

Evaluation of attenuation of electromagnetic waves of silver mesh film through numerical analysis of a coaxial tube

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Electrical signal is recently significant, because more and more equipment is controlled by electrical signal. In this situation, electrode devices are increasingly used in higher frequency range and more intergrated. For this reason, radiated electromagnetic waves generate noise interference with communication devices and may cause damage to the state of health of the human body. Therefore, electromagnetic interference (EMI) shielding technologies are considered as an important factor or issue. To effectively reduce EMI in gigahertz frequency range, conductive films have been developed. However, it is still inadequate to meet recent requirements in EMI performance of more advanced devices because of the limits of transparency and conductivity. Silver mesh thin film, which is one of candidate methods for the effective EMI shielding, has a high potential due to the high electric conductivity and flexibility. The numerical analysis through a coaxial airline model attached with silver mesh film is performed to evaluate the effect of various mesh types and material parameters, such as wire width, opening size and electrical conductivity, on the electromagnetic wave attenuation from 0.1 to 6 GHz by HFSS