LISTA PUBLICAŢIILOR REZULTATE ÎN URMA CERCETĂRII DOCTORALE, PUBLICATE SAU ACCEPTATE SPRE PUBLICARE, SUB AFILIERE UPT

Ing. Cătălin *PESCARI* student doctorand

1. Lucrări ştiinţifice publicate în reviste indexate Web of Science-WoS (ISI)

1. A. De Sabata, **C. Pescari**, A.-M. Silaghi, A.-O. Neiconi, "Sub-1 GHz Temperature-Tunable Linear-to-Circular Polarization Converter Using a Cost-Effective Water-Based Periodic Structure," Advances in Electrical and Computer Engineering, vol.26, no.1, pp.75-82, 2026 (WOS:001711306300008, ISI Q4-JCF2024, FI 0.7)

2. Lucrări ştiinţifice publicate în volumele unor manifestări ştiinţifice (Proceedings) indexate Web of Science-WoS (ISI) Proceedings

1. A. Silaghi**, C. Pescari**, A. De Sabata, L. Matekovits, A. Neiconi, „Study Regarding the Tunability of a Frequency Selective Surface having Active Components and a Control Network", 2024 International Conference on Electromagnetics in Advanced Applications (ICEAA 2024), 2-6 Septembrie 2024, Lisabona, Portugalia, pp. 27-30, 2024 (WOS:001532173700009).
2. **C. Pescari**, A. Silaghi, A. De Sabata, L. Matekovits, F. Mir, „Designing a Tunable Frequency Selective Surface with Active Components", 2024 IEEE International Symposium on Antennas and Propagation and INC/USNC-URSI Radio Science Meeting (AP-S/INC-USNC-URSI), 14-19 Iulie 2024, Florența, Italia, pp. 1707-1708, 2024 (WOS:001368605101433).
3. **C. Pescari**, A. Silaghi, A. De Sabata, C. Bleoju, "IR Drop Simulation for an Automotive Device", 2022 IEEE 27th International Symposium for Design and Technology in Electronic Packaging (SIITME 2022), 26-29 Octombrie 2022, Bucuresti, Romania, pp. 1-4, 2022 (WOS:000947243400002).
4. A. Silaghi, **C. Pescari**, C. Bleoju, A. De Sabata, "Solving Automotive Signal Integrity Issues by EMC Simulation", 2021 IEEE 27th International Symposium for Design and Technology in Electronic Packaging (SIITME 2021), 27-30 Octombrie 2021, Timisoara, Romania, pp. 1-4, 2021 (WOS:000786441900009).

3. Lucrări ştiinţifice publicate în reviste de specialitate indexate BDI (cu specificarea BDI)

4. Lucrări ştiinţifice publicate în volumele unor manifestări ştiinţifice (Proceedings) indexate BDI (cu specificarea BDI)

