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Proceedings of the 8th International Conference on Computer and Communication Engineering, ICCCE 2021 • Pages 299 - 303 • 22 June 2021
 • Article number 9467148 • 8th International Conference on Computer and Communication Engineering, ICCCE 2021 • Kuala Lumpur • 22 June 2021 through 23 June 2021 • Code 171135

Document type

Conference Paper

Source type

Conference Proceedings

ISBN

978-172811064-6

DOI

10.1109/ICCCE50029.2021.9467148

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Noise Sources Extraction for Conducted Emission Modeling of IC's using IBIS Models

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The proper functioning of an Integrated Circuit (IC) in an impeding Electromagnetic environment has always been a major concern. Electromagnetic Interference (EMI) can cause an IC to malfunction or give erroneous results. This becomes even a bigger concern for IC 's that are used in automotive industry. Automotive industry in particular, the smart vehicle, is facing design challenges such as susceptibility towards Electromagnetic Interference (EMI). The growing numbers of IC 's on the electronic modules in smart automotive industry creates demand on Electromagnetic Compatibility (EMC) compliance. This EMC is driven by preventing Electromagnetic Interference (EMI) malfunctions within a vehicle. Failure to prevent this could result in fatal accidents. This paper introduces the basic concepts related to the Electromagnetic Compatibility (EMC) of integrated circuits (IC 's). An overview of methods to evaluate EMC of an IC 's has been provided and a methodology to extract noise sources using IBIS model of IC 's is introduced in this paper. Co-simulations are carried out between ANSYS HFSS and Agilent ADS. Noise sources for conducted emission modelling have been extracted. © 2021 IEEE.

Author keywords

Electromagnetic compatibility; Electromagnetic interference; IBIS models ; Integrated circuits; Noise extraction ; Signal integrity

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

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