

WMI (IMS) Monday 13:00 – 17:00 BCEC Room 154
Gigabit Packaging of Wireless 60GHz Links
Half-day workshop reviewed by MTT-12, MTT-20, IMS09

Organizer(s):

Rick Sturdivant, Microwave Packaging Technology; MTT-12.

Robert Jackson, University of Massachusetts, USA; MTT-12, IMS09.

Anh-Vu Pham, University of California-Davis, USA; MTT-12, IMS TPC.

Multi-gigabit communications systems are driving the development of packaging methods for 60GHz. Applications include video transport, medical, high-speed file transfer, wireless networks such as LANs and PANs, and military applications such as secure communication. These systems require high-quality signal paths, low radiation and integrated components such as antennas and baluns. This workshop will focus on packaging issues and examples for 60-GHz high data rate modules and subsystems.

Speakers:

1. S. Tabatabaei, Endwave Corporation

“New Developments and Choices in Low-Cost Packaging for 60-GHz Applications”

2. Konichi Maruhashi, NEC

“Development of mmW modules for gigabit wireless transceivers”

3. J. Laskar, Georgia Tech

“Integrated MMW Module Technology at PCB Price Points”

In this workshop, state of the art 3D integrated millimeter wave module design and manufacturing techniques scalable for high volume applications will be presented. The development flow for an efficient SOC/SOP co-design of new millimeter wave systems will be described. It relies on multi-layer board technologies for applications up to W-band (75 - 110 GHz) in which advanced 3D filter and low loss 3D transitions are embedded, antennas are integrated, and active devices are housed in the same 3-D scalable module. Advanced powerful neuro-genetic optimization tools and techniques are included to generate high yield designs against process and temperature variation (PVT), minimizing drastically the number of development cycles prior to high volume manufacturing. It provides the foundation for the development of a new class of millimeter wave system-on-a-package (SOP) at similar price points as existing PCB manufacturing flows.

4. Choudhury, Debabani, Intel

“Packaging Challenges and Opportunities for Multi-Gigabit Applications”

Packaging for 60-GHz applications ranges from the packaging of single chips to the packaging of complete RF subsystems including antennas and support circuitry. Recent efforts have been concentrated on aircavity single-chip and multi-chip surface-mount packages and air-cavity subsystem packages fabricated on PC board panels. Some of the innovations that make these approaches effective will be described.

5. Mike Pettus, VubIQ
“Packaging Solution For 60GHz SiGe Transceivers”