Third-Generation Wireless WAN Enhanced High-Speed WAN Interface Cards (EHWIC)

The Cisco® Third-Generation (3G) Wireless WAN (WWAN) Enhanced High-Speed WAN Interface Cards (EHWICs) for Cisco Integrated Services Routers Gen 2 (ISR G2) provide the next generation of wireless WAN backup solutions.

Product Overview

The Cisco 3G WWAN EHWICs are the first enterprise-class 3G WWAN solution. Suitable for both backup and primary applications, these cards support the latest 3G standards (Evolved High-Speed Packet Access [HSPA+] and Evolve-Data Optimized [EV-DO] Rev A) and are backward-compatible with High-Speed Packet Access (HSPA), Universal Mobile Telecommunications Service (UMTS), Enhanced Data Rates for Global Evolution (EDGE), General Packet Radio Service (GPRS), and EV-DO Rev 0/1xRTT. The Cisco 3G WWAN EHWICs Series has two variants:

- Global System for Mobile Communications (GSM) and UMTS models are based on 3GPP, and they support 3.7G HSPA+, 3.5G HSPA (Evolved High-Speed Packet Access (HSPA+/HSPA)), UMTS, EDGE, and GPRS.
- Code Division Multiple Access (CDMA) models are based on 3GPP2, and they support EV-DO Rev A/Rev 0 and 1xRTT.

The Cisco 3G WWAN EHWICs are tightly integrated with the services provided on the award-winning Cisco integrated services routers Gen 2 (ISR G2), which deliver secure data, voice, video, and mobility services. The Cisco 3G WWAN EHWICs are supported on the modular Cisco 1900, 2900 and 3900 Series Integrated Services Routers G2.

Enterprises are looking for ways to reduce costs, increase revenue, and improve business continuity. The Cisco 3G WWAN EHWICs, when coupled with a service provider wireless data plan, provide a cost-effective, rapidly deployable, reliable, and secure backup solution for remote sites and branch offices. With data rates approaching T1 speeds, 3G networks provide an alternative to wire line backup solutions such as dial-up, ISDN, cable, and DSL. If a network fails, the Cisco integrated services router routes mission-critical data to the Cisco 3G WWAN EHWIC for transmission across the wireless infrastructure. In addition, the router can distinguish different types of traffic and allow only mission-critical traffic to flow over the backup interface. The 3G wireless WAN EHWICs are available in multiple part numbers. The CDMA part number is EHWIC-3G-EVDO-x[1] (where x reflects the wireless carrier), EHWIC-3G-HSPA-U, EHWIC-3G-HSPA+7-A, and EHWIC-3G-HSPA+7. Figure 1 shows the cards.

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[1] S=For Sprint Networks; V=For Verizon Wireless Networks; B=For BSNL Networks

Figure 1. 3G Wireless WAN EHWICs for Cisco Integrated Services Routers G2

With enhanced data rates and improved latency (road trip time below 100 milliseconds), WWAN services are an ideal way to supplement traditional wire line services. 3G WWAN data services offered today have average data rates well in excess of ISDN speeds, with theoretical limits in excess of 21.1 Mbps on the downlink and 5.76 Mbps on the uplink. The 3G WWAN as a primary link for sites with lower bandwidth requirements and for mobile applications. The 3G WWAN data services 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.

Key Business Benefits

Applications

WAN Backup

Resilient WAN access is a crucial requirement for branch offices connecting to a corporate site or the Internet. Although DSL, Frame Relay, ISDN, and dialup are common choices for backup if a primary WAN link fails, a non-terrestrial data path such as a 3G WWAN provides enhanced WAN diversity (Figure 2). Cisco 3G WWAN EHWICs combined with the Cisco integrated services routers offer the capability to automatically initiate connection over the 3G WWAN when the primary WAN link is unavailable. In addition, you can use Cisco 3G WWAN EHWICs to provide supplemental bandwidth when the primary WAN link is overloaded.

