

White Paper

Top 5 EMC Do's and Don'ts

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DO leave adequate space on your PCB for EMI suppression devices. With good EMI design practices, your circuit board may be very quiet. But to be on the safe side, leave extra space on the board for the addition of filters and chokes. It is also a good idea to add extra pads to the board in case a shunt capacitor is needed here or there.

DO NOT assume that "second sourced" parts will have the same spectral characteristics as the original. This is especially important for active components such as DC-DC converters. The fit, form, and function may be the same, but the EMI noise could be significant. Before investing in a large stock of these extra parts, plug one into your design and take it for a test drive.

DO use ground and power planes when designing printed circuit boards. And where possible, use multiple ground planes. Not only are they useful in containing high frequency traces, they also help reduce the loop areas of signal and power traces, which are a major contributor of EMI emissions. In general, when it comes to ground traces, the more copper the better.

DO use wiring harnesses and wire ties when routing cables inside a box. EMI pickup on I/O cables is a major contributor to overall radiated noise. Route cables along the sides of the box and away from high frequency components and switching power supplies.

DO NOT have painted seams on a chassis or box. This is especially important if one of your EMI strategies is containment. Rivets and screws often do not provide adequate electrical conductance between chassis parts. Have the mating pieces masked before painting or powder coating. For added suppression, have each mating piece meet with a flange.

This information has been provided to DfR Solutions by the EMC engineering staff of MET Laboratories. For more information about MET Laboratories EMC testing services visit: <http://www.metlabs.com/pages/emc.html>

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