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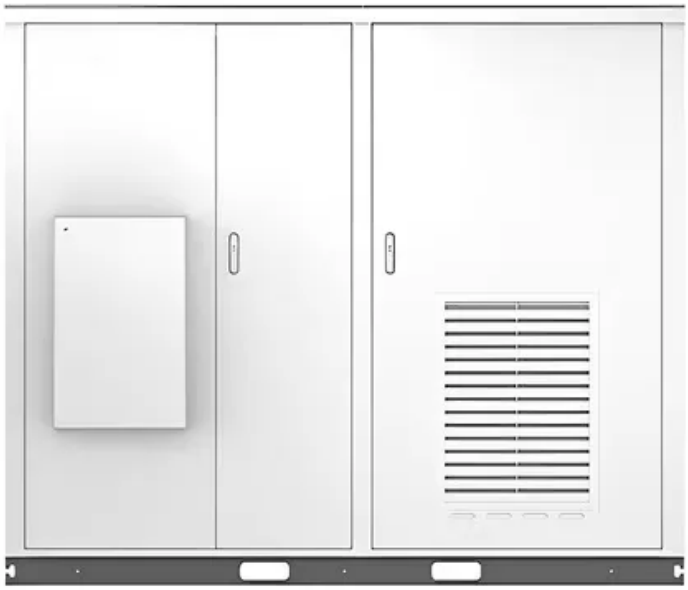
Integrated signal amplification base station energy method



Overview

How does a power amplifier affect a wireless base station?

In wireless base stations, the power amplifier (PA) dominates signal-chain performance in terms of power dissipation, linearity, efficiency, and cost. Monitoring and controlling the performance of a base station’s PA makes it possible to maximize the output power while achieving optimum linearity and efficiency.

Why is a base station power amplifier important?

The proliferating frequency bands and modulation schemes of modern cellular networks make it increasingly important that base-station power amplifiers offer the right combination of output power, efficiency and multi-band support – at both peak and average power levels. PAs are the main energy consumers in modern base stations.

Can integrated sensing and communication systems provide energy-eficient communication?

This paper investigates energy-eficient communication within an integrated sensing and communication system. The system employs a dual-function radar-communica-tion base station. This base station concurrently serves multiple mobile users for com-munication purposes while also performing target sensing within a designated range cell.

Why is power efficiency important in a base station?

Electrical energy is the principal source of everyday operating costs in a base station, and the PA can be responsible for more than half of the power dissipation. Thus, optimizing the PA’s power efficiency improves operational performance, and provides environmental and financial benefits.

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Integrated sensing and communication (ISAC) systems leverage coordinated multi-point (CoMP) base stations (BSs) to deliver high-accuracy sensing and robust ...

This paper proposes a secure energy efficiency scheme for CF networks using sub-connection active reconfigurable intelligent surfaces that aims to optimizes base station and ...

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A base station comprises multiple transceivers (TRX); each TRX comprises a radio-frequency (RF) power amplifier (PA), an RF small-signal section, a baseband (BB) ...

Abstract This paper investigates energy-eficient communication within an integrated sensing and communication system. The system employs a dual-function radar ...

s between the DFRC base station (BS) and the sensing targets. Traditionally, an RIS consists of a large number of passive reflecting elements, and the direction of the ...

In this paper, our goal is to minimize the total power consumption of the base station by dynamically controlling the switching status of the base station. This article first ...

Abstract--Energy efficiency (EE) is a challenging task in integrated sensing and communication (ISAC) systems, where high spectral efficiency and low energy consumption ...

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