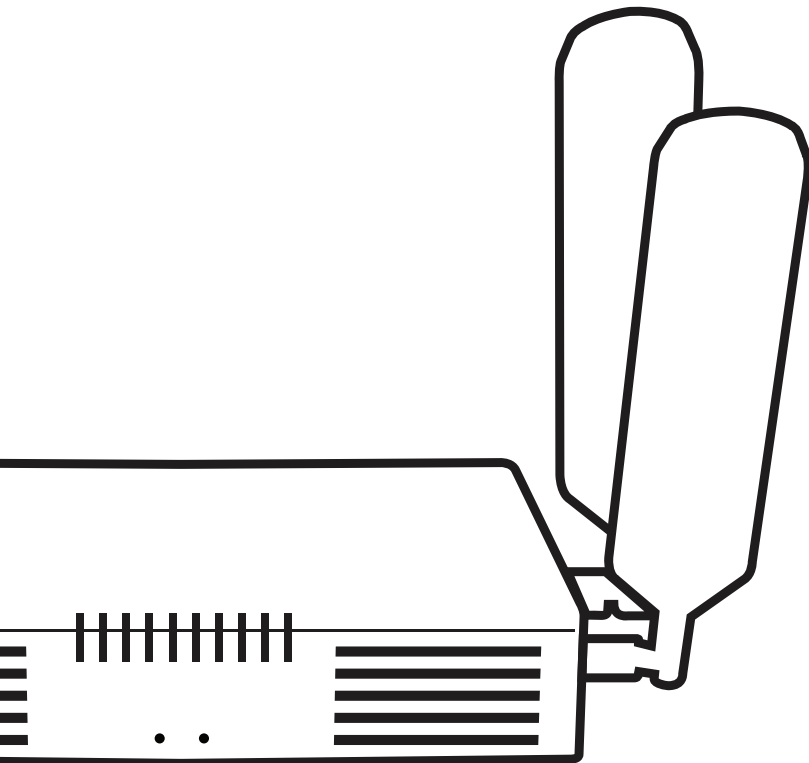


# AER Series Router

**AER1600 / AER1650**

Spec Sheet



[cradlepoint.com](http://cradlepoint.com)

## WHAT'S IN THE BOX

The Cradlepoint AER1600/AER1650 is available with three different modem options:

- AER1600LPE/AER1650LPE include an embedded modem and a slot to add an MC400 modem
- AER1600LP3/AER1650LP3 include a bundled MC400 modem and do not include an embedded modem
- AER1600/AER1650 only include a slot for an MC400 modem and do not include an embedded modem

### Also included:

- MC400 3G/4G Modem with Antennas\*
- External 3G/4G mobile broadband modem antennas† (2) (SMA) w/ multiplexing for GPS; finger tighten only
- 12V 3A AC/DC power adapter (**WARNING:** using a power adapter other than the one provided may damage the device and will void the warranty)
- Ethernet cable
- Quick Start Guide
- Mounting hardware
- Modem door screw
- Warranty/Regulatory information

\* - Included with AER1600LP3/AER1650LP3, optional for AER1600/AER1650 and AER1600LPE/AER1650LPE

† - AER1600LPE/AER1650LPE only

## KEY FEATURES

### WAN

- Embedded 4G LTE (with 3G failover) Multi-Carrier Software-Defined radio
- Verizon, AT&T, Sprint, Europe, and generic models available
- Dual integrated modem option
- Dual SIM slot in each modem
- Most models include support for active GPS
- Five 10/100/1000 Ethernet ports (WAN/LAN switchable)
- WiFi as WAN (only on AER1600)
- Failover/Failback
- Load Balancing
- Advance Modem Failure Check
- WAN Port Speed Control
- WAN/LAN Affinity
- IP Passthrough

### LAN

- Five 10/100/1000 Ethernet ports (WAN/LAN switchable)
- LLDP support
- VLAN 802.1Q
- DHCP Server, Client, Relay
- DNS and DNS Proxy
- DynDNS
- Split DNS
- UPnP

