WILSON ELECTRONICS IoT 3.0 Direct Connect Cell Signal Amplifier Installation Guide

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WILSON ELECTRONICS IoT 3.0 Direct Connect Cell Signal Amplifier

Specifications

- **Product Name:** IoT 3.0 Direct-Connect Cell Signal Amplifier
- **Compatibility:** Cellular network-capable equipment and devices
- **Applications:** Vending machines, ATMs, security panels, cellular hotspots
- **Carrier Compatibility:** Carrier agnostic, pre-approved by all major cell carriers under FCC part 20 rules

Product Usage Instructions

IoT Retail Application Setup

1. **Amplifier Placement:** Select a suitable location away from heat and moisture. Secure with mounting bracket.
2. **Attach External Antenna:** Connect the external antenna to the Signal Amplifier's Outside Antenna connector.
3. **Connect Data Device to POC:** Place the POC unit near the data device. Connect the one-foot cable to the data device and the POC unit.
4. **Connect POC to Amplifier:** Use the 20-foot cable to connect the POC unit to the amplifier.
5. **Power Up the Amplifier:** Plug in the power supply and connect it to the POC Unit.

IoT Security Application Setup

1. **Amplifier Placement:** Choose a suitable location with proper ventilation. Secure with mounting bracket.
2. **Attach External Antenna:** Connect the external antenna to the amplifier's Outside Antenna port. An optional outdoor antenna was available for separate purchase.
3. Connect Data Device to POC

Frequently Asked Questions

Q: Can I use an outdoor antenna with the IoT 3.0 Amplifier?

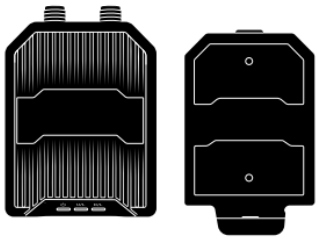
A: Yes, an outdoor antenna like Omni can be installed if desired. The antenna and cable need to be purchased separately.

About the IoT 3.0

Direct-Connect Cell Signal Amplifier

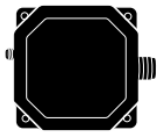
- The WilsonPro IoT 3.0 is a “Direct-Connect” solution for amplifying cellular network capable equipment and devices, including vending machines, ATMs, security panels, and cellular “hotspots”.
- The IoT 3.0 is “carrier agnostic” and pre-approved by all major cell carriers under FCC “part 20” rules. No additional carrier or FCC approvals are required.

