PRESS RELEASE

Nordic Semiconductor nRF9E5 transceivers underpin 868/915MHz wireless system supporting 500-plus coin cell powered tags at distances up to several kilometers

French wireless voice and data specialist Newsteo has developed a medium range 868/915 MHz ISM band active wireless platform with a reader-to-tag range from 10 m up to several kilometers, supporting 500+ tags communicating through up to 5 concrete walls, using proprietary RF transceivers from Nordic Semiconductor

Oslo, Norway - December 14, 2006 - Nordic Semiconductor ASA (OSE: NOD) today announced that French wireless voice and data specialist, Newsteo, has selected its nRF9E5 family of highly integrated 433/868/915MHz ISM band transceivers for use in its latest wireless product solution. The system comprises three parts: RF Tokens (using an nRF9E5 transceiver), RF-to-PC USB key transceiver (again equipped with an nRF9E5), and RF Monitor software used to configure, control and collate data collected by the Tokens.

Nordic's nRF9E5 is a true system-on-chip (SoC) comprising a fully integrated RF transceiver, 8051-compatible microcontroller (MCU) and a 4-input, 10-bit 80-kS/s (kSample per second) analogue-to-digital converter (ADC). The nRF9E5 operates in the popular European 433- and 868MHz ISM bands and the 915MHz band in North America, Australia and Israel. The device is an ultra-low-power, low-cost transceiver with a data rate of up to 50 kbit/s.

Newsteo's 12 gram RF Tokens can run for up to 5 years from a single CR2450 3-V lithium coin cell and come pre-certified eliminating the need for lengthy certification approval. The Tokens are supplied in a 44 by 30 by 10 mm cuboid form factor for discrete mounting on target equipment, walls or pipes. Each transceiver responds to a unique ID code to avoid communication clashes, and incorporates on-board security to prevent unauthorized access. Each RF Token can simultaneously host several different types sensor (for example, temperature, pressure, force, constraint, acceleration, flow, current and light), while an on-board Flash memory stores from 2,000 to 2 million measurements.

The RF-to-USB Key simultaneously controls and collects data from up to 500 Tokens at around 300 measurements per second over a range of 10 to 50 m for the standard antenna-on-PCB version (including transmission through two concrete walls). Range is boosted to 25 to 800 m with an enhanced 1D4-wave antenna (including transmission through five concrete walls), and up to several kilometers if used in conjunction with a Yagi antenna.

Newsteo's RF systems allow customers to switch cost effectively from hard-wired to wireless sensoring. Applications include temperature and humidity sensoring in commercial greenhouses, cold chain logging and control and automation (for example of hotel room air conditioning systems), as well as intelligent sports applications (for example, logging runners in a marathon).

Newsteo selected the Nordic Semiconductor nRF9E5 for its wireless application for three reasons:

" The RF system-on-chip includes an 8051-compatible on-board MCU plus all inductors and filters. This allowed the company to implement all control functions into a single, compact RF Token package without having to design-in an external MCU. The device also has an SPI interface to make it easier to connect to an external EEPROM memory;

" The nRF9E5's low current consumption means that in many applications each Newsteo Token will last for up to 5 years before either the batteries or the Token are replaced. This is a particularly advantage because the Tokens tend to be used in applications where frequent battery replacement cycles would add to maintenance cost and simplicity-of-use.

" Nordic Semiconductor's ShockBurst™ transmission technology optimizes power consumption to maximize battery life. ShockBurst allows the transceiver to spend most of its time in an ultra-low power consumption sleep mode before periodically waking to transmit for a short period before returning back to the sleep mode. ShockBurst includes features for CRC computation in both transmit (TX) and receive (RX) modes, and address decoding in RX mode, greatly reducing the load on - and cost of - the MCU running the RF protocol. ShockBurst is also capable of buffering a payload of up to 32 Byte coupled with short startup times ideal for low-power, low duty-cycle use.

"The main aim of this system is to make a wireless sensor network extremely simple to implement without requiring the customer to have specialist software programming knowledge," says Philippe Guenebaud, Newsteo's co-President.

"We selected Nordic's nRF9E5 because it features ultra low power consumption, and has good range - even through concrete walls, good bandwidth, includes an integrated 8051 MCU and only requires a couple of external components to get up and running. This made it possible for Newsteo to exploit all the performance properties of the chip while adding its electronic and software design skills to deliver a brand new turnkey solution to its customers."

About the nRF9E5

The nRF9E5 is a highly integrated, low-power and -cost 433/868/915MHz transceiver. The device comprises an embedded 8051-compatible MCU and 4-input, 10-bit ADC, 4 KByte RAM, frequency synthesizer, receiver chain with demodulator, power amplifier, crystal oscillator, modulator and voltage regulators. There is no requirement for an external SAW filter. The only external components required are a single crystal and resistor and an EEPROM for external program storage. The nRF9E5 ensures an extremely low-cost Bill of Material (BOM).

