

01/07/2021

General Notes of Research Project

In addition to the “Question 6 Statement of Research Project” attachment, I would like to include more information on our research project.

This experimental device uses our existing FWR30 device modified with LoRa communication. The goal is to utilize already approved LoRa modules or suitable chipsets targeting compliance to FCC requirements in hopes to a smoother path for an Experimental License and eventually FCC Certification.

The LoRa communication in our device will utilize off-the-shelf Semtech SX1262 RF transceiver. Included in their datasheet is a statement that “the radio is suitable for systems targeting compliance with radio regulations including...FCC CFR 47 Part 15...”. See last page for reference of datasheet.

We hope to test our software and communication, while adjusting several variables to understand which are best for communication, in our office and at a field trial location described in the antenna data of the application.

Please feel free to contact me with any questions or concerns.

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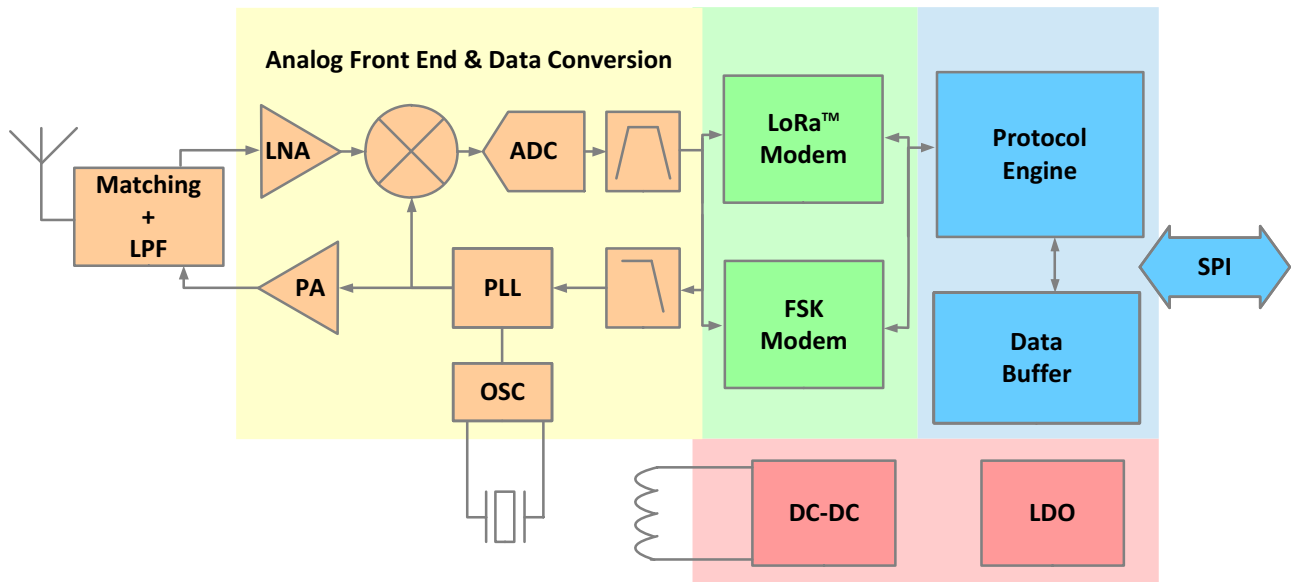


Figure A: SX1261/2 Block Diagram

General Description

SX1261 and SX1262 sub-GHz radio transceivers are ideal for long range wireless applications. Both devices are designed for long battery life with just 4.2 mA of active receive current consumption. The SX1261 can transmit up to +15 dBm and the SX1262 can transmit up to +22 dBm with highly efficient integrated power amplifiers.

These devices support LoRa® modulation for LPWAN use cases and (G)FSK modulation for legacy use cases. The devices are highly configurable to meet different application requirements utilizing the global LoRaWAN™ standard or proprietary protocols.

The devices are designed to comply with the physical layer requirements of the LoRaWAN™ specification released by the LoRa Alliance™.

The radio is suitable for systems targeting compliance with radio regulations including but not limited to ETSI EN 300 220, FCC CFR 47 Part 15, China regulatory requirements and the Japanese ARIB T-108. Continuous frequency coverage from 150 MHz to 960 MHz allows the support of all major sub-GHz ISM bands around the world.

Applications

The level of integration and the low consumption within SX1261/2 enable a new generation of Internet of Things applications.

- Smart meters
- Supply chain and logistics
- Building automation
- Agricultural sensors
- Smart cities
- Retail store sensors
- Asset tracking
- Street lights
- Parking sensors
- Environmental sensors
- Healthcare
- Safety and security sensors
- Remote control applications