Package Contents

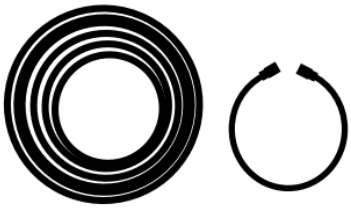


IoT 3.0
Cell Signal Amplifier &
Wall Mount Bracket

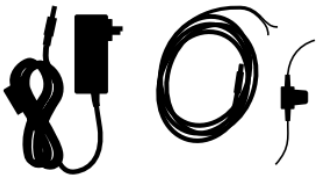
External Hinged
Antenna



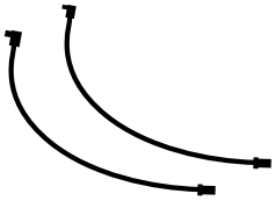
POC
(Power over
Coax) Unit



20’ N to N Cable
& 1’ SMA to SMA
Cable

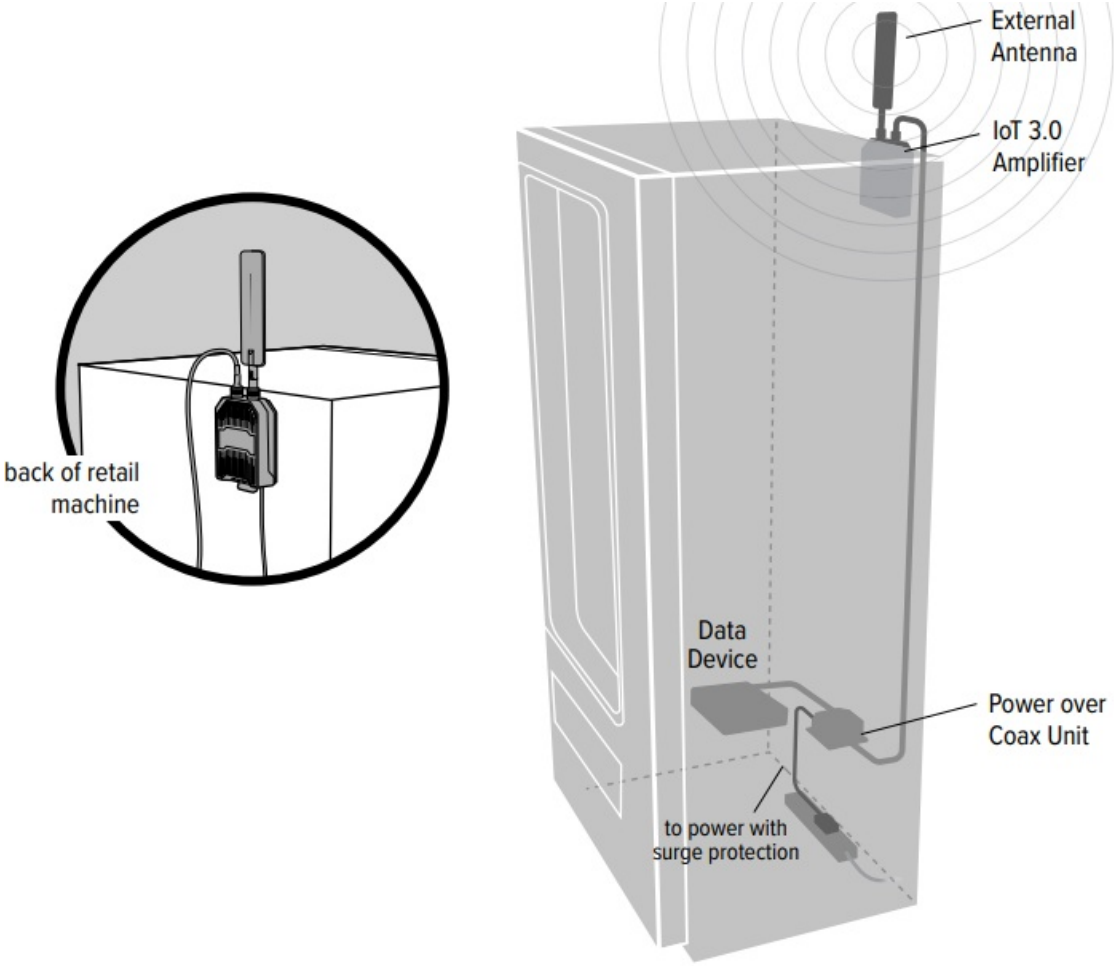


12V AC/DC Power
Supply & 12V DC
Hard-wire Cable



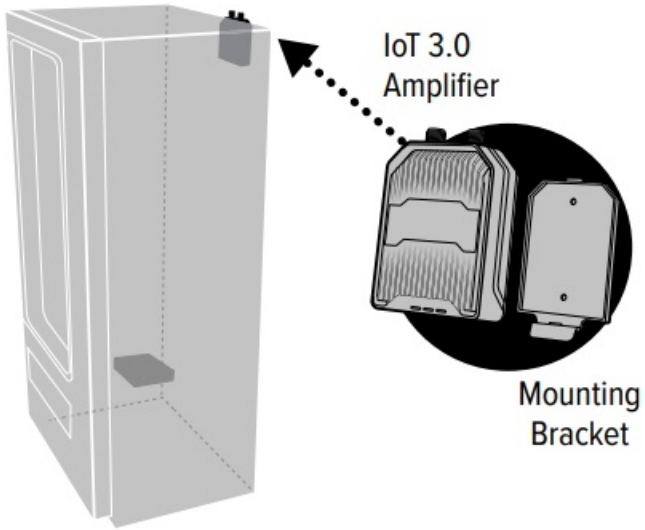
1’ SMA to MMCX
& 1’ SMA to MCX
Adapter Cables

