Cisco 890G Series 4G LTE 2.5 Integrated Services Routers for Asia, Australia, and selected Latin America Regions

The Cisco® 890G Series 4G LTE 2.5 Integrated Services Routers (ISRs) with Cisco IOS® Software offer support for integrated 4G LTE wireless WAN (mobile broadband backhaul) and cutting-edge capabilities. The 890G Series provides a rapidly deployable, highly available, reliable, and secure solution designed to combine Internet access, comprehensive security, and wireless services in a single device that is easy to deploy and manage for primary or backup connectivity (Figure 1). Customers that would benefit from these routers include small businesses, remote small or medium-sized or power branches, financial services firms, healthcare organizations, pop-up stores, point-of-sale systems, and retail businesses. Fully integrated with Cisco IOS Software, the 890G Series routers deliver enterprise-class features, including highly secure data, voice, and video communications, to stationary and mobile network nodes across wired and wireless links. The best-in-class Cisco 890G Series architecture is specifically designed to deliver high performance with concurrent services, business continuity, and investment protection. These ISRs are the industry leader in bringing enterprise-grade wired-line-like functionality such as quality of service (QoS) for cellular, Multi-VRF, advanced VPN, and unified communications solutions over LTE.

Figure 1.   Cisco C899G Integrated Services Router

The 890G Series also provides the ability to extend Cisco product-based networks to remote power branch offices with a relatively low incremental investment, as well as to enable managed services offerings based on end-to-end Cisco system architecture.

Product Overview

The Cisco 890G Series Fourth-Generation Long-Term Evolution (4G LTE) 2.5 ISRs are fixed-configuration routers that provide collaborative business solutions for secure voice and data communications to enterprise small branch offices, with support for the latest Third-Generation Partnership Project (3GPP) Release 8 Category 4 LTE standards. They provide persistent, reliable LTE connectivity with fallback and transparent handoff to earlier technologies. The routers are designed to deliver secure broadband, Metro Ethernet, or any xDSL variants, wireless WAN (WWAN) connectivity, and business continuity. They also come with powerful management tools, such as the web-based Cisco Configuration Professional configuration management tool, which simplifies setup and deployment.

- **Cisco 4G LTE 890G 2.5:** Multimode LTE 2.5 for carriers that operate FDD LTE 700-MHz (band 28), 850-MHz (band 5 CLR), 850-MHz (bands 18 and 19 Low), 900-MHz (band 8), 1500-MHz (band 21), 1800-MHz (band 3), 2100-MHz (band 1), or 2600-MHz (band 7) networks; the multimode 890G Series 4G LTE 2.5 routers are backward compatible with Universal Mobile Telecommunications Service (UMTS) and Dual Carrier High-Speed Packet Access Plus (DC-HSPA+): 800 MHz (band 19 Japan), 850 MHz (band 5), 850 MHz (band 6 Japan), 900 MHz (band 8), 1800 MHz (band 9), 2100 MHz (band 1), and TD-SCDMA 39.

◦ Multimode LTE 2.5 for carriers that operate TDD LTE 1900-MHz (band 39), 2300-MHz (band 40), 2500-MHz (band 41), or 2600-MHz (band 38) networks.

◦ Multimode LTE 2.5 for carrier aggregation band combinations: 1+(8,18,19,21); 3+(5,7,19,28); 7+(5,7,28); 19+21, 38+38, 39+39, 40+40, 41+41.

The 890G Series ISRs provide a broad range of enterprise-class features, including:

- Security services, such as firewall, intrusion prevention, VPN, and Cisco ISR Web Security with Cisco ScanSafe, which require no additional hardware or client software. This enables branch offices, manufacturing sites, hospitals, banks, and mobile fleets, for example, to intelligently redirect web traffic to the cloud to enforce granular security and acceptable use policies over user web traffic. With this solution, you can deploy market-leading web security quickly and easily to protect branch-office users from web-based threats, such as viruses, while saving bandwidth, money, and resources.

- Additional WAN options, such as Gigabit Ethernet WAN interfaces and an 8-port 10/100/1000 Gigabit Ethernet managed switch for LAN connectivity. The Cisco 890G Series ISRs provide quality-of-service (QoS) features for optimizing voice and video applications.

- Cisco Configuration Professional, a web-based configuration tool that simplifies setup and deployment. Centralized management capabilities give network managers visibility into and control over the network configurations at remote sites.

- WWAN services, offering enhanced data rates and improved latency (30 ms or less)—an ideal way to supplement traditional wired-line services. The 4G LTE WWAN data services offered today have average data rates well in excess of ISDN speeds, with theoretical limits of 100 Mbps on the downlink and 50 Mbps on the uplink. The actual data speed depends on the service provider's network. With 4G LTE data rates, the WWAN offers a primary WAN link solution capable of running comprehensive branch-office services, including voice and video services. The 4G LTE WWAN data services can also be used as a cost-effective alternative in areas where broadband services are either not available or very expensive. Cisco is building on these performance milestones and adding support for wireless to our wide variety of WAN interface alternatives.

