



BUHLE POWER

# Vaduz Communications 5G Base Station 5MWH Liquid Cooling Energy Construction





## Overview

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Why do we need a 5G thermal management system?

The increasing demands in power generation and heat release from 5G base station equipment and electronic devices require further research and development efforts. This is to propose new optimal designs of enhanced thermal management and more efficient heat transfer in circuit boards, components cabinets, and amplifier devices.

Will mmWave 5G use more power at base station and data center?

At the base station and data center level, offloaded data processing tasks will consume progressively more power as more data are collected and processed in the cloud. At both levels, successive 5G rollouts will continue to move beyond 6 GHz, requiring greater use of GaN devices to power mmWave 5G devices and networks.

Does a 5G base station have heat dissipation?

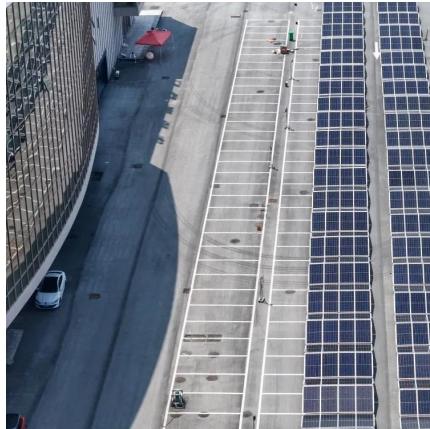
Currently, the majority of research concerning heat dissipation in 5G base stations is primarily focusing on passive cooling methods. Today, there is a clear gap in the literature in terms of research investigations that tend to quantify the temperature performances in 5G electronic devices.

Can a microchannel thermosyphon array improve the design of 5G heat-dissipation devices?

Feng et al., 2024 , proposed a new heat sink solution based on a microchannel thermosyphon array with air cooling; this was an attempt to optimize the design of 5G heat-dissipation devices. Their experimental measurements focused on the temperature uniformity across various filling ratios, heating power levels, and wind speeds.



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