



# Verizon 5G Extender TR2 User Guide

Version 3





## 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.

### FCC Caution:

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.

**WARNING.** This is **NOT** a **CONSUMER** device. It is designed for installation by **FCC LICENSEES** and **QUALIFIED INSTALLERS**. You **MUST** have a **FCC LICENSE** or the express consent of an FCC Licensee to operate this device. Unauthorized use may result in significant forfeiture penalties, including penalties in excess of \$100,000 for each continuing violation.



## **RF Exposure Statement**

To comply with FCC RF exposure compliance requirements, the antenna 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.



## Table of Contents

<b>Chapter 1 Introduction</b> .....	<b>1</b>
1.1 Unboxing Information.....	1
1.2 Front Panel .....	2
1.3 Back Panel.....	4
1.4 Bottom Panel .....	5
1.5 Side Panel.....	6
1.6 Mounting Bracket.....	7
<b>Chapter 2 Installing the 5G Extender</b> .....	<b>9</b>
2.1 Preparations for mounting of the 5G Extender .....	9
2.2 Window installation .....	11
2.3 Bracket Removal (Window) .....	15
2.4 Wall Installation.....	16
<b>Chapter 3 Product Specifications</b> .....	<b>19</b>

## Chapter 1 Introduction

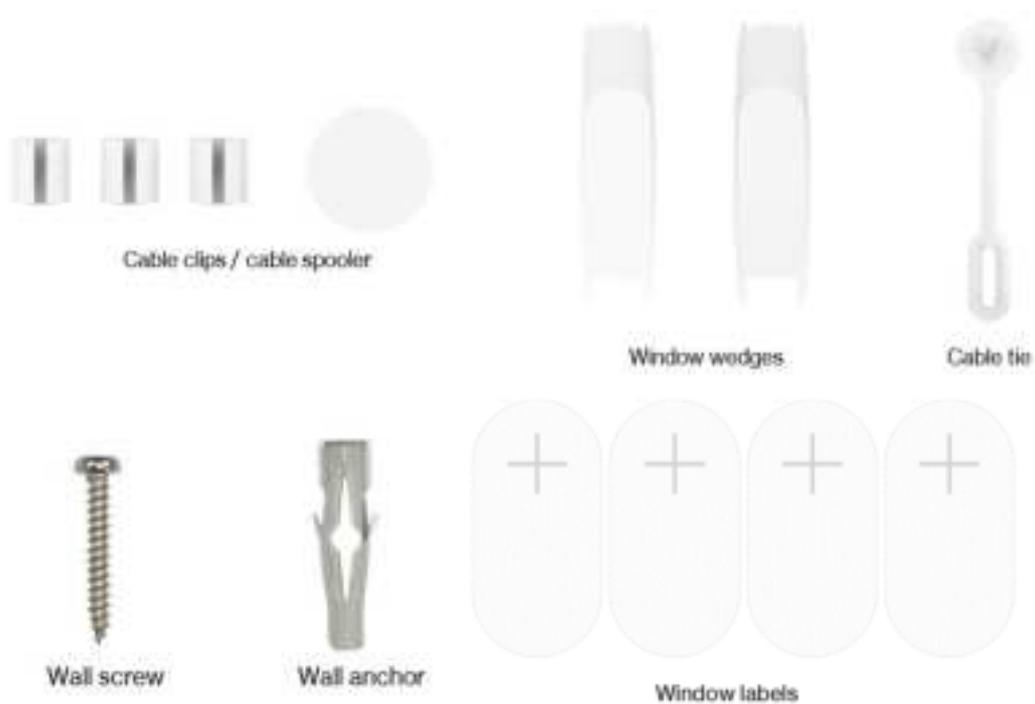
---

This chapter includes a list of items included with the TR2 5G Extender and a description of the user interface and ports on the device.