1. **C. Pescari**, A. -M. Silaghi, A. De Sabata and L. Matekovits, "Water Based Frequency Selective Surface Acting as an Absorber," 2025 International Conference on Electromagnetics in Advanced Applications (ICEAA), Palermo, Italy, 2025, pp. 0131-0134 (indexată IEEE Xplore).
2. A. -M. Silaghi, **C. Pescari**, A. Sirbu, A. De Sabata and M. -F. Cioanca, "Validation of the eMMC Interface Through SI Simulations," 2025 IEEE 31st International Symposium for Design and Technology in Electronic Packaging (SIITME), Brasov, Romania, 2025, pp. 47-50 (indexată IEEE Xplore).
3. **C. Pescari**, A. Silaghi, A. Neiconi, A. De Sabata, „Assessment of LPDDR4 Interface Performance in an Automotive Product Through High-Speed Simulation", 2024 16th International Symposium on Electronics and Telecommunications (ISETC 2024), 8-9 Noiembrie 2024, Timisoara, Romania, pp. 1-4, 2024 (indexată IEEE Xplore).
4. **C. Pescari**, A. Silaghi, A. De Sabata, A. Neiconi, „Evaluation of a Simulation-Based Product Validation in Automotive Ethernet via Measurements", 2024 IEEE Conference on Advanced Topics on Measurement and Simulation (ATOMS), 28-30 August 2024, Constanța, Romania, pp. 62-65, 2024 (indexată IEEE Xplore.
5. A. Silaghi, **C. Pescari**, A. De Sabata, L. Matekovits, „Design of Locally Deformed Flexible Frequency Selective Surfaces", 2023 International Symposium on Signals, Circuits and Systems (ISSCS 2023), 13-14 Iulie 2023, Iasi, Romania, pp. 1-4, 2023 (indexată IEEE Xplore).
6. **C. Pescari**, R. Mal, A. Silaghi, "D-PHY Interface Characterization by Means of Signal Integrity Simulation", 2023 International Symposium on Signals, Circuits and Systems (ISSCS 2023), 13-14 Iulie 2023, Iasi, Romania, pp. 1-4, 2023 (indexată IEEE Xplore).
7. **C. Pescari**, A. Silaghi, A. De Sabata, C. Bleoju, "On Using EMC Simulation for Solving Power Integrity Issues", 2020 International Conference on Communication (COMM 2022), 16-18 Iunie 2022, Bucuresti, Romania, pp. 1-4, 2022 (indexată IEEE Xplore).

5. Lucrări ştiinţifice publicate în volumele unor manifestări ştiinţifice internaţionale (Proceedings) din străinătate

6. Lucrări ştiinţifice publicate în volumele unor manifestări ştiinţifice

Data: 29.06.2026

AVIZAT, Conducător ştiinţific	ÎNTOCMIT, Student doctorand
Prof.univ.dr.ing. De Sabata Aldo	*ing. Pescari Cătălin*

ANEXE atașate obligatorii

A) WOS:001711306300008.

Sub-1 GHz Temperature-Tunable Linear-to-Circular Polarization Converter Using a Cost-Effective Water-Based Periodic Structure

By De Sabata, A (De Sabata, Aldo) [1], [2]; Pescari, C (Pescari, Catalin) [1], [3]; Silaghi, AM (Silaghi, Andrei-Marius) [1], [3]; Neiconi, AO (Neiconi, Andrei-Ovidiu) [1], [4]

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View Web of Science ResearcherID and ORCID (provided by Clarivate)

Source ADVANCES IN ELECTRICAL AND COMPUTER ENGINEERING

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Volume: 26 Issue: 1 Page: 75-82

DOI: 10.4316/AECE.2026.01008

Published FEB 2026

Indexed 2026-03-15

Document Type Article

Abstract Linear-to-circular polarization converters find applications in modern 5G and 6G communication systems, satellite communications, and the Internet of Things paradigm. A cost-effective three-dimensional frequency-selective surface that uses water as the active material and silicone rubber as the container is proposed. The operation of the design in the 0.1-1 GHz frequency range is assessed through full-wave simulations. Field distribution maps are employed to elucidate the underlying resonance mechanisms. The stability of the proposed structure with respect to the angle of incidence and frequency is evaluated. A quasi-linear variation of the operating frequency with temperature is demonstrated, enabling temperature tunability. The proposed solution is suitable for prototyping, demonstration, and educational purposes in an eco-friendly context.

Keywords **Author Keywords:** frequency selective surface; polarization conversion; silicone rubber; temperature tunability; water

Keywords Plus: FREQUENCY-SELECTIVE SURFACE; DUAL-BAND; BROAD-BAND; METAMATERIAL; TRANSMISSION; FSS

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Categories/ Classification Research Areas: Computer Science; Engineering

Web of Science Categories Computer Science, Artificial Intelligence; Engineering, Electrical & Electronic

Language English

Accession Number WOS:001711306300008

WOS:001532173700009

Study Regarding the Tunability of a Frequency Selective Surface Having Incorporated Active Devices and Control Network

By Are you this author?

