



# China s power communication equipment base station classification





## Overview

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In-depth analysis of the energy efficiency limits and classification requirements for communication base stations in the DB43/T3158-2024 standard, covering the calculation methods and implementation points of core indicators such as power ratio and power consumption per unit of.

In-depth analysis of the energy efficiency limits and classification requirements for communication base stations in the DB43/T3158-2024 standard, covering the calculation methods and implementation points of core indicators such as power ratio and power consumption per unit of.

This document specifies the energy efficiency level and technical requirements, statistical scope and calculation method of communication base stations. This document is applicable to the energy consumption statistics, energy efficiency calculation and assessment of communication base stations.

As 5G serves as the foundation for the construction of new infrastructure, China, as the world leader in 5G base station construction, has already built over 1.4 million 5G base stations in 2021 alone. In the same year, 5G base stations in China produced approximately 49.2 million tons of CO<sub>2</sub> eq.

Base station (or base radio station, BS) is – according to the International Telecommunication Union 's (ITU) Radio Regulations (RR) [1] – a " land station in the land mobile service." A base station is called node B in 3G, eNB in LTE (4G), and gNB in 5G. The term is used in the context of mobile.

One key measure to mitigate emissions has been through the development of Green Base Stations, covering: 1. Deployment of new energy-saving technologies: The deployment rate of 5G energy-saving technologies has exceeded 99%. China Mobile is accelerating the large-scale application of 5G extreme.

A base station represents an access point for a wireless device to communicate within its coverage area. It usually connects the device to other networks or devices through a dedicated high bandwidth wire of fiber optic connection. Base stations typically have a transceiver, capable of sending and. Do communication base station operations increase electricity consumption in China?



Comparing data from 2021, 2025, and 2030, we found that the electricity consumption due to communication base station operations in China increased annually.

How many 5G base stations are built in China?

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How much electricity does a communication base station use a year?

In 2021, the annual electricity consumption from communication base stations was 83,525.81 GWh, and it is estimated to rise to 458,495.18 GWh by 2030 (average across three scenarios), with an increase of 448.93% compared with 2021.

What are the components of a base station?

**Power Supply:** The power source provides the electrical energy to base station elements. It often features auxiliary power supply mechanisms that guarantee operation in case of lost or interrupted electricity, during blackouts. **Baseband Processor:** The baseband processor is responsible for the processing of the digital signals.



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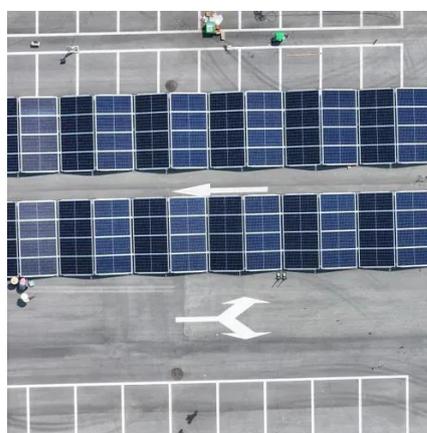


### Multi-objective cooperative optimization of communication base ...

This paper develops a method to consider the multi-objective cooperative optimization operation of 5G communication base stations and Active Distribution Network ...

### Carbon emissions and mitigation potentials of 5G base station in China

By 2020, China has established over 718,000 5G base stations, and this number is expected to increase exponentially between 2021 and 2025 due to the nation's determination ...



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### Base Stations

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### China Mobile - Renewable energy and green base station upgrades

Through these interventions, China Mobile added 467,000 5G base stations while achieving a 2% reduction in overall base station energy consumption in 2024, demonstrating ...



### Base station

In radio communications, a base station is a wireless communications station installed at a fixed location and used to communicate as part of one of the ...



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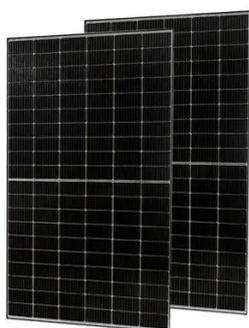


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### Base station

In radio communications, a base station is a wireless communications station installed at a fixed location and used to communicate as part of one of the following: a push-to-talk two-way radio ...



### Base Stations

What is Base Station? A base station represents an access point for a wireless device to communicate within its coverage area. It usually connects the device to other ...



### [Low-carbon upgrading to China's communications base ...](#)

Using real-world data from over 49,000 base stations in Anhui Province and extending the model to a national scale, the researchers evaluated three future development ...



### Power Base Station



Each RF requirement has a corresponding test defined in the LTE test specifications for the base station [87] and the UE [74]. These specifications define the test setup, test procedure, test ...



### **Low-Carbon Sustainable Development of 5G Base Stations in China**

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 ...

### **Low-carbon upgrading to China's communications base stations ...**

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