**Features**

- SPIRIT1 low power sub GHz transceiver in a standalone RF module tuned for 169 MHz, with external Skyworks® front-end module (SKY66100-11)
- Modulation schemes: 2-FSK, GFSK, MSK, GMSK, OOK, and ASK
- Programmable air data rate: from 1 to 500 kbps
- Maximum output power: +27 dBm
- Excellent receiver sensitivity (-123 dBm)
- Suitable for wireless M-BUS applications
- Meets the tight narrow-band system requirements
- Low duty cycle RX/TX operation mode
- Automatic acknowledgment, retransmission, and timeout protocol engine
- AES 128-bit encryption co-processor
- SPI interface for microcontroller
- RoHS compliant

**Description**

The STEVAL-IKR002V7D product evaluation board is based on the SPIRIT1, a very low-power RF transceiver intended for RF wireless applications in the sub 1 GHz frequency band. The STEVAL-IKR002V7D also features an onboard external front-end module from Skyworks® (SKY66100-11), which can reach a maximum output power of +27 dBm (500 mW).
1 Schematic diagram

Figure 1. STEVAL-IKR002V7D circuit schematic (1 of 2)

**Truth Table**

- **READY**: GPIO0 = 0, GPIO1 = 0
- **TX**: GPIO0 = 1, GPIO1 = 1
- **RX**: GPIO0 = 1, GPIO1 = 0

Range Extender SKYWORKS SKY66100-11, VCC = 3.3V
- **CSD = 0**, **CTX = BYP = x**: Sleep mode
- **CSD = 1**, **CTX = BYP = 1**: Transmit with PA mode
- **CSD = 1**, **CTX = BYP = 0**: Receiver mode

GSPG1702150910SG
Figure 2. STEVAL-IKR002V7D circuit schematic (2 of 2)
2 Revision history

Table 1. Document revision history

<table>
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<tr>
<th>Date</th>
<th>Revision</th>
<th>Changes</th>
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<tr>
<td>07-Aug-2014</td>
<td>1</td>
<td>Initial release</td>
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<tr>
<td>19-Feb-2015</td>
<td>2</td>
<td>Updated Figure 1 on page 2 and Figure 2 on page 3</td>
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