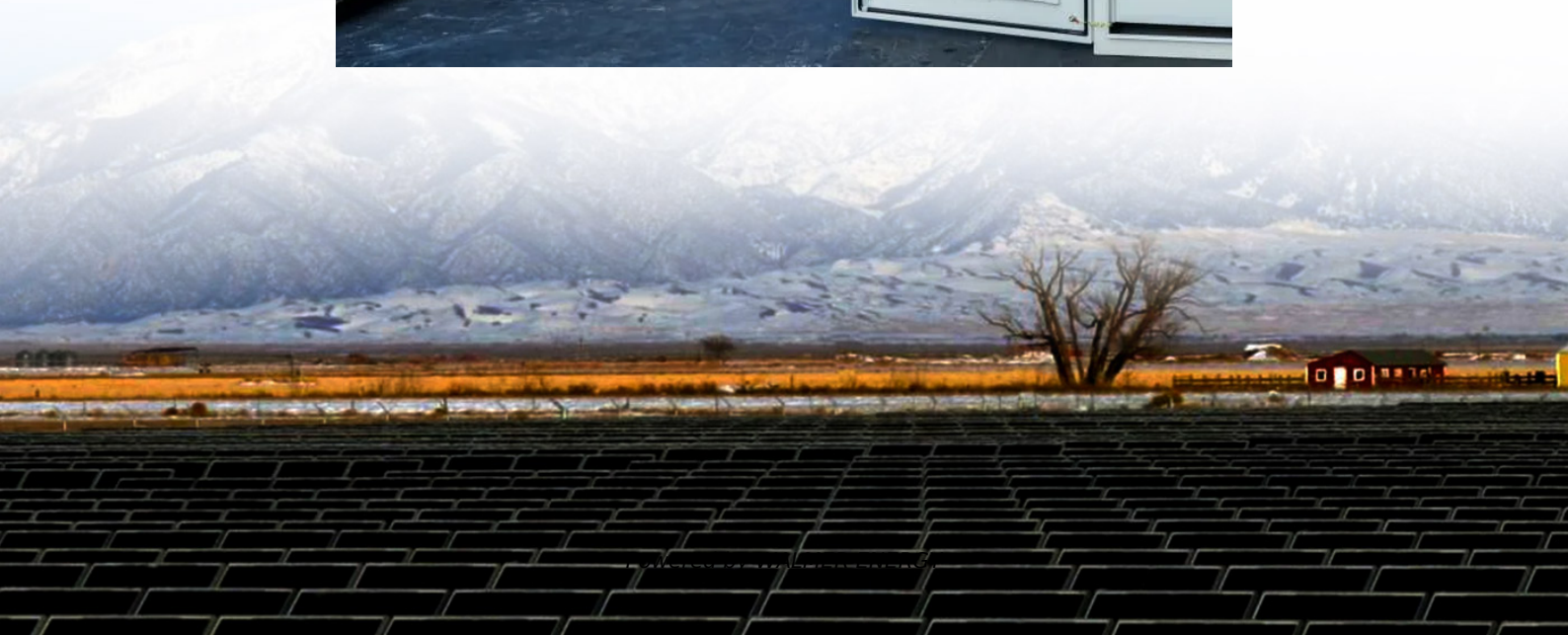


# Outdoor base station tower placement





## Overview

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How high should a rooftop base station tower be?

When constructing new rooftop base station towers, height limitations are set to ensure that the minimum antenna height is not lower than the average building height, and the height of rooftop towers produced by tower manufacturers generally does not exceed 21 meters, with the maximum antenna height not exceeding 40 meters.

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 high should a base station antenna be?

Per ITU-R P.1410 recommendations, base station antenna heights typically range between 15-60 meters. Urban deployments favor 25-35m, rural coverage requires 40-55m, while 5G mmWave systems operate efficiently at 15-25m. Critical factors include propagation models, terrain, and frequency bands.

What is the height of a ground-based base station tower?

Where,  $h_{suf}$  is the height of the ground-based base station tower.  $a$ ,  $b$ , and  $c$  are the linear relationship coefficients of this function. Based on practical considerations, the height of ground-based base station towers ranges from a minimum of 15 meters to a maximum of 40 meters.



## Outdoor base station tower placement

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### Application Note: Distributed Base Stations

All-outdoor, zero-footprint BTS, with all components located on the tower (essentially multiple boxes on the tower that travel via a combination of coax to the antennas and fiber/copper to ...

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