

Industry's first 802.11ah Wi-Fi Solution for Internet of things (IoT) devices

SX-NEWAH

Securely connect smart devices over long distances using minimal power



Product Overview

Powered by NRC7292 System-on-Chip from Newracom, SX-NEWAH is industry's first IEEE 802.11ah Wi-Fi module that operates in the Sub 1GHz license-exempt band. It provides a much greater range over 2.4GHz and 5GHz Wi-Fi technologies and a much higher data rate than propriety Low-Power Wide-Area (LPWA) technologies such as LoRa and Sigfox. Unlike these proprietary technologies, the SX-NEWAH is built upon 802.11ah technology designed to operate in IEEE standards. This unique solution enables streamlined data transfer interoperability with existing Wi-Fi networks while meeting upto 1Km long range data transfer with low power consumption requirements.

SX-NEWAH opens up unlimited possibilities for various remote monitoring applications such as industrial sensors, elderly monitoring, security surveillance, building automation and agricultural IoT.

Benefits

Improved Range

Long range (up to 1 km) connectivity (in-outdoor Wi-Fi). It offers atleast a 10 dB advantage over 2.4 GHz.

Low Power Consumption

Low power consumption for a multi-year battery operation. Whole home sensor coverage with 4dBm output power & no external power amplifier. Supports enhanced power save MAC modes.

Rich Data Rates

Moderate data rates (up to 15 Mbps) with enough throughput to support TCP/IP, Internet discovery protocols and diverse applications such as voice, low/medium resolution video.

Scalable

Can support large number of connected devices per access point, no need for repeaters and gateways. Supports over 100 nodes.

IP Connectivity

It is the same as Wi-Fi. You can easily integrate SX-NEWAH in an existing IP network.

Robust Wi-Fi Security

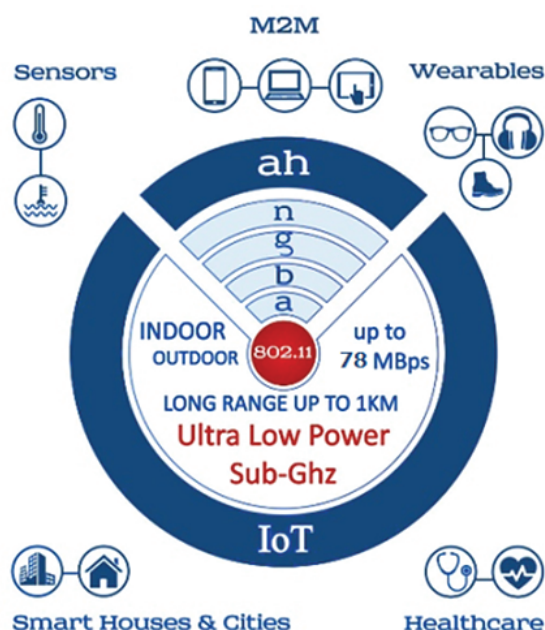
supports latest generation Wi-Fi® security - WPA3™

Outdoor Coverage

Support for larger delay spreads. Robust connections with superior penetration through walls and other industrial environments.