- DMZ
- Multicast/Multicast Proxy
- QoS (DSCP and Priority Queuing)
- MAC Address Filtering

### WIFI (ONLY ON AER1600)

- Dual-Band Dual-Concurrent (2x2 MIMO; internal antennas)
- 802.11 (a/b/g/n/ac)
- Up to 128 connected devices (64 per channel – 2.4 GHz and 5 GHz)
- WEP Auto, WPA/WPA2 Personal, WPA2 Enterprise (WiFi)
- Hotspot/Captive Portal
- SSID-based Priority

### MANAGEMENT

- OOBM (Out-of-Band Management) via USB to Serial
- Cradlepoint Enterprise Cloud Manager (ECM)<sup>2</sup>
- Web UI, API, CLI
- GPS Location
- Data Usage Alerts (router and per client)
- Advanced Troubleshooting (support)<sup>5</sup>
- Device Alerts
- SNMP
- SMS control

### VPN AND ROUTING

- IPsec Tunnel – up to 20 concurrent sessions
- OpenVPN (SSL VPN)<sup>1</sup>
- L2TP<sup>1</sup>
- GRE Tunnel
- OSPF/BGP/RIP<sup>1</sup>
- Per-Interface Routing
- Static Routing
- NAT-less Routing
- Virtual Server/Port Forwarding
- VTI Tunnel Support
- NEMO/DMNR<sup>1</sup>
- IPv6
- VRRP<sup>1</sup>
- STP<sup>1</sup>
- NHRP<sup>1</sup>

### SECURITY

- RADIUS and TACACS+
- 802.1x authentication for Wireless and Wired Networks
- Zscaler Internet Security<sup>4</sup>
- Certificate support
- ALGs
- MAC Address Filtering

- CP Secure Threat Management<sup>3</sup>
- Advanced Security Mode (local user management only)
- Per-Client Web Filtering
- IP Filtering
- Content Filtering (basic)
- Website Filtering
- Real-time clock with battery backup for CA certificate validation

## CLOUD OPTIMIZED IP COMMUNICATIONS

- Automated WAN Failover/Failback support
- WAN Affinity and QoS allow prioritization of VoIP services
- Advanced VPN connectivity options to HQ
- SIP ALG and NAT to allow VoIP and UC communications to traverse firewall
- MAC Address Filtering
- 802.1p/q for LAN QoS segmentation and treatment of VoIP on LAN
- Private Network support (wired and 4G WAN)
- Cloud-based management<sup>2</sup>

1 – Requires an [ECM PRIME](#) subscription or an [Extended Enterprise License](#)

2 – [Enterprise Cloud Manager](#) requires a subscription

3 – Requires a [CP Secure Threat Management](#) license

4 – Requires [Zscaler](#) Internet Security License

5 - Requires [CradleCare](#) Support

## SYSTEM REQUIREMENTS

- At least one Internet source: a Cradlepoint integrated 3G/4G modem with an active data plan, an Ethernet-based modem, or WiFi as WAN
- Windows 2000/XP/7/8, Mac OS X, or Linux computer (with WiFi adapter – 802.11n recommended – for WiFi functionality)
- Internet Explorer v6.0 or higher, Firefox v2.0 or higher, Safari v1.0 or higher

## SUPPORT AND WARRANTY

CradleCare Support available with technical support, software upgrades, and advanced hardware exchange – 1-, 3-, and 5-year options.

One-year limited hardware warranty available in the US and Canada; two-year limited hardware warranty for integrated EU products when purchased from an authorized EU distributor – extend warranty to 2, 3, or 5 years.

