

# Mobile base station outdoor gain





## Overview

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How is beam steering achieved in a 5G base station?

Beam steering up to  $20^\circ$  is achieved, using phase shifted simultaneous excitation of different ports. The proposed antenna array not only fulfills 5G base station requirements but is also simple and compact as it only requires eight ports to achieve dual-band, high-gain and beam steering operation in a single design.

What is a base station antenna?

A base station antenna is used for the transmission and reception of wireless signals to and from the mobile devices within their coverage area, also known as the sector 7. Base station antennas used for cellular communication systems, are of two basic types; omni-directional antennas and directional antennas.

What are the design challenges associated with 5G directional base station antennas?

The other design challenges associated with 5G directional base station antennas include multi-band or wideband operation 10, 11, high-gain radiation pattern 12, 13, beam steering capability 13, 14 and overall size or complexity of the system 15, 16.

What are the requirements for a base station antenna?

The requirements for a base station antenna, include steerable antenna beam with high gain and directivity, which can be achieved by developing antenna arrays 26. An antenna array is composed of multiple antenna elements and each element is connected to a phase shifter.



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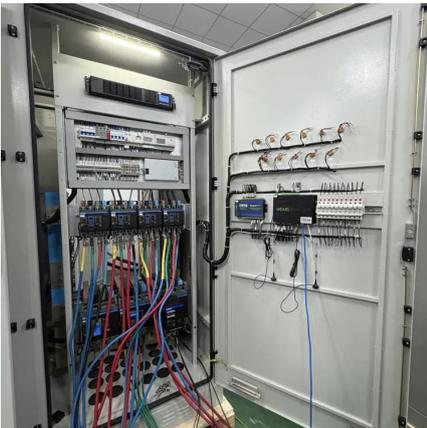
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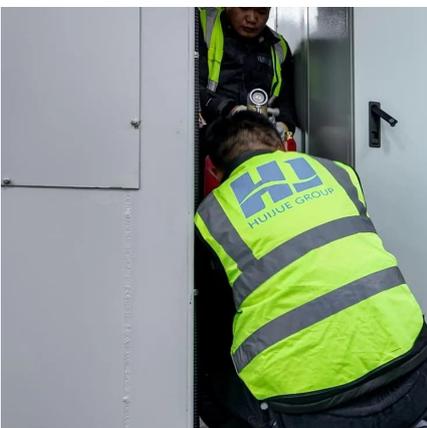
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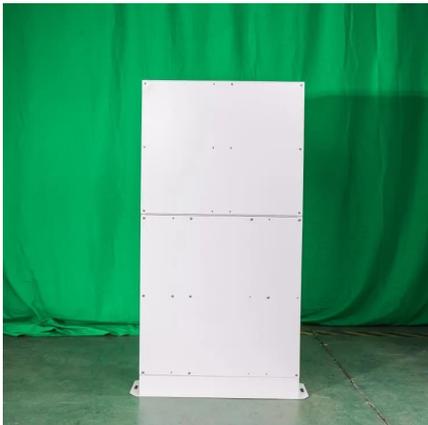
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