

A substation needs a 5G base station





Overview

How much power does a 5G base station use?

Each nation has a different 5G strategy. For 5G, China uses 3.5GHz as the frequency. Then, a 5G base station resembles a 4G system, but it's on a much larger scale. For sub-6GHz in 5G, let's say you have a macro base station. The power levels at the antenna range from 40 watts, 80 watts or 100 watts.

Are 5G base stations more powerful than 4G?

Higher base station density. The average density of 5G base stations is expected to be three times higher than that of 4G. By 2025, the worldwide 5G base station number is anticipated to be 65 million. Table 1 shows the power consumption of typical 4G and 5G macro base stations at 2.6 GHz, as measured by China Mobile in 2019.

How do satellites connect to the 5G network?

These newer concepts for integrating satellites into the terrestrial 5G infrastructure are based on direct connectivity between satellites and 5G-enabled user equipment (UE) such as smartphones or vehicles. These devices then have access to the 5G network at all times – even when there is no terrestrial base station nearby.

How to validate the performance of 5G NR via satellite?

We have simulation tools available that allow a quick and detailed analysis of all important performance parameters. To validate the performance of 5G NR via satellite in actual transmission, we use the prototyping platform "OpenAirInterface (OAI)" with 5G-NTN extensions.

What is 5G & why is it important?

5G is giving the convergence of terrestrial and satellite-based networks a major boost. Under the keyword "Non-Terrestrial Networks (NTN)", satellites are being consistently integrated into the mobile communications standard for



the first time, subsequently paving the way for a global and dense communication network in the future 6G generation.

How does 6G work?

In addition, our laboratories have the necessary equipment to realistically replicate various channel characteristics in satellite transmission. With 6G, the previous terrestrial networks expand into a three-dimensional structure in which communication on the ground, in the air, and in space merge.



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[An Introduction to 5G and How MPS Products Can Optimize ...](#)

What Is 5G? 5G is a global wireless standard that was released in 2019, and it is the fifth generation for cellular network technology, with previous generations being 1G through 4G. In ...

[Analysis of the Impact of Substation Switching Operations on 5G Base](#)

With the rapid development of the construction and application of 5G communication networks in the power grid, more and more 5G base stations need to be built in substations. 5G base ...



[Method of Solving Electromagnetic Scattering Field in Substation ...](#)

Under the irradiation of the 5G base station antenna, the densely distributed electrical equipment in the substation will produce strong secondary scattering phenomenon due to the coupling ...

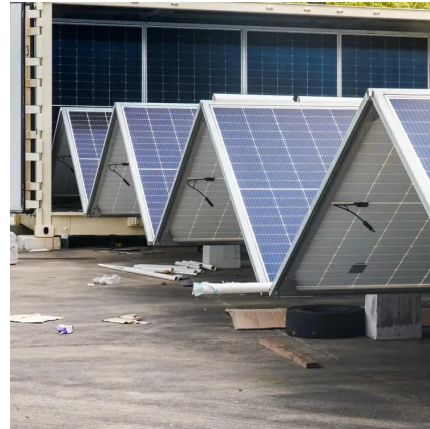


[Location of 5G base station antenna in substation taking into ...](#)

Aiming at the engineering problem that 5G base station antenna is difficult to locate efficiently in complex electromagnetic environment, a two-



stage positioning method of 5G base ...



Research on location selection method of 5G base station in substation

Then, the key technologies for 5G base station to participate in demand response was analyzed. Further, the application scenarios to dispatch 5G base stations as demand-side ...

Simulation of 5G interference to substation secondary equipment

This paper analyzes and deduces the electric field intensity produced by 5G base stations and terminals within substations, investigates the potential interference of 5G on secondary ...



In uence of Power Frequency Magnetic Field Interference in...

Hai Chuan Niu, Jie-Qing Fan*, and Tian Hao Hou
AbstractThe limited space of the substation contains a lot of electrical equipment and voltages ranging from hundreds to several thousand ...



Analysis of the influence of power frequency electromagnetic field ...

China's power grid is progressively advancing towards smart technology. With increasing substation voltage levels, more 5G base stations are being integrated into substations. The ...



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Research on location selection method of 5G base station in substation

With the 5G communication network in the power grid construction and application of rapid development, especially the popularity of substation applications within 5G, a growing number ...



[Henan Power's first substation dedicated 5G base station put into](#)

The Guandu substation 5G base station is the first 5G communication base station in China used in substations with a voltage level of 500 kV and above. It verifies the large-bandwidth service ...



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