## SPECIFICATIONS

### WAN:

- Embedded 4G LTE (one modem included; dual-modem option) Multi-Carrier Software-Defined radio
- 5 10/100/1000 Ethernet ports (cable/DSL/T1/satellite/Metro Ethernet; WAN/LAN switchable)
- WiFi\* (as WAN; Metro WiFi) 2x2 MIMO 2.4 GHz or 5 GHz (802.11 a/b/g/n/ac; internal antennas)

### LAN:

- Dual-band dual-concurrent WiFi\* (802.11 a/b/g/n/ac)
- 5 10/100/1000 Ethernet ports (WAN/LAN switchable)

### TEMPERATURE:

- 0°C to 50°C (32°F to 122°F) operating
- -20°C to 70°C (-4°F to 158°F) storage

### HUMIDITY (non-condensing):

- 10% to 85% operating
- 5% to 90% storage

**MEMORY:** 256 MB DRAM; 16MB SPI Flash; 256 MB NAND Flash

### SIZE:

- 8.3 x 6.6 x 1.7 in (210 x 167 x 44 mm)
- 1U height for rack mount

**WEIGHT:** 1 lb 4.4 oz (.58 kg)

**CERTIFICATIONS:** FCC, WiFi Alliance, CE, IC, carrier certifications

**WAN TO LAN:** 940 Mbps

### WIFI POWER (FCC):

- 2402-2483.5 MHz (2.4 GHz band): 28.51 dBm conducted
- 5150-5250 MHz (5 GHz band 1): 26.66 dBm conducted
- 5725-5850 MHz (5 GHz band 3): 23.54 dBm conducted

### WIFI POWER (Europe/Rest of World):

- 2.4 GHz band: 19.95 dBm EIRP
- 5150-5250 MHz: 22.98 dBm EIRP

\*-only on AER1600

## ACCESSORIES

- Second integrated 4G LTE modem
  - MC400LPE-VZ (Verizon)
  - MC400LPE-AT (AT&T)
  - MC400LPE-SP (Sprint)
  - MC400LPE-GN (generic – for use on T-Mobile in the U.S. and Rogers, Bell, & TELUS in Canada)
- Directional Yagi (Log-Periodic) antennas for external (outside) mounting (Part # 170588-000)
- 12" Mag-mount antenna (Part # 170605-000)
- 4" Mini mag-mount antenna (Part # 170606-000)

## BUSINESS-GRADE MODEM SPECIFICATIONS

Some AER1600/AER1650 models include an embedded 4G LTE modem. See page 2 for specific models.

Please note that LPE models are flexible and support bands for multiple cellular providers; however, only the frequency bands in **bold** below are supported by the listed provider.

### AER1600LPE-VZ – 4G LTE/HSPA+/EVDO for Verizon

- **Technology:** LTE, HSPA+, EVDO Rev A
- **Downlink Rates:** LTE 100 Mbps, HSPA+ 21.1 Mbps, EVDO 3.1 Mbps (theoretical)
- **Uplink Rates:** LTE 50 Mbps, HSPA+ 5.76 Mbps, EVDO 1.8 Mbps (theoretical)
- **Frequency Bands:**
  - LTE Band 2 (1900 MHz), **Band 4 – AWS (1700/2100 MHz)**, Band 5 (850 MHz), **Band 13 (700 MHz)**, Band 17 (700 MHz), Band 25 (1900 MHz)
  - HSPA+/UMTS (850/900/1900/2100 MHz, AWS)
  - GSM/GPRS/EDGE (850/900/1800/1900 MHz)
  - **CDMA EVDO Rev A/1xRTT (800/1900 MHz)**
- **Power:** LTE 23 dBm +/- 1, HSPA+ 23 dBm +/- 1, EVDO 24 dBm +0.5/-1 (typical conducted)
- **Antennas:** two SMA male (plug), 1 dBi (LTE), 2 dBi (Cellular/PCS) gain; finger tighten only (maximum torque spec is 7 kgf-cm)
- **GPS:** active GPS support
- **Industry Standards & Certs:** FCC, Verizon