Business Benefits and Application Examples

Businesses are looking for ways to reduce costs, increase revenue, and improve business continuity. The 4G LTE wireless connectivity, which is 10 to 15 times faster and has 5 times lower latency than 3G links, allows a small enterprise branch office or remote office to set up comprehensive media services in a matter of hours, without worrying about availability of broadband services or the need to lay down the lines. Wireless carriers offer flexible, usage-based data plans that can be customized to meet the needs and price points of the business customer. As WAN backup alternatives, 3G and 4G LTE wireless offer greater WAN diversity and resiliency because they are independent of the local terrestrial infrastructure. The Cisco 890G Series helps businesses stay productive during service provider downtime or a network failure with Cisco Intelligent WAN (IWAN) diversity.

Ability to Host Networks in Motion

The Cisco 890G Series uses standards-based mobile IP features in Cisco IOS Software to host networks in motion. Transitions to different wireless networks are transparent to the users and devices (such as laptops, smart devices, and surveillance cameras), and applications maintain continuous connectivity without the user's manual

intervention as WAN links change. In addition to allowing a single node or device to stay connected, the 890G Series allows an entire mobile network or subnet to stay connected.

Retail VPN

Retail stores migrating from dialup connections for point-of-sale transactions can use the 4G LTE WWAN option on the 890G Series for low-cost broadband access, with the security required to comply with payment card industry (PCI) and other data security requirements. Multiple devices and applications can then be added to the store network to take advantage of the increased bandwidth and to enable secure mobility and enhance productivity.

Managed Services

Service providers and value-added resellers (VARs) can use the 890G Series as a platform to offer differentiated business-class security services for small and medium-sized business customers. Superior management capabilities, such as Simple Network Management Protocol (SNMP) support for 3G MIB with 4G MIB extension and Cisco Configuration Professional, make remote management and provisioning easier.

- **Multiple packet data networks:** This feature allows configuration of multiple active access point names so that Internet traffic can be kept separate from corporate traffic.

- **4G LTE multiple-bearer QoS for cellular:** The 890G Series supports 4G LTE multiple-bearer QoS. Detailed information on the bearer is part of the "show" command, SNMP-MIBs, etc. A service provider is required to launch this service.

- **Multi Virtual Route Forwarding (Multi-VRF) for cellular:** 4G LTE 2.5 now supports Multi-VRF for cellular network. Multi-VRF is a Cisco proprietary implementation over and above the 3GPP spec and requires a Cisco ASR 5000 Packet Gateway (PGW) as the headend at the service provider's network. A service provider is required to launch this service.

- **Enterprise-grade unified communications solutions over LTE:** The 890G Series supports voice and video and can be integrated with Cisco Unified Communications cloud or premises-based infrastructure.

- **Public Land Mobile Network (PLMN Search):** User equipment (UE) presents the end user with available PLMN search manually. UE can optimize PLMN search procedures using stored information such as RF carriers and cell parameters.

Primary Features and Benefits

Table 1. Features and Benefits of the Cisco 890G Series 4G LTE 2.5 ISRs

Feature	Benefits
Cisco ISR in Form Factors	
Lightweight, compact size with low power consumption	• Can be deployed in many different environments where space, heat dissipation, and low power consumption are critical factors.
Increased performance to run concurrent services	• Performance allows customers to take advantage of broadband network speeds while running secure, concurrent data, voice, video, and wireless services.
Enhanced security	• An integrated stateful and application inspection firewall provides network perimeter security and high-speed IP Security (IPsec); Triple Data Encryption Standard (3DES) and Advanced Encryption Standard (AES) encryption offer data privacy over the Internet. • Intrusion prevention enforces security policies in a larger enterprise or service provider network. • Content filtering offers category-based URL classification and blocking, thus helping increase productivity and providing better use of company resources. • ScanSafe web security and filtering solution requires no additional hardware or client software. Enables remote locations to intelligently redirect web traffic to the cloud to enforce granular security and acceptable use policies over user web traffic.
Multiple WAN and LAN Connections	
8-port 10/100/1000-Mbps managed switch	• Allows connectivity for multiple Ethernet devices in a small office or other remote location with the ability to designate a port as the network edge. • VLANs allow for secure segmentation of network resources. • Multiple LAN and WAN devices can be connected to standard Fast Ethernet or Gigabit Ethernet.
WAN diversity	• Multiple WAN links are supported: Gigabit Ethernet (copper or SFP option), any xDSL variants, and 4G LTE provide for business continuity and WAN diversity.
Transparent Roaming Between Wireless Networks	
Dual subscriber-identity-module (SIM) support	• Dual SIM provides for high reliability and cellular multihoming support for LTE and HSPA-based networks using common firmware and technology within the same region (only on -LA product IDs)
Cisco IOS Mobile IP features	• Mobile IP offers transparent roaming for mobile networks, establishing a seamless Internet connection regardless of location or movement. This enables mission-critical applications to stay connected even when roaming between networks. • IP addresses assigned to the home network are maintained in private or public networks.
Cisco IOS Mobile network features	• Allows an entire subnet or mobile network to maintain connectivity to the home network while roaming.
Multiple wireless WAN technologies	• Users can use the best wireless (4G LTE, 3.7G, or 3.5G) technology or network available.
Advanced IP Services in Standards-Based Cisco IOS Software	
Advanced security features	• Authorization and authentication determine which individuals and devices have access to the network. • Firewall protection provides perimeter security when using public networks. • 3DES and AES encryption provide for highly secure VPNs when transmitting and receiving data over public networks. • Intrusion detection monitors potential malicious activity within the network.
QoS features	• Provides traffic precedence to delay-sensitive or prioritized applications. • Facilitates low-latency routing of delay-sensitive applications such as streaming video.
IP Multicast	• Allows efficient broadcast of data or video for increased situational awareness, multiuser communications, or surveillance applications.

