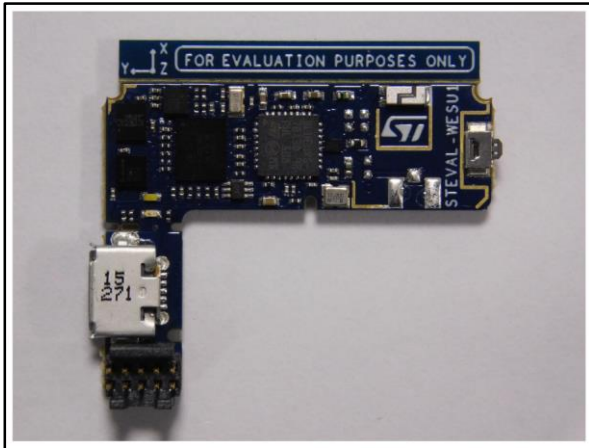


## Wearable sensor unit reference design for fast time to market

Data brief



### Features

- Compact solution for wearable, motion sensing applications with a complete set of firmware examples
- iOS and Android apps available
- Main components:
  - STM32L151VEY6 – 32-bit ultra-low-power MCU
  - LSM6DS3 – 3D accelerometer + 3D gyroscope
  - LIS3MDL – 3-axis magnetometer
  - LPS25HB – MEMS pressure sensor
  - BlueNRG-MS – BLE network processor
  - BALF-NRG-01D3 - 50  $\Omega$  balun with integrated harmonic filter
  - STNS01 – Li-Ion linear battery charger
  - STC3115 – Fuel gauge IC
- 100 mAh Li-Ion battery included, UN38.3 tested and certified
- Micro USB connector for recharging
- SWD connector for debugging and programming capability
- Watch strap with plastic housing included
- Fully tested and certified by FCC (FCC ID: S9N-WESU1) and IC (IC: 8976C-WESU1)
- RoHS compliant

### Description

STEVAL-WESU1 is a reference design developed and optimized to help designers implement the latest technologies in wearable and portable applications.

The small form factor of the hardware allows it to be enclosed in a watch strap, so the user can experience a real activity monitoring system and immediately begin appreciating the sensor data acquisition, as well as all of the embedded hardware and firmware features, also thanks to the ST WeSU app available free of charge from Apple Store™ and Google Play™ stores. The Apps are based on BlueST SDK, available on GitHub.

Advanced users can also further reduce the hardware form factor; please refer to STEVAL-WESU1 user manual for more details.

The STEVAL-WESU1 firmware package is built on the STM32Cube software technology so it can easily be augmented with further algorithms. It runs on STM32L151VEY6 and includes the drivers to manage three sensors (LSM6DS3, LIS3MDL and LPS25HB), the Bluetooth low energy network processor (BlueNRG-MS) and the battery management ICs (STC3115 and STNS01).

The firmware is freely available on [www.st.com](http://www.st.com).

# 1 Formal notice requirements

## Required by the U.S. Federal Communications Commission (“FCC”)

Any changes or modifications to this equipment not expressly approved by STMicroelectronics may cause harmful interference and void the user’s authority to operate this equipment. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including any interference that may cause undesired operation. This device uses, generates and radiated radio frequency energy. The radio frequency energy produced by this device is well below the maximum exposure allowed by the Federal Communications Commission (FCC).

The STEVAL-WESU1 is FCC certified (FCC ID: S9N-WESU1).

## Formal notices required by Industry Canada (“IC”)

English:

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

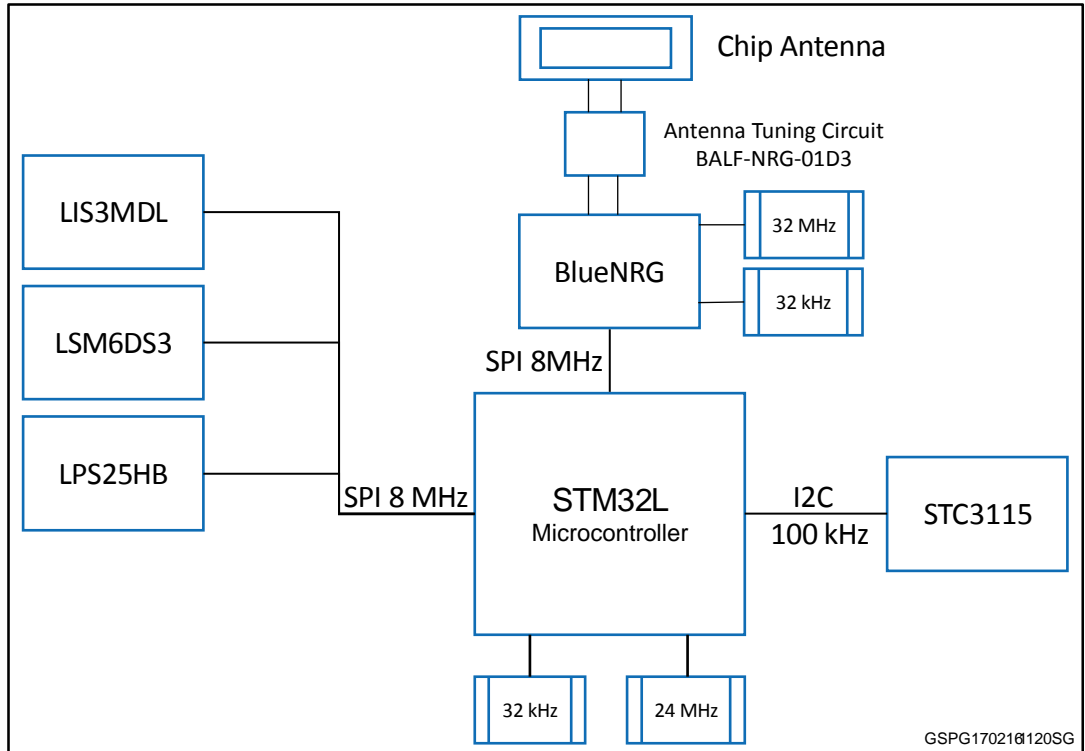
French:

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

The STEVAL-WESU1 is IC certified (IC: 8956C-WESU1).

## 2 Schematic diagram

Figure 1: Functional block diagram



### 3 Revision history

Table 1: Document revision history

Date	Version	Changes
04-Mar-2016	1	Initial release.

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