

# LimeNET Micro 2.0

Quick Start Guide



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**Model:** LimeNET Micro 2.0

**Type:** Indoor standalone

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## DOCUMENT REVISION HISTORY

| Version | Date       | Summary of main changes |
|---------|------------|-------------------------|
| 1.0     | 19/02/2026 | Initial release         |
|         | 23/03/2026 | Final release           |

## SAFETY GUIDELINES

Always read the technical guide before setting up or using the product. It is your responsibility to familiarise yourself with the product reference guide, other associated documentation, safety warnings, and use of the product properly and for the purpose for which it was designed.

### CRITICAL SAFETY WARNINGS

- ⊖ **CRITICAL:** Never operate the unit without antennas connected to all active RF ports. Operating without proper antenna loads may cause permanent damage to the RF front-end circuitry and will void the warranty.
- ⊖ **CRITICAL:** Do not exceed the maximum safe input power of +10 dBm on any RF or GNSS connector. Exceeding this limit may cause permanent damage to the LMS7002M transceiver IC.
- ⊖ **CRITICAL:** Use only the supplied 12V DC power adapter. Using third-party or incorrectly rated adapters may damage the unit, cause overheating, or create a fire hazard.

### CAUTION — POTENTIAL EQUIPMENT DAMAGE

Follow these recommendations to protect yourself and the Product from harm:

- Do not insert any sharp object into any of the Product openings.
- Do not place the Product near a heat source. Avoid placing the Product in direct sunlight.
- Do not place the Product in damp or wet environments, for example, near a bathtub, washbowl, kitchen sink or laundry tub, in a wet basement, or near a swimming pool. Do not spill any liquid on the Product.
- Do not touch the Product or its power adapter or cord with wet hands.
- Do not place the Product on an unstable surface or support.
- Do not place anything on top of the Product.
- Do not use liquid or aerosol cleaners; unplug the Product and use a soft, dry cloth for cleaning.
- When connecting a PC or other electronic devices to the Product, make sure you use the correct cable types and connect the device to the port of the Product as instructed. Incorrect links may damage the device and/or the Product.
- Do not open or attempt to open the Product. Opening or removing covers can expose you to dangerous high voltage elements or other potential risks.
- The Product contains components that emit electromagnetic waves and could interfere with pacemakers or other electronic medical devices. If you wear a pacemaker, other implantable or personal medical device, please consult your physician or medical device manufacturer for the required minimum safe distance between the Product and your medical device.
- If the Product malfunctions or fails to perform as expected, stop using it immediately.
- The Product is for indoor use only.

### WARNING — RISK OF ELECTRIC SHOCK OR FIRE

- Plug in the Product power adaptor or cord to the supply voltage with correct ratings (100–240V AC, 50/60 Hz).
- Pay attention to the power load of the electrical outlet and possible extension cord. An overburdened power outlet or damaged cords and plugs may cause electric shock or fire. Check the power cords regularly. If you find any damage, replace the cord immediately.
- Do not connect the plug into an extension cord, receptacle, or other outlet unless the plug can be fully inserted with no part of the blades exposed.
- Leave adequate space for ventilation to avoid any damage caused by overheating of the Product. Do not cover the Product or its ventilation holes. Blocking these may cause fire.
- Use the power adapter provided with your Product and do not fasten the power cable to building surfaces. Ensure the cable can move freely. Do not place heavy objects on the cable.
- Do not use the Product outside, and make sure all the connections are indoors.
- Refer to the Product Summary for the standby power consumption of the device and the maximum power consumption.

## REGULATORY NOTICE

**⚠ WARNING:** Operating RF transmitting equipment requires appropriate licensing in most jurisdictions. Users are solely responsible for ensuring compliance with all local, regional, and national radio frequency regulations. Unauthorized transmission may result in severe penalties including fines and criminal prosecution.

## ENVIRONMENTAL COMPLIANCE

RoHS (Restriction of Hazardous Substances Directive): Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (2011/65/EU). The product complies with WEEE Directive for proper end-of-life disposal, EMC compliance for electromagnetic interference minimization, and CE marking for EU conformity.

