



INDIESEMIC

ISC-nRF54L Module

Serial Port Configuration Detail

Revision History

Revision	Description	Date
1.0	Initial Release	17/03/2026

Table of Contents

1. Introduction.....	3
2. Evaluation Kit.....	3
3. Serial Port Setup.....	4
4. CLI for Radio Control.....	5

1. Introduction

ISC-nRF54L Module is an Integrated multi-purpose MCU functionality which supports Nordic's nRF54L Series SoCs which is suited to enable a broad range of applications. The multiprotocol 2.4 GHz radio supports the latest Bluetooth® 6.0 features including Bluetooth Channel Sounding, as well as 802.15.4-2020 for standards such as Thread, Matter, and Zigbee, and a proprietary 2.4 GHz mode supporting up to 4 Mbps for higher throughput. The module integrates the peripherals expected in a wireless microcontroller enabling many products to be implemented with a single chip.

2. Evaluation Kit

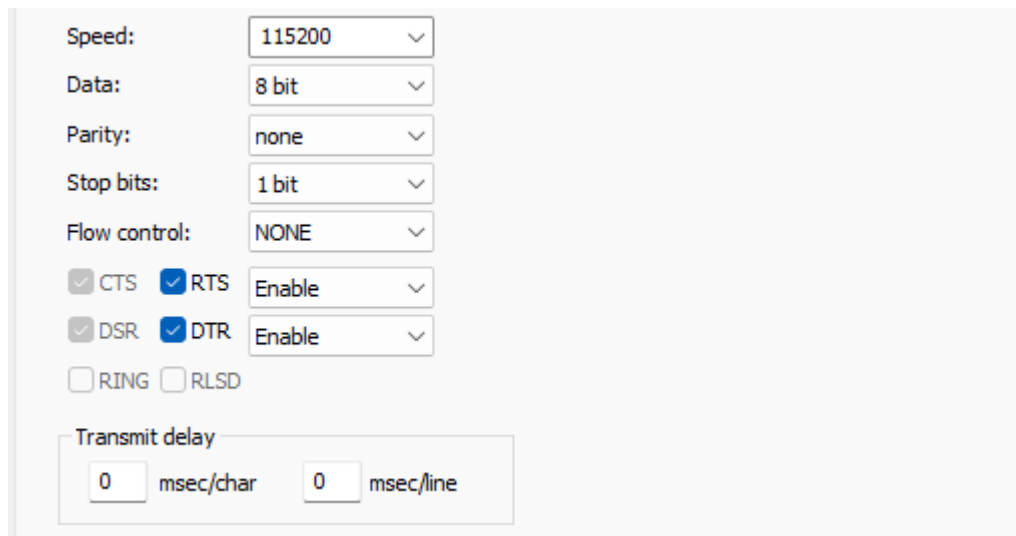


Figure 1 EVK_ISC_nRF54L

Connect Type C port with USB to Type C connector with Host Computer

3. Serial Port Setup

Download any serial terminal and connect to it using following configuration.



The image shows a serial port configuration window with the following settings:

- Speed: 115200
- Data: 8 bit
- Parity: none
- Stop bits: 1 bit
- Flow control: NONE
- CTS: RTS: Enable
- DSR: DTR: Enable
- RING: RLSD:
- Transmit delay: 0 msec/char, 0 msec/line

Figure 2 Serial Port Configuration

For this document tera term is used.

After pressing reset on the board following output should be visible

```

*** Booting My Application v0.1.0 - unknown commit ***
*** Using nRF Connect SDK v3.1.1-e2a97fe2578a ***
*** Using Zephyr OS v4.1.99-ff8f0c579eeb ***
Starting Radio Test sample
Clock has started
LED control initialized

ISC_nRF54L:~$ █
  
