



**ANDHRA
UNIVERSITY**

National Conference on

EMI/EMC/EMS in Design

December 21 & 22, 2011

DEPARTMENT OF SYSTEMS DESIGN



**The Institution
of Engineers
(India)**

Electromagnetic interference (EMI) is caused by undesirable radiated electromagnetic fields or conducted voltages and currents. The interference is produced by a source emitter and is detected by a susceptible victim via a coupling path involving conduction (electric current) / radiation (electromagnetic field) / capacitive coupling (electric field) / inductive coupling (magnetic field). Some typical external noise sources into a radio receiver include radiated electric field coupling from: high-voltage power lines, broadcast antennas, communication transmitters, vehicle ignition systems and electric machinery.



Most conducted coupling from external sources occurs through the ac power lines. Typical radio interference to other equipment includes radiated electric field coupling to: TV sets, broadcast receivers, telephone lines, appliances, and communication receivers.

Most conducted coupling to other equipment occurs through the ac power lines. The most common methods of noise reduction include proper equipment circuit design, shielding, grounding, filtering, isolation, separation and orientation, circuit impedance level control, cable design, and noise cancellation techniques.

Electromagnetic compatibility (EMC) is the ability of electrical and electronic systems to function in the intended operating environment without causing or experiencing performance degradation due to unintentional EMI. It is important that electronic equipment designs ensure performance in the expected electromagnetic environment, thus maintaining an acceptable degree of EMC.

Electromagnetic susceptibility (EMS) is the inability of electronic system or device to perform without degradation in the presence of an electromagnetic disturbance. This definition focuses on susceptibility, which is a lack of immunity against internal or external interference.

Design goals for EMS should emphasize the need for electronic equipment to be as robust as possible, not affected by radiated or conducted interference from other instruments. Modern technology is characterized by increase in system complexity, density of integration inside an electronic chip, and clock speeds in digital circuits. More electronic products incorporate intelligence through the use of microprocessors, which makes them both a source of interference and victims of external interference.

Professionals who develop, engineer, and manufacture electrical products should work together to provide integrated solutions to the problems that arise because of EMI. Ideally, electronic systems should be designed so that the level of radiated or conducted interference is very small, almost imperceptible. Additionally, the design should ensure that system functions are not affected in the presence of external electromagnetic fields or other interference that can find a path to the interior of the product through power lines. Various standards and regulations provide guidelines that define acceptable levels of interference that equipment can generate as well as the minimum external interference that the equipment has to tolerate while working and keeping its functional integrity.

The conference will cover the following areas:

EMI Sources EMI Receptors EMI Environment EMI Specifications EMI Standards
EMI Limits EMI Measurement EMI Control Techniques EMC Design EMS Measurement

CALL FOR PAPERS: Original research contributions are invited for oral / poster presentations. In view of the time constraint, limited papers will be accepted for oral presentations. The last date for the submission of six-page (A4 size) full paper is November 21, 2011. Final submission of accepted papers in the prescribed format is December 5, 2011. All accepted papers will be published in the Proceedings of the Conference, which will be released on December 21, 2011.

Participation: Faculty members from colleges and universities, engineers and scientists from industry and R&D organizations, students of post-graduation studies in M.Sc. / M.Sc.(Tech.) / M.E. / M.Tech. / M.S., research scholars working for their M.Phil. / Ph.D. degrees are eligible to participate in the conference.

Venue: Department of Systems Design **Timings:** 09:00 to 17:20 hrs **Registration fee:** ₹ 650

Registration forms can be downloaded from AU website: www.andhrauniversity.info

For further information, please contact:
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