

A Horn Antenna Loaded with SIW FSS of Crossed Dipoles

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Abstract : In this article analysis and investigation of the effect of loading a horn antenna with substrate integrated waveguide frequency selective surface (SIW FSS) of crossed dipoles of finite size is presented. It is fabricated on Rogers RO4350 (lossy) of relative permittivity 3.33, thickness 1.524mm and loss tangent 0.004. This structure is called a filtering antenna (filtenna). Basically it is applied for filtering and minimizing the interference and noise in the desired band. The filtration is carried out using a finite SIW FSS of crossed dipoles of overall dimensions 98x58 mm². The filtration is shown by limiting the transmission bandwidth from 4 GHz (8-12 GHz) to 0.3 GHz (0.955-0.985 GHz). It is simulated using CST MWS and measured using network analyzer. There is a good agreement between the simulated and measured results.

Keywords : antenna, filtenna, frequency-selective surface (FSS), horn antennas

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