

# **A 15-GHz Wireless Interconnect Implemented in a 0.18- $\mu\text{m}$ CMOS Technology Using Integrated Transmitters, Receivers, and Antennas**

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## **Abstract**

Using a 0.18- $\mu\text{m}$  copper CMOS technology, an on-chip wireless interconnect system for clock distribution has been implemented. Both a transmitter, consisting of a voltage-controlled oscillator, output amplifier, and antenna, and a receiver, consisting of an antenna, low noise amplifier, and frequency divider, are demonstrated at 15 GHz across a 5.6-mm distance. This approximately doubles the distance and frequency of on-chip wireless interconnects, and also demonstrates the RF potential of CMOS technology for  $> 10$  GHz.