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GND Modelling of MTCA.4 Crates

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In MTCA.4 systems sensitive analogue and aggressive digital signals have to be handled on one board or one AMC/RTM combination. The open MTCA architecture with plugged in modules designed by multiple designers for multiple purposes creates additional noise on the sensitive analogue signals. In the DC and low frequency range this EMC problem is dominated by conductive coupling especially within the GND System. By modelling the GND of a complete MTCA shelf the impact of single components on the system can be simulated. The biggest simulation effort is caused by the models of the GND planes in the backplane and the modules. Different approaches are discussed to handle the well-known effort/accuracy relation of simulation models. As layout data for off the shelf modules often are not available the only practicable way is usually the modelling by measurement data.

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