Abstracts

A highly integrated UHF data receiver for vehicle applications

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This paper describes a UHF data receiver designed for short range data transfer for automotive applications: keyless entry and tyre pressure monitoring systems in the 315, 434 and 868 MHz bands. Received signals may be OOK or FSK modulated and may come from transmitters which are PLL-tuned (i.e. precise) or SAW-tuned (less precise, requiring a wide bandwidth receiver). The design target may be summarised as: a very high level of integration and autonomy combined with best possible performance (for example, -107 dBm sensitivity), consuming from 5 mA at 434 MHz to 7 mA at 868 MHz. This has been achieved by a superheterodyne architecture which has an image cancelling mixer, a fully integrated IF filter and a fully integrated local oscillator and PLL. A digital control block permits configuration of the circuit and some signal processing. The wake-up time is short so the average current consumption may be user-defined by an awake/sleep cycle.

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