

## Electromagnetic interference/compatibility in electrical and electronic systems

Mohammed Saleh Al Salameh

Jordan University of Science & Technology, Jordan

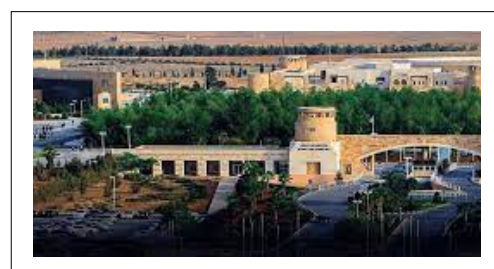


### Abstract

This review paper addresses the importance of considering electromagnetic interference/compatibility (EMI/EMC) in every design stage of manufacturing a product that involves electronic and/or electrical subsystems, and thus EMC should be a major design objective. Also, EMC should be a part of the curriculum of electrical engineering at educational institutions. Both narrowband and wideband sources of noise and interference are identified, and terminology of EMC is introduced. The noise path from the source to the receptor is identified. Real-world examples of electromagnetic interference in different systems, such as cars, trucks, aircrafts, warships, display screens, and computer systems, are illustrated. Radiated and conducted emissions as well as radiated and conducted susceptibility are described. The ability of cables including the power cord to conduct interference is emphasized. Static discharge and electromagnetic pulse (EMP) which can cause interference and malfunction to electronic systems are analyzed. TEMPEST techniques for secure communications and data processing are outlined. Regulations in industrial countries enforcing compliance with EMC requirements are addressed. General strategies to counteract interference are introduced

### Biography

Mohammed Saleh Al Salameh is full professor since 2004 in Electrical Engineering at the Jordan University of Science & Technology and he was the Dean of Scientific Research at the American University of Madaba. He obtained his PhD degree with honors in Electronic Interference/Compatibility, University of Ottawa, Ottawa, Canada. He was a faculty member in the Hashemite University in Jordan and he was senior researcher in the Royal Military College, Kingston, Canada. He also worked in the communications sector for six years. During his study in Ottawa, he was the President of Graduate Students' Association. He is the author of many international refereed Journal papers as well as conference papers in addition to books. He has supervised and graduated several PhD and MSc students. His research interests include electromagnetic compatibility EMI/EMC, bio-electromagnetics, minimization of human exposure to fields and radiations, EMP interaction, coupling and shielding, crosstalk, satellite communications, neural networks, optical fibers and integrated optical waveguides, unconventional microstrip circuits, dielectric resonator antennas (DRAs), radar sensing, printed circuit boards, VLSI interconnects, radio-wave propagation in various environments, and computer modeling for real-world problems. He is also developing numerical methods, such as the finite element method, finite difference method, and method of moments, for practical EMI/EMC applications. He is an expert in the field of the health effects of electromagnetic energy.



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