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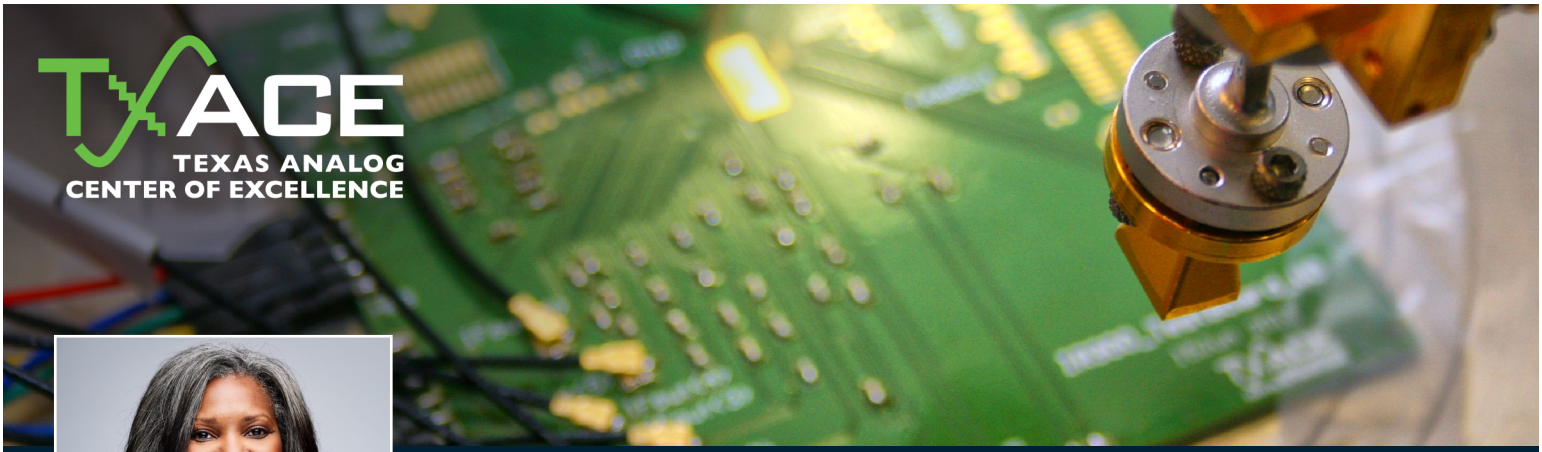

Performance of Antenna-in-package (AiP) Designs at Millimeter Wave Frequencies

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BIO

Rashaunda Henderson is a professor in the ECE department at The University of Texas at Dallas in Richardson, TX. She received her B.S degree in electrical engineering from Tuskegee University in 1992 and her M.S. and Ph.D. degrees in electrical engineering from The University of Michigan in Ann Arbor, MI, in 1994 and 1999, respectively. She joined Motorola Semiconductor Product Sector in Tempe, AZ and worked as a research and development device engineer focusing on passive circuits integration in the microwave and mixed-signal technology labs for wireless embedded systems. She joined The University of Texas at Dallas in 2007 as an Assistant Professor in the Erik Jonsson School of Engineering and Computer Science. Dr. Henderson is co-founder of the High Frequency Circuits and Systems Laboratory, which facilitates millimeter-wave design and development of circuits, integrated packages and antennas for wireless communication systems. She has co-authored more than 100 journal and conference papers focusing on packaging and integration for high frequency applications. Dr. Henderson is a Senior Member of the IEEE and served as the 2022 President of the IEEE Microwave Theory and Technology Society (MTT-S) Administrative Committee. She is passionate about educating the next generation student and encouraging them to seek careers in science, technology, engineering, and mathematics.

ABSTRACT

Antenna-in-package (AiP) has become an important solution for next generation wireless systems. As the operating frequency of systems increases, the size of the antennas decreases and to reduce losses, interconnecting the die to the antenna at the package level has become a viable technique. This research project has focused on the electrical and mechanical characterization of packaging substrates and over mold compounds for antenna-in-package design and reliability. The three-year research effort has culminated in the manufacturing of a slot bowtie antenna and E-shaped patch antenna designed to operate in G band which has frequency limits of 140-220 GHz. The antennas have been designed for characterization using a WR5 rectangular waveguide to package transition to eliminate any radiation that would be caused by a traditional ground-signal-ground (GSG) probe. Antenna input impedance bandwidth and radiation patterns will be presented for both GSG and waveguide fed antennas.

Friday, January 26, 2024 at 1:00 – 2:00 p.m.
Osborne Conference Room (ECSS 3.503)

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