Energy Efficiency Evaluation of Outdoor Base Stations

Overview

This article will explore the importance of base station energy efficiency, identify the key factors affecting it, and present proven strategies for building sustainable networks without compromising performance. 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. 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. The present document can be downloaded from the ETSI Search & Browse Standards application. The present document may be made available in electronic versions and/or in print. The content of any electronic and/or print versions of the present document shall not be modified without the prior written. Due to the widespread installation of Base Stations, the power consumption of cellular communication is increasing rapidly (BSs). Power consumption rises as traffic does, however this scenario varies from geolocation to geolocation because sites in rural and urban areas have variable traffic loads.

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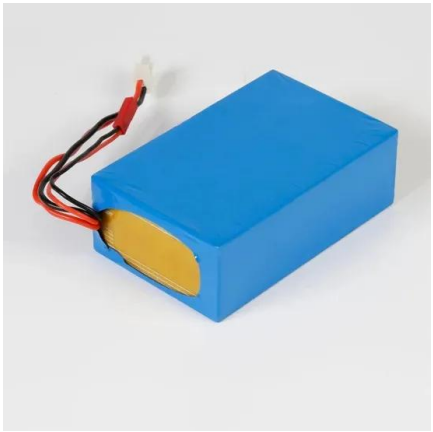
[ITU-T Rec. L.1351 (08/2018) Energy efficiency measurement ...]

This Recommendation is applicable to base station site energy efficiency parameter measurement in line with the metric established by [ITU-T L.1350]. This Recommendation describes how to realize requirements on:

[Energy-Efficient Base Stations]

This chapter aims a providing a survey on the Base Stations functions and architectures, their energy consumption at component level, their possible improvements and the major problems that must be ...

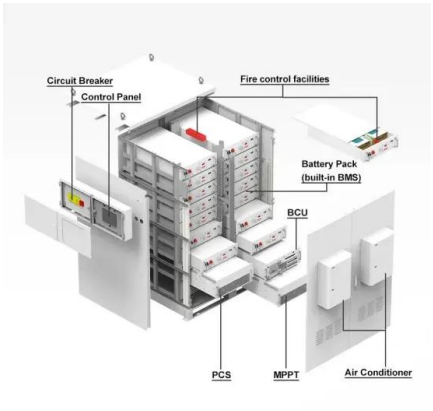


[On-site Energy Utilization Evaluation of Telecommunication Base ...]

Since the sites we visited were all outdoors, there wasn't much more equipment consuming the energy besides the radio units and the base band units, therefore we constructed regression models to provide a better ...

[Power Consumption Assessment of Telecommunication Base Stations]

Abstract: Energy consumed in telecommunication base stations is a significant part of the cellular network energy footprint. Efficient energy use, renewable energy sources, and infrastructure improvement ...



[Energy performance of off-grid green cellular base stations]

Therefore, this paper develops a diffusion-based modelling framework for solar-powered green off-grid base station sites. We apply this framework to evaluate the energy performance of homogeneous and ...

[Base Station Energy Efficiency: Key Strategies for Sustainable Networks]

Improving base station energy efficiency is not only a matter of environmental responsibility but also a strategic move to cut operational costs and enhance network sustainability.

[STUDY ON AN ENERGY-SAVING THERMAL MANAGEMENT SYSTEM ...]

Figure 8. Comparison of electrity consumption equipment cabinet between 12 °C and 39 °C, in winter which meets the national standard for outdoor communication base stations, thus, there is no high temperature ...

[Energy-efficiency schemes for base stations in 5G]

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 ...

[(PDF) Modelling the Energy Performance of Off-Grid Sustainable ...]

We propose diffusion-based models of the charging and discharging processes of the energy storage systems, and obtain the probability of charging them to their full capacities during the ...

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