Figure 2. Cisco 3G WWAN EHWIC for WAN Backup
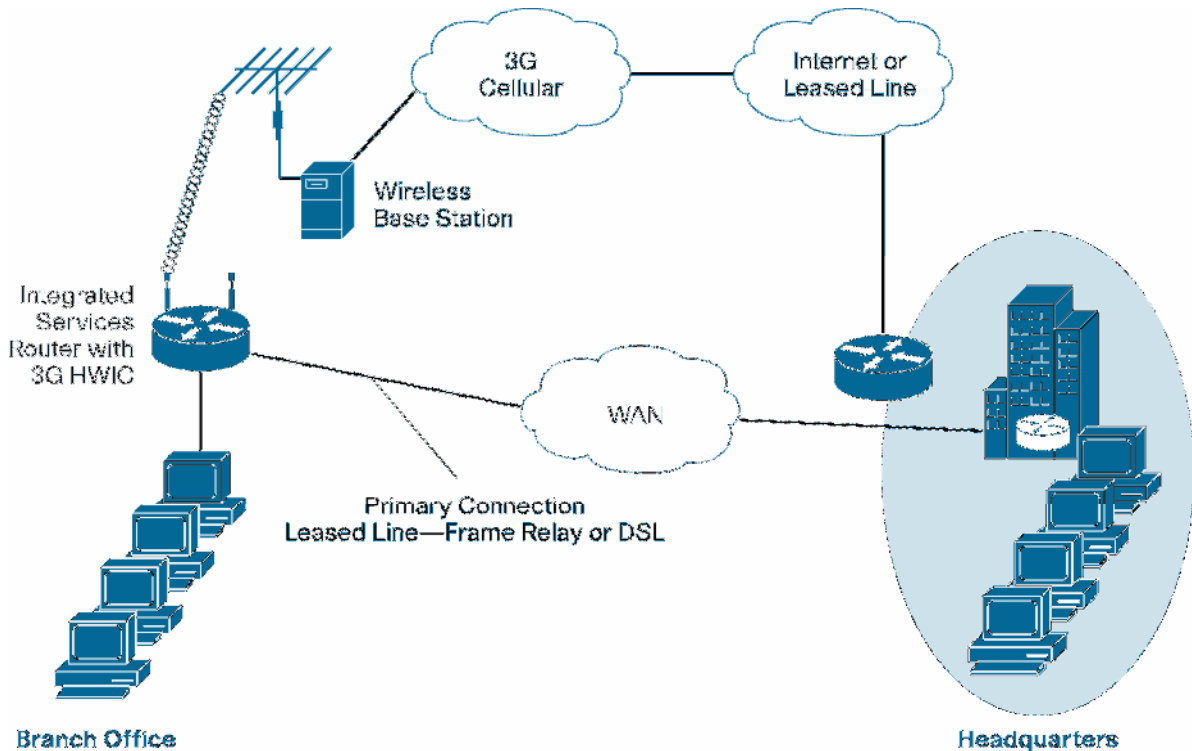
Primary Connectivity

For applications that have low data usage but high security requirements such as bank ATMs, gas station kiosks, point of sales (POS) and telemetry sites, the Cisco 3G WWAN EHWIC offers a secure, simplified, and cost-effective WAN alternative to DSL or Frame Relay. In areas where terrestrial broadband services (cable, DSL, or T1) are not available or are expensive, 3G WWAN connectivity can be a viable alternative.

For businesses requiring rapid setup or temporary connectivity, 3G WWAN offers the capability to bring up a new site quickly and cost-effectively. Using the integrated services available on the Cisco integrated services routers, Cisco 3G WWAN EHWICs can provide instant and mobile communications during disasters and service outages.

Key Features and Benefits

- **Integrated 3G WWAN broadband:** With the 3G WWAN modem integrated into the router, you gain the benefit of simplified installation and management. In addition, the Cisco 3G WWAN EHWICs are tightly integrated with Cisco integrated services routers, which run the industry-leading Cisco IOS® Software, giving access to all the advanced features of Cisco IOS Software such as quality of service (QoS), intelligent network queuing, and robust security.

- **Short installation time:** Businesses sometimes have to wait for weeks or months to get data circuits installed at new locations. For temporary or seasonal sites, wireless data services allow instant connectivity anywhere there is cellular coverage, and rapid deployment allows you to quickly set up networks with WAN connectivity.

- **Network resiliency through WAN diversity:** WAN connectivity is crucial to the functioning of your business, and any downtime means a loss of productivity and lost opportunity. Staying connected and operational during a network outage can be vital. A wireless connection for backup to a remote site provides protection against line outages and an additional level of redundancy because the 3G WWAN infrastructure is often served by separate facilities, providing redundancy for the entire local loop.
- **Reduced cost:** The emerging 3G WWAN cellular data service plans are competitively priced with existing wireline services (ISDN, DSL, and cable). 3G WWAN solutions also allow you to consolidate your service providers across large geographical areas instead of having service contracts with multiple service providers.
- **Portability:** You can easily relocate wireless routers and Cisco 3G WWAN EHWICs wherever coverage is available.
- **Performance:** With increasing data usage and the proliferation of web-based applications at remote sites, there is an increasing need for high-speed (broadband) data connections to run mission-critical applications at these sites. 3G WWAN services promise low-latency links at speeds approaching T1 connections, allowing you to send and receive more mission-critical data across the WAN in backup scenarios.