Silaghi, AM (Silaghi, Andrei-Marius) [1] ; Pcseari, C (Pcseari, Catalin) [1] ; Sabata, AD (Sabata, Aldo Dc) [1] ; Matekovits, L (Matekovits, Ladislau) [2] ; Neiconi, A (Neiconi, Andrei) [1]

Book Group Author IEEE

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Source 2024 INTERNATIONAL CONFERENCE ON ELECTROMAGNETICS IN ADVANCED APPLICATIONS, ICEAA 2024
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Book Series International Conference on Electromagnetics in Advanced Applications

Published 2024

Indexed 2025-10-05

Document Type Proceedings Paper

Conference **Meeting:** 2024 International Conference on Electromagnetics in Advanced Applications-ICEAA-Annual
Location: Lisbon, PORTUGAL
Date: SEP 02-06, 2024
Sponsor: Institute of Electrical and Electronics Engineers Inc

Abstract The demand for tunable devices in modern communication networks is rising. This article proposes a design tiff a tunable frequency selective surface which has two states (simulating ON and OFF states of PIN diodes). In order to bias the active parts, PIN diodes are employed as active devices for tuning and control networks incorporated in the structures. The suggested designs have been evaluated using electromagnetic simulation. Parametric studies arc done to enhance the tunability of the proposed structures.

Keywords **Author Keywords:** FSS; parametric studies; PIN diodes; tunable

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Sustainable Development Goals: 07 Affordable and Clean Energy

Web of Science Categories Computer Science, Interdisciplinary Applications; Engineering, Electrical & Electronic

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Designing a Tunable Frequency Selective Surface with Active Components

By Are you this author?

Pescari, C (Pescari, Catalin) [1] ; Silaghi, AM (Silaghi, Andrei-Marius) [1] ; De Sabata, A (De Sabata, Aldo) [1] ; Matekovits, L (Matekovits, Ladislau) [1] , [2] ; Mir, F (Mir, Farzad) [3]

Book Group Author IEEE

View Web of Science ResearcherID and ORCID (provided by Clarivate)

Source 2024 IEEE INTERNATIONAL SYMPOSIUM ON ANTENNAS AND PROPAGATION AND INC/USNCURSI RADIO SCIENCE MEETING, AP-S/INC-USNC-URSI 2024
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DOI: 10.1109/AP-S/INC-USNC-URSI52054.2024.10685885

Published 2024

Indexed 2025-02-16

Document Type Proceedings Paper

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Location: Florence, ITALY
Date: JUL 14-19, 2024
Sponsors: Inst Elect & Elect Engineers; Italian Natl Comm; Int Union Radio Sci, US Natl Comm; IEEE Antennas & Propagat Soc

Abstract Tunable devices are in increasing demand in present-day communication systems. One design with two configurations for tunable Frequency Selective Surfaces are proposed in this work. PIN diodes are used as active devices for tuning and control networks are embedded in the structures for biasing the active elements. Electromagnetic simulation has been used to assess the proposed designs. By utilizing the square-shaped unit cells of 18 mm edge length, distinct filtering bands have been produced below 12 GHz.

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Categories/ Classification Research Areas: Engineering; Telecommunications
Citation Topics : 4 Electrical Engineering, Electronics & Computer Science › 4.58 Wireless Technology › 4.58.253 Metasurfaces
Sustainable Development Goals: 07 Affordable and Clean Energy

Web of Science Categories Engineering, Electrical & Electronic; Telecommunications

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WOS:000947243400002

IR Drop Simulation for an Automotive Device

By Pescari, C (Pescari, Catalin) [1] ; Silaghi, AM (Silaghi, Andrei-Marius) [1] ; De Sabata, A (De Sabata, Aldo) [1] ; Bleoju, C (Bleoju, Ciprian) [2] , [3]
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Book Group Author IEEE

