Irish Communications 5G Base Station Energy

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 NR?

The 5G NR standard has been designed based on the knowledge of the typical traffic activity in radio networks as well as the need to support sleep states in radio network equipment. By putting the base station into a sleep state when there is no traffic to serve i.e. switching off hardware components, it will consume less energy.

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 ,,.

How can we improve the energy eficiency of 5G networks?

To improve the energy eficiency of 5G networks,it is imperative to develop sophisticated modelsthat accurately reflect the influence of base station (BS) attributes and operational conditions on energy usage.

How does mobile data traffic affect the energy consumption of 5G base stations?

The explosive growth of mobile data traffic has resulted in a significant increasein the energy consumption of 5G base stations (BSs).

What is 5G New Radio?

5G New Radio (NR) is designed to enable denser network deployments and simultaneously deliver increased energy efficiency, thus reducing both operational costs and environmental impacts. Before we explore the new technical features, let's look more closely at how the existing 4G LTE radio networks function.

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energy-efficient strategies, enabling operators to optimize resource uti-lization while maintaining network ...

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