Abstracts

A novel electromagnetic bandgap metal plate for parallel plate mode suppression in shielded structures

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A novel type of metal plate structure incorporated with electromagnetic bandgap holes for use as metal shields with the capability of suppressing the propagation of unwanted parallel plate mode has been proposed. The holes can be of any shape and the periods of those holes should be selected to half the guided wavelength of the parallel plate mode at a desired center frequency of suppression. To show the validity of the proposal, inert electromagnetic wave simulation, results of a shielded microstrip structure designed for application in the 76 GHz frequency band are demonstrated. Experiments are performed with a prototype designed in the 10 GHz frequency band and parallel plate mode suppression is verified successfully with the excellent agreement between experimental and simulation results.

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