



## Electromagnetic Interference Shielding Efficiency and Noise Suppression in a Transmission Line Using Carbon Coated Magnetic Composite Films

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We report on the electromagnetic interference (EMI) shielding characteristics in the far-field and near-field regions for the carbon coated magnetic composite films, in the frequency range from 50 MHz to 13.5 GHz. The carbon coated Fe-Si-Al/Ni-Zn magnetic composite films were placed on the micro strip line (MSL), and the reflection and the transmission by the composites were investigated from the noise suppression characteristics. We measured the far-field EMI shielding efficiencies of the carbon coated magnetic composite films with the various surface resistances of magnetic composite films. The measured EMI shielding efficiencies in the far-field and near field regions qualitatively agree with the theoretical results obtained from the computer simulations. The frequency dependence of power loss due to the composite films on the MSL was measured, and the power loss increased at higher frequencies with increasing the thickness and decreasing surface resistance of the magnetic composite films.

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