IoT Retail Application Overview

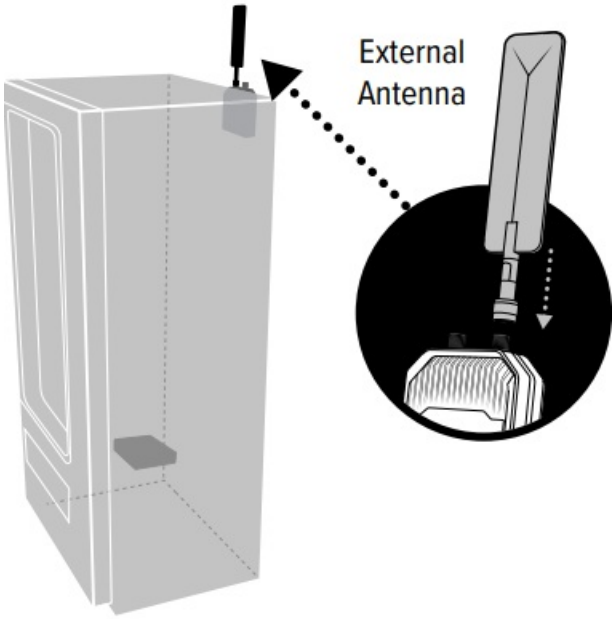


IoT Retail Application Example

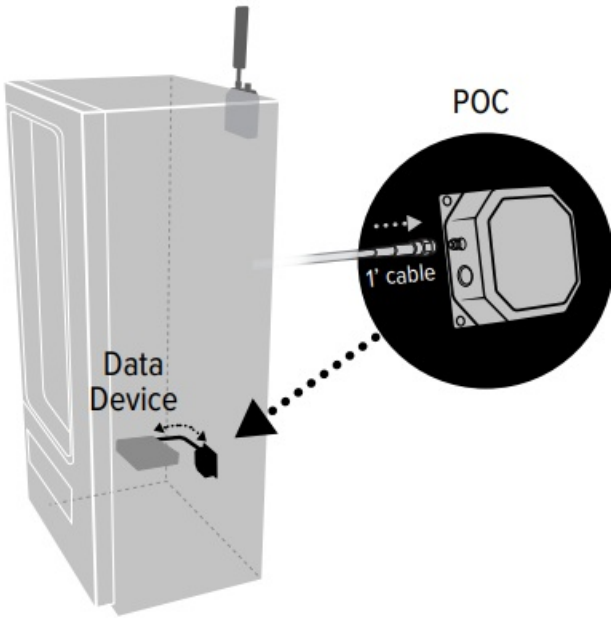
1. **STEP 1 Amplifier Placement**
    - Select a location to install the signal amplifier that is away from excessive heat, direct sunlight, and moisture and that has proper ventilation. Secure amplifier with mounting bracket.



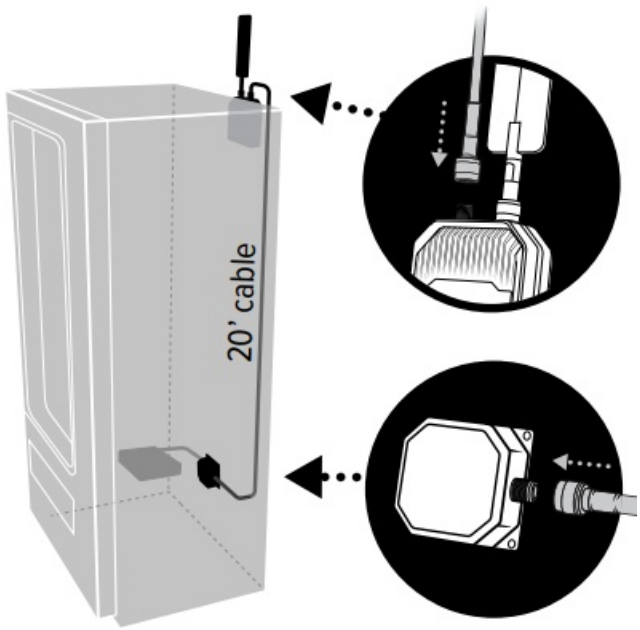
2. **STEP 2 Attach External Antenna**
    - Attach the external antenna to the top of the Signal Amplifier connector labeled Outside Antenna.



