

Which area is selected to optimize the coverage of 5G base stations?

As shown in Fig. 8, an area covering an area of 25 square kilometers in Jilin City is selected as the location for dense urban areas to optimize the coverage of 5G base stations. Fig. 8. Distribution of initial base stations in dense urban areas.

Which region dominates the 5G base station market?

The Asia-Pacific region continues to dominate the global 5G base station market, with a projected CAGR of approximately 38% from 2024 to 2029. This region represents the most dynamic and fastest-growing market, led by significant deployments in China, Japan, South Korea, and India.

How can a 5G base station be optimized?

This article proposes an optimization approach for the deployment of 5G base stations. Initially, a continuous wave (CW) test is conducted in the planned area to acquire drive test data. These data, along with the least squares method, are utilized to calibrate the signal propagation model.

How 5G mobile communication technology is affecting the network capacity?

1. Introduction With the rapid development of 5G mobile communication technology, the number of 5G users has significantly increased, leading to a corresponding expansion in network capacity. To meet the growing user demand, researchers have begun to focus on improving the throughput of base stations (e.g. Refs. [2,3]).

What is the coverage rate of 5G base stations compared to NSGA-II?

As can be seen from Fig. 10, after optimizing the coverage of 5G base stations, 43 new 5G base stations and 13 3/4G shared base stations are included, resulting in a base station coverage rate of 92.5%. This algorithm is compared with the traditional genetic algorithm and the multi-objective optimization algorithm NSGA-II.

What is 5G radio access network (ran)?

The deployment of 5G antenna systems and 5G radio access network (RAN) components further underscores these benefits, ensuring comprehensive coverage and connectivity. The 5G small cell segment continues to dominate the global 5G base station market, commanding approximately 60% of the market share in 2024.

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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 ...



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