Feature	Benefits
Management and manageability	• Network managers can remotely manage and monitor networks with SNMP, Telnet, or HTTP, and locally through a console port.
	• Support for extensive 3G- and 4G LTE-based MIBs allows for centralized management of remote devices and gives network managers visibility into and control over the network configurations at the remote site.
	• Network managers can reset to a predesignated golden image as well as configure an ISR through Cisco IOS Software or through an external reset button.
	• Network managers can upgrade 3.5G, 3.7G, and 4G LTE firmware and router configurations remotely and confirm enhancement verification.
	• Tight integration with Cisco IOS Software allows you to self-monitor the functions of the 3.5G, 3.7G, and 4G LTE modems and automatically recover from a failure.
	• Cisco Configuration Professional provides a web-based tool that simplifies setup and deployment.
	• Intuitive network management tools such as Cisco Prime™ and HP OpenView are supported.
	• Cisco IOx support with third-party Cisco certify app running on second core.

Product Specifications

Tables 2 and 3 summarize the routers in the Cisco 890G Series and the LTE bands supported.

 For common platform-specific details with extensive and rich Cisco IOS Software feature set on both the Cisco 890 Series ISRs, go to:

https://www.cisco.com/c/en/us/products/collateral/routers/800-series-routers/data_sheet_c78-519930.html

Table 2.   Cisco 890G Series 4G LTE 2.5 ISRs

Model	WAN Interface	LAN Interface	802.11a/g/n Option	Embedded Cisco 4G LTE 2.0	Integrated ISDN Dial Backup
C899G-LTE	1 port Gigabit Ethernet or 1 port SFP 1 port Gigabit Ethernet	8-port 10/100/ 1000-Mbps managed switch With 4-port Power over Ethernet (PoE) option	No	Yes (Sierra Wireless C89XG-LTE –LA MC7430 with Qualcomm MDM9230)	No
C897VAG-LTE	1 port Gigabit Ethernet or 1 port SFP VDSL/ADSL2+ Annex A/M				
C898EAG-LTE	1 port Gigabit Ethernet or 1 port SFP 4 pair Ethernet in the first mile (EFM)				

For the Cisco 890G 4G LTE 2.5 Hardware and Software Installation Guide, go to:
https://www.cisco.com/c/en/us/td/docs/routers/access/800/hardware/installation/guide/800HIG/prodoverview.html
https://www.cisco.com/c/en/us/td/docs/routers/access/interfaces/software/feature/guide/EHWIC-4G-LTESW.html

Table 3.   LTE Bands Supported

Region	C89xG-LTE-LA-K9
LTE bands	LTE bands 1, 3, 5, 7, 8, 18, 19, 21, 28, 38, 39, 40, 41 FDD LTE 700 MHz (band 28), 850 MHz (band 5 CLR), 850 MHz (bands 18 and 19 Low), 900 MHz (band 8), 1500 MHz (band 21), 1800 MHz (band 3), 2100 MHz (band 1), or 2600 MHz (band 7) TDD LTE 1900 MHz (band 39), 2300 MHz (band 40), 2500 MHz (band 41), or 2600 MHz (band 38) Carrier aggregation band combinations: 1+(8,18,19,21); 3+(5,7,19,28); 7+(5,7,28); 19+21, 38+38, 39+39,40+40, 41+41
Theoretical Category 4 download/upload speeds	150 Mbps and 50 Mbps UL
Australia	✓
Japan	✓
China	✓
India	✓
Southeast Asia	✓
Latin America	✓ (Dependent on specific operators supporting the above LTE bands)
South Korea	✓

Note: LTE Category 4 download/upload speeds depend on specific carrier channel bandwidth and carrier LTE network provisioning.

Table 4 lists the 4G LTE 2.5 specifications for the 890G Series.

