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Huawei base station power efficiency calculation

Overview

How to optimize a base station's energy consumption?

The base station’s average energy consumption during a certain time period has been estimated. A range of optimization approaches, namely PSO, ABC, and GA, have been employed to obtain the best possible (optimal) cost for the system.

What is a base station power consumption model?

In recent years, many models for base station power con-sumption have been proposed in the literature. The work in proposed a widely used power consumption model, which explicitly shows the linear relationship between the power transmitted by the BS and its consumed power.

Can high RF efficiency reduce the power consumption of a base station?

From the perspective of energy saving, antennas with high RF efficiency can be used to reduce the power consumption of the base station by reducing the transmit power of the radio unit while maintaining the same coverage quality. The following describes the details from the two perspectives.

Is 5G base station power consumption accurate?

esan@huawei.comAbstract—The energy consumption of the fifth generation (5G) of mobile networks is one of the major co cerns 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.

How does a high RF efficiency antenna affect a base station?

This indicates that an antenna with a higher RF efficiency will help reduce the power provided by the radio unit, enabling the base station to consume less energy. Here is an example. In scenario A, the radio unit's total transmit power is 200 W and antenna A has an RF efficiency of 70%. The power radiated from the antenna is 140 W (200 W x 70%).

How much power does a base station use?

For a base station with typical configurations, the transmit power can be reduced by 36%, that is, 288 W.

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