



GermanSolarZA

Outdoor base station construction plan





Overview

The objective of this study is to develop a location optimization model to support the planning of ultra-dense 5G BSs in urban outdoor areas and to help address the cost challenges facing 5G.

How do outdoor base stations work?

Outdoor base stations integrate all essential systems into a single Integrated Cabinet, designed to endure harsh conditions like direct sunlight, rain, and extreme temperatures. These units protect the equipment while ensuring efficient functionality. Towers are crucial for mounting antennas at high elevations, ensuring wide signal reach.

How to optimize base station layout?

Moreover, we propose a dynamically adjusted quantum genetic algorithm (DAQGA) to optimize base station layout, with coverage and construction cost as objective functions. A signal reception strength metric is introduced to evaluate the effectiveness of the optimal layout.

Why are outdoor base stations important during power outages?

It becomes a top priority during power outages to maintain data flow. Outdoor base stations integrate all essential systems into a single Integrated Cabinet, designed to endure harsh conditions like direct sunlight, rain, and extreme temperatures. These units protect the equipment while ensuring efficient functionality.

Why are base stations important?

As critical nodes in wireless network connectivity, base stations, if not deployed with foresight and scientific planning, may not only lead to resource wastage, but also cause signal interference, directly affecting network coverage, signal quality, and user experience, thereby increasing the complexity of network management and operational costs.



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