

A CMOS Single-chip Direct Conversion Satellite Receiver for Digital Broadcasting System

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A fully integrated single-chip CMOS direct conversion receiver for DBS system is presented. Fully programmable 2-58MHz cut-off frequency channel select filter optimizes its performance for variable data rate channel. A delta-sigma modulated fractional-N synthesizer with low noise quadrature VCOs exhibits phase noise of -76dBc/Hz at 10kHz offset. It has a -65dBm sensitivity with an 80dB system gain dynamic range. The receiver consumes only 180mW while conventional one consumes over 1 watt.