Table 4.   Cisco 4G LTE 2.5 Specifications for the Cisco 890G Series 4G LTE 2.5 ISRs

Item	Specification
4G LTE modem form factor	• Embedded (included with the router) • Upgrade FW Image Switching provisioning from (–LA SKUs) flash (FW-7430-LTE-AU or FW-7430-LTE-GN or FW-7430-LTE-JN) • –AU FW is specific for Telstra, non Telstra should use the –GN Generic FW, –JN is specific for NTT DoCoMo, and –GN Generic FW for all other APAC/LATAM countries
Important 4G LTE features	• Automatic switch failover between primary and backup link • Multichannel-interface-processor (MIP) profile configuration • 3G MIB with 4G LTE MIB extension and traps • Remotely initiated data callback using voice • Remotely initiated data callback using Short Message Service (SMS) • Remote firmware upgrade over 4G LTE • Virtual diagnostic monitoring • SIM lock and unlock capabilities
Dual SIM support	• High reliability, and cellular multihoming support for dual mini (2FF) SIM card socket; compliant with ISO-7816-2 (SIM mechanical)
SMS and GPS	• GPS antenna: SMA connector (separate active GPS with SMA antenna option) • Send and receive SMS (maximum 160 characters) • Standalone GPS; needs line of sight • Configure multiple profile
MIBs	• Enhanced 3G MIB with 4G MIB extension (4G parameters are covered with 3G MIB and 3G MIB extension) • ENTITY MIB • IF MIB

Item	Specification
	• 3G WWAN MIB persistence
4G LTE network management and diagnostics	• In-band and out-of-band management using Telnet (Cisco IOS Software command-line interface [CLI]) and SNMP, including MIB II and other extensions • Industry-standard 4G LTE diagnostics and monitoring tools (Qualcomm CDMA Air Interface Tester [CAIT] and Spirent Universal Diagnostic Monitor [UDM])
Modem information	• **Modem form factor:** Embedded Peripheral Component Interconnect (PCI) minicard • **C89XG-LTE-LA-K9:** Sierra Wireless MC7430 with Qualcomm MDM9230
Programming interfaces	• Cisco IOS Software CLI
Wireless technologies supported (performance and throughput)	**C89xG-LTE-LA-K9** Cisco LTE 2.5 LTE bands 1, 3, 5, 7, 8, 18, 19, 21, 28, 38, 39, 40, 41 and carrier aggregation combinations Backward compatibility: • UMTS and HSPA+: 800 MHz (band 19), 850 MHz (band 5), 850 MHz (band 6), 900 MHz (band 8), 1800 MHz (band 9), and 2100 MHz (band 1) • HSPA+ speed DL up to Category 20 (42.2 Mbps) and UL up to Category6 (5.76 Mbps) • DC-HSPA+ speed DL with Category 26 (62 Mbps) and UL up to Category 8 (11.5 Mbps) • TD-SCDMA 39 (China Mobile support)
Included antenna	• Two multiband swivel-mount dipole antennae (4G- LTE-ANTM-D) and one extender (4G-AE010-R) are included with all Cisco 4G LTE 2.5 890G Series routers.
LED indicators for 4G	• Received signal strength indication bar (RSSI) (green) • WWAN (green) • SIM status (green/yellow) • 3G and 4G LTE service (green) • GPS (green/yellow)
Carrier support	• For an updated list of carriers that offer services on the Cisco 890G Series 4G LTE 2.5, please visit https://www.cisco.com/c/en/us/products/routers/networking_solutions_products_genericcontent0900aecd80601f7e.html#~north-america

Table 5 describes the Advanced IP services features set on the 890G Series, Table 6 gives the system specifications, and Table 7 contains the antenna specifications.

Table 5.   Cisco IOS Software Features: Advanced IP Services Features Set (default) on the Cisco 890G Series 4G LTE 2.5 ISRs

Feature	Description
Cisco IOS Software requirement	• Cisco IOS Software feature set: Universal Cisco IOS Software image (Advanced IP Services with Full Security License) • **C89xG-LTE-LA-K9:** Cisco IOS Software Release 15.6(2)T1 with modem firmware 2.14.3.x or later release with respective modem firmware

Table 6. System Specifications for the Cisco 890G Series 4G LTE 2.5 ISRs

Feature	Specification
Memory	
Default and maximum DRAM	1 GB
Default and maximum flash memory	1 GB
Interface Support	
Console or auxiliary port	• RJ-45: Single dual-purpose port, which provides direct connection to a console or external modem for management or backup access point
Mini-USB port (reserved)	• Mini-USB port to support remote 4G LTE diagnostics and monitoring tools (Qualcomm CAIT and Spirent UDM)
WAN interfaces	• Wireless WAN with 4G LTE, 3.7G, 3.5G speeds
LAN interfaces	• Eight 10/100/1000 Gigabit Ethernet ports on the Cisco 890G
LEDs	• WWAN (green/amber) • SIM status (green/amber) • Received signal strength indication (RSSI) bar (green) • 3G/4G LTE service (green/amber) • GPS (green/amber) • Speed and link for Gigabit Ethernet WAN port (green) • Speed and link for all Fast Ethernet LAN ports (green)
Physical Characteristics	
Physical dimensions (H x W x D)	• 1.9 x 12.8 x 10.4 in. (48 x 325 x 264 mm) (includes rubber feet and antenna TNC/SMA connectors) • 1.75 x 12.8 x 10.4 in. (44 x 325 x 264mm) (without rubber feet and antenna TNC/SMA connectors)
Weight	• 5.7 lb (2.59 kg)
Standard safety certifications	• UL 60950-1, 2nd edition • CAN/CSA C22.2 No. 60950-1, 2nd edition • EN 60950-1, 2nd edition • CB to IEC 60950-1, 2nd edition with all group differences and national deviations
EMC emissions	EN55022/CISPR22, CFR 47 Part 15, ICES003, VCCI-V-3, AS/NZS CISPR22, CNS13438, EN300-386, EN61000-3-2, EN61000-3-3, and EN61000-6-1
EMC immunity	EN55024/CISPR24, (EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11), and EN300-386
Radio immunity	EN301 489-1, EN 301 489-7, and EN301 489-24
Cellular radio	EN 301 908-1, EN 301 908-2, EN 301 511, 47 CFR Part 22, 47 CFR Part 24, and EN 301 908-13