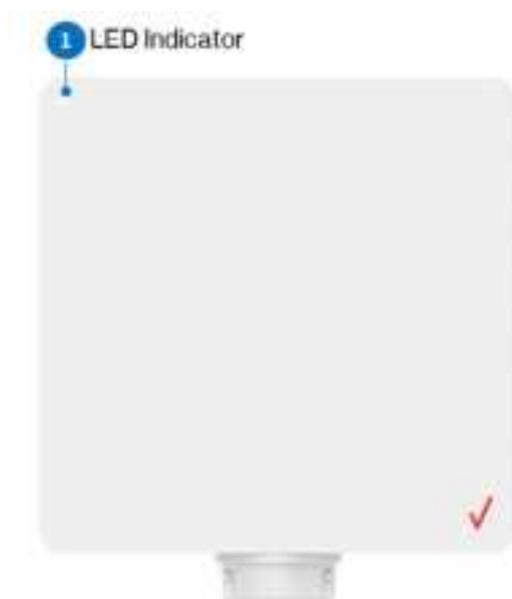
### 1.1 Unboxing Information

Inside the product package for the TR2 5G Extender, you should find the following items:

- Extender × 1
- AC adapter × 1
- Power cord × 1
- Mounting bracket × 1
- Window mounting plate × 1
- Window wipe × 1
- Cable tie × 1
- Cable clips (with adhesive) × 3
- Cable spooler (with adhesive) × 1
- Window wedges (with adhesive) × 2
- Wall screws and anchors (× 2 each)
- Installation location labels (with adhesive)



## 1.2 Front Panel



An LED indicator is located in the top-left corner of the Extender's front panel.

### LED Light Guide

<i><b>Device Status</b></i>	<i><b>Description</b></i>	<i><b>LED Status</b></i>
<b>Booting up</b>	The Extender is powered and in the process of booting up.	Blinking: White
<b>Ready to pair</b>	The Extender is ready to be paired with the App.	Blinking: Blue
<b>Connected to App</b>	The Extender is paired with the App.	Solid: Blue
<b>Ready to scan</b>	The Extender got all the setup information and initialization is complete.	Solid: White
<b>Scanning</b>	The Extender is scanning the signal strength from the 5G nodes.	Soft Blink: White
<b>Paired: Good Signal</b>	The signal strength from the 5G nodes is good.	Solid: Green



<i>Device Status</i>	<i>Description</i>	<i>LED Status</i>
<b>Paired: Poor Signal</b>	The signal strength from the 5G nodes is poor.	Solid: Yellow
<b>Paired: No/bad Signal</b>	There is no signal from the 5G nodes.	Solid: Red
<b>Regular usage</b>	The Extender is working normally.	Off
<b>Error</b>	An error has occurred (ex. pairing/firmware issue)	Blinking: Red
<b>Firmware update /Reset</b>	The Extender is ready to reboot after a firmware update.	Fast Blink: White (Occurs during the 2 seconds prior to reboot/power off)

## 1.3 Back Panel



### 1. Product label and QR code

Scan the QR code on this label with the Installer app to enable the receiver to establish a connection with the Extender.

### 2. Mounting head

The mounting head fits into the installation slot on the mounting bracket.

## 1.4 Bottom Panel



### 1. DC jack

Plug the AC adapter into this jack to power the Extender.

### 2. USB Type-C port

This port is used for diagnostic purposes.