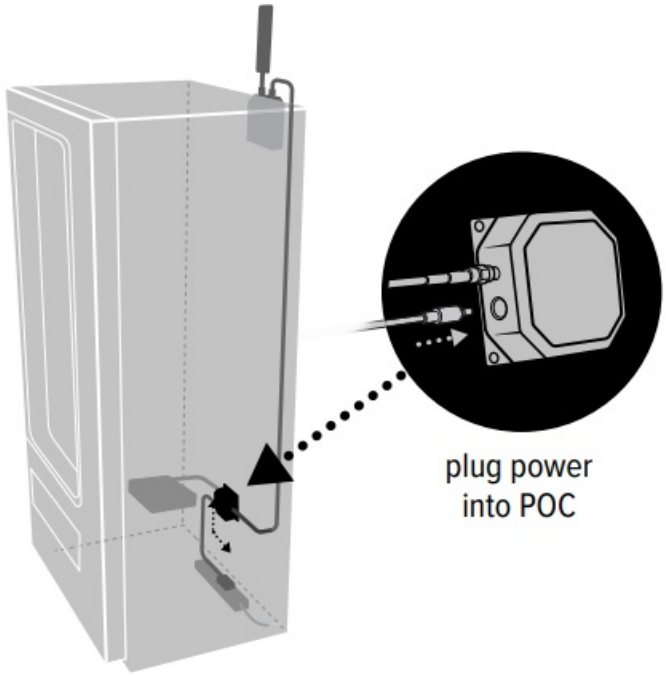
3. **STEP 3 Connect Data Device to POC**
    - Place the POC (Power over Coax) unit near the data device. Connect the included one-foot cable to the data device, then to the connector on the POC, labeled Data Device. Finger-tighten connectors only.



4. **STEP 4 Connect POC to Amplifier**
    - Connect the included 20-foot cable to the N-connector on the POC unit. Connect the other end of the cable to the N-connector labeled Data Device on the end of the amplifier. Finger-tighten connectors only.

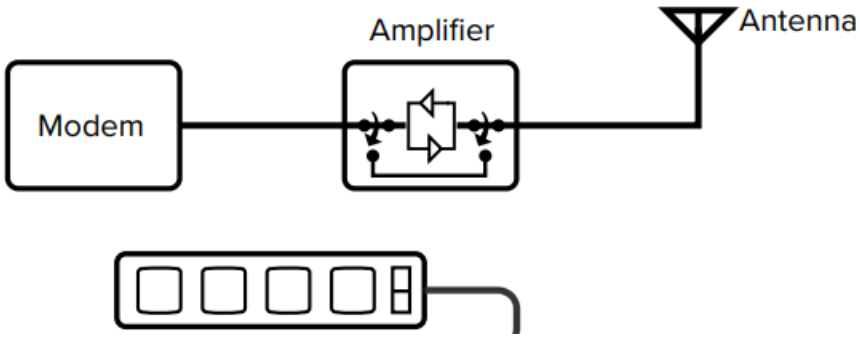


5. **STEP 5 Power Up the Amplifier**
    - Plug the power supply into a power outlet (or connect to a hardwired 12V DC source with the included hardware cable) and then connect the output cable to the power input of the POC Unit.
    - **NOTE:** The power supply output cable can be plugged directly into the end of the amplifier labeled ⎓ instead of the POC device if it is more convenient. Both methods will power the amplifier.

