HaiLa Radioless™ IP Core

Part Number

RLWi-04

Applications

- Sensors deployed in WiFi networks

Features

- Codeword translates native 1Mbps and 2Mbps WiFi DSSS signals
- Transmits 1Mbps @10uA
- Synchronizes and retrieves data @2uA

Operating conditions

- Supply: 1.2V
- System clock TX: 50MHz 200ppm
- RX clock: 5MHz 2%

Deliverables

- Datasheet and Integration Guide
- HDL model
- Flat GDSII-database and LVS netlist
- Evaluation platform, incl. reference controller (FPGA)
- Controller softcore (RTL)

Product Outline

1Mbps 2.4GHz ISM band Wi-Fi backscatter front-end IP

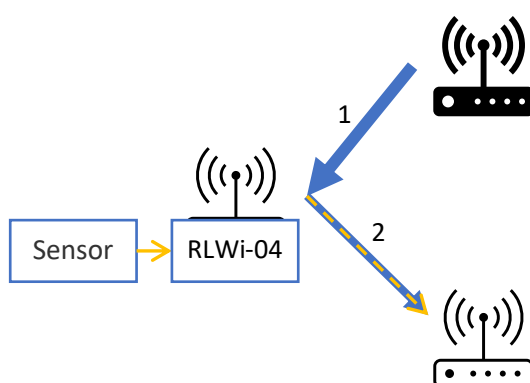## Status

In development

Overview

RLWi-04 is an RF macro-cell designed for Global Foundries mainstream 180nm CMOS process.

It is ideal for use in ultralow-power sensor networks. The macro operates within conventional WiFi networks where it performs codeword translations of 1Mbps or 2Mbps DSSS transmissions symbols as defined by the data acquired from the sensor. The macro shifts the signal to a free WiFi channel, from where it is easily picked up by commodity WiFi receivers.

The macro synchronizes to and retrieves data from length modulated WiFi packages.

The macro features a backscattering modulator, power management unit, SPI ports for control and data, and requires a 1.2V supply and a 50MHz system clock during TX, and 5MHz during RX

1. Template (frame with no data)
2. Frame with sensor data