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An Overview of EMI/EMC Testing and Mitigation Techniques

Abstract

With the advanced technology in electrical/electronic (EE) systems and its applications in the field of Astronomy and Space Sciences, the functionality of EE systems and instruments in an intended/unintended Electromagnetic (EM) environment is crucial. This is ensured by conducting EMI (Electromagnetic Interference) and EMC (Electromagnetic Compatibility) testing. In a product development lifecycle, EMI/EMC is a multi-phase testing and goes parallel with the design of individual sub-units of an EE system. In order to do so, a list of tests are conducted such as Radiated Emission (RE), Conducted Emission (CE), Radiated Immunity (RI), Conducted Immunity (CI) etc. as per EMI/EMC compliance requirement. It is important to refer valid test standards and customize it according to the needs. There are several factors in achieving expected measurement results to verify the usage of a target DUT (Device Under Test) in an EM environment. It starts from the test chamber selection and extends to EMI/EMC mitigation methods ranging from DUT application analysis, floor noise checks, proper grounding, deterring ripples and other circuit phenomena, EMI/EMC troubleshooting etc. While ensuring usage of valid test specifications and mitigation techniques, the performance of DUTs can be verified and released for field applications.

Presentation type

Poster

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