

FIBOCOM LE270-LA

Hardware Specification

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Foreword

1.1 Introduction

The LE270-LA LTE Module adopt ARM CORTEX-M3 core baseband processor, with a main frequency of up to 306MHz and support for LTE network. It is a highly integrated wireless communication module.

The document describes the LE270-LA electrical characteristics and basic function.

1.2 Specification

1.2.1 RF Characteristic

LE270-LA RF characteristic is shown in Table 2.

Table 1. RF characteristic

Operating Band	
LTE FDD	B2/B3/B4/B5/B7/B8/B28/B66
LTE TDD	B38/B40/B41
WIFI SCAN	Not support
Bluetooth	Not support
GNSS	Not support

1.2.2 Key Feature

Table 2. Key features

Specification

Data transmission	LTE FDD: 10.3Mbps DL/5.1Mbps UL (Cat 1) LTE TDD: 9.1Mbps DL/3.1Mbps UL (Cat 1)
Power Supply	DC 3.4V to 4.5V, typical 3.8V
LTE modulation	Uplink: QPSK/16QAM; Downlink: QPSK/16QAM/64QAM;
Temperature	Normal operating temperature: -30°C to +75°C
	Extended operating temperature: -40°C to +85°C
	Storage temperature: -40°C to +90°C
Physical Characteristics	Dimension: 15.8 × 17.7 × 2.4 mm
Antenna Connector	Main × 1
Function Interface	SIM card interface × 2
	USB 2.0 × 1
	UART × 3, I2C × 2, GPIO × 4, I2S/PCMx1
	System indicator × 1
	ADC×2
Firmware Update	USB

2. FCC Conformance information

Federal Communication Commission Interference Statement

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.

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.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

This device is intended only for OEM integrators under the following conditions:

- 1) The antenna must be installed such that 20 cm is maintained between the antenna and users,
- 2) The transmitter module may not be co-located with any other transmitter or antenna.

As long as 2 conditions above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed.

Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20 cm between the radiator & your body.

Important Notice to OEM integrators

1. This module is limited to OEM installation ONLY.
2. This module is limited to installation in mobile applications, according to Part 2.1091(b).
3. The separate approval is required for all other operating configurations, including portable configurations with respect to Part 2.1093 and different antenna configurations
4. For FCC Part 15.31 (h) and (k): The host manufacturer is responsible for additional testing to verify compliance as a composite system. When testing the host device for compliance with Part

15 Subpart B, the host manufacturer is required to show compliance with Part 15 Subpart B while the transmitter module(s) are installed and operating. The modules should be

transmitting and the evaluation should confirm that the module's intentional emissions are compliant (i.e. fundamental and out of band emissions). The host manufacturer must verify that there are no additional unintentional emissions other than what is permitted in Part 15 Subpart B or emissions are compliant with the transmitter(s) rule(s).

The Grantee will provide guidance to the host manufacturer for Part 15 B requirements if needed.

Important Note

notice that any deviation(s) from the defined parameters of the antenna trace, as described by the instructions, require that the host product manufacturer must notify to Fibocom Wireless Inc. that they wish to change the antenna trace design. In this case, a Class II permissive change application is required to be filed by the USI, or the host manufacturer can take responsibility through the change in FCC ID (new application) procedure followed by a Class II permissive change application.

End Product Labeling

When the module is installed in the host device, the FCC ID label must be visible through a window on the final device or it must be visible when an access panel, door or cover is easily re-moved. If not, a second label must be placed on the outside of the final device that contains the following text: "Contains FCC ID:ZMOLE270LA"

The FCC ID can be used only when all FCC compliance requirements are met.

Antenna Installation

- (1) The antenna must be installed such that 20 cm is maintained between the antenna and users,
- (2) The transmitter module may not be co-located with any other transmitter or antenna.
- (3) Only antennas of the same type and with equal or less gains as shown below may be used with this module. Other types of antennas and/or higher gain antennas may require

additional authorization for operation.

Band	Antenna Gain (dBi)
LTE band 2	2.85
LTE band 4	2.98
LTE band 5	1.32
LTE band 7	2.21
LTE band 38	1.71
LTE band 41	2.21
LTE band 66	2.98

In the event that these conditions cannot be met (for example certain laptop configurations or co-location with another transmitter), then the FCC/IC authorization is no longer considered valid and the FCC ID/IC ID cannot be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC/IC authorization.

Manual Information to the End User

The OEM integrator has to be aware not to provide information to the end user regarding

how to install or remove this RF module in the user's manual of the end product which integrates this module. The end user manual shall include all required regulatory information/warning as show in this manual.

Information to user

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

- List of applicable FCC rules:

47CFRPart 22, 24, 27, 90, 96

- Summarize the specific operational use conditions:

This module can be used in IOT devices, the input voltage to the module is nominally 3.8V.

- Limited module procedures:

This module is a single module.

- Trace antenna designs:

The antenna is not a trace antenna.

- RF exposure considerations:

This Module complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

- Antennas:

If you desire to increase antenna gain and either change antenna type or use same antenna type certified, a Class II permissive change application is required to be filed by us, or you (host manufacturer) can take responsibility through the change in FCC ID (new application) procedure followed by a Class II permissive change application.

- Label and compliance information:

Please notice that if the FCC identification number 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 FCC ID: ZMOLE270LA" any similar wording that expresses the same meaning may be used.

§ 15.19 Labelling requirements shall be complied on end user device.

Labelling rules for special device, please refer to §2.925, § 15.19 (a)(5) and relevant KDB publications. For E-label, please refer to §2.935.

- Information on test modes and additional testing requirements:

The OEM integrator is responsible for ensuring that the end-user has no manual instruction to remove or install module.

The module is limited to installation in mobile application, a separate approval is required for all other operating configurations, including portable configurations with respect to §2.1093 and difference antenna configurations.