### AER1650LPE-VZ – 4G LTE/HSPA+/EVDO for Verizon

- **Technology:** LTE, HSPA+, EVDO Rev A
- **Downlink Rates:** LTE 100 Mbps, HSPA+ 21.1 Mbps, EVDO 3.1 Mbps (theoretical)
- **Uplink Rates:** LTE 50 Mbps, HSPA+ 5.76 Mbps, EVDO 1.8 Mbps (theoretical)
- **Frequency Bands:**
  - LTE Band 2 (1900 MHz), **Band 4 – AWS (1700/2100 MHz)**, Band 5 (850 MHz), **Band 13 (700 MHz)**, Band 17 (700 MHz), Band 25 (1900 MHz)
  - HSPA+/UMTS (850/900/1900/2100 MHz, AWS)
  - GSM/GPRS/EDGE (850/900/1800/1900 MHz)
  - **CDMA EVDO Rev A/1xRTT (800/1900 MHz)**
- **Power:** LTE 23 dBm +/- 1, HSPA+ 23 dBm +/- 1, EVDO 24 dBm +0.5/-1 (typical conducted)
- **Antennas:** two SMA male (plug), 1 dBi (LTE), 2 dBi (Cellular/PCS) gain; finger tighten only (maximum torque spec is 7 kgf-cm)
- **GPS:** active GPS support
- **Industry Standards & Certs:** FCC, Verizon

### AER1600LPE-AT – 4G LTE/HSPA+/EVDO for AT&T

- **Technology:** LTE, HSPA+, EVDO Rev A
- **Downlink Rates:** LTE 100 Mbps, HSPA+ 21.1 Mbps, EVDO 3.1 Mbps (theoretical)
- **Uplink Rates:** LTE 50 Mbps, HSPA+ 5.76 Mbps, EVDO 1.8 Mbps (theoretical)
- **Frequency Bands:**
  - LTE **Band 2 (1900 MHz)**, **Band 4 – AWS (1700/2100 MHz)**, **Band 5 (850 MHz)**, Band 13 (700 MHz), **Band 17 (700 MHz)**, Band 25 (1900 MHz)
  - **HSPA+/UMTS (850/900/1900/2100 MHz, AWS)**
  - **GSM/GPRS/EDGE (850/900/1800/1900 MHz)**

- CDMA EVDO Rev A/1xRTT (800/1900 MHz)
- **Power:** LTE 23 dBm +/- 1, HSPA+ 23 dBm +/- 1, EVDO 24 dBm +0.5/-1 (typical conducted)
- **Antennas:** two SMA male (plug), 1 dBi (LTE), 2 dBi (Cellular/PCS) gain; finger tighten only (maximum torque spec is 7 kgf-cm)
- **GPS:** active GPS support
- **Industry Standards & Certs:** PTCRB, FCC, IC, AT&T

#### AER1650LPE-AT – 4G LTE/HSPA+/EVDO for AT&T

- **Technology:** LTE, HSPA+, EVDO Rev A
- **Downlink Rates:** LTE 100 Mbps, HSPA+ 21.1 Mbps, EVDO 3.1 Mbps (theoretical)
- **Uplink Rates:** LTE 50 Mbps, HSPA+ 5.76 Mbps, EVDO 1.8 Mbps (theoretical)
- **Frequency Bands:**
  - LTE **Band 2 (1900 MHz), Band 4 – AWS (1700/2100 MHz), Band 5 (850 MHz), Band 13 (700 MHz), Band 17 (700 MHz), Band 25 (1900 MHz)**
  - **HSPA+/UMTS (850/900/1900/2100 MHz, AWS)**
  - **GSM/GPRS/EDGE (850/900/1800/1900 MHz)**
  - CDMA EVDO Rev A/1xRTT (800/1900 MHz)
- **Power:** LTE 23 dBm +/- 1, HSPA+ 23 dBm +/- 1, EVDO 24 dBm +0.5/-1 (typical conducted)
- **Antennas:** two SMA male (plug), 1 dBi (LTE), 2 dBi (Cellular/PCS) gain; finger tighten only (maximum torque spec is 7 kgf-cm)
- **GPS:** active GPS support
- **Industry Standards & Certs:** PTCRB, FCC, IC, AT&T

