



# Energy-saving measures for outdoor base stations



LIQUID/AIR COOLING

PROTECTION IP54/IP55

PCS EMS

BATTERY /6000 CYCLES





## Overview

---

Modern outdoor LMR base stations are designed for energy efficiency, using ruggedised components that eliminate the need for climate control. Unlike indoor shelters, outdoor solutions rely on passive or minimal active cooling, significantly lowering energy consumption.

Modern outdoor LMR base stations are designed for energy efficiency, using ruggedised components that eliminate the need for climate control. Unlike indoor shelters, outdoor solutions rely on passive or minimal active cooling, significantly lowering energy consumption.

unication base station in Zhengzhou City was chosen for a pilot application. The measured results showed that the system ran stably, the temperature inside the cabinet was controlled between 12 °C and 39 °C with no high temperature alarm, the compressor running time was significantly reduced, the.

With lower power consumption, greater efficiency, and off-grid capabilities, outdoor LMR networks are revolutionising communication in remote, high-demand environments. With rising energy costs, stricter carbon targets, and tighter budgets, critical industries must cut costs and improve.

KDDI's combined scope 1 and 2 emissions in the 2023 financial year were approximately 950,000 tons, of which around half were related to energy use in base stations. 3G shutdowns have significantly reduced power consumption since April 2022 however, further saving measures remain an important.

Enhancing base station energy efficiency can: Lower operational costs by reducing electricity bills. Minimize reliance on fossil fuels in off-grid areas. Extend the lifespan of power equipment and cooling systems. Help operators meet corporate sustainability goals and regulatory requirements.

In today's 5G era, the energy efficiency (EE) of cellular base stations is crucial for sustainable communication. Recognizing this, Mobile Network Operators are actively prioritizing EE for both network maintenance and environmental stewardship in future cellular networks. The paper aims to provide.

25 million 5G base stations, and 9.96 million mobile communication base stations.



According to 2021 National Development and Reform Commission Report, in 2020, China communication base stations consumed as much as 46.58 billion kilowatt-hours, especially after the commercial use of 5G in 2019, the.



## Energy-saving measures for outdoor base stations

---



### [Energy Savings in Base Stations with KDDI](#)

At the end of March 2023, KDDI introduced a sleep function for base stations to reduce energy use. Analysing traffic trends of each base station, certain radio waves can be temporarily ...

### [Energy Savings in Base Stations with KDDI](#)

At the end of March 2023, KDDI introduced a sleep function for base stations to reduce energy use. Analysing traffic trends of each base station, ...



### **Energy-saving control strategy for ultra-dense network base ...**

Aiming at the problem of mobile data traffic surge in 5G networks, this paper proposes an effective solution combining massive multiple-input multiple-output techniques ...

### **How modern outdoor LMR solutions reduce power consumption ...**

Discover how outdoor LMR solutions cut energy costs by up to 90% while ensuring reliable communication for critical industries. Learn how



rugged, low-power consumption infrastructure ...



### Base Station Energy Efficiency: Key Strategies for Sustainable ...

Enhancing base station energy efficiency can: Lower operational costs by reducing electricity bills. Minimize reliance on fossil fuels in off-grid areas. Extend the lifespan ...



### Energy-saving control strategy for ultra-dense network base stations

Aiming at the problem of mobile data traffic surge in 5G networks, this paper proposes an effective solution combining massive multiple-input multiple-output techniques ...



### STUDY ON AN ENERGY-SAVING THERMAL

...

Figure 8. Comparison of electricity consumption equipment cabinet between 12 °C and 39 °C, in winter which meets the national standard for outdoor communication base stations, thus, there ...





## Final draft of deliverable D.WG3-02-Smart Energy Saving of ...

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 ...



## Energy-efficiency schemes for base stations in 5G heterogeneous

EE solutions have been segregated into five primary categories: base station hardware components, sleep mode strategies, radio transmission mechanisms, network deployment and ...

## [Research on Energy-Saving Technology for Unmanned 5G ...](#)

In response to the current widespread issue of high energy consumption in 5G base stations, this article conducts overall design, hardware design, and software design of the base station ...



## Sustainable Telecom Practices: Reducing Energy Consumption in Base Stations

For base stations in remote or off-grid locations, renewable energy integration offers a compelling sustainability pathway. Solar, wind, and hybrid systems can provide ...



## ENERGY-SAVING MEASURES AND TEMPERATURE ...

The temperature of the temperature control equipment for the communication outdoor cabinet is 10~38 °C, which fully meets the temperature control requirement of the nation-al mobile ...





## Contact Us

---

For inquiries, pricing, or partnerships:

<https://www.sccd-sk.eu>

Phone: +32 2 808 71 94

Email: [info@sccd-sk.eu](mailto:info@sccd-sk.eu)

Scan QR code for WhatsApp.

