22BP135 From system design to clock skew impact study in parallel sigma delta modulators using frequency band decomposition

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This paper presents the design of a novel parallel architecture of sigma delta ($\Sigma\Delta$) modulators using frequency band decomposition (FBD) intended for a wideband application. This FBD architecture is composed of four channels of discrete time (DT) single-bit sixth order band-pass $\Sigma\Delta$ modulators. The simulation results prove that the design is capable of a signal-to-noise ratio over 50 dB for a fractional bandwidth equal to 40 %. The results satisfy the wideband standard requirements. The impact of clock skew mismatch errors on the performances of the designed FBD architecture is also studied in this paper.

Keywords: Wideband applications, parallel ADC, frequency band decomposition, band-pass $\Sigma\Delta$ modulators.

22BP139 NFC RF Analog Challenge and Enhanced High Speed Transmitter Design

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This paper investigates the inherent radio frequency analog challenges associated with near field communication systems. Furthermore, a novel, compact, easy to implement sigma-delta modulator for high speed near field communication transceiver implementation, is proposed. The proposed design facilitates the increased demand for high speed near field communication applications, which require more complex modulation schemes.
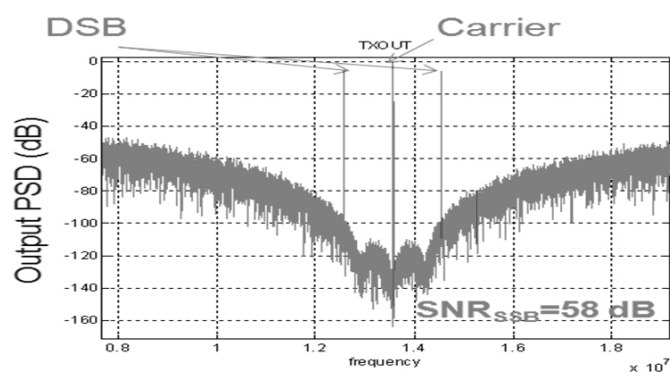
4-bit modulator output spectrum with 100% ASK signal