The nRF9E5 utilizes Nordic's proprietary ShockBurst™ technology in both receive and transmit modes to simplify operational protocol and software design, minimize power consumption and allow the use of a less expensive microcontroller. ShockBurst automatically handles preamble, CRC and retransmission of data packets. Configuration is easily programmable by use of an SPI interface.

The nRF9E5's current consumption is exceptionally low: just 9 mA in transmit (TX) at -10 dBm output power and 12.5 mA in receive (RX) mode. Built-in power down modes further reduce current consumption to just 2.5 µA. Channel switching time is < 650 µs and frequency resolution is 100 KHz at 430 MHz operation and 200 KHz at 862- to 928MHz operation. Maximum data rate is 0 to 50 kbit/s. The nRF9E5 comes in a small 32-pin QFN32L 5 x 5-mm package and is manufactured using an ultra modern 0.18-µm CMOS process. Power supply range is 1.9 to 3.6 V. Operating temperature range is -40 to +85 ºC.

Prime applications include wireless data communication, alarm and security systems, home automation, remote control, surveillance, automotive, telemetry, industrial sensors, keyless entry and toys.

About Newsteo (www.newsteo.com)

Founded in 2005 as CyrLink, Newsteo™ is a high-tech company based in the south of France. In 2005 and 2006 the company won the National Contest for Companies in innovative technologies organized by the French Ministry of Research and supported by the Paca-Est Incubator and Oseo-Anvar.

Newsteo designs, develops and commercializes a wide range of patented products and associated services in several wireless domains: bone conduction vocal communication, telemetry, traceability, remote control, security and access control.

To facilitate the integration of its wireless solutions by sensor manufacturers or any other interested company Newsteo provides a full development and evaluation kit.

About Nordic Semiconductor ASA

Nordic Semiconductor (formerly Nordic VLSI) is a Norwegian fabless semiconductor company focusing on delivering world-best wireless communication solutions in the license-free ISM bands. The company, which was originally founded in 1983 as a traditional ASIC design house, produces both

standard products and custom SoCs. It also offers development services for other companies to access its world leading, in-house RF/mixed-signal design and advanced back-end/physical engineering expertise.

The company's innovative range of wireless solutions includes:

The nRF905™ single-chip multiband radio transceiver for the 433-, 868- or 915MHz ISM band;
- The nRF9E5™ low-cost, single-chip system with fully integrated RF transceiver for the 433-, 868- or 915MHz ISM band;
" The nRF2401A™ and nRF2402™ compact, lowest cost, lowest current consumption and low voltage supply 2.4GHz RF transceivers;
- The nRF24E1™ and nRF24E2™ low cost transceivers paired with the industry standard 8051 MCU core and leading peripherals to create the world's first complete low cost SoCs for global 2.4GHz operation;
- The nRF24Z1™ single chip system for CD quality audio streaming of up to16 bit, 48 kHz audio;
- The nRF24AP1TM ultra-low power 2.4GHz transceiver for wireless communication with Dynastream Innovation's production-proven low-power network protocol, ANT;
- The nRF24L01™ ultra-low cost and power 2.4GHz transceiver with MultiCeiver" technology supporting simultaneous communications with up to six wireless devices.

Nordic Semiconductor nRF24xx range of 2.4GHz-transceiver and transmitter devices are aimed at applications such as wireless audio (e.g. MP3 and portable CD player headphones and PC speakers), gamepads, keyboards/mice and intelligent sports equipment. The latest nRF24L01 family, for instance, is targeted at ultra-low cost and power applications such as wireless desktops and intelligent (e.g. wristwatch-based) sports equipment.

Nordic is also a member of the Wibree forum, and has contributed core expertise in ultra-low power RF design to the technology. Wibree is a short range RF communication technology featuring ultra-low power consumption, a lightweight protocol stack and simple integration with Bluetooth. Wibree ushers in the next generation of RF communications by opening up many new opportunities for wireless data links between suitably equipped mobile phones or personal computers (PCs) and coin cell battery-powered devices such as sports and health sensors. (See www.wibree.nordicsemi.no.)

The custom/consulting services division derives its revenue from working with specific customers to integrate Nordic's wireless solutions into customer ASICs. Nordic often then continues to manufacture the chip in the long-term for the customer.

The data conversion business area develops and sells IP for use within in-house projects, third-party ASIC design and standard products. The products are leading edge ADCs and DACs for use in areas such as digital photography, WLANs and video.

Nordic's products are all manufactured in ultra modern semiconductor process technologies through strong relationships with world-best manufacturing facilities. Sales are primarily made through a carefully selected worldwide distribution network. The company has offices in Trondheim and Oslo, Norway, Hong Kong, Korea and Japan, and is listed on the Norwegian Stock Exchange (OSX: NOD). All operations are managed according to the ISO 9001:2000-approved quality assurance system.