Product Specifications

Table 1 provides specifications for the Cisco 3G WWAN EHWICs, and Table 2 provides antenna specifications.

Table 1.   Specifications for the Cisco 3G WWAN EHWICs Among Region Theaters

Region Theaters	EHWIC-3G-HSPA+7	EHWIC-3G-HSPA+7-A	EHWIC-3G-HSPA-U
Bands	850, 900, 1900, and 2100 MHz	850, 900, 1900, and 2100 MHz	850, 900, 1900, and 2100 MHz
DL/UP Speeds	21.1 Mbps/5.76 Mbps	21.1 Mbps/5.76 Mbps	7.2 Mbps/5.76 Mbps
Australia and New Zealand	✓	X	✓
Asia Pacific	✓	X	✓
Canada/Mexico	X	✓	✓
Europe, Middle East, and Africa	✓	X	✓
Japan	✓	X	✓
Latin America	✓	X	✓
United States of America	X	✓	X

Item	Specification
External Interfaces	- RJ-45 interface for use with diagnostics and monitoring tools - Two TNC connectors with main and diversity RF port for antenna connection. Diversity port can also support GPS. - EHWIC-3G-HSPA+7, EHWIC-3G-HSPA+7-A, EHWIC-3G-HSPA-U supports main and diversity antenna connector - EHWIC-3G-EVDO-S, EHWIC-3G-EVDO-V, EHWIC-3G-EVDO-B supports main and diversity antenna connector
Form Factor	Single wide Cisco 3G WWAN EHWIC form factor
Physical Dimensions (H x W x D)	0.75 x 3.08 x 4.9 in. (1.9 x 7.8 x 12.4 cm)
Weight	0.24 lb (3.84 oz)
Subscriber Identity Module (SIM) Card	SIM card socket; compliant with ISO-7816-2 (SIM mechanical)
Power	4.5W maximum

Item	Specification	
Supported Platforms	Modular Cisco 1900, 2900 and 3900 Integrated Services Routers G2	
Software Compatibility	**Modular Cisco 1900, 2900,and 3900 series Integrated Services Routers supported with Cisco IOS Software release:** • Cisco IOS Software feature set: Universal IOS image • EHWIC-3G-HSPA+7 supported with mainline 15.1(4)M or later • EHWIC-3G-HSPA+7-A supported with mainline 15.1(4)M or later • EHWIC-3G-HSPA-U supported with 15.1(3)T or later • EHWIC-3G-EVDO-S supported with 15.1(3)T or later • EHWIC-3G-EVDO-V supported with 15.1(3)T or later • EHWIC-3G-EVDO-B supported with 15.1(3)T or later **Key Features Include** • Auto-Switch Failover Between Primary & Backup Link • Multichannel-interface-processor (MIP) profile configuration • CDMA Data Retry • 3G SNMPv2 MIBs and Traps • Remotely initiated data call back using voice • Remotely initiated data call back using SMS • Remote firmware upgrade over 3G • Virtual diagnostic monitoring • MEP lock/unlock capability • SIM lock/unlock capability	
SMS/GPS	• Send and receive SMS (max. 160 characters) • Standalone GPS	
MIBs	• 3G MIB • ENTITY MIB • IF MIB • 3G WWAN MIB persistence	
Network Management and Diagnostics	• In-band and out-of-band management using Telnet (Cisco IOS Software command-line interface [CLI]) and Simple Network Management Protocol (SNMP), including MIB II and other extensions • Industry-standard 3G 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 • **EHWIC-3G-HSPA+7:** Sierra Wireless MC8705 (non-US market) • **EHWIC-3G-HSPA+7-A:** Sierra Wireless MC8705 (North America market) • **EHWIC-3G-HSPA-U:** Sierra Wireless MC8795V (non-US market) • **EHWIC-3G-CDMA-S:** Sierra Wireless MC5728V (Sprint Networks) • **EHWIC-3G-CDMA-V:** Sierra Wireless MC5728V (Verizon Wireless Networks) • **EHWIC-3G-CDMA-B:** Sierra Wireless MC5728V (BSNL Networks)	
Carrier Support	For an updated list of carriers that offer services with Cisco 3G WWAN EHWIC, please visit http://www.cisco.com/go/3g.	
Programming Interfaces	Cisco IOS Software CLI	
Wireless Technologies Supported (Performance and Throughput) 	**EHWIC-3G-HSPA+7** • HSPA+: 850, 900, 1900, and 2100 MHz (forward link up to 21.1 Mbps; reverse link up to 5.76 Mbps) • Backward compatibility: 　◦ **HSPA:** 850, 900, 1900, and 2100 MHz (forward link up to 7.2 Mbps; reverse link up to 5.76 Mbps) 　◦ **HSDPA:** 850, 900, 1900, and 2100 MHz (forward link up to 7.2 Mbps; reverse link up to 384 kbps) 　◦ **UMTS:** 850, 900, 1900, and 2100 MHz (forward link up to 2.0 Mbps; reverse link up to 384 kbps) 　◦ **EDGE:** 850, 900, 1800, and 1900 MHz (forward link up to 236 kbps; reverse link	**EHWIC-3G-HSPA-U** • HSPA: 850, 900, 1900, and 2100 MHz (forward link up to 7.2 Mbps; reverse link up to 5.76 Mbps) • Backward compatibility: 　◦ **HSDPA:** 850, 900, 1900, and 2100 MHz (forward link up to 7.2 Mbps; reverse link up to 384 kbps) 　◦ **UMTS:** 850, 900, 1900, and 2100 MHz (forward link up to 2.0 Mbps; reverse link up to 384 kbps) 　◦ **EDGE:** 850, 900, 1800, and 1900 MHz (forward link up to 236 kbps; reverse link up to 124 kbps) 　◦ **GPRS:** 850, 900, 1800, and 1900 MHz (forward link up to 80 kbps; reverse link up