The product should not be disposed of with household waste. It should be deposited in an appropriate facility to enable recovery and recycling. For more information regarding the requirements for recycling/disposal of the Product you may contact LimeNET support team.

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# 1 System Overview

The LimeNET Micro 2.0 is a complete network-in-a-box (NIB) solution combining a Raspberry Pi 5 Compute Module with the LimeSDR XTRX software-defined radio platform. It delivers enterprise-grade 4G LTE and 5G NR Standalone (SA) private network capabilities in a compact indoor form factor. Both the Baseband (BB) and Radio Front-End (RFE) units are integrated into a single enclosure, enabling rapid deployment of private cellular networks.

The platform is built on the principle of modularity, using commercially available off-the-shelf (COTS) components (see Figure 1-1). The design provides frequency agility across 30 MHz to 3.8 GHz, supporting both TDD and FDD duplex modes, and is software-upgradeable through open-source FPGA gateware and the LimeSuiteNG control library.

The default configuration ships with a 5G Standalone (SA) cell pre-configured on Band 38 (TDD) that auto-starts on boot. Two pre-provisioned test UE devices are included for immediate over-the-air verification.

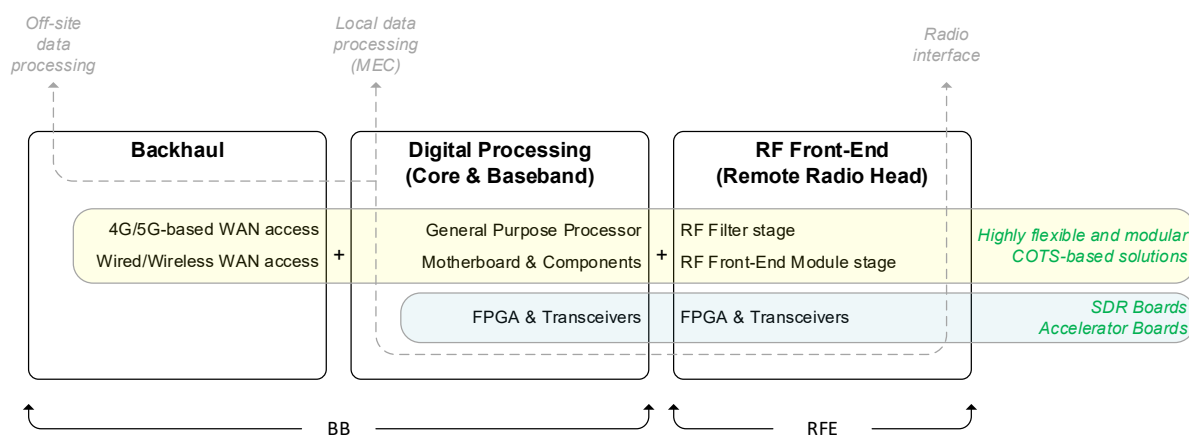


Figure 1-1: LimeNET Micro 2.0 system architecture — Baseband (BB), Radio Front-End (RFE), and backhaul subsystems.

## 1.1 Key Hardware Specifications

| Parameter       | Specification  |
|-----------------|--|
| Processor       | Broadcom BCM2712 Quad-Core ARM Cortex-A76 @ 2.4 GHz        |
| Memory          | 8 GB LPDDR4-4267 SDRAM with ECC                            |
| Storage         | 32 GB eMMC Flash Memory (options: 16 GB, 64 GB)            |
| FPGA            | Xilinx Artix-7 XC7A50T-2CPG236I (52,160 logic cells)       |
| RF Transceiver  | Lime Microsystems LMS7002M FPRF                            |
| RF Frequency    | 30 MHz – 3.8 GHz continuous coverage                       |
| RF Bandwidth    | Up to 20 MHz (TDD) / Up to 10 MHz (FDD)                    |
| TX Output Power | +3 dBm per channel (modulated signal, frequency dependent) |
| Noise Figure    | < 2 dB (front-end amplifier)                               |
| ACPR            | > 45 dB  |
| MIMO            | 2x2 (dual channel)   |
| Duplex Modes    | FDD and TDD  |
| Ethernet        | 1 Gbps with PoE support                                    |
| Wi-Fi           | 802.11 b/g/n/ac (2.4 GHz and 5 GHz)                        |
| Bluetooth       | 5.0 / BLE  |
| USB             | 2x USB 3.0 Type-A (5 Gbps)                                 |
| Display         | 2x Micro HDMI 2.0 (4K@60Hz)                                |