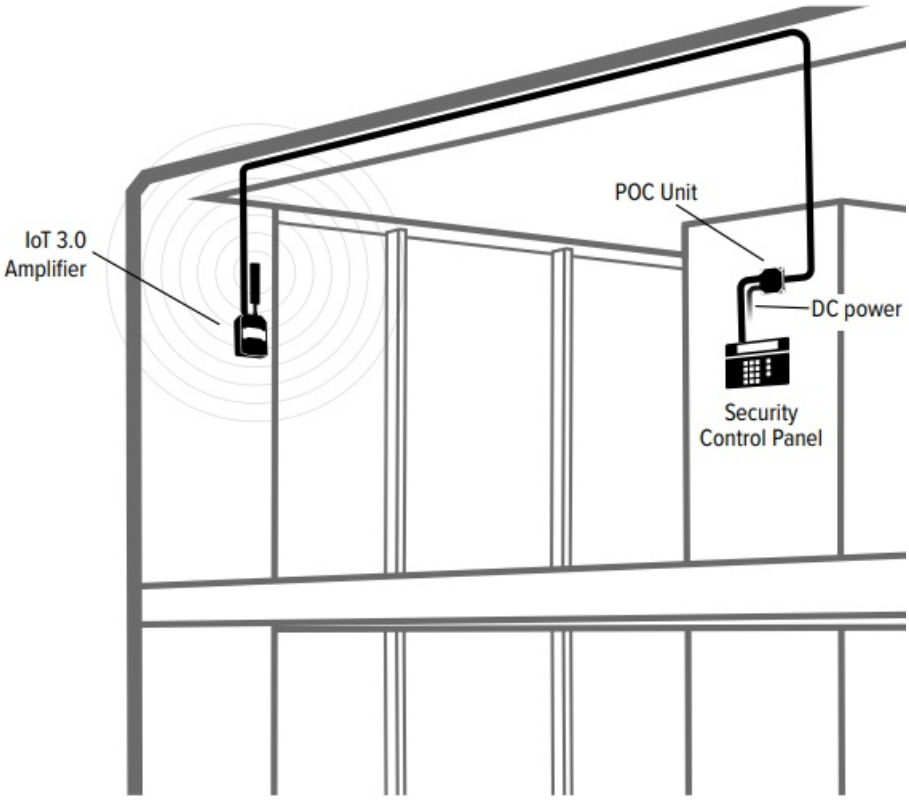


Important

- If the amplifier loses power, internal circuitry will bypass the amplifier switch so that a connection is made directly to the antenna.
- Safeguard your devices. Using a surge protector is always recommended for these applications.

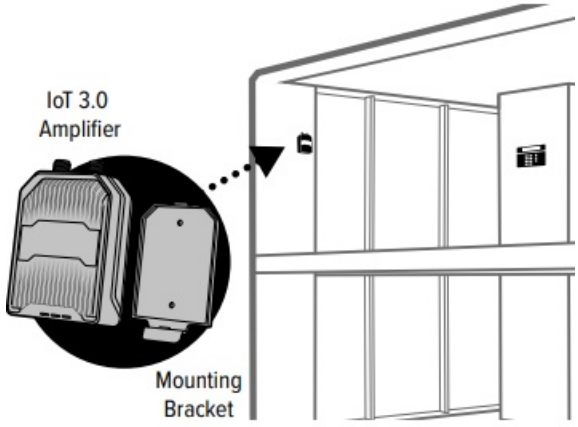


IoT Security Application Overview



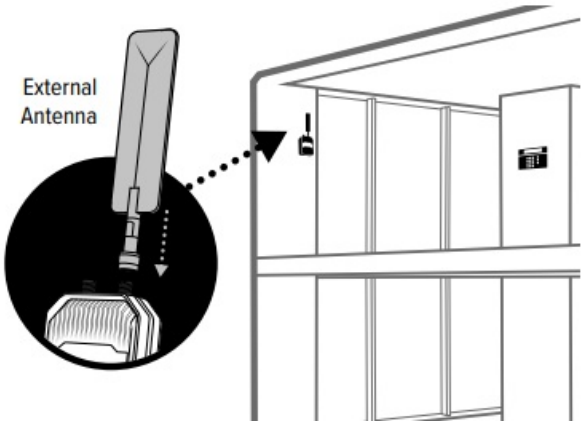
IoT Security Application Example

1. **STEP 1 Amplifier Placement**
    - Select a location to install the signal amplifier that is away from excessive heat, direct sunlight, and moisture and that has proper ventilation. Secure amplifier with mounting bracket.