```

Figure 3 Terminal Output 1

4. CLI for Radio Control

Please refer to *CLI_Description.xlsx* for usage description

Sr #	Commands	Sub-Commands	Description
1	data_rate	ble_1Mbit	1 Mbit/s Bluetooth Low Energy
		ble_2Mbit	2 Mbit/s Bluetooth Low Energy
		ble_lr125Kbit	Long range 125 kbit/s TX, 125 kbit/s and 500 kbit/s RX
		ble_lr500Kbit	Long range 500 kbit/s TX, 125 kbit/s and 500 kbit/s RX
		ieee802154_250Kbit	IEEE 802.15.4-2006 250 kbit/s
2	start_channel	-	Start channel for the sweep or the channel for the constant carrier (in MHz as difference from 2400 MHz) <channel>
3	end_channel	-	End channel for the sweep (in MHz as difference from 2400 MHz) <channel>
4	output_power	pos8dBm	+8 dBm TX Power
		pos7dBm	+7 dBm TX Power
		pos6dBm	+6 dBm TX Power
		pos5dBm	+5 dBm TX Power
		pos4dBm	+4 dBm TX Power
		pos3dBm	+3 dBm TX Power
		pos2dBm	+2 dBm TX Power
		pos1dBm	+1 dBm TX Power
		pos0dBm	0 dBm TX Power
		neg1dBm	-1 dBm TX Power
		neg2dBm	-2 dBm TX Power
		neg3dBm	-3 dBm TX Power
		neg4dBm	-4 dBm TX Power
		neg5dBm	-5 dBm TX Power
		neg6dBm	-6 dBm TX Power
		neg7dBm	-7 dBm TX Power
		neg8dBm	-8 dBm TX Power
		neg9dBm	-9 dBm TX Power
		neg10dBm	-10 dBm TX Power
		neg12dBm	-12 dBm TX Power
neg14dBm	-14 dBm TX Power		
neg16dBm	-16 dBm TX Power		
neg18dBm	-18 dBm TX Power		
neg20dBm	-20 dBm TX Power		
5	transmit_pattern	pattern_random	Set the transmission pattern to random.
		pattern_11110000	Set the transmission pattern to 11110000.

		pattern_11001100	Set the transmission pattern to 11001100.
6	start_tx_carrier	-	Starts unmodulated radio transmission
7	start_tx_modulated_carrier	<number of packets>	Starts modulated radio transmission for defined number of packets
8	start_tx_sweep	-	Starts frequency hopping in between start and end channels
9	time_on_channel	-	Time on each channel in ms (between 1 and 99) <time>
10	start_rx	<number of packets>	Starts reception for radio signals on selected frequency
11	cancel	-	terminate any on going radio

FCC Warning

15.19 Labeling requirements.

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.

15.21 Information to user.

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

15.105 Information to the user.

Note: 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 or more 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.

FCC RF Radiation Exposure Statement:

- 1.This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
- 2.This equipment complies with RF radiation exposure limits set forth for an uncontrolled environment.

This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

Additional Section: Integration instructions for host product manufacturers according to KDB 996369 D03 OEM Manual v01

2.1 Conditions on using INDIESEMIC PRIVATE LIMITED regulatory approvals:

- A. Customer must ensure that its product (The "CUSTOMER Product") is electrically identical to **INDIESEMIC PRIVATE LIMITED** reference designs. Customer acknowledges that any modifications to **INDIESEMIC PRIVATE LIMITED** reference designs may invalidate regulatory approvals in relation to the CUSTOMER Product, or may necessitate notifications to the relevant regulatory authorities.
- B. Customer is responsible for ensuring that antennas used with the product are of the same type, with same or lower gains as approved and providing antenna reports to **INDIESEMIC PRIVATE LIMITED**
- C. Customer is responsible for regression testing to accommodate changes to **INDIESEMIC PRIVATE LIMITED** reference designs, new antennas, and portable RF exposure safety testing/approvals.
- D. Appropriate labels must be affixed to the CUSTOMER Product that comply with applicable regulations in all respects.
- E. A user's manual or instruction manual must be included with the customer product that contains the text as required by applicable law. Without limitation of the foregoing, an example (for illustration purposes only) of possible text to include is set forth below:

