergence of fifth-generation (5G) telecommunication would change modern lives, however, 5G network requires a large number of base stations, which may lead to greater carbon emissions. Sin.

Can a 5G base station promote green development of mobile communication facilities?

However, a significant reduction of ca. 42.8% can be achieved by optimizing the power structure and base station layout strategy and reducing equipment power consumption. Overall, this study provides a clear approach to assess the environmental impact of the 5G base station and will promote the green development of mobile communication facilities.

How does a 5G base station consume energy?

In terms of energy consumption, 5G base stations require continuous operation and stability, which leads to significant electricity consumption (Guo et al., 2022a). This power is mainly supplied by transmission equipment and auxiliary equipment, such as transformers, UPS power supplies, and cooling equipment.

What is the system boundary of 5G base station?

The system boundary of the CO₂ of 5G base station The civil construction of 5G base stations is typically carried out using the existing infrastructure of 4G base stations, resulting in less material input during the construction phase. The primary focus on carbon emission generation is during the use phase due to power consumption.

What are 5G base stations?

5G base stations are categorized into micro base stations, macro base stations, and indoor sub-systems based on their transmit power and coverage. As 5G operates at a higher frequency than 4G, its coverage capability is lower and the signal penetration is poor, causing significant signal attenuation.



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Green 5G White Paper

GREEN 5G WHITE PAPER Figure 12 Radio Air conditioner Power supply Others Figure 13 Baseband Figure 14 Power consumption A I-CIB increase in base station transmit power leads ...

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China Mobile - Renewable energy and green base station ...

Aug 7, 2025 · China Mobile added 467,000 5G base stations while achieving a 2% reduction in overall base station energy consumption in 2024.

Low-Carbon Sustainable Development of 5G Base Stations in ...

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Carbon emissions of 5G mobile networks in China

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Remake Green 5G

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more than 70 percent of the city's internet traffic through 5G network.

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