8.17 RADIO — 2.4 GHz radio

The 2.4 GHz radio transceiver is compatible with multiple radio standards such as Bluetooth Low Energy, IEEE 802.15.4, and Nordic's proprietary protocols.

The main features of the RADIO peripheral are the following:

- Multidomain 2.4 GHz radio transceiver, with
  - Bluetooth Low Energy 1 Mbps and 2 Mbps modes
  - Bluetooth Low Energy Long Range (125 kbps and 500 kbps) modes
  - IEEE 802.15.4 250 kbps mode
  - 1 Mbps, 2 Mbps and 4 Mbps Nordic proprietary modes
- Best in class link budget and low power operation
- Efficient data interface with EasyDMA support
- Automatic address filtering and pattern matching
- Automated packet assembler/disassembler
- Automated CRC generator and checker

EasyDMA, in combination with an automated packet assembler, packet disassembler, automated CRC generator and CRC checker, makes it easy to configure and use RADIO. See the following figure for details.

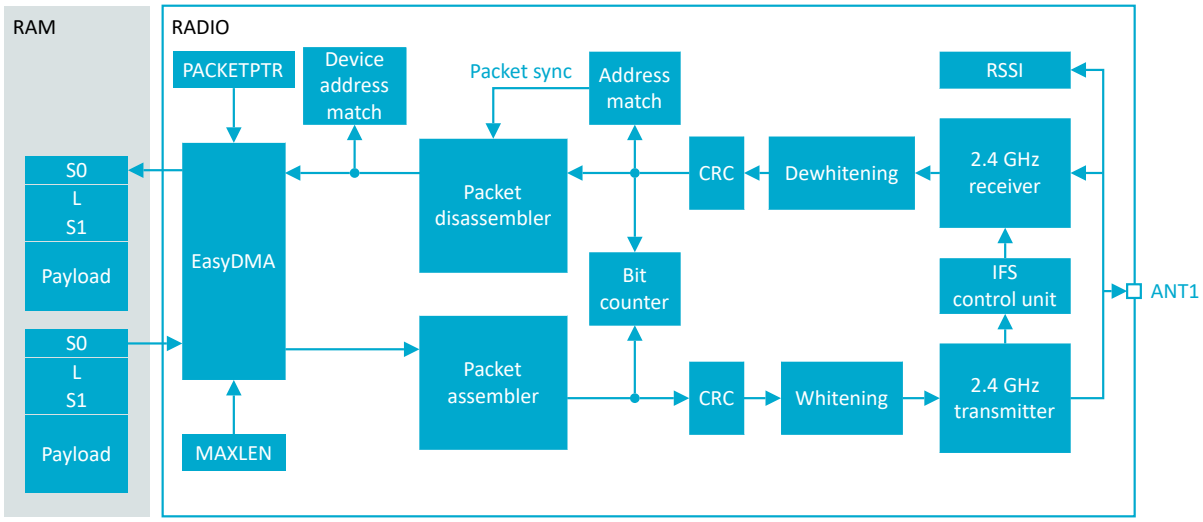

Figure 108: RADIO block diagram

RADIO includes a device address match unit and an interframe spacing control unit that can be utilized to simplify device filtering and interframe spacing respectively in Bluetooth Low Energy and similar applications.

RADIO also includes a received signal strength indicator (RSSI) and a bit counter. The bit counter generates events when a preconfigured number of bits are sent or received by RADIO.

8.17.1 Packet configuration

A RADIO packet contains the fields PREAMBLE, ADDRESS, S0, LENGTH, S1, PAYLOAD, and CRC. For Long Range (125 kbps and 500 kbps) Bluetooth Low Energy modes, fields CI, TERM1, and TERM2 are also included.

The content of a RADIO packet is illustrated in the following figures. RADIO sends the fields in the packet according to the sequence shown in the figures, starting on the left.