## 1.5 Side Panel



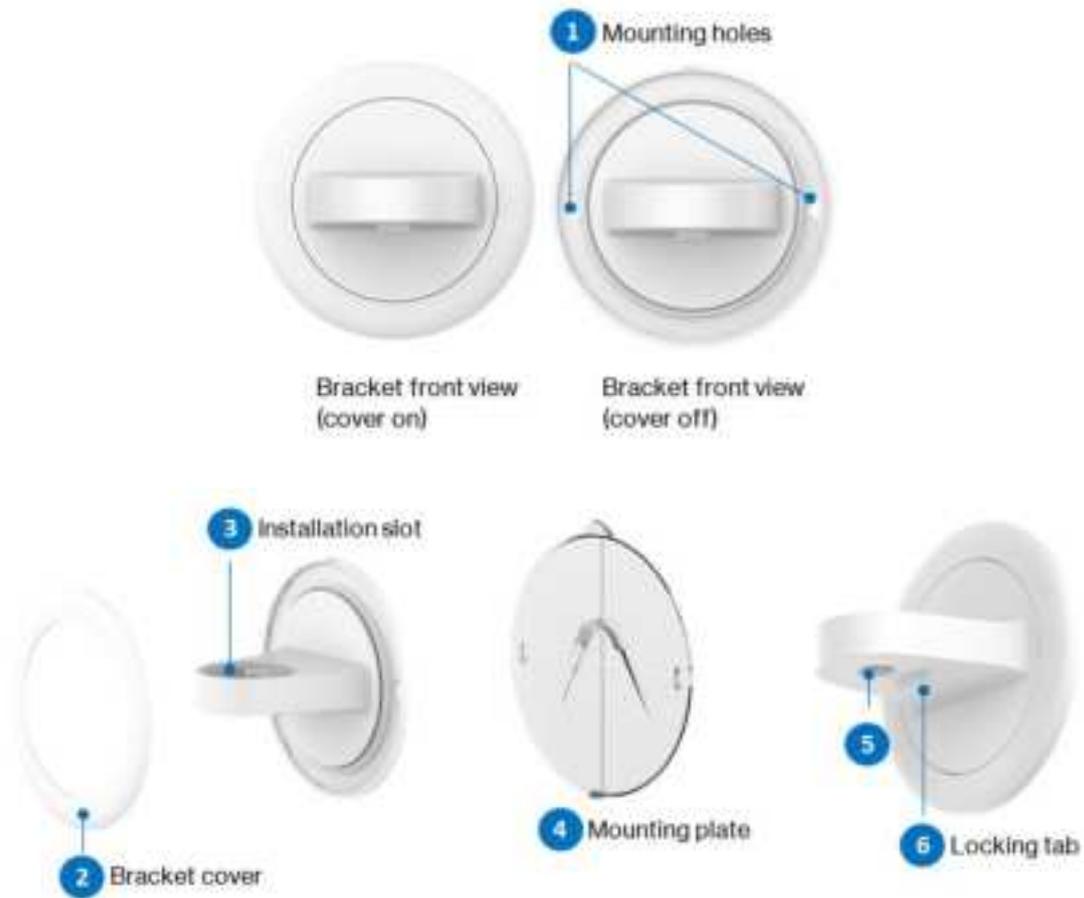
### 1. Scan button

Use this button to scan for 5G signals from 5G nodes located outdoors. You may also press and hold this button for 20 seconds to switch between regular mode and installation mode. In addition, pressing and holding this button for more than 40 seconds triggers the factory reset process.

### 2. Raised nubs

The raised nubs on the mounting head fit into the dimple holes on the inside of the mounting bracket's installation slot.

## 1.6 Mounting Bracket



### 1. Mounting holes

Wall screws are screwed through these mounting holes during wall installation.

### 2. Bracket cover

This cover is attached to the top of the bracket's base. Remove the cover before attaching the mounting bracket to a wall.

### 3. Installation slot

Install the mounting head of the Extender into this slot. Once installed in this slot, the Extender can be rotated to either the left or to the right if the current position is not adequate for use purposes.