| Parameter         | Specification   |
|-------------------|---|
| GNSS              | GPS, GLONASS, Galileo, BeiDou                         |
| Clock Oscillators | VCOCXO, VCTCXO ( $\pm 0.2$ ppm), CDCM6208             |
| Power             | 15W typical, 25W max (12V DC, 100–240V AC adapter)    |
| Dimensions        | 215 × 170 × 60 mm (W × D × H), 700 g without antennas |
| Operating Temp    | 0°C to +40°C (indoor use only)                        |
| Storage Temp      | -20°C to +70°C  |

## 2 Unpacking Checklist

Carefully unpack the LimeNET Micro 2.0 and verify that all items listed below are present and undamaged. If any items are missing or damaged, contact Lime Microsystems support immediately.

### 2.1 Package Contents (Standard Kit)

- 1× LimeNET Micro 2.0 Unit (integrated BB + RFE in enclosure)
- 1× Power adapter (12V DC output) with attachable regional outlet adapters (EU, UK, US, AU)
- 4× RF Antennas for TRXA, RXA, TRXB, RXB ports (SMA male)
- 1× Wi-Fi/Bluetooth antenna for INT EXT1 connector (SMA male)
- 1× Micro HDMI (male) to HDMI (female) adapter cable
- 2× Test UE devices (smartphones) with pre-configured SIM cards
- Technical Guide v1.0 (digital format, pre-loaded on device)

**Note:** Demo and loaner units may have different contents. Custom configurations are available upon request. Contact the Lime Microsystems Technical Sales team for enterprise bundles.

### 2.2 Additional Items Required (Not Included)

The following items are required for initial setup but are not included in the package:

- Monitor with HDMI input (for initial setup and configuration only)
- USB keyboard (for initial setup and configuration only)
- USB mouse (recommended for graphical interface)
- Ethernet cable (Cat5e or better) with internet access for backhaul
- 100–240V AC mains power supply (grounded outlet)
- Optional: Wi-Fi network for wireless backhaul

## 3 Cabling and Physical Installation

Follow these steps carefully and in order to ensure proper installation. Allow approximately 15 minutes for the complete physical setup process.

### Step 1: Prepare the Installation Location

Select a stable, flat surface in a well-ventilated indoor location. Ensure the location meets the following criteria:

- Ambient temperature between 0°C and 40°C
- Humidity between 10% and 90% (non-condensing)
- Minimum 10 cm clearance on all sides for ventilation
- Away from heat sources, direct sunlight, and strong RF emitters
- Within reach of Ethernet connection and power outlet
- Stable surface — avoid locations subject to vibration

### Step 2: Install Antennas

Install all five included antennas onto the SMA connectors on the rear panel. Refer to Figure 3-1 for the rear panel layout:

1. Attach one antenna to TRXB (RF Channel B TX/RX)
2. Attach one antenna to RXB (RF Channel B RX)
3. Attach one antenna to TRXA (RF Channel A TX/RX)
4. Attach one antenna to RXA (RF Channel A RX)
5. Attach the Wi-Fi/BT antenna to INT EXT1

**Tip:** Hand-tighten all SMA connections firmly but gently. Do not use pliers or wrenches, as overtightening can damage the connectors. A finger-tight connection plus a quarter turn is sufficient.

**Note:** For TDD operation, only TRXA and TRXB carry active signals. RXA and RXB should still have antennas attached for proper load matching. For FDD operation, all four RF ports are active.

