

# 5g base station power consumption standard





## Overview

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Is 5G base station power consumption accurate?

esan@huawei.com Abstract—The energy consumption of the fifth generation (5G) of mobile networks is one of the major concerns of the telecom industry. However, there is not currently an accurate and tractable approach to evaluate 5G base stations (BSs) power consumption. In this article, we pr.

Should power consumption models be used in 5G networks?

This restricts the potential use of the power models, as their validity and accuracy remain unclear. Future work includes the further development of the power consumption models to form a unified evaluation framework that enables the quantification and optimization of energy consumption and energy efficiency of 5G networks.

What is 5G base station?

1. Introduction 5G base station (BS), as an important electrical load, has been growing rapidly in the number and density to cope with the exponential growth of mobile data traffic . It is predicted that by 2025, there will be about 13.1 million BSs in the world, and the BS energy consumption will reach 200 billion kWh .

What is 5G BS power consumption?

The 5G BS power consumption mainly comes from the active antenna unit (AAU) and the base band unit (BBU), which respectively constitute BS dynamic and static power consumption. The AAU power consumption changes positively with the fluctuation of communication traffic, while the BBU power consumption remains basically unchanged , , .



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### [5G Base Station Power Consumption Using Machine Learning](#)

Apr 25, 2025 · Accurate power consumption forecasting plays a pivotal role in energy management, influencing both utility operations and customer experience. With increasing ...

### [What is the Power Consumption of a 5G Base Station?](#)

Nov 15, 2024 · Why is 5G Power Consumption Higher? 1. Increased Data Processing and Complexity These 5G base stations consume about three times the power of the 4G stations.

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### **Comparison of Power Consumption Models for 5G Cellular Network Base**

Download Citation , On Jul 1, 2024, Alexander M. Busch and others published Comparison of Power Consumption Models for 5G Cellular Network Base Stations , Find, read and cite all the ...

### [Final draft of deliverable D.WG3-02-Smart Energy Saving ...](#)

May 7, 2021 · Change Log This document contains Version 1.0 of the ITU-T Technical Report on "Smart Energy Saving of 5G Base Station: Based on AI and other emerging



technologies to ...



### Comparison of Power Consumption Models for 5G Cellular Network Base

Jul 1, 2024 · This paper conducts a literature survey of relevant power consumption models for 5G cellular network base stations and provides a comparison of the models. It highlights ...



### Power consumption based on 5G communication

Oct 17, 2021 · At present, 5G mobile traffic base stations in energy consumption accounted for 60% ~ 80%, compared with 4G energy consumption increased three times. In the future, high ...



### TS 103 786

Sep 10, 2024 · TS 103 786 - V1.3.1 - Environmental Engineering (EE); Measurement method for energy efficiency of wireless access network equipment; Dynamic energy efficiency ...





### Energy consumption optimization of 5G base stations ...

Aug 1, 2023 · An energy consumption optimization strategy of 5G base stations (BSs) considering variable threshold sleep mechanism (ECOS-BS) is proposed, which includes the initial ...



### Power Consumption Modeling of 5G Multi-Carrier Base ...

Jan 23, 2023 · However, there is still a need to understand the power consumption behavior of state-of-the-art base station architectures, such as multi-carrier active antenna units (AAUs), ...

### Machine Learning and Analytical Power Consumption ...

Jan 23, 2023 · Abstract--The energy consumption of the fifth generation (5G) of mobile networks is one of the major concerns of the telecom industry. However, there is not currently an ...



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