

Abstract Details

Title: Air Flow Management Inside Data Center

Authors: Abubaker Mohamed Elamin Ali Gabir, Hassan A/Latif Osman and Ali Mohamed Ali Alseory

Abstract: This paper deals with air flow management inside open aisle data center. First, the data center components are introduced and cooling challenges are described. Data center with raised floor is investigated for different ways of air flow management and control. Icepack (Computational Fluid Dynamics, CFD) is used to simulate data center. The influence of gaps between racks has been showed & corrected then the data center was explored based on rack level using beta index and energy utilization index. The effect of air flow outlet angle, supply air temperature, tile open area and end effect are highlighted. Finally, optimal operating parameters for data center are determined.

Keywords: Data Center, Computational fluid dynamics, Icepack, Raised floor, β index, Utilization energy Index.