Table 7. Antenna Specifications

Item	Specification
Included antenna	Two multiband 4G LTE swivel-mount dipole antennae (4G-LTE-ANTM-D) and one extender (4G-AE010-R) are included.
Diversity (dual antenna) Multiple Input Multiple Output (MIMO)	**C89xG-LTE-LA-K9:** Diversity supported MIMO (2X2)
Antenna 4G-ANTM-OM-CM	**Description:** • Multiband indoor omnidirectional antenna • Ceiling mount **Electrical specifications:** • **Frequency range:** 698 to 960 MHz, 1575 MHz, and 1710 to 2690 MHz • **Gain:** 1 and 1.5 decibels relative to isotropic (dBi) (700 to 960 MHz), 1.7 and 3.2 dBi (1700 to 2200 MHz), 3 and 4 dBi (2500 to 2700 MHz) • **Maximum power:** 50W • **Connector:** TNC male

Item	Specification
	• **Voltage standing wave ratio (VSWR):** 2.0:1 and 3.01:1 or less for GPS
	• **Nominal impedance:** 50 ohms
	• **Polarization:** Linear vertical
	Mechanical specifications:
	• **Radome material:** White ABS
	• **Dimensions (outside dimensions x height):** 5.64 in. x 2.0 in. (143.3 X 50.8 mm)
	• **Weight:** 6.0 oz (0.17 kg)
	• **Temperature rating:** –40° to 185°F (–40° to 85°C)
	• **Can be used with the following cable extensions:** 3G-CAB-ULL-20 and 3G-CAB-ULL-50
Antenna 4G- LTE-ANTM-D	**Description:**
	• Cisco 4G LTE and 3G omnidirectional dipole antenna
	• Articulating joint; can be rotated 360 degrees and is capable of maneuvering into three stop positions: 0 degrees, 45 degrees, and 90 degrees
	• Plug threaded TNC connector: Directly mount the antenna on any Cisco 4G LTE or 3G enhanced high-speed WAN interface card (EHWIC) with a TNC connector; the threads on the connector must comply with the ANSI 7/16-28 UNEF 2B thread specification
	• Multiband swivel-mount dipole antenna
	• Faceplate mount (dual units included with all Cisco 4G LTE WWAN)
	Electrical specifications:
	• **Operating frequency ranges:** 698 to 806 MHz, 824 to 894 MHz, 925 to 960 MHz, 1710 to 1885 MHz, 1920 to 1980 MHz, 2110 to 2170 MHz, and 2500 to 2690 MHz
	• **Maximum peak gain:** 2 dBi
	• **Maximum input power:** 3W
	• **Connector:** TNC plug
	• **VSWR:** < 2.5:1 or less
	• **Characteristic impedance:** 50 ohms
	Mechanical specifications:
	• **Antenna dimensions (L x W x D):** 9 x 1.2 x 7/16 in. (229 x 30.5 x 11 mm)
	• **Temperature rating:** –22° to 158°F (–30° to 70°C)
	• **Antenna base and random color:** Cisco Raven Black
Antenna extension 4G-AE015-R	**Description:**
	• Single-unit antenna extension base (15 ft [457.2 cm])
	Electrical specifications:
	• **Frequency range:** 6 GHz
	• **Attenuation:** Less than 3 dB at or below 2.5 GHz
	• **Base connector:** TNC socket
	• **Pigtail connector:** TNC plug
	Mechanical specifications:
	• **Base material:** Cisco gray UL94 V0 PC/ABS plastic
	• **Dimensions:** 2.8 x 2.4 x 1.8 in. (7.1 x 6.1 x 4.6 cm)
	• **Weight:** 6 oz (0.17 kg)
	• **Cable:** 15 ft (457.2 cm) nonplenum rated Pro-Flex Plus 195
Antenna extension 4G-AE010-R	**Description:**
	• Single-unit antenna extension base (one 10-ft [304.8 cm] cable included)
	Electrical specifications:
	• **Frequency range:** 6 GHz
	• **Attenuation:** Less than 3 dB at or below 2.5 GHz
	• **Base connector:** TNC socket
	• **Pigtail connector:** TNC plug
	Mechanical specifications:
	• **Base material:** UL 94 V0PC and ABS plastic
	• **Dimensions:** 2.8 x 2.4 x 1.8 in. (7.1 x 6.1 x 4.6 cm)
	• **Weight:** 6 oz (0.17 kg)
	• **Cable:** 10 ft (304.8 cm) nonplenum rated Pro-Flex Plus 195
ANT-4G-OMNI-OUT-N	**Description: Cisco outdoor omnidirectional antenna for 2G, 3G, and 4G LTE cellular:**
	• UV-stable radome