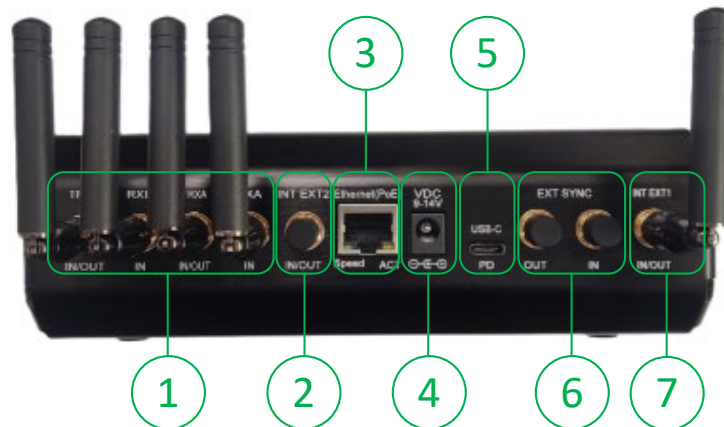


Figure 3-1: Rear panel connector layout. 1: RF ports (TRXB, RXB, TRXA, RXA), 2: INT EXT2 (GNSS), 3: Ethernet (PoE), 4: USB-C, 5: DC Power, 6: EXT SYNC, 7: INT EXT1 (Wi-Fi/BT).

### Step 3: Connect Ethernet Cable

Connect a Cat5e (or better) Ethernet cable from your network switch or router to the RJ45 port on the rear panel. Verify:

- The network provides DHCP for automatic IP address assignment
- The network has active internet access (required for initial setup, UE data services, and updates)
- Link and activity LEDs on the Ethernet connector illuminate after connection

**Note:** For PoE-capable networks, the Ethernet port can receive Power over Ethernet, providing an alternative power delivery method.

### Step 4: Connect Display

Using the included Micro HDMI to HDMI adapter, connect a monitor to either HDMI0 or HDMI1 port on the side panel (see Figure 3-2). Both ports support up to 4K@60Hz resolution. Power on the monitor and select the correct HDMI input source.

**Note:** Display is only required for initial setup and troubleshooting. After configuration, the system operates fully headless via SSH or the web-based GUI.

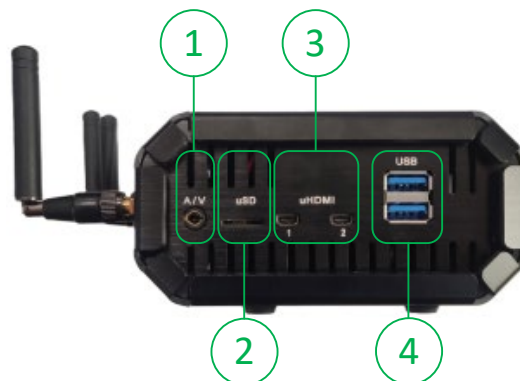


Figure 3-2: Side panel connector layout. 1: Audio 3.5mm TRRS, 2: Micro-SD, 3: Micro HDMI (2x), 4: USB 3.0 Type-A (2x).

### Step 5: Connect Input Devices

Connect a USB keyboard and optionally a USB mouse to the USB 3.0 Type-A ports on the side panel. The system auto-detects USB HID devices. Wireless USB keyboard/mouse combinations (using a USB dongle) are also supported.

### Step 6: Apply Power

1. Select and attach the correct regional adapter plug to the power supply unit
2. Connect the DC barrel plug (5.5mm × 2.1mm) to the DC Power Input on the rear panel
3. Plug the AC adapter into a grounded mains outlet (100–240V, 50/60 Hz)
4. Verify the POWER LED on the front panel illuminates solid green immediately

**⚠ WARNING:** Do not use USB-C as the primary power source during normal operation. The USB-C port is intended for alternative power supply and firmware update scenarios only.

## 4 First Boot and System Verification

After applying power, the system undergoes an automatic boot sequence. This section describes what to expect and how to verify correct operation.