4. Mounting plate

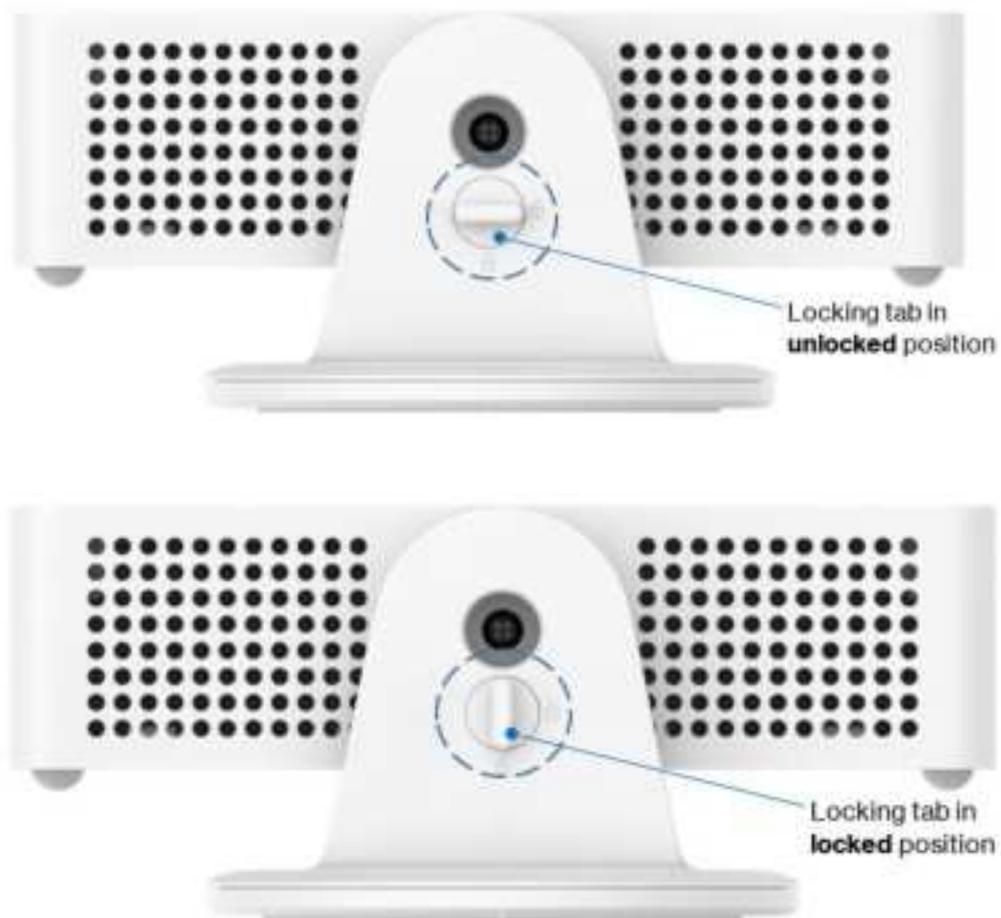
During window installation the mounting plate is attached to the window, providing an attachment point for the Extender.

5. Hole for AC adapter

This hole enables the cable from the AC adapter to connect to the DC jack when the Extender is installed on the mounting bracket.

6. Locking tab

This locking tab is used to secure the Extender after it has been installed on the mounting bracket. The lock has two settings: **locked** and **unlocked** (as indicated by the icons).



## Chapter 2

### Installing the 5G Extender

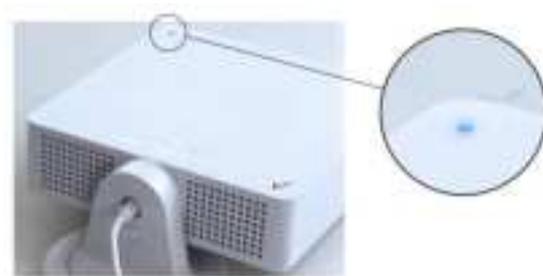
---

#### 2.1 Preparations for mounting of the 5G Extender

Step 1. Attach the bracket to the Extender, and connect the AC adapter to the Extender's DC jack.



Step 2. The LED indicator will start blinking white. Wait 90 seconds; the LED will start flashing blue once boot up is complete.



Step 3. Scan the QR code in the booklet to open the 5G Extender App download webpage. Download the app.

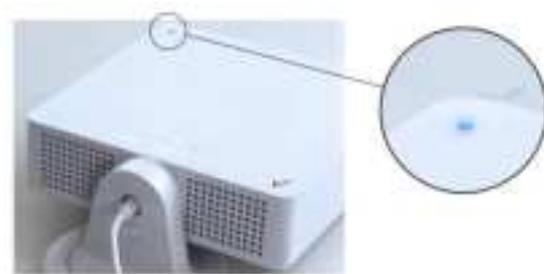




Step 4. Use the 5G Extender App to scan the QR code on the back of the Extender to execute pairing.



Step 5. The LED will turn solid blue after pairing is successful.



Step 6. Use the 5G Extender App to apply the 5G SSB information to the Extender.



Step 7. Hold the Extender above your head and against the window glass.

*Note: Do not install bracket on slanting windows/walls.*





Step 8. Press the scan button to start signal scanning.



Step 9. After 10 seconds, the LED will change to one of the following statuses:

- Good signal: Solid green
- Poor signal: Solid yellow
- No/bad signal: Solid red

Note: *The LED will revert to solid blue after 20 seconds.*

Step 10. If necessary, adjust the position of the Extender and repeat the signal scanning process.



Step 11. Once the LED turns solid green, use the label to mark the installation location.



## 2.2 Window installation

Step 1. Use window wipes to clean the installation location.

