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Base station mixed power and communication signals

Overview

Can integrated sensing & communication (Isac) base stations be used for collaborative sensing?

Abstract: The collaborative sensing of multiple Integrated sensing and communication (ISAC) base stations is one of the important technologies to achieve intelligent transportation. Interference elimination between ISAC base stations is the prerequisite for realizing collaborative sensing.

What is a multi-functional base station?

Specifically, a multi-functional base station (BS) can enable multi-functional transmission, by exploiting the same radio signals to perform target/environment sensing, wireless communication, and wireless power transfer (WPT), simultaneously.

Can multiple Isac base stations communicate and radar sense simultaneously?

Interference elimination between ISAC base stations is the prerequisite for realizing collaborative sensing. In this paper, we focus on the mutual interference elimination problem in collaborative sensing of multiple ISAC base stations that can communicate and radar sense simultaneously by transmitting ISAC signals.

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.

What is a monitoring-and-control solution for a base station?

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. This article discusses the elements of a monitoring-and-control solution for the PA using discrete components—and describes an integrated solution.

How can a base station reduce energy consumption?

Significant efforts are being made to reduce the overall energy consumption of base stations to lessen their impact on the environment. 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.

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Channel Models for Wireless Communication Systems

Oct 30, 2010 · Wireless communication has evolved significantly, over the past several decades, to meet the ever-growing demand for high data rates over the wireless medium. Systems have ...

Integrated Sensing and Communication Signal Processing ...

Apr 19, 2024 · As a promising key technology of 6th generation (6G) mobile communication system, integrated sensing and communication (ISAC) technology aims to make full use of ...

Toward Multiple Integrated Sensing and Communication Base Station

Jun 22, 2022 · The collaborative sensing of multiple Integrated sensing and

communication (ISAC) base stations is one of the important technologies to achieve intelligent tran

Template for 2005 IEEE AP-S International Symposium

Mar 11, 2021 · Nowadays, the linearization of base-station power amplifiers (PAs) plays an important role to increase the PA efficiency and overall system performance, especially by ...

Joint BS-RIS-User Association and Deployment Design for

Jun 26, 2024 · In this letter, we consider a multi-reconfigurable intelligent surface(RIS)-assisted multi-cell communication system in which we jointly optimize the base station (BS)-RIS-user ...

NOMA Empowered Integrated Sensing and ...

Jan 23, 2023 · the sensing function into the communication system. As a remedy, non-orthogonal multiple access (NOMA) can multiplex communication users in the power domain and mitigate ...

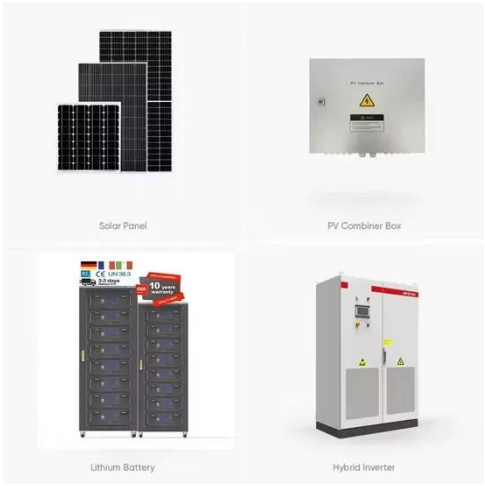
Toward Multiple Integrated Sensing and Communication ...

Jun 23, 2022 · I. INTRODUCTION Integrated sensing and communication (ISAC) base stations are gradually becoming one of the important devices for intelligent transportation [1], which can ...

Integrated Sensing, Communication, and Powering Over

Apr 14, 2025 · This paper considers a multi-functional orthogonal frequency division multiplexing (OFDM) system with integrated sensing, communication, and powering (ISCAP), in which a ...

Collaborative Precoding



Design for Adjacent Integrated ...

Oct 13, 2023 · Integrated sensing and communication (ISAC) base stations can provide communication and wide range sensing information for vehicles via downlink (DL) ...

Power Allocation for Multiple Sensing and Communication ...

Nov 29, 2023 · In this paper, we consider a joint sensing and communication scenario with the simultaneous implementation of multiple sensing and communication tasks employing

Advanced Optical-Radio Communication System for 5G Base Stations ...

Dec 26, 2024 · This research aims to create trustworthy, fast communication technologies for 5G and beyond. The design investigates the possibilities of Free-Space Optical (FSO) ...

RIS-aided integrated sensing and

communication: ...

Apr 1, 2025 · This work considers an integrated sensing and communication system, where a reconfigurable intelligent surface (RIS) is utilized to manage interference and radar signals. ...

Selecting Mixed Signal Components for Digital Communication ...

To achieve this, many CDMA systems communicate the received power levels back to the transmitters so that power of the individual signal components may be adjusted to equalize ...

Cellular network based multistatic integrated ...

Apr 16, 2024 · Multistatic integrated sensing and communication system based on cellular network can be achieved at low complexity and cost without modifying ...

Communication-centric integrated sensing and ...

Oct 14, 2024 · The average SINR of communication only systems remains flat as the sensing SCNR constraint increases, because they are not affected by the sensing target. The systems ...

Toward Multiple Integrated Sensing and Communication ...

Jun 23, 2022 · borative sensing of multiple ISAC base stations that can communicate and radar sense simultaneously by transmitting ISAC signals. We establish a mutual interference model ...

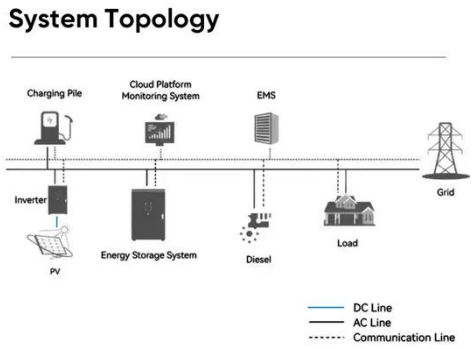
Communication-centric integrated sensing and ...

Oct 18, 2024 · communication only systems have higher aver-age SINR than mixed ISAC systems. As the total transmit power ncreases, the gap between systems using mixed mod-els ...

CHAPTER 10 MIMO IV:

multiuser communication

Aug 29, 2014 · 10 MIMO IV: multiuser communication In Chapters 8 and 9, we have studied the role of multiple transmit and receive antennas in the context of point-to-point channels. In this ...



A Mixed-Signal Load-Pull system for Base-Station ...

For this reason, active load-pull systems that can offer communication standard compliant device testing for e.g. W-CDMA at base-station power levels (100 W and above) have not been ...

Simulation and Classification of Mobile Communication Base Station

Dec 16, 2020 · In recent years, with the rapid deployment of fifth-generation base stations, mobile communication signals are becoming more and more complex. How to identify and classify ...

Integrated Sensing and Communication enabled

Sensing ...

Oct 13, 2023 · This paper studies the sensing base station (SBS) that has great potential to improve the safety of vehicles and pedestrians on roads. It can detect the targets on the road ...

Integrated Sensing and Communication enabled ...

Nov 27, 2023 · ISAC signal design: Towards 6G, ISAC signals are designed based on the signals of mobile communication systems, which include single-carrier signals and multi-carrier signals.

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