



BUHLE POWER

Is 5g communication a fully energy-efficient base station





Overview

What is the energy consumption of a 5G network?

The energy consumption of 5G networks is one of the pressing concerns in green communications. Recent research is focused towards energy saving techniques of base stations (BSs). BSs are one of the most power consuming elements of a 5G network. It is important to model their energy consumption for analyzing overall energy efficiency of a network.

How much power does a 5G base station use?

By 2025, the worldwide 5G base station number is anticipated to be 65 million. Table 1 shows the power consumption of typical 4G and 5G macro base stations at 2.6 GHz, as measured by China Mobile in 2019. The total power of a base station includes the power consumption for baseband processing and the power of the remote radio unit (RRU).

Is 5G energy efficient?

ic coverage allows it¹⁶. In a presentation on “5G and Energy Efficiency”, Ari Sorsaniemi of DG Connect highlighted that 5G could be energy-efficient if, among other conditions, the data transmission in a loaded case is efficient and energy consumption is low.

Can network energy saving technologies mitigate 5G energy consumption?

This technical report explores how network energy saving technologies that have emerged since the 4G era, such as carrier shutdown, channel shutdown, symbol shutdown etc., can be leveraged to mitigate 5G energy consumption.



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