#### AER1600LPE-SP – 4G LTE/HSPA+/EVDO for Sprint

- **Technology:** LTE, HSPA+, EVDO Rev A
- **Downlink Rates:** LTE 100 Mbps, HSPA+ 21.1 Mbps, EVDO 3.1 Mbps (theoretical)
- **Uplink Rates:** LTE 50 Mbps, HSPA+ 5.76 Mbps, EVDO 1.8 Mbps (theoretical)
- **Frequency Bands:**
  - LTE Band 2 (1900 MHz), Band 4 – AWS (1700/2100 MHz), Band 5 (850 MHz), Band 13 (700 MHz), Band 17 (700 MHz), **Band 25 (1900 MHz)**
  - HSPA+/UMTS (850/900/1900/2100 MHz, AWS)
  - GSM/GPRS/EDGE (850/900/1800/1900 MHz)
  - **CDMA EVDO Rev A/1xRTT (800/1900 MHz)**
- **Power:** LTE 23 dBm +/- 1, HSPA+ 23 dBm +/- 1, EVDO 24 dBm +0.5/-1 (typical conducted)
- **Antennas:** two SMA male (plug), 1 dBi (LTE), 2 dBi (Cellular/PCS) gain; finger tighten only (maximum torque spec is 7 kgf-cm)
- **GPS:** active GPS support
- **Industry Standards & Certs:** FCC, Sprint

#### AER1650LPE-SP – 4G LTE/HSPA+/EVDO for Sprint

- **Technology:** LTE, HSPA+, EVDO Rev A
- **Downlink Rates:** LTE 100 Mbps, HSPA+ 21.1 Mbps, EVDO 3.1 Mbps (theoretical)
- **Uplink Rates:** LTE 50 Mbps, HSPA+ 5.76 Mbps, EVDO 1.8 Mbps (theoretical)
- **Frequency Bands:**
  - LTE Band 2 (1900 MHz), Band 4 – AWS (1700/2100 MHz), Band 5 (850 MHz), Band 13 (700 MHz), Band 17 (700 MHz), **Band 25 (1900 MHz)**

- HSPA+/UMTS (850/900/1900/2100 MHz, AWS)
- GSM/GPRS/EDGE (850/900/1800/1900 MHz)
- **CDMA EVDO Rev A/1xRTT (800/1900 MHz)**
- **Power:** LTE 23 dBm +/- 1, HSPA+ 23 dBm +/- 1, EVDO 24 dBm +0.5/-1 (typical conducted)
- **Antennas:** two SMA male (plug), 1 dBi (LTE), 2 dBi (Cellular/PCS) gain; finger tighten only (maximum torque spec is 7 kgf-cm)
- **GPS:** active GPS support
- **Industry Standards & Certs:** FCC, Sprint

#### AER1600LP3-EU – 4G LTE/HSPA+ for Europe

- **Technology:** LTE, HSPA+
- **Downlink Rates:** LTE 100 Mbps, HSPA+ 21.1 Mbps (theoretical)
- **Uplink Rates:** LTE 50 Mbps, HSPA+ 5.76 Mbps (theoretical)
- **Frequency Bands:**
  - **LTE Band 1 (2100 MHz), Band 3 (1800 MHz), Band 7 (2600 MHz), Band 8 (900 MHz), Band 20 (800 MHz)**
  - **HSPA+/UMTS (800/850/900/1900/2100 MHz)**
  - **GSM/GPRS/EDGE Quad-Band (850/900/1800/1900 MHz)**
- **Power:** LTE Band 1/3/8/20 – 23 dBm +/- 1; LTE Band 7 – 22 dBm +/- 1, HSPA+ 23 dBm +/- 1 (typical conducted)
- **Antennas:** two SMA male (plug), 1 dBi (LTE), 2 dBi (Cellular/PCS) gain; finger tighten only
- **GPS:** active GPS support
- **Industry Standards & Certs:** CE, GCF-CC
- **Modem Part Number:** MC400LP3