Item	Specification	
	up to 124 kbps) ◦ **GPRS:** 850, 900, 1800, and 1900 MHz (forward link up to 80 kbps; reverse link up to 42 kbps) **EHWIC-3G-HSPA+7-A** **(Orderable Dec, 2011)** • HSPA+:: 850, 900, 1900, and 2100 MHz (forward link up to 21.1 Mbps; reverse link up to 5.76 Mbps) • • Backward compatibility: ◦ **HSPA:** 850, 900, 1900, and 2100 MHz (forward link up to 7.2 Mbps; reverse link up to 5.76 Mbps) ◦ **HSDPA:** 850, 900, 1900, and 2100 MHz (forward link up to 7.2 Mbps; reverse link up to 384 kbps) ◦ **UMTS:** 850, 900, 1900, and 2100 MHz (forward link up to 2.0 Mbps; reverse link up to 384 kbps) ◦ **EDGE:** 850, 900, 1800, and 1900 MHz (forward link up to 236 kbps; reverse link up to 124 kbps) ◦ **GPRS:** 850, 900, 1800, and 1900 MHz (forward link up to 80 kbps; reverse link up to 42 kbps)	to 42 kbps) **EHWIC-3G-EVDO-x*** • CDMA 1xEV-DO Rev A (forward link up to 3.1 Mbps; reverse link up to 1.8 Mbps) • Backward compatibility: ◦ CDMA 1xEV-DO Rev A (forward link up to 3.1 Mbps; reverse link up to 1.8 Mbps) ◦ Backward compatibility:
Frequency Bands Supported	**EHWIC-3G-HSPA+7** **EHWIC-3G-HSPA+7-A** • 850-, 900-, 1900-, and 2100-MHz WCDMA bands (HSPA, HSUPA, HSDPA and UMTS) • 850-, 900-, 1800-, 1900-MHz GSM bands (EDGE and GPRS) **EHWIC-3G-HSPA-U** • 850-, 900-, 1900-, and 2100-MHz WCDMA bands (HSUPA, HSDPA and UMTS) • 850-, 900-, 1800-, 1900-MHz GSM bands (EDGE and GPRS)	**EHWIC-3G-EVDO-x*** • 800 MHz: North American cellular band • 1900 MHz: North American PCS band
LED Indicators	**EHWIC-3G-HSPA+7** **EHWIC-3G-HSPA+7-A** **EHWIC-3G-HSPA-U** • WWAN LED (connection status indication) • RSSI • HSPA and UMTS service indication	**EHWIC-3G-EVDO-x*** • WWAN LED (connection status indication) • Receive Signal Strength indication (RSSI) • EV-DO and 1xRTT service indication
Approvals and Compliance	**Safety** • UL 60950-1,CAN/CSA-C22.2 No. 60950-1, EN 60950-1, IEC 60950-1, AS/NZS 60950.1, FCC Part 2.1093, RSS-102, and EN 50385	
	EMC • FCC Part 15, Industry Canada ICES-003, EN 301 489-01, EN 301 489-07, EN 301 489-24, EN55022 (CISPR22), EN55024 (CISPR24), EN300-386, EN 61000-3-2, EN 61000-3-3, AS/NZS CISPR 22, CNS13438, and VCCI V-3	
	Radio • FCC Part 2, FCC Part 22, FCC Part 24, RSS 129 and RSS 133, RSS 132 and RSS 133, EN 301 511 GSM, EN 301 908-1, and EN 301 908-2 • PTCRB-approved. device ID Cisco EHWIC-3G-HSPA+7-A	

*S = Sprint Networks, V = Verizon Wireless Networks, and B = BSNL Networks.