Item	Specification
	• Mast-mounting bracket • Applicable for both 2G and 3G solutions • Domestic LTE 700 band and global LTE 2600 band • Domestic cellular and global GSM • WiMAX 2300 and 2500 **Electrical specifications:** • **Frequency ranges:** 698 to 960 MHz, 1710 to 2170 MHz, and 2300 to 2700 MHz • **Nominal gain (dBi):** 698 to 960 MHz = 1.5 dBi, and 1710 to 2700 MHz = 3.5 dBi • **3 dB beam width (E plane):** 698 to 960 MHz = 81 degrees, 1710 to 2170 MHz = 75 degrees, and 2300 to 2700 MHz = 100 degrees • **3 dB beam width (H plane):** 360 degrees, omnidirectional • **Polarization:** Vertical and linear • **Normal impedance:** 50 ohms • **VSWR:** < 2.5:1 (698 to 960 MHz) and < 2.0:1 (1710 to 2690 MHz) • **Radiation pattern:** Omnidirectional **Mechanical specifications:** • **Mount style:** Mast mount, upright position only • **Environment:** Outdoor • **Connector:** N-type socket • **Antenna length (height):** 9.8 x 1 in. (24.9 x 2.45 cm) • **Weight:** 1.5 lb (0.68 kg) • **Dimensions (H x outside dimensions):** 9.8 x 1 in. (248 x 24.5 mm) • **Operating temperature range:** –22° to 158°F (–30° to 70°C) • **Storage temperature:** –40° to 185°F (–40° to 85°C) • **Maximum power:** 20W • **Radome:** Polycarbonate, UV, white • **Material substance compliance:** Reduction of Hazardous Substances (ROHS) compliant
ANT-4G-SR-OUT-TNC	**Description: Cisco integrated 4G LTE low-profile outdoor saucer antenna:** • Applicable for both 3G and 4G LTE solutions • Domestic LTE 700 band and global LTE 2600 band • Domestic cellular and global GSM • Weatherproof UV stable radome • Performance optimized • Excellent flame rating **Electrical specifications:** • **Frequency ranges:** 698 to 960 MHz and 1710 to 2700 MHz • **Peak gain with 1-ft (30.5-cm) cable:** 1.5 dBi (698 to 960 MHz) and 3.7 dBi (1710 to 2700 MHz) • **Peak gain with 15-ft (457.2-cm) cable:** 0.8 dBi (698 to 960 MHz) and 0.2 dBi (1710 to 2700 MHz) • **Average efficiency with 1-ft (30.5-cm) cable:** 90% (698 to 960 MHz) and 82% (1710 to 2700 MHz) • **Average efficiency with 15-ft (457.2-cm) cable:** 60% (698 to 960 MHz) and 40% (1710 to 2700 MHz) • **Polarization:** Linear and vertical • **Nominal impedance:** 50 ohms • **VSWR (maximum):** 2.0:1 (698 to 960 MHz) and 2.0:1 (1710 to 2700 MHz) • **H-plane (3-dB beam width):** Omnidirectional **Mechanical specifications:** • **Power:** 3W • **Cable:** 15-ft (457.2 cm) LMR 195 • **RF connector:** Type N (f); TNC (plug) available • **Mount style:** Ceiling mount • **Radome:** PC/ABS, UV stable, black • **Material substance compliance:** RoHS compliant • **Operational temperature:** –22° to 158°F (–30° to 70°C) • **Storage temperature:** –40° to 185°F (–40° to 85°C) • **Environment:** Indoor • **Dimensions (H x outside dimensions):** 3.4 x 7.9 in. (87 x 200 mm)
ANT-4G-PNL-OUT-N	**Description: Cisco multiband panel outdoor 4G LTE antenna:**

Item	Specification
	• Supports 3G and 4G LTE solutions • Supports bands • Wall or mast mount • Indoor and outdoor • Dual type-N socket connector **Electrical specifications:** • **Frequency ranges:** 698 to 960 MHz and 1710 to 2700 MHz • **VSWR:** 2.0:1 maximum • **Gain:** 5.5 to 10.5 dBi (698 to 960 MHz) and 6.5 to 9.0 dBi (1710 to 2700 MHz) • **3-dB beam width (vertical plane):** 55 to 70 degrees = 698 to 960 MHz, 53 to 98 degrees = 1710 to 2200 MHz, 60 to 70 degrees = 2200 to 2500 MHz, and 55 to 70 degrees = 2500 to 2700 MHz • **3-dB beam width (horizontal plane):** 55 to 70 degrees = 698 to 960 MHz and 50 to 90 degrees = 1710 to 2200 MHz • **F/B ratio:** > 15 dB, typical 20 dB = 698 to 960 MHz, and > 17 dB, typical 23 dB = 1700 to 2700 MHz • **Isolation:** > 30 dB • **Polarization:** Slant +/− 45 degrees • **Nominal impedance:** 50 ohms • **Radiation pattern:** Directional **Mechanical specifications:** • **Mount style:** Wall or mast mount • **Environment:** Outdoor • **Connector:** Dual type-N socket (direct connect or dual 12 in. [30 cm]) • **Antenna length (height):** 11.6 in. (29.5 cm) • **Temperature range (operating):** –22° to 158°F (–30° to 70°C) • **Storage temperature:** –40° to 185°F (–40° to 85°C) • **Wind rating:** 99 mi (160 km) per hr • **IP rating:** IP 54 • **Radome:** Polycarbonate, UV resistant, white • **Material substance compliance:** ROHS compliant

