

技術論文

# 等価回路によるシールドカバー内のマイクロストリップ線路間のカップリングノイズの解析

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Analysis of Coupling Noise between Microstrip Lines in Shield Casing by Equivalent Circuits

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## Abstract

In this paper, we present studies of coupling noise between microstrip lines (MSL) on a printed circuit board (PCB) covered with a shield casing using electromagnetic simulation. The coupling ratio, S21s, from one MSL to the other had a peak at a resonance frequency of the electromagnetic field in the shield casing. An equivalent circuit was created and values of components in the equivalent circuit were extracted by matching the S21s derived from the simulation to those from the equivalent circuit. The peak of S21s due to the resonance became greater when the MSLs became wider and the PCB became thicker. The peak of S21s did not vary when the height of the shield casing changed, but the Q-factor of the resonance varied. In a perfect electrically conducting (PEC) shield casing, the peak of S21s became greater than that in a copper shield casing. When the  $\tan \delta$  of the PCB was 0 in the PEC shield casing, the peak of S21s became greater.

**Key Words:** *Shield Casing, Coupling, Microstrip Line, Simulation, Equivalent Circuit, S-Parameters*