

AFE8030 Dual Band Receiver Digital Step Attenuator Calibration



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Abstract

This application brief provides guidance on calibrating the receiver digital step attenuator (RX DSA) in the AFE80xx RF sampling transceiver for wireless infrastructure applications. The AFE80xx's RX DSA calibration feature is recommended to meet 3GPP power level accuracy specifications while compensating for silicon-to-silicon and board-to-board variations. Specifically, this document focuses on the dual-band digital down converter use-case, where a single receive channel simultaneously processes two different frequency bands. The calibration procedure enables all eight receive channels to achieve 3GPP-compliant power accuracy steps across the full 30dB DSA attenuation range in dual-band operation.

The application brief begins with an introduction to the AFE80xx's DSA functionality, followed by a detailed overview of the RX DSA calibration procedure and its requirements. Four system architectures and procedures for generating the necessary calibration tone are presented, providing implementation flexibility for different radio configurations. Additionally, comprehensive troubleshooting methods are included to address potential calibration failures.

For the full access to the application note, see *Enable 3GPP Amplitude Compliant Dual-Band Operation Through AFE80xx Receiver Digital Step Attenuator (RX DSA)* (SBAA644).

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