CGR-LA-NM-NF*
CGR-LA-NF-NF*
	Description: Cisco Lightning Arrestor
	• Broadband operation
	• DC continuity for outdoor powering
	• Reversed installation
	Permanently installed gas capsule
	
	Feature description:
	• **Arrestor type:** Gas discharge tube
	• **Main path connectors:** Port 1: protected, N plug (male); Port 2: unprotected, N jack (female, bulkhead side)
	• **Impedance:** 50 ohms
	• **Frequency range:** 0 MHz to 5800 MHz
	• **Return loss:** Greater than or equal to 20 dB
	• **Insertion loss:** Less than or equal to 0.2 dB
	• **RF continuous wave (CW) power:** Less than or equal to 60W
	• **Surge current handling capability:** 10 single, multiple kA (test pulse 8/20 ms)
	• **Residual pulse energy:** 250 microsecond typically (test pulse 4 kV 1.2/50 microsecond; 2kA 8/20 microsecond), main path (protected side)
	• **Operating temperature range:** -40° to 185°F (-40° to 85°C)
	• **Waterproof rating:** IP 67 (according to IEC 60529, data refer to the coupled state)
	• **Mounting and grounding:** MH24 (bulkhead)
	• **Material**
	  ◦ **Housing:** Brass
	  ◦ **Port 1 center contact:** Gold-plated brass
	Port 2 center contract copper beryllium alloy

* –N antenna works with –N cables and –N lightning arrestor.

Ordering Information

For ordering information for the 890G Series, please visit the [Cisco Ordering Home](#) Page and refer to Tables 8 and 9.

Table 8.   Cisco 890G 4G Series LTE 2.5 ISRs Ordering Information

Product	Description
Cisco 890G Series 4G LTE 2.5 Integrated Services Router	
C899G-LTE-LA-K9	Cisco LTE 2.5 Secure IOS Gigabit Router SFP with Sierra Wireless MC7430/Qualcomm MDM9230 for Australia, China, India, Japan, Southeast Asia, some LATAM and South Korea, FDD LTE bands 1, 3, 5, 7, 8, 18, 19, 21, 28, and TDD LTE 38, 39, 40, 41 bands with carrier aggregations, UMTS/HSPA+ bands and TD-SCDMA 39
C897VAG-LTE-LA-K9	Cisco LTE 2.5 Secure IOS Gigabit Router SFP VDSL/ADSL2+ Annex A with Sierra Wireless MC7430/Qualcomm MDM9230 for Australia and some LATAM, FDD LTE bands 1, 3, 5, 7, 8, 18, 19, 21, 28, and TDD LTE 38, 39, 40, 41 bands with carrier aggregations, UMTS/HSPA+ bands and TD-SCDMA 39
C898EAG-LTE-LA-K9	Cisco LTE 2.5 Secure IOS Gigabit Router SFP G.SHDSL (EFM/ATM) with Sierra Wireless MC7430/Qualcomm MDM9230 for Southeast Asia, FDD LTE bands 1, 3, 5, 7, 8, 18, 19, 21, 28, and TDD LTE 38, 39, 40, 41 bands with carrier aggregations, UMTS/HSPA+ bands and TD-SCDMA 39
Cisco IOS Software and Licenses	
FW-7430-LTE-AU	Cisco MC7430 Australia (Telstra) modem image switching provisioning firmware
FW-7430-LTE-JP	Cisco MC7430 Japan modem image switching provisioning firmware
FW-7430-LTE-GN	Cisco MC7430 Generic modem image switching provisioning firmware