Wi-Fi Ecosystem

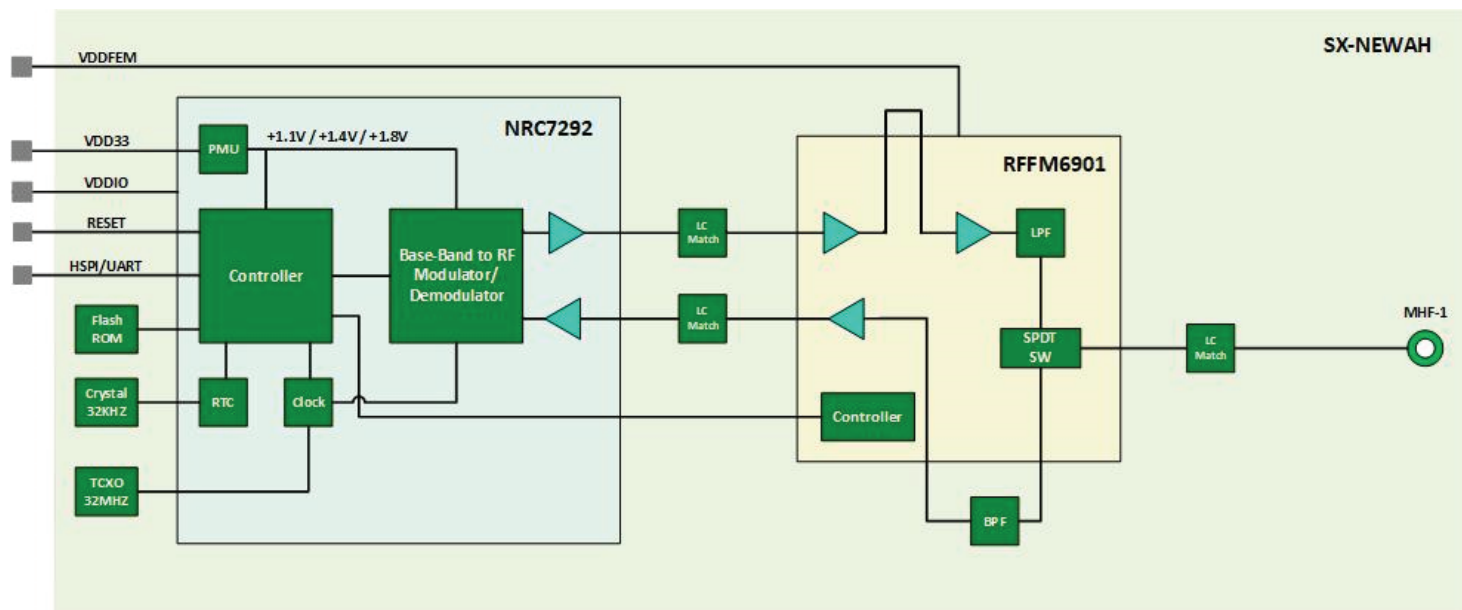
WFA interoperability and user experience.



Key Features

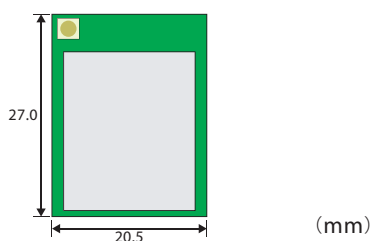
- Complies with IEEE 802.11ah draft
- Supports 1/2/4 MHz bandwidth
- Upto 15 Mbps data rate
- Access point and station mode
- Security: OPEN, WPA2-PSK(AES), WPA3-OWE, WPA3-SAE
- Dedicated SPI interface for host
- Manufacturing tools for configuration test
- Diagnostic and DUT test tools for indoor and outdoor test
- Modular Certifications for North America

Block Diagram



Mechanical Specifications

SX-NEWAH



Product Specifications

Product	SX-NEWAH
Chipset	NRC7292
Host Interface	SPI
WLAN Specification	IEEE 802.11ah (1x1)
Antenna Connector	MHF-1 connector x 1
Operating Frequency	902.0 ~ 928.0 MHz
Transmit Power	23 dBm
Rx Min Sensitivity	-86 ~ -106 dBm
Operating Voltage	Main Power Supply: 3.3 V ± 5%
Operating Environment	Temperature: -40 ~ 85 °C Humidity : 15 ~ 95% RH (No Condensation)
Storage Environment	Temperature: -40 ~ 85 °C Humidity : 15 ~ 95% RH (No Condensation)
Dimensions	20.5mm x 27.0mm x 3.1mm
Package Type	68 pins Direct Solder Pads (Surface Mount)
Modular Certifications	FCC, ISED

Evaluation Kit

SX-NEWAH-EVK consists of the 802.11ah module (SX-NEWAH) with an interface board which helps to connect the evaluation kit with Raspberry-Pi development board to easily evaluate the the SX-NEWAH module and other 802.11ah technology benefits.

Linux Tools

- **WLAN management command**
-iw
- **Throughput test**
-iperf
- **Station / Access Point function**
-WPA_supplicant, hostapd
- **DHCP**
-udhcpd, udhcpd



Begin evaluation by following the 3 steps below.

1. Purchase the required hardware
- SX-NEWAH-EVK / Raspberry-Pi
2. Download the OS image for evaluation
- Available via sillex website
3. Setup environment and begin evaluation
- Instructions in User Guide (available on website)

Product SKU's

Part Number	Type	MOQ	Packaging
SX-NEWAH	SMT	500 units	Reel
SX-NEWAH-SP	SMT	1 unit	Reel
SX-NEWAH-EVK	Shield Connector	1 unit	Individual Box

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