

OPTIMIZATION OF DUCT DISCONTINUITIES: SINGULARITY ANALYSIS OF EDGE EFFECTS IN H-TYPE MICROCELLS

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ABSTRACT

A sudden change in the duct's cross-sectional area has a significant impact on the head loss-causing acoustic propagation pressure. This article discusses how the optimal design of the H-type microcells is affected by head loss as a function of duct cross-sectional area. The impedance limit requirements are taken into account when optimizing the microcell design. Transmission Matrix Method (TMM) and Genetic Algorithm (GA) optimization techniques are utilized to examine the acoustic propagation within the duct as well as the change in duct cross-sectional area.

Kata Kunci: *optimal design of the H-type microcells, head loss, impedance*