### 4.1 Boot Sequence

1. POWER LED illuminates solid green (immediate — confirms DC power, see Figure 4-1)
2. STATUS LED begins toggling red (within 5–10 seconds — indicates RPi5 module is booting)
3. Linux boot messages appear on the connected display (10–30 seconds)
4. System reaches command-line login prompt (approximately 60–90 seconds)
5. Auto-start service activates 5G SA Band 38 (additional 15–30 seconds)
6. LEDs 3 and 4 illuminate green (confirms RF channels active and cell broadcasting)

Total time from power-on to operational cell: approximately 90–120 seconds.

**✔ Tip:** If the system is pre-configured for auto-start (default), you do not need to log in or run any commands. The 5G cell will be operational automatically.

### 4.2 LED Status Verification

After boot completes, verify the following front panel LED states:



Figure 4-1: Front panel LED indicators — all LEDs green indicates normal operation with active RF channels.

### Expected LED States After Successful Boot

| LED    | Expected State | Meaning                              |
|--------|----------------|--------------------------------------|
| POWER  | Solid Green    | DC power is connected and active     |
| LED 1  | —              | Reserved for future use              |
| LED 2  | —              | Reserved for future use              |
| LED 3  | Solid Green    | RF Channel B active (MIMO mode)      |
| LED 4  | Solid Green    | RF Channel A active                  |
| STATUS | Toggling Red   | RPi5 module running, services active |

**i Note:** If STATUS LED is solid green instead of toggling red, the system is idle and the mobile service has not started. See Section 6 for manual service start.

## 5 Accessing the System

The LimeNET Micro supports three methods of system access: local console, graphical desktop, and remote SSH. For initial setup, local console access with the connected monitor and keyboard is recommended.

### 5.1 Local Console Access

The system boots to a command-line interface (CLI) by default for optimal performance. This provides a Linux terminal session. Default credentials are provided separately with the unit documentation. The default user has passwordless sudo access.

Common initial verification commands:

```
ip addr show           # View assigned IP address
systemctl status limenet_rpi # Check auto-start service status
vcgencmd measure_temp  # Check CPU temperature
uname -a              # Check OS version
```


### 5.2 Graphical Desktop Environment

To start the graphical desktop (LXDE/Pixel):

```
sudo systemctl start lightdm.service
```

The desktop loads in 5–10 seconds. It provides a familiar interface for configuring Wi-Fi, Bluetooth, and network settings from the system tray in the top-right corner. To stop the desktop and return to CLI-only mode:

```
sudo systemctl stop lightdm.service
```

 **Tip:** For production deployments, disable the graphical desktop entirely to conserve CPU and memory resources. CLI or SSH access is recommended for day-to-day operation.

### 5.3 Remote Access via SSH

SSH is enabled by default. To connect remotely:

1. Determine the LimeNET Micro IP address: from local console run 'ip addr show', or check your router's DHCP client list
2. From a remote computer, open a terminal and connect:
 

```
ssh username@192.168.1.100 # Replace with actual IP
```
3. Enter the password when prompted

After configuring SSH access, the system can operate completely headless — no monitor, keyboard, or mouse required.

### 5.4 Remote Support Access

For remote support from Lime Microsystems, you can enable Raspberry Pi Connect:

```
sudo apt install rpi-connect
rpi-connect on signin
```

This generates a verification link (<https://connect.raspberrypi.com/verify/XXXX-YYYY>). Note the XXXX-YYYY code and share it with Lime Microsystems support. After support acknowledges the link:

```
rpi-connect shell on
rpi-connect vnc on
```

## 6 Initial Configuration and Service Control

### 6.1 Default Configuration

The LimeNET Micro ships pre-configured for 5G SA Band 38 (TDD) operation. The auto-start service (limenet\_rpi.service) launches the 5G cell automatically on boot. No manual configuration is required for basic 5G testing with the included UE devices.