2.2 List of applicable FCC rules (customers' product must also compliant with these rules)

FCC Part 15 Subpart C 15.247

2.3 Specific operational use conditions

Operation Frequency: 2402MHz to 2480MHz

Number of Channels: 40

Modulation Type: GFSK

Antenna Type: PCB Antenna

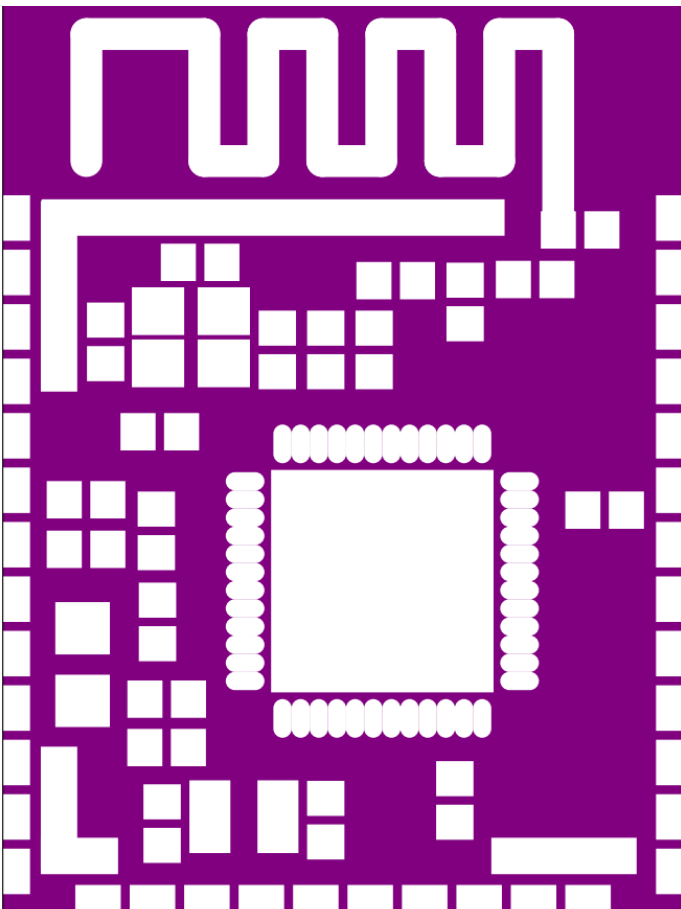
Antenna Gain#: -2.2dBi

The module can be used for mobile applications with the same ant. type with maximum -2.2dBi antenna. The host manufacturer installing this module into their product must ensure that the final composite product complies with the FCC requirements by a technical assessment or evaluation to the FCC rules, including the transmitter operation. The host manufacturer 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. If the end product manufacturer use it to a portable product, please provide the SAR compliance.

2.4 Limited module procedures

Not applicable. The module is a Single module and complies with the requirement of FCC Part 15.212.

2.5 Trace antenna designs



2.6 RF exposure considerations

The device can be used in mobile exposure condition and if RF exposure statement or module layout is changed, then the host product manufacturer required to take responsibility of the module through a change in FCC ID or new application. The FCC ID of the module cannot be used on the final product. In these circumstances, the host manufacturer will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

2.7 Antennas

Antenna Type: PCB antenna

Antenna Gain: -2.2dBi

This device is intended only for host manufacturers under the following conditions:

The transmitter module may not be co-located with any other transmitter or antenna;

The module shall be only used with the PCB antenna that has been originally tested and certified with this module. The antenna must be either permanently attached or employ a 'unique' antenna coupler.

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

2.8 Label and compliance information

Host product manufacturers need to provide a physical or e-label stating "Contains FCC ID:2BVP2-NRF54L15" with their finished product.

2.9 Information on test modes and additional testing requirements

Operation Frequency: 2402MHz to 2480MHz

Number of Channels: 40

Modulation Type: GFSK

Data Rate : 1Mbps/2Mbps

Antenna Type: PCB Antenna

Antenna Gain: -2.2Bi

Host manufacturer must perform test of radiated & conducted emission and spurious emission, etc according to the actual test modes for a stand-alone modular transmitter in a host, as well as for multiple simultaneously transmitting modules or other transmitters in a host product. If no other module used and no change to this module, the product can only to compliance with FCC part 15B to meet the sale requirement. Only when all the test results of test modes comply with FCC requirements, then the end product can be sold legally.

2.10 Additional testing, Part 15 Subpart B disclaimer

The modular transmitter is only FCC authorized for FCC Part 15 Subpart C 15.247 that the host product manufacturer is responsible for compliance to any other FCC rules that apply to the host not covered by the modular transmitter grant of certification. If the grantee markets their product as being Part 15 Subpart B compliant (when it also contains unintentional-radiator digital circuitry), then the grantee shall provide a notice stating that the final host product still requires Part 15 Subpart B compliance testing with the modular transmitter installed.