#### AER1650LP3-EU – 4G LTE/HSPA+ for Europe

- **Technology:** LTE, HSPA+
- **Downlink Rates:** LTE 100 Mbps, HSPA+ 21.1 Mbps (theoretical)
- **Uplink Rates:** LTE 50 Mbps, HSPA+ 5.76 Mbps (theoretical)
- **Frequency Bands:**
  - **LTE Band 1 (2100 MHz), Band 3 (1800 MHz), Band 7 (2600 MHz), Band 8 (900 MHz), Band 20 (800 MHz)**
  - **HSPA+/UMTS (800/850/900/1900/2100 MHz)**
  - **GSM/GPRS/EDGE Quad-Band (850/900/1800/1900 MHz)**
- **Power:** LTE Band 1/3/8/20 – 23 dBm +/- 1; LTE Band 7 – 22 dBm +/- 1, HSPA+ 23 dBm +/- 1 (typical conducted)
- **Antennas:** two SMA male (plug), 1 dBi (LTE), 2 dBi (Cellular/PCS) gain; finger tighten only
- **GPS:** active GPS support
- **Industry Standards & Certs:** CE, GCF-CC
- **Modem Part Number:** MC400LP3

#### AER1600LPE-GN – 4G LTE/HSPA+/EVDO (generic – for use on T-Mobile in the U.S. and Rogers, Bell, & TELUS in Canada)

- **Technology:** LTE, HSPA+, EVDO Rev A
- **Downlink Rates:** LTE 100 Mbps, HSPA+ 21.1 Mbps, EVDO 3.1 Mbps (theoretical)
- **Uplink Rates:** LTE 50 Mbps, HSPA+ 5.76 Mbps, EVDO 1.8 Mbps (theoretical)
- **Frequency Bands:**
  - **LTE Band 2 (1900 MHz), Band 4 (AWS), Band 5 (850 MHz), Band 13 (700 MHz), Band 17 (700 MHz), Band 25 (1900 MHz)**
  - **HSPA+/UMTS (850/900/1900/2100 MHz, AWS)**
  - **GSM/GPRS/EDGE (850/900/1800/1900 MHz)**