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Source 2022 IEEE 28TH INTERNATIONAL SYMPOSIUM FOR DESIGN AND TECHNOLOGY IN ELECTRONIC PACKAGING (SIITME)
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DOI: 10.1109/SIITME56728.2022.9988610

Book Series International Symposium for Design and Technology in Electronic Packaging

Published 2022

Indexed 2023-03-30

Document Type Proceedings Paper

Jump to Enriched Cited References

Conference **Meeting:** 28th International Symposium for Design and Technology in Electronic Packaging (SIITME)
Location: Bucharest, ROMANIA
Date: OCT 26-29, 2022

Abstract IR Drop is an important aspect of DC power integrity of automotive products. This research suggests how to evaluate the IR Drop efficiency of an automotive product using electromagnetic (EM) simulation tools. Process instructions are provided for handling with IR Drop simulations for a device under test (DUT). It is shown that integrating electromagnetic modelling in the design process allows for the optimization of supply voltage ranges for equipment that take current from the power distribution network (PDN).

Keywords **Author Keywords:** CST Studio Suite; IR Drop; PDN; DUT

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Citation Topics: 4 Electrical Engineering, Electronics & Computer Science › 4.206 Models of Computation › 4.206.819 Signal Integrity

Web of Science Categories Engineering, Electrical & Electronic

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ISSN 2641-287X

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Solving Automotive Signal Integrity Issues by EMC Simulation

By Silaghi, AM (Silaghi, Andrei-Marius) [1] ; Pescari, C (Pescari, Catalin) [1] ; Bleoju, C (Bleoju, Ciprian) [2] ; De Sabata, A (De Sabata, Aldo) [1]
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Book Group Author IEEE

View Web of Science ResearcherID and ORCID (provided by Clarivate)

Source 2021 IEEE 27TH INTERNATIONAL SYMPOSIUM FOR DESIGN AND TECHNOLOGY IN ELECTRONIC PACKAGING (SIITME 2021)
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Book Series International Symposium for Design and Technology in Electronic Packaging

Published 2021

Indexed 2022-05-04

Document Type Proceedings Paper

Jump to Enriched Cited References

Conference **Meeting:** IEEE 27th International Symposium for Design and Technology in Electronic Packaging (SIITME)
Location: Timisoara, ROMANIA
Date: OCT 25-30, 2021
Sponsors: IEEE; APTE; Uni Politechnica Timisoara; IEEE Elect Packaging Soc; Univ Politehnica Bucuresti

Abstract The use of Electromagnetic (EM) simulation tools for analysing Signal Integrity (SI) performance of an automotive product is demonstrated in this paper. The contribution is demonstrated by step-by-step guidance presentation on how to handle SI simulations for a device under test (DUT) (this topic has not been addressed so frequently in the literature so far). The novelty stems from: layout improvements for Time Domain Reflectometry (TDR) issues and also by demonstrating that the use of EM simulation at the early design stage allows for the appropriate selection of resistor values to achieve optimized SI performance, without performing complex measurements.

Keywords **Author Keywords:** CST Microwave Studio; Signal Integrity; TDR; PCB Layout; Virtual Prototyping

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Citation Topics: 4 Electrical Engineering, Electronics & Computer Science › 4.206 Models of Computation › 4.206.819 Signal Integrity

Web of Science Categories Engineering, Electrical & Electronic

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Continental Automotive Timisoara (Qualification Laboratory)	
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Language English

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ISBN 978-1-6654-2110-2

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D)

Water Based Frequency Selective Surface Acting as an Absorber

Publisher: IEEE Cite This PDF

Catalin Pescari ; Andrei-Marius Silaghi ; Aldo De Sabata ; Ladislau Matekovits All Authors

60
Full
Text Views

Abstract
Document Sections
I. Introduction
II. Unit Cell Design
III. Water Absorber: Optimization and Operation
IV. Conclusions
Authors
Figures
References
Keywords
Metrics

