**Optically Transparent FSS-Based Absorber for Electromagnetic Shielding in 5G Applications**

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| **Abstract** In this study, a frequency selective surface (FSS)-based absorber that can be used in 5G applications is proposed. The FSS-based absorber is designed to shield 3.5 GHz, the most used frequency in 5G applications. The purpose of the application is to create an electromagnetic shield for the 3.5GHz frequency and to protect devices that can be used at this frequency from electromagnetic interference. Parametric analysis is conducted employing three-dimensional full-wave electromagnetic simulation software (CST Studio Suite®). This analysis aims to verify the suitability of the chosen ground thickness and FSS pattern in meeting the specified frequency requirements. Simulation results indicate that both the ground line thickness and the diameter of the circular ring play pivotal roles in shaping the frequency characteristics of the frequency selective surface. In the design of the FSS-based absorber, transparent PVC with a dielectric constant of 2.77 was used as the dielectric material and copper as the conductor. The measurements taken from the fabricated sample were aligned with the simulation outcomes, showcasing a consistent agreement between the two sets of data. |
| Keywords: Frequency selective surface, Absorber, Electromagnetic shielding, Electromagnetic interference, 5G applications |

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