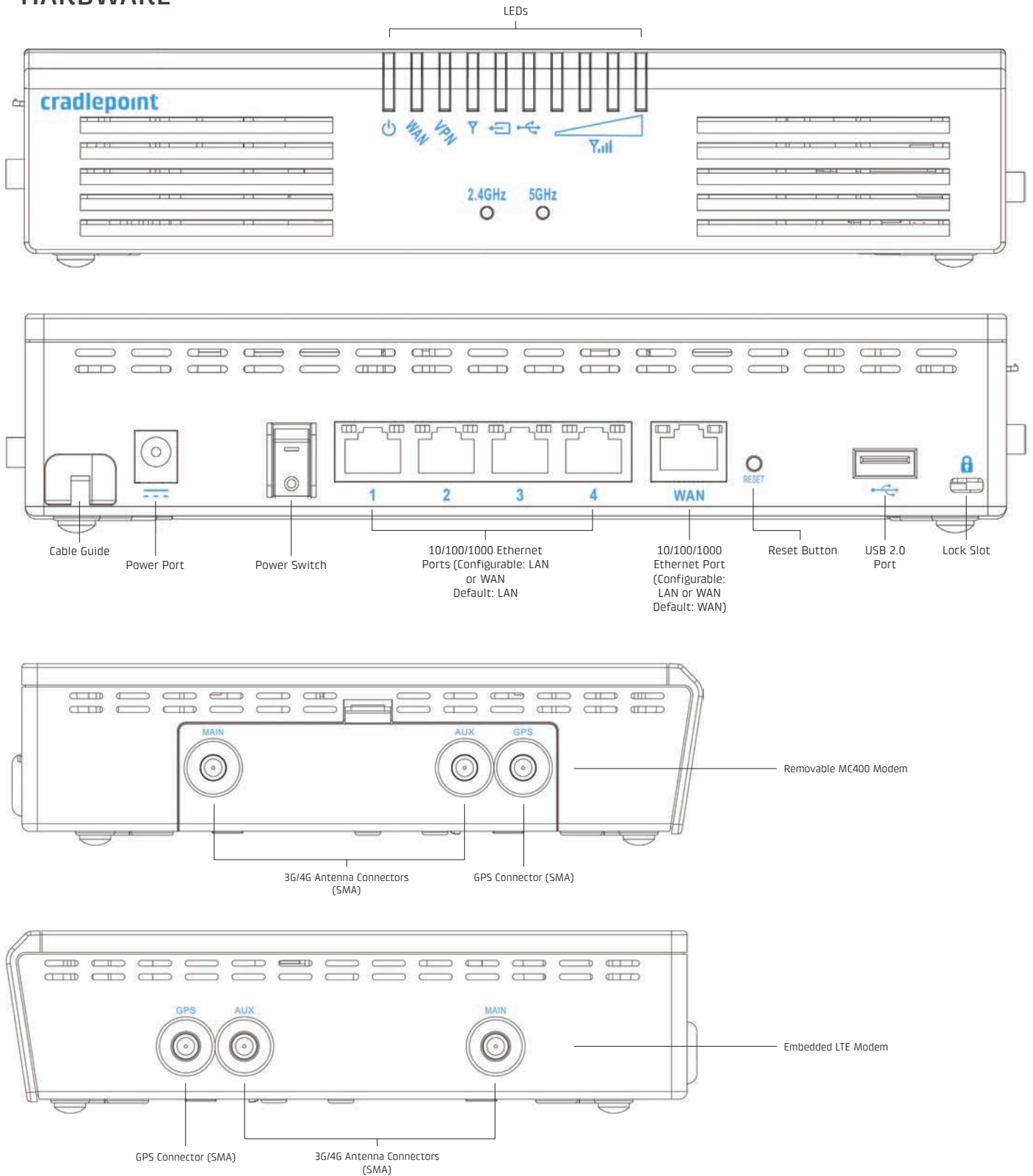


- CDMA EVDO Rev A/1xRTT (800/1900 MHz)
- **Power:** LTE 23 dBm +/- 1, HSPA+ 23 dBm +/- 1, EVDO 24 dBm +0.5/-1 (typical conducted)
- **Antennas:** two SMA male (plug), 1 dBi (LTE), 2 dBi (Cellular/PCS) gain; finger tighten only (maximum torque spec is 7 kgf-cm)
- **GPS:** active GPS support
- **Industry Standards & Certs:** PTCRB, FCC, IC

**AER1650LPE-GN – 4G LTE/HSPA+/EVDO (generic – for use on T-Mobile in the U.S. and Rogers, Bell, & TELUS in Canada)**

- **Technology:** LTE, HSPA+, EVDO Rev A
- **Downlink Rates:** LTE 100 Mbps, HSPA+ 21.1 Mbps, EVDO 3.1 Mbps (theoretical)
- **Uplink Rates:** LTE 50 Mbps, HSPA+ 5.76 Mbps, EVDO 1.8 Mbps (theoretical)
- **Frequency Bands:**
  - **LTE Band 2 (1900 MHz), Band 4 (AWS), Band 5 (850 MHz), Band 13 (700 MHz), Band 17 (700 MHz), Band 25 (1900 MHz)**
  - **HSPA+/UMTS (850/900/1900/2100 MHz, AWS)**
  - **GSM/GPRS/EDGE (850/900/1800/1900 MHz)**
  - CDMA EVDO Rev A/1xRTT (800/1900 MHz)
- **Power:** LTE 23 dBm +/- 1, HSPA+ 23 dBm +/- 1, EVDO 24 dBm +0.5/-1 (typical conducted)
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- **GPS:** active GPS support
- **Industry Standards & Certs:** PTCRB, FCC, IC

# HARDWARE



Specifications subject to change without notice.