*Note: Ensure glass is clean and completely dry.*



Step 2. Remove the mounting plate from the box and read the instructions carefully.



Step 3. Peel off the protective backing from the Gecko adhesive pad on the mounting plate. Affix the mounting plate onto the window in the direction indicated by the arrow on the plate.



Step 4. To eliminate air bubbles use both thumbs to press in all areas where the Gecko adhesive pad contacts the glass. Press for one minute (30 seconds on the upper part and 30 seconds on the lower part).

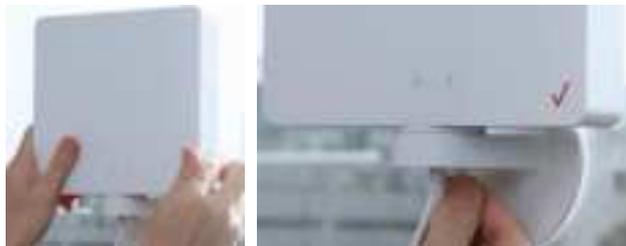




Step 5. Attach the bracket of the 5G Extender to the mounting plate by aligning it over the top of the hook on the mounting plate, then sliding it down until it latches onto the hook.



Step 6. Adjust the angle of your 5G Extender. Once you find the optimal position, turn the locking tab on the 5G Extender to the locked position.



Step 7. Press the scan button to confirm signal.



Step 8. Use the 5G Extender App to change the operation mode to regular.



Step 9. Use cable clips and cable spooler to organize cables.



Step 10. If necessary, install a window wedge to prevent sliding windows from colliding with the installed Extender.



### 2.3 Bracket Removal (Window)

Step 1. Unplug the power cable and turn the locking tab on the bottom of the bracket to the unlocked position.



Step 2. Remove the Extender.



Step 3. Press down on the tab of the mounting plate, then slide the bracket upwards until it detaches from the plate. Peel the mounting plate off the window by pulling downwards on the tab.



Step 4. If necessary, use sticky tape to clean the Gecko adhesive pad on the back of the bracket.



**2.4 Wall Installation**

Step 1. Find a location with a good signal and mark the location.



Step 2. Remove the bracket base cover.



Step 3. Place the bracket on the wall and mark the pilot hole locations.



Step 4. Screw the wall screws into anchors.



Step 5. Put the bracket cover back in place.



Step 6. Install the Extender into the bracket and connect the AC adapter to the Extender's DC jack.



Step 7. Press the scan button to confirm the signal.



Step 8. Use the 5G Extender App to change the operation mode to regular.



Step 9. Turn the locking tab on the bottom of the bracket to the locked position.



## Chapter 3

### Product Specifications

---

#### Hardware Specifications

---

- Support Frequency Bands:  
n261: 27.5–28.35 GHz  
n260: Full band  
LTE: B4 and B13
- Separated TX & RX antenna arrays
- Antenna array
  - 32 elements at 28 GHz/39 GHz donor side
  - 2 antenna panels at relay side, each has 4/4 elements at 28 GHz/39 GHz
- Peak EIRP at P1dB
  - Donor 46 dBm
  - Relay 28 dBm
- Micro-controller and Memory
  - SPI NOR Flash
- BLE 4.2
- GPS L1
- One USB Type-C port
- DC Jack for 12 V/4 A power adapter
- One RGBW LED
- Buzzer × 1
- Operating Temperature: 5°C to 45 °C
- Dimensions: 181.5 mm × 181.5 mm × 49 mm
- Weight: 1.05 kg

#### Product Features and Performance

---

- TDD Synchronization
- MIMO Support
- FOTA
- OMA-DM



## Environmental

---

- Operating Ambient Temperature: 5 °C to 45 °C
- Operation Relative Humidity: 5% to 90% non-condensing
- Storage Temperature: -45°C to 70°C
- Shipping and Storage Relative Humidity: 5% to 85%

## Safety Warnings

---

### Adaptor

Do not use any other power adaptor except for the one that accompanies this unit or a power adaptor identified in the list below.

Use of another adaptor could result in damage to the unit.

The following power adaptor is qualified for use with this Verizon 5G Extender:

The unit must be powered by DELTA ELECTRONICS, model ADP-48GR BA; 12V, 4A, 48W