

APEX LT PRODUCT SUMMARY

Product Description

The LS Research APEX LT module is a 2.4 GHz transceiver providing a solution for data links and wireless networks. The module is based on the Ember EM260 network processor providing an IEEE 802.15.4 radio transceiver with a SPI base interface. The SPI interface gives the flexibility to choose the external microprocessor to best fit the application.

Key Features

- 100 mW output power
- Integrated antenna
- Supports MMCX connector for external antenna
- 16 RF channels (Channel 16 at a reduced power level)
- Output power is software controlled
- AES-128 encryption
- Constant RF output power over operating voltage range of 2.1 – 3.6V
- Integrated IEEE 802.15.4 PHY and MAC
- Dedicated network processor
- SPI-slave or UART interface to application microprocessor
- Handles all data processing and timing intensive tasks of Zigbee protocol

Specifications

Operating voltage range:	2.1 – 3.6 V
RF Frequency range:	2400 – 2483.5 MHz
RF Data rate:	250 kbps
Nominal output power:	100 mW (20 dBm)
Transmitter current:	170 mA
Receive current:	37 mA
Error Vector Magnitude	15% typical
Receiver Sensitivity	-96 dBm (1% PER)

I/O Summary

- Connection to the API is made over SPI to allow application development on host microprocessor.
- Two additional signals (nHOST_INT and nWAKE) provided for handshaking.
- Module is a slave device only. All transactions are initiated by the host.

Compliance Statement (Part 15.19)

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 interference that may cause undesired operation.

Warning (Part 15.21)

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC Interference Statement (Part 15.105 (b))

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

RF Exposure (OET Bulletin 65)

To comply with FCC's RF exposure limits for general population / uncontrolled exposure, the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

Industry Canada Statement per Section 4.0 of RSP-100

The term "IC:" before the certification / registration number only signifies that the Industry Canada technical specifications were met.

Section 7.1.5 of RSS-GEN

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OEM Responsibility to the FCC Rules and Regulations

The **Apex LT** Module has been certified per FCC Part 15 rules for integration into products without further testing or certification. To fulfill the FCC certification requirements the OEM of the **Apex LT** Module must ensure that the information provided on the **Apex LT** Label is placed on the outside of the final product.

The **Apex LT** Module is labeled with its own FCC ID Number. If the FCC ID is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following:

“Contains Transmitter Module FCC ID: TFB-APEXLT”

or

“Contains FCC ID: TFB-APEXLT”

The OEM of the **Apex LT** Module must only use the approved antenna, which has been certified with this module.

The OEM of the **Apex LT** Module must test their final product configuration to comply with Unintentional Radiator Limits before declaring FCC compliance per Part 15 of the FCC rules