SMSC’s KLR3012 wireless audio transceiver is designed to transmit lossless CD-quality digital stereo audio over a robust, 2.4GHz radio link while consuming minimal power — making it the technology of choice for battery-powered and line-powered audio sources and receivers. The KLR3012 delivers RF connectivity between products in a variety of markets including portable and home audio. Additionally, SMSC’s TrueAuto™ automotive-grade KLR83012 device is expected to be available in 2011.

**Highlights**

- Fully-integrated, 2.4GHz KleerStream™ radio architecture
- Industry-leading low power consumption
- Industry-leading WiFi® coexistence
- 10–25m range with integrated 1.5dBm PA
- 16-bit, 44.1kS/s stereo audio throughput
- Standard Inter-IC Sound (I²S) digital audio interface
- KleerControl™ technology controls connectivity, audio volume and music playback
- ListenIn™ technology allows multiple users to share a single music source
- Integrated microcontroller to manage buttons, LEDs and external devices
- Integrated LDO and Power-On-Reset (POR)
- Integrated battery voltage monitor and audio activity monitor
- Configurable firmware
- Host control interface (optional)
- KleerCertified™ program to guarantee interoperability

**Target Applications**

- Earphones
- Headphones
- Speakers
- Portable Audio/Media Players (PAPs/PMPs)
- Laptops
- Home Stereo/Theater Systems
- Home Theater-In-A-Box (HTIB)
- Televisions
- Set-top Boxes (STBs)
- USB Adapters
- SPDIF Adapters
- iPod®/iPhone® Adapters
- Headphone Jack Adapters
- Gaming Systems
- Automotive Infotainment Systems

**Key Features**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Benefits</th>
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<tbody>
<tr>
<td>KleerStream Radio Architecture and Protocol</td>
<td>Fully-integrated 2.4GHz RF and baseband reduces system cost; minimizes need for RF design expertise</td>
</tr>
<tr>
<td>Low Power Consumption</td>
<td>Increases battery life; reduces battery size/cost</td>
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<tr>
<td>WiFi Coexistence</td>
<td>Minimizes impact of WiFi on audio; minimizes impact of audio on WiFi throughput</td>
</tr>
<tr>
<td>CD-quality Audio</td>
<td>Kleer technology can be used in high-end audio systems</td>
</tr>
<tr>
<td>ListenIn Technology</td>
<td>Listeners can share single music source; left-right speakers can be untethered</td>
</tr>
<tr>
<td>KleerControl Technology</td>
<td>Connectivity and music selection can be controlled from source, receiver or dedicated controller</td>
</tr>
<tr>
<td>KleerCertified Interoperability</td>
<td>KleerCertified logo on retail package tells consumer that product will interoperate with all other KleerCertified products</td>
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</table>
KLR3012 Application Examples

Audio Source (Portable Audio Player)

Player Controller (Or Other Music Source)

Audio ADC

EEPROM

DAI Audio Processor

Radio

SPI/TWI/UART

μC

Program RAM

Power

2-3.3V Input

Audio Receiver (Headphones)

Audio DAC

EEPROM

Buttons

DAI Audio Processor

Radio

SPI/TWI/UART

μC

Crystal Oscillator & PLL

Program RAM

Power

2-3.3V Input

KLR3012 Block Diagram

Stereo Audio (I²S)

SPI/TWI/UART

Digital I/O

Analog I/O

Audio Processor

MCU

Memory

Radio Baseband

RF Analog

Filter-Balun

Antenna Match

Tank Circuits

Supply Decoupling

2.1V - 3.3V

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