Table 9.   Antenna, Cable, and Lightning Arrestor Ordering Information

Description	Part Number
Multiband Integrated 3-in-1 Indoor/Outdoor IP67 Antenna with GPS	4G-LTE-ANTM-O-3-X 4G-LTE-ANTM-O-3-X= (Spare) X = R (Red); X = B (Black); X = W (White); X = C (Blue);
Multiband Swivel Mount Dipole Antenna, Faceplate Mount (dual included)	4G-LTE-ANTM-D 4G-LTE-ANTM-D= (Spare)
Multiband Omnidirectional Antenna, Ceiling Mount	4G-ANTM-OM-CM 4G-ANTM-OM-CM= (Spare)
Single Unit Antenna Extension Base (one 10-ft [304.8-cm] cable included)	4G-AE010-R 4G-AE010-R= (Spare)
Single Unit Antenna Extension Base (15-ft [457.2-cm] cable)	4G-AE015-R 4G-AE015-R= (Spare)
50-ft (15-m) Ultra Low Loss LMR 400 Cable with TNC Connector	4G-CAB-ULL-50 4G-CAB-ULL-50= (Spare)
20-ft (6-m) Ultra Low Loss LMR 400 Cable with TNC Connector	4G-CAB-ULL-20 4G-CAB-ULL-20= (Spare)
25-ft (7.5-m) Low Loss LMR 240 Cable with TNC Connector	4G-CAB-LMR240-25 4G-CAB-LMR240-25= (Spare)
50-ft (15-m) Low Loss LMR 240 Cable with TNC Connector	4G-CAB-LMR240-50 4G-CAB-LMR240-50= (Spare)
75-ft (23-m) Low Loss LMR 240 Cable with TNC Connector	4G-CAB-LMR240-75 4G-CAB-LMR240-75= (Spare)
Standalone active SMA GPS antenna with 17-ft (5-m) extender	GPS-ACT-ANTM-SMA GPS-ACT-ANTM-SMA= (Spare)
Multiband Omnidirectional Stick Outdoor 4G Antenna	ANT-4G-OMNI-OUT-N
Multiband Low-Profile Saucer Outdoor 4G Antenna	ANT-4G-SR-OUT-TNC

Description	Part Number
Multiband Panel Outdoor 4G Antenna	ANT-4G-PNL-OUT-N
50-ft (15-m) Ultra Low Loss LMR 400 Cable TNC-N Connector	CAB-L400-50-TNC-N
20-ft (6-m) Ultra Low Loss LMR 400 Cable with TNC-N Connector	CAB-L400-20-TNC-N
20-ft (6-m) Ultra Low Loss LMR 400 Cable with N Connectors	CAB-L400-20-N-N
Lightning Arrestor Kit: female to female	CGR-LA-NF-NF
Lightning Arrestor Kit: male to female	CGR-LA-NM-NF
LTE Lightning Arrestor	4G-ACC-OUT-LA 4G-ACC-OUT-LA= (Spare)

* –N antenna works with –N cables and –N lightning arrestor.

For More Information

For more information about the Cisco 890G Series, visit https://www.cisco.com/go/800 or contact your local Cisco account representative.

For more information regarding Cisco 800 Series ISRs and options, contact your Cisco representative or go to https://www.cisco.com/go/isr.

For–N antenna and cable installation guidance, visit https://www.cisco.com/en/US/docs/routers/connectedgrid/antennas/installing/Overview.html

Cisco and Partner Services for the Enterprise Networks Architecture

Enable the Cisco Enterprise Networks Architecture and the business solutions that run on it with intelligent, personalized services from Cisco and our partners. Backed by deep networking expertise and a broad ecosystem of partners, these services can help you plan, build, and run a network that enables you to expand geographically, embrace new business models, and promote business innovation. Whether you are looking to transition to a Cisco Enterprise Networks Architecture, solve specific business problems, or improve operational efficiency, we have a service that can help you get the most from your IT environment. For more information, please visit https://www.cisco.com/go/services.

Warranty Coverage and Technical Service Options

The Cisco 890G Series 4G LTE 2.5 Integrated Services Routers come with the Cisco 1-year limited hardware warranty. Adding a contract for a technical service offering such as Cisco Smart Net Total Care™ Service provides benefits not available with the warranty, including access to OS updates, Cisco.com online resources, and Cisco Technical Assistance Center (TAC) support services. Table 10 shows the available technical services.

For information about Cisco warranties, visit https://www.cisco.com/go/warranty.

For information about Cisco Technical Services, visit https://www.cisco.com/go/ts.

Table 10. Cisco Technical Services for Cisco 890G Series 4G LTE 2.5 ISRs

Technical Services
Cisco Smart Net Total Care Service • Global access to the Cisco TAC 24 hours a day • Unrestricted access to the extensive Cisco.com resources, communities, and tools • Next-business-day, 8x5x4, 24x7x4, and 24x7x2 advance hardware replacement[1] and onsite parts replacement and installation available • Ongoing operating system software updates within the licensed feature set[2] • Proactive diagnostics and real-time alerts on Smart Call Home-enabled devices
Cisco Smart Foundation Service • Next-business-day advance hardware replacement as available • Business-hours access to SMB Cisco TAC (access levels vary by region) • Access to Cisco.com SMB knowledge base • Online technical resources through Smart Foundation Portal • Operating system software bug fixes and patches

[1]Advance hardware replacement is available in various service-level combinations. For example, 8 x 5 x next business day (NBD) indicates that shipment will be initiated during the standard 8-hour business day, 5 days a week (the generally accepted business days within the relevant region), with NBD delivery. Where NBD is not available, same-day shipment is provided. Restrictions apply; please review the appropriate service descriptions for details.

[2]Cisco operating system updates include maintenance releases, minor updates, and major updates within the licensed feature set.

Printed in USA

C78-737332-05   10/17