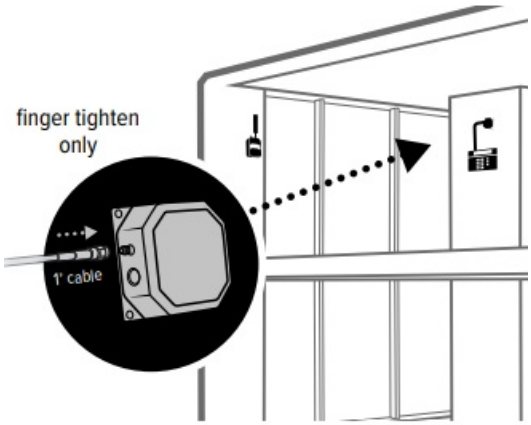


2. **STEP 2 Attach External Antenna**
    - Attach the external antenna to the top of the amplifier labeled Outside Antenna.

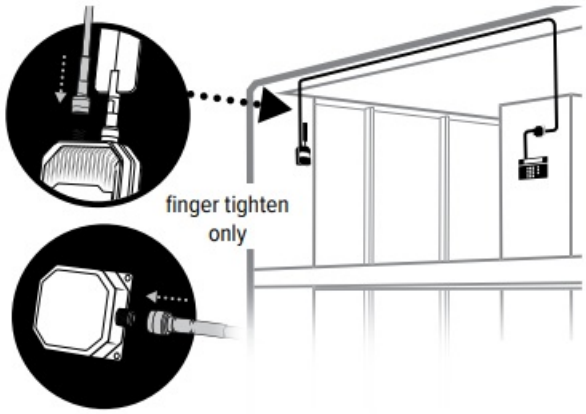
- **NOTE:** An outdoor antenna (e.g., omni) can be installed if desired. The antenna and cable can be purchased separately.



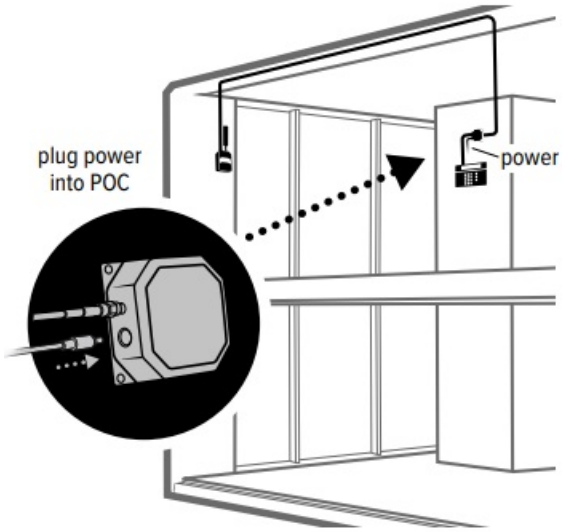
3. **STEP 3 Connect Data Device to POC**
    - Connect the included one-foot cable to the security panel, then to the POC (Power over Coax), labeled Data Device.



4. **STEP 4 Connect POC to Amplifier**
    - Connect the 20-foot cable to the POC unit labeled AMP and then connect the cable to the amplifier labeled Data Device.



5. **STEP 5 Power Up the Amplifier**
    - Plug the Power Supply into a power outlet (or connect to a hardwired 12V DC source with the included hardware cable) and then connect the output cable to the power input of the POC Unit.
    - **NOTE:** the Power Supply output cable can be plugged directly into the end of the amplifier labeled ⎓ instead of the POC device if it is more convenient. Both methods will power the amplifier.



Important

- If the amplifier loses power, internal circuitry will bypass the amplifier switch so that a connection is made directly to the antenna.
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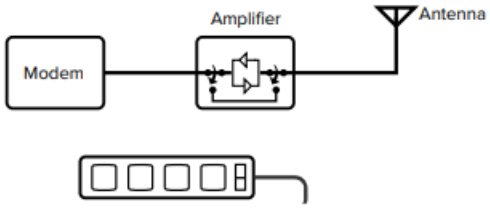

Status Light Patterns

SOLID GREEN D/L

- A Solid Green D/L LED indicates that your amplifier is functioning properly and there are no issues with installation.

BLINKING GREEN U/L

- The U/L LED will rapidly blink (flicker) Green to indicate the amplifier is functioning properly and actively communicating with the cell tower.

