

# Communication 5g indoor base station design





## Overview

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What is a 5G base station?

A 5G network base-station connects other wireless devices to a central hub. A look at 5G base-station architecture includes various equipment, such as a 5G base station power amplifier, which converts signals from RF antennas to BUU cabinets (baseband unit in wireless stations).

Can a 16 element indoor base station cover 5G?

In this paper, a wideband 16- element indoor base station (BS) antenna array that can cover 3.3–6.0 GHz is proposed for 5G applications. A  $\pi$ -shaped monopole antenna is designed to cover the Lower band (LTE bands 42/43–N77–N78), the intermediate band (N79), and the higher band (LTE 46).

Is BS MIMO good for a 5G base station?

The proposed BS MIMO system shows quite high isolation, antenna efficiency about 82%–93.2%, and ECC below 0.02, which were good enough for a practical 5G MIMO indoor base station. The calculated ergodic channel capacity of the  $16 \times 16$  MIMO system reached up to 85 bps/Hz.

What are the 5G NR Base Station classes?

The 5G NR Base Station (BS) classes include BS Type 1-C, BS Type 1-H, BS Type 1-O, and BS Type 2-O. These classes are part of the 5G NR (New Radio) standard, which follows its predecessor LTE/LTE-A and is defined by 3GPP specifications release-15 and beyond. In 5G NR, BS is known as gNB and operates in frequency ranges FR1 and FR2.



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Antenna Fabrication Reflection Coefficients Isolations and ECCS Total Antenna Efficiency Radiation Performances Channel Capacity A prototype is fabricated to test the feasibility of the proposed indoor BS, 16-element MIMO antenna array, as illustrated in Fig. 5. See more on [link.springer](https://link.springer.com) ResearchGate

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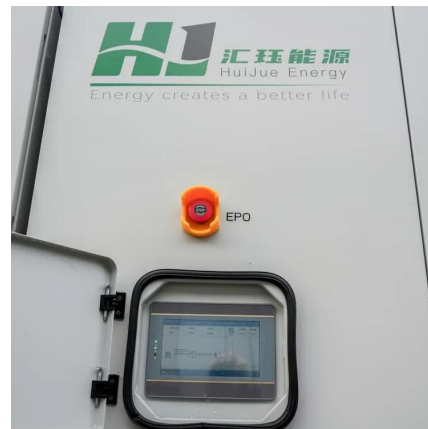
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Jan 27, 2022 · Key Words: 5G, MIMO, Indoor base station (BS), ergodic capacity I. Introduction The 5th generation of communication technology has several advantages over the present 4G ...

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