Abstract:
Absorbers are used for selective enclosure screening and stealth technology. This paper proposes a cost-effective frequency selective surface (FSS) that functions as a narrow-band absorber, utilizing spherical water resonators within the unit cell as absorbing elements. A strong and sharp absorption resonance is achieved at 3.38 GHz for a unit cell size of $15 \times 15\text{mm}^2$. The surface demonstrates stability with respect to polarization, incidence angles up to 60°, and temperatures between 5° C and 45° C. Its operation is evaluated through simulations, with field images provided to offer insight into its performance.

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Validation of the eMMC Interface Through SI Simulations

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Andrei-Marius Silaghi ; Catalin Pescari ; Andrei Sirbu ; Aldo De Sabata ; Marius-Flavius Cioanca All Authors

32
Full
Text Views

Abstract
Document Sections
I. Introduction
II. EMMC Simulation Preparation
III. Simulation Results of eMMC Interface
IV. Conclusions
Authors
Figures
References
Keywords
Metrics

Abstract:
The embedded MultiMediaCard (eMMC) interface is widely used in embedded systems for its compact size, low power consumption, and high data throughput. As operating frequencies increase, ensuring signal integrity (SI) and accurate timing becomes essential for system reliability. This study compares eMMC interface simulations across multiple vendors using Parallel Link Designer (PLD) tool from MATLAB and CST PCB Studio (CST). Key focus areas include waveform distortion, impedance mismatches, crosstalk, and timing constraints. PLD is further employed for setup/hold margin analysis, delay evaluation, and eye diagram assessment. Results highlight each tools strengths and limitations in modeling high-speed digital signals and propose design improvements to enhance signal integrity and timing compliance in eMMC-based printed circuit board (PCB) systems.

Published in: 2025 IEEE 31st International Symposium for Design and Technology in Electronic Packaging (SIITME)

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DOI: 10.1109/SIITME67657.2025.11293467

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Electronic ISSN: 2642-7036
Print on Demand(PoD) ISSN: 2641-287X

Assessment of LPDDR4 Interface Performance in an Automotive Product Through High-Speed Simulation

Publisher: IEEE Cite This PDF

Catalin Pescari ; Andrei-Marius Silaghi ; Andrei Neiconi ; Aldo De Sabata All Authors

1 Cites in Paper
71 Full Text Views

Abstract
Document Sections
I. Introduction
II. Simulation Process
III. Conclusions
Authors
Figures
References
Citations
Keywords
Metrics

Abstract:
Automotive products require an accurate assessment of Signal Integrity (SI). This study proposes a solution for using high speed modeling tools to evaluate the SI efficiency of automotive items. Methods for managing SI simulations for a Low Power Double Data Rate 4 (LPDDR4) memory are presented. Due to its fast data transfer speeds and low power consumption, the design and use of the LPDDR4 memory needs to consider signal integrity.

Published in: 2024 International Symposium on Electronics and Telecommunications (ISETC)

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DOI: 10.1109/ISETC63109.2024.10797267

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USB ISBN:979-8-3503-9085-8
Print on Demand(PoD) ISBN:979-8-3503-9087-2

Conference Location: Timisoara, Romania

ISSN Information:
Electronic ISSN: 2475-7861
Print on Demand(PoD) ISSN: 2475-787X

Evaluation of Simulation-Based Product Validation in Automotive Ethernet via Measurements

Publisher: IEEE Cite This PDF

Catalin Pescari ; Andrei – Marius Silaghi ; Aldo De Sabata ; Andrei Neiconi All Authors

67 Full Text Views

Abstract
Document Sections
I. Introduction
II. PMA Tests
III. Simulation of MDI 1000 Base T1 Interface
IV. Conclusions
Authors
Figures
References
Keywords
Metrics

Abstract:
An evaluation of an automotive product Ethernet Media Dependent Interface (MDI) performance using measurements and electromagnetic (EM) simulation software is considered in this paper. A device under test (DUT) has been subject to 1000BASE T1 Interface measurements and simulations according to the supplied process instructions. It is demonstrated that using electromagnetic modeling in the design process enables the validation of the proper operation of the DUT through measurements. The performed measurements confirm that the interface layout and design have been properly conceived. The goal of this research is to define the simulation procedure that can be applied early in the design phase and then validate it using specific measurements.