### 6.2 Manually Starting a Service

To switch to a different band or technology, or if auto-start is disabled:

1. Stop the auto-started service (if running): `sudo systemctl stop limenet_rpi.service`

2. Navigate to the home directory: `cd ~`
3. Run the appropriate service script:

```
sudo ./5G_mobile_service.sh # For 5G NR
sudo ./4G_mobile_service.sh # For 4G LTE
```

4. When prompted 'Start or Kill mobile service?', type 's' and press Enter
5. When prompted for band selection, type the band number and press Enter:
  - Type 38 for Band 38 (TDD, 2570–2620 MHz)
  - Type 7 for Band 7 (FDD, 2620–2690 MHz DL / 2500–2570 MHz UL)
6. Wait 15–30 seconds for the service to initialize
7. Verify RF LEDs 3 and 4 turn green on the front panel

**[i] Note:** Only one technology mode (4G or 5G) can be active on a single unit at a time. Running both simultaneously requires two separate LimeNET Micro units.

### 6.3 Stopping a Service

Run the same service script and type 'k' (kill) when prompted:

```
cd ~ && sudo ./5G_mobile_service.sh
```

Terminal shows shutdown messages, RF LEDs turn off or red, and connected UEs disconnect.

### 6.4 Auto-Start Configuration

The auto-start service is enabled by default for 5G Band 38. To manage it:

```
sudo systemctl disable limenet_rpi.service # Disable auto-start
sudo systemctl enable limenet_rpi.service # Re-enable auto-start
sudo systemctl status limenet_rpi.service # Check current status
```

## 7 Wi-Fi and Bluetooth Configuration

### 7.1 Wi-Fi Setup — Graphical Interface (Recommended)

1. Start the graphical interface: `sudo systemctl start lightdm.service`
2. Click the network icon in the top-right corner of the desktop
3. Select your Wi-Fi network from the available list
4. Enter the Wi-Fi password and click Connect
5. Verify connection — the Wi-Fi icon should show signal strength

### 7.2 Wi-Fi Setup — Command Line

Open a terminal window or command line environment:

```
sudo nano /etc/wpa_supplicant/wpa_supplicant.conf
```

Add your network block:

```
network={
    ssid="YourNetworkName"
    psk="YourPassword"
}
```

Save (Ctrl+X, Y, Enter) and restart networking:

```
sudo systemctl restart networking
iwconfig # Verify Wi-Fi connection
```

### 7.3 Bluetooth Pairing

Use the graphical interface: click the Bluetooth icon in the system tray, ensure Bluetooth is enabled, click Add Device, select the device from discovered devices, and follow on-screen pairing instructions. Bluetooth is useful for wireless keyboard/mouse or debugging tools.

## 8 Over-the-Air Connection Test

After the system is operational with a broadcasting cell (RF LEDs green), test connectivity using the provided UE devices.

### 8.1 UE Setup Procedure

1. Power on the test UE device by pressing and holding the side power button
2. Wait for the device to boot completely and unlock the screen
3. Swipe down from the top of the screen to access Quick Settings
4. Ensure Airplane Mode is OFF (disabled)
5. Ensure Mobile Data is ON (enabled)
6. Ensure Data Roaming is ON (enabled)
7. Wait 5–15 seconds — a 5G indicator should appear in the status bar (top right)

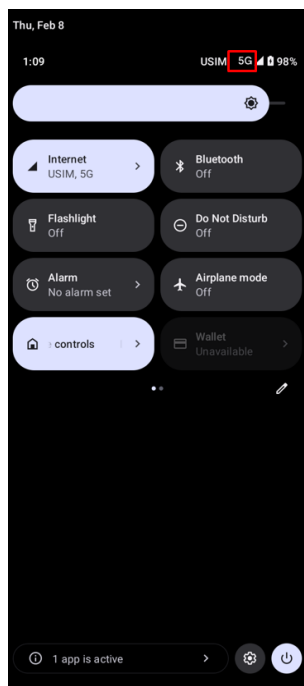


Figure 8-1: UE successfully connected to 5G network — note the 5G indicator highlighted in the status bar.

### 8.2 APN Configuration (If Needed)

If the UE does not connect automatically, configure the Access Point Name manually:

- Navigate to Settings → Mobile Network → Access Point Names
- Create a new APN with: Name: internet, APN: internet, Bearer: 4G and 5G
- Save and select the new APN
- Toggle Airplane Mode on and off to force re-registration

### 8.3 Data Connectivity Test

1. Open a web browser on the UE
2. Navigate to [www.google.com](http://www.google.com)
3. Verify the page loads successfully
4. Optionally run a speed test to verify throughput

✓ **Tip:** Expected outcome: UE successfully registered on the 5G network and data connection established within 15 seconds (see Figure 8-1).