SOLID GREEN U/L

- This indicates that U/L traffic has stopped and the amp will be entering a squelch/sleep state in about 90 seconds unless traffic resumes.

UL LED OFF

- After the U/L LED has been Solid Green for about 90 seconds, meaning there has been no communication to the cell tower during that time, the U/L LED will turn Off indicating the amplifier is in a squelch/sleep state.

BLINKING GREEN/RED U/L and D/L

- When the amplifier is initially powered on and it is operating at reduced gain to prevent oscillation (feedback), the U/L and D/L LEDs will be.
- Solid Green for several seconds and then blink Green/Red for about 7 seconds, and then return to normal operation as described above. Refer to the Troubleshooting section.

SOLID RED U/L and D/L

- When a Band has been shut off, the U/L and D/L LEDs will be Solid Red. This is due to a feedback loop condition called oscillation.
- This is a built-in safety feature that causes a band to shut off to prevent harmful interference with a nearby cell tower. Refer to the Troubleshooting section.

Power LED

- The Power LED will be Solid Green when properly powered. It will never turn Red. If the LED is OFF, the amp is not receiving power.

Troubleshooting

FIXING RED LIGHT ISSUES

- This involves Solid Red & Blinking Green/Red lights.
- Make sure all connections are tight. Unplug and re-plug in the power supply.
- Increase the distance (horizontally or vertically) between the external antenna/ amplifier and the data device. Unplug and re-plug in the power supply.

LIGHTS OFF

- Check connections on the power supply to see that it is firmly plugged into both the amplifier and the power source.

Safety Guidelines

- Verify that both the Outside Antenna and the adapter extension cable are connected to the Signal Amplifier before powering up the Signal Amplifier.
- Use only the power supply provided in this package. Use of non-Wilson Electronics products may damage your equipment.
- **RF Safety Warning:** Any antenna used with this device must be located at least 8 inches from all persons.
- **AWS Warning:** The Outside Antenna must be installed no higher than 10 meters (31’9”) above ground.
- This is a CONSUMER device.
- BEFORE USE, you MUST REGISTER THIS DEVICE with your wireless provider and have your provider’s consent. Most wireless providers consent to the use of signal boosters. Some providers may not consent to the use of this device on their network.

- If you are unsure, contact your provider.
- In Canada, BEFORE USE you must meet all requirements set out in ISED CPC-2-1-05.
- You MUST operate this device with approved antennas and cables as specified by the manufacturer. Antennas MUST be installed at least 20 cm (8 inches) from (i.e., MUST NOT be installed within 20 cm of) any person.
- You MUST cease operating this device immediately if requested by the FCC (or ISED in Canada) or licensed wireless service provider.
- **WARNING.** E911 location information may not be provided or may be inaccurate for calls served by using this device.
- This device may be operated ONLY in a fixed location (i.e..may operate in a fixed location only) for in-building use.
- FOR MORE INFORMATION ON REQUIREMENTS SET OUT IN ISED CPC-2-1-05, SEE BELOW: **http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf08942.html**
- FOR MORE INFORMATION ON REGISTERING YOUR SIGNAL BOOSTER WITH YOUR WIRELESS PROVIDER, PLEASE SEE BELOW: **https://www.weboost.com/carrier-registration**

Antenna Info

- The following accessories are certified by the FCC to be used with the IoT 3.0 Direct-Connect Cell Signal Amplifier.
- This radio transmitter 4726A-079 has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible gain indicated.
- Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

	BAND 12/17	BAND 13	BAND 5	BAND 4	BAND 25/2
Outside Antenna maximum permissible antenna gain (dBi) 50Ω	2.0	2.0	2.0	5.0	5.0

Specifications

IoT 3.0 Direct-Connect Cell Signal Amplifier					
Model	460079				
FCC	PWO079				
IC	4726A-079				
Connectors	N-Connectors				
Antenna Impedence	50 Ohms				
Frequency	698-716 MHz, 746-787 MHz, 824-894 MHz, 1850-1995 MHz, 1710-1755/2110-2155 MHz				
Power output (Uplink) dBm	**700 MHz B12/17** 23.1	**700 MHz B13** 23.6	**800 MHz B5** 22.8	**1700 MHz B4** 23.8	**1900 MHz B2** 23.6
Power output (Downlink) dBm	-6.3	-6.8	-5.8	-6.8	-7.0
Noise Figure	5 dB (nominal)				
Isolation	> 40 dB				
Power Requirements	12V, 2.0A				