Published in: 2024 Advanced Topics on Measurement and Simulation (ATOMS)

Date of Conference: 28-30 August 2024

DOI: 10.1109/ATOMS60779.2024.10921553

Date Added to IEEE *Xplore*: 19 March 2025

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ISBN Information:
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Print on Demand(PoD) ISBN:979-8-3503-5838-4

Conference Location: Constanta, Romania

Design of Locally Deformed Flexible Frequency Selective Surfaces

Publisher: IEEE Cite This PDF

Andrei-Marius Silaghi ; Catalin Pescari ; Aldo De Sabata ; Ladislau Matekovits All Authors

1 Cites in Paper
70 Full Text Views

Abstract
Document Sections
I. Introduction
II. Proposed Initial Structure
III. Structure Bending
IV. Parametric Studies
V. Conclusions
Authors
Figures
References
Citations

Abstract:
A one-layer frequency selective surface (FSS) is proposed for filtering applications. The initial structure consists of one square ring on one side of the supporting dielectric layer. By performing cylindrical bending on the initial structure, the stopband can be shifted, or multiple stopbands can be obtained. Parametric analyses of the frequency response as a function of substrate thickness and structure width are reported, demonstrating the flexibility of the design by allowing for the potential of modifying the stopbands. The analysis has been carried out by full-wave electromagnetic simulation in the sub-10 GHz frequency range.

Published in: 2023 International Symposium on Signals, Circuits and Systems (ISSCS)

Date of Conference: 13-14 July 2023

DOI: 10.1109/ISSCS58449.2023.10190917

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Conference Location: Iasi, Romania

D-PHY Interface Characterization by Means of Signal Integrity Simulation

Publisher: IEEE Cite This PDF

Catalin Pescari ; Razvan-Andrei Mal ; Andrei-Marius Silaghi All Authors

1 Cites in Paper
318 Full Text Views

Abstract
Document Sections
I. Introduction
II. D-PHY Simulation Preparation
III. Simulation Results
IV. Conclusions
Authors
Figures
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Citations
Keywords

Abstract:
This paper provides suggestions for using Signal integrity (SI) simulation tools to assess the D-PHY interface efficiency of an automotive product. To assure channel parameter conformity, test specifications for the Mobile Industry Processor Interface (MIPI) D-PHY interface are discussed. Using the D-PHY standard, the Camera Serial Interface (CSI2) serial interface is examined. Simulation outcomes are evaluated using compliance specifications and it is shown that the application of electromagnetic (EM) simulation at the initial design stage enables the necessary layout changes to ensure improved SI performance.

Published in: 2023 International Symposium on Signals, Circuits and Systems (ISSCS)

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On Using EMC Simulation for Solving Power Integrity Issues

Publisher: IEEE Cite This PDF

Catalin Pescari ; Andrei-Marius Silaghi ; Aldo De Sabata ; Ciprian Bleoju All Authors

2 Cites in Papers
187 Full Text Views

Abstract
Document Sections
I. Introduction
II. Power Integrity Simulation Preparation
III. Power Integrity Simulation Results
IV. Conclusions
Authors
Figures
References

Abstract:
This article shows how to study the Power Integrity (PI) capability of an automotive device by means of Electromagnetic simulation software. A process description on how to manage PI simulations for a device under test (DUT) exemplifies the novelty. The innovation arises from the demonstration that using EM modeling early in designing phase permits the enhancement of PI performance without the need for sophisticated measurements.

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