## 9 Complete LED Status Reference

### Front Panel LED Indicators — Full Reference

| LED    | Status       | Description  |
|--------|--------------|--|
| POWER  | Solid Green  | Power supply connected and active                            |
| POWER  | Off          | No power supply or power fault — check DC barrel and adapter |
| LED 1  | Any          | Reserved for future use                                      |
| LED 2  | Any          | Reserved for future use                                      |
| LED 3  | Solid Green  | RF Channel B active (MIMO configuration active)              |
| LED 3  | Solid Red    | RF Channel B inactive (SISO mode or disabled)                |
| LED 3  | Off          | Channel B not configured                                     |
| LED 4  | Solid Green  | RF Channel A active (MIMO or SISO mode)                      |
| LED 4  | Solid Red    | RF Channel A inactive  |
| LED 4  | Off          | Channel A not configured                                     |
| STATUS | Solid Green  | Idle mode — powered on but mobile services stopped           |
| STATUS | Toggling Red | RPI5 module active and running — services operational        |
| STATUS | Off          | System powered off or boot fault condition                   |

Common LED patterns and their meaning:

- LED 3 Green + LED 4 Green: 2×2 MIMO mode, both channels active (normal operation)
- LED 3 Red + LED 4 Green: SISO mode, only Channel A active
- LED 3 Red + LED 4 Red: Service started but RF is not transmitting (check config)
- LED 3 Off + LED 4 Off: Mobile service is not running

## 10 Powering Off the System

Always perform a graceful shutdown to prevent data corruption and ensure proper file system integrity:

1. Open a terminal session (local console or SSH)
2. Issue the shutdown command:  

```
sudo poweroff
```
3. Wait for the STATUS LED to change to solid green (indicates system is halted)
4. Only then disconnect the DC power barrel

**⚠ WARNING:** Never disconnect power while the system is running. Abrupt power loss can corrupt the file system, damage the eMMC flash, or lose configuration changes.

## 11 First-Time Setup Troubleshooting

This section covers common issues encountered during initial setup and their resolutions.

### 11.1 Power Issues

**Symptom:** POWER LED does not illuminate

- Verify the power adapter is plugged into a working AC outlet
- Ensure the DC barrel connector is fully seated in the rear panel jack
- Check the regional adapter plug is correctly attached to the power supply
- Try a different power outlet
- Inspect the DC cable for damage
- Contact Lime Microsystems support if the LED remains off with verified power

## 11.2 Display Issues

**Symptom:** No display output on monitor

- Verify the Micro HDMI to HDMI adapter is securely connected on both ends
- Confirm the monitor is powered on and set to the correct HDMI input
- Try the alternate HDMI port (HDMI0 or HDMI1)
- Wait at least 2 minutes for boot to complete before troubleshooting
- Try a different monitor or HDMI cable/adapter

## 11.3 RF Channel Issues

**Symptom:** LEDs 3 and 4 are not green after boot

- Wait at least 90–120 seconds — the system is still booting or the service is initializing
- Check auto-start service status: `sudo systemctl status limenet_rpi.service`
- If service is not running, start manually: `cd ~ && sudo ./5G_mobile_service.sh`
- Check for configuration errors in terminal output
- Verify all antennas are connected

## 11.4 UE Connection Issues

**Symptom:** UE does not show 5G indicator

- Verify the SIM card is properly inserted in the UE device
- Check that the UE supports the operating band (Band 38 for default 5G SA)
- Ensure Airplane Mode is disabled on the UE
- Enable Mobile Data and Data Roaming in UE settings
- Configure APN: Name=internet, APN=internet, Bearer=4G and 5G
- Ensure the UE is within range (up to 50 meters for typical indoor operation)
- Power cycle the UE (toggle Airplane Mode on/off)

