





## Overview

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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 much energy does a 5G base station use?

China Mobile's measurement report 9 indicates that the energy consumption of a 5G base station is 4.3 kWh, which is four times that of a 4G base station at 1.1 kWh. One 5G base station is estimated to produce 30 t of carbon emissions in one year of operation 10.

How many 4G & 5G base stations are there in Nanchang?

The network traffic data were collected from China Mobile. We carried out a city-level measurement in Nanchang and collected fine-grained records on the network traffic of all 4G and 5G base stations for one week in May 2022. The network traffic data cover 12,264 4G base stations and 2,159 5G base stations.

What is make green 5G?

China Telecom and ZTE released a Remake Green 5G white paper, aiming to explore a practical and effective energy efficiency evaluation system with the industry, explore feasible energy-saving and efficiency-enhancing technologies for green networks, and realize the vision and goal of sustainable communication network development. Foreword



## Mobile 5g communication green base station

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Carbon emissions and mitigation potentials of 5G base station ...

Jul 1, 2022 · 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. ...

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5G Mobile Communication Base Station Electromagnetic ...

Dec 15, 2023 · The article 35 of the Regulations stipulates that "for the establishment of large-scale wireless radio stations (stations) and ground public mobile communication BS, their ...

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Remake Green 5G

Nov 10, 2022 · As an important infrastructure for digital transformation, the mobile communication network focuses on three types of key facilities: data centers, communication base stations, ...

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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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The carbon footprint response to projected base stations of China's 5G

Apr 20, 2023 · We decomposed the CO<sub>2</sub> footprint of China's 5G networks and assessed the contribution of the number of 5G base stations and mobile data traffic to 5G-induced CO<sub>2</sub> ...

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Carbon emissions of 5G mobile networks in China

Dec 1, 2025 · However, the impact of 5G mobile networks on energy consumption and carbon emissions is a matter of concern. Compared with previous generations of mobile networks, 5G ...

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Carbon emissions of 5G mobile networks in China

Aug 17, 2023 · Here we develop a large-scale data-driven framework to quantitatively assess the carbon emissions of 5G mobile networks in China, where over 60% of the global 5G base ...

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Ambitious 5G base station plan for 2025

Dec 28, 2024 · Technicians from China Mobile check a 5G base station in Tongling, Anhui province. [Photo by Guo Shining/For China Daily] China aims to build over 4.5 million 5G base ...

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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.

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Energy-efficiency schemes for base stations in 5G ...

In today's 5G era, the energy efficiency (EE) of cellular base stations is crucial for sustainable



communication. Recognizing this, Mobile Network Operators are actively prioritizing EE for ...

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