FCC

The term “IC” before the radio certification number only signifies that Industry Canada’s technical specifications

were met. Each Signal Amplifier is individually tested and factory set to ensure FCC compliance. The Amplifier cannot be adjusted without factory reprogramming or disabling the hardware. The Signal Amplifier will amplify, but not alter incoming and outgoing signals to increase coverage of authorized frequency bands only. If the Signal Amplifier is not in use for five minutes, it will reduce gain until a signal is detected. If a detected signal is too high in a frequency band, or if the Signal Amplifier detects an oscillation, the Signal Amplifier will automatically turn the power off on that band. For a detected oscillation the Signal Amplifier will automatically resume normal operation after a minimum of 1 minute. After 5 (five) such automatic restarts, any problematic bands are permanently shut off until the Signal Amplifier has been manually restarted by momentarily removing power from the Signal Amplifier. Noise power, gain, and linearity are maintained by the Signal Amplifier's microprocessor. This device complies with Part 15 of FCC rules. Operation is subject to two conditions:

1. This device may not cause harmful interference
2. this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by Wilson Electronics LLC could void the authority to operate this equipment.
This device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science, and Economic Development Canada's license-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference,
2. This device must accept any interference, including interference that may cause undesired operation of the device. Changes or modifications not expressly approved by Wilson Electronics LLC could void the authority to operate this equipment.

30 DAY MONEY-BACK GUARANTEE

All WilsonPro products are protected by WilsonPro's 30-day money-back guarantee. If for any reason the performance of any product is not acceptable, simply return the product directly to the reseller with a dated proof of purchase.

WARRANTY

3 YEAR WARRANTY

- WilsonPro Amplifiers are warranted for three (3) years against defects in workmanship and/or materials. Warranty cases may be resolved by returning the product directly to the reseller with a dated proof of purchase.
- Signal Amplifiers may also be returned directly to the manufacturer at the consumer's expense, with a dated proof of purchase and a Returned Material Authorization (RMA) number supplied by WilsonPro.
- WilsonPro shall, at its option, either repair or replace the product.
- This warranty does not apply to any Signal Amplifiers determined by WilsonPro to have been subjected to misuse, abuse, neglect, or mishandling that alters or damages physical or electronic properties.
- Replacement products may include refurbished WilsonPro products that have been recertified to conform with product specifications.
- RMA numbers may be obtained by contacting Customer Support.
- **DISCLAIMER:** The information provided by Wilson Electronics, LLC is believed to be complete and accurate.
- However, no responsibility is assumed by Wilson Electronics, LLC for any business or personal losses arising from its use, or for any infringements of patents or other rights of third parties that may result from its use.
- **MARKETING APPROVAL:** The installer and end customer hereby grant to Wilson Electronics the express right

to use installer or end customer company logo in marketing, sales, financial, and public relations materials and other communications solely to identify the Customer as a Wilson Electronics customer.

Customer Service

- **18662941660**
- **www.wilsonelectronics.com**
- **support@wilsonelectronics.com**
- **3301 East Deseret Drive, St. George, UT**
- **Copyright © 2024 Wilson Electronics. All rights reserved. Wilson Electronics products are covered by U.S. patent(s) and pending application(s)**
- **For patents go to: weboost.com/us/patents**
- **NOT AFFILIATED WITH WILSON ANTENNA**
- **GDE000599_Rev02_08.28.24**

Documents / Resources

	WILSON ELECTRONICS IoT 3.0 Direct Connect Cell Signal Amplifier [pdf] Installation Guide IoT 3.0 Direct Connect Cell Signal Amplifier, Direct Connect Cell Signal Amplifier, Connect Cell Signal Amplifier, Signal Amplifier, Amplifier

References

- Cell Phone Signal Boosters | Wilson Electronics
- User Manual