## 11.5 Internet Connectivity Issues

**Symptom:** UE is connected to 5G but has no internet access

- Verify the LimeNET Micro itself has internet: `ping -c 4 8.8.8.8`
- Check the Ethernet cable is connected and link LEDs are active
- Test DNS resolution: `ping -c 4 www.google.com`
- View routing table: `ip route show`
- Check firewall rules: `sudo iptables -L -n -v`
- Verify NAT/masquerading is enabled for UE traffic forwarding

## 11.6 Thermal Issues

**Symptom:** System feels very hot or shuts down unexpectedly

- Normal operating temperature: warm to touch (30–50°C external case)
- Ensure ventilation holes are not blocked or covered
- Verify ambient temperature is within 0–40°C
- Monitor CPU temperature: `vcgencmd measure_temp`
- If CPU exceeds 80°C, reduce workload, improve ventilation, or add active cooling
- Do not stack multiple units — maintain clearance between units

## 12 Support and Contact Information

Lime Microsystems provides comprehensive technical support for all LimeNET Micro products.

### Support Channels

| Channel                 | Contact / Details   |
|-------------------------|---|
| Technical Support Email | support@limemicro.com (response: 24–48 hours business days)                 |
| Sales Inquiries         | sales@limemicro.com   |
| Website                 | <a href="https://limemicro.com">https://limemicro.com</a>                   |
| Product Documentation   | <a href="https://wiki.myriadrf.org">https://wiki.myriadrf.org</a>           |
| Community Forum         | <a href="https://discourse.myriadrf.org">https://discourse.myriadrf.org</a> |
| GitHub Repositories     | <a href="https://github.com/myriadrf">https://github.com/myriadrf</a>       |
| Enterprise Support      | Dedicated contracts, on-site training, custom development                   |

When contacting support, please provide product serial number, detailed issue description with steps to reproduce, relevant log files or screenshots, software and firmware versions (uname -a), and any recent configuration changes.

## 13 Appendix A: Quick Reference Guide

Common commands and procedures for quick access.

### 13.1 Frequently Used Commands

#### System Control

| Description         | Command                              |
|---------------------|--------------------------------------|
| Power off system    | sudo poweroff                        |
| Reboot system       | sudo reboot                          |
| Check system status | systemctl status limenet_rpi.service |

#### Network Service Control

| Description            | Command                                    |
|------------------------|--|
| Start 5G service       | cd ~ && sudo ./5G_mobile_service.sh        |
| Start 4G service       | cd ~ && sudo ./4G_mobile_service.sh        |
| Stop automatic service | sudo systemctl stop limenet_rpi.service    |
| Disable auto-start     | sudo systemctl disable limenet_rpi.service |
| Enable auto-start      | sudo systemctl enable limenet_rpi.service  |

#### System Information

| Description        | Command               |
|--------------------|-----------------------|
| Check OS version   | uname -a              |
| Check IP address   | ip addr show          |
| Check temperature  | vcgencmd measure_temp |
| Check disk space   | df -h                 |
| Check memory usage | free -h               |

#### Network Diagnostics

| Description         | Command                  |
|---------------------|--------------------------|
| Test connectivity   | ping -c 4 8.8.8.8        |
| Test DNS            | ping -c 4 www.google.com |
| View routing table  | ip route show            |
| Check Ethernet link | ethtool eth0             |

#### File Editing

| Description             | Command  |
|-------------------------|--|
| Edit configuration file | sudo nano ~/LimeNET/egnb/config/filename.cfg   |
| Edit UE database        | sudo nano ~/LimeNET/core/config/ue_db-ims2.cfg |

#### Graphical Interface

| Description   | Command                              |
|---------------|--------------------------------------|
| Start desktop | sudo systemctl start lightdm.service |
| Stop desktop  | sudo systemctl stop lightdm.service  |

## End of Document

This concludes the LimeNET Micro 2.0 series Quick Start Guide. For additional support, please contact Lime Microsystems.

**Technical Support:** [support@limemicro.com](mailto:support@limemicro.com)

**Sales Inquiries:** [sales@limemicro.com](mailto:sales@limemicro.com)

**Website:** <https://limemicro.com/>

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