Table 2.   Antenna Specifications

Item	Specification
Diversity (Dual Antenna)	• EHWIC-3G-HSPA+7 EHWIC-3G-HSPA+7-A EHWIC-3G-HSPA-U: Diversity supported • EHWIC-3G-EVDO-x: Diversity supported
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 • **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:** 5.64 OD in. x 2.0 H in. • **Weight:** 6.0 oz • **Temperature rating:** -40 to 85℃ • **Can be used with the following cable extensions:** 3G-CAB-ULL-20 and 3G-CAB-ULL-50
Antenna 3G-ANTM1919D	**Description** • Multiband swivel mount dipole antenna • Faceplate mount (single unit included with all Cisco 3G WWAN EHWICs) **Electrical Specifications** • **Frequency range:** 806 to 960 MHz and 1710 to 2170 MHz • **Gain:** 0 dBi (806 to 960 MHz) and 0dBi (1710 to 2170 MHz) • **Maximum power:** 25W • **Connector:** TNC male • **Voltage standing wave ratio (VSWR):** < 2.5:1 • **Nominal impedance:** 50 ohms **Mechanical Specifications** • **Antenna dimensions:** 7.63 x 0.94 x 0.63 in. (19.37 x 2.34 x 1.59 cm) • **Temperature rating:** -22 to 158℉ (-30 to 70℃)

Antenna 3G-ANTM1916-CM	**Description**
	• Multiband omnidirectional antenna
	• Ceiling mount
	
	Electrical Specifications
	• **Frequency range:** 806 to 960 MHz and 1710 to 2170 MHz
	• **Gain:** 1.5 decibels relative to isotropic (dBi) (806 to 960 MHz) and 2.5 dBi (1710 to 2170 MHz)
	• **Maximum power:** 50W
	• **Connector:** TNC male
	• **VSWR:** Less than 1.8:1 (806 to 960 MHz) and less than 1.6:1 (1710 to 2170 MHz)
	• **Nominal impedance:** 50 ohms
	• **Polarization:** Vertical
	• **Intermodulation:**
	  ◦ < -140 decibels relative to carrier (dBc) typical (800 to 960 MHz IM3 at 2x20W)
	  ◦ < -140 dBc (1710 to 1880 MHz IM3 at 2 x 20W)
	  ◦ < -150 dBc (1920 to 2170 MHz IM7 at 2 x 20W)

Item	Specification
	Mechanical Specifications • **Radome material:** White ABS • **Base material:** Aluminum • **Cable:** 086FEP conformable • **Dimensions:** 7.09 OD x 2.44 H in. (18.00 OD x 6.20 H cm) • **Weight:** 0.62 lb (0.28 kg) • **Can be used with the following cable extensions:** 3G-CAB-ULL-20 and 3G-CAB-ULL-50
Antenna Extension 3G-AE015-R	**Description** • Single unit antenna extension base (15-ft (457.2-cm) cable included)
	Electrical Specifications • **Frequency range:** 0.8 to 5.85 GHz • **Attenuation:** < 3 decibels (dB) at or below 2.5 GHz • **Base connector:** TNC female • **Pigtail connector:** TNC male
	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:** 15 ft (457.2 cm) non-plenum rated Pro-Flex Plus 195
Antenna Extension 3G-AE010-R	**Description** • Single unit antenna extension base (10-ft (304.8-cm) cable included)
	Electrical Specifications • **Frequency range:** 0.8 to 5.85 GHz • **Attenuation:** Less than 3 decibels (dB) at or below 2.5 GHz • **Base connector:** TNC female • **Pigtail connector:** TNC male
	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) non-plenum rated Pro-Flex Plus 195
Outdoor Antenna 3G-ANTM-OUT-LP	**Description** • Multiband outdoor low-profile antenna with 15-ft cable • Panel mount (horizontal surface)
	Electrical Specifications • **Frequency range:** 806 to 960 MHz and 1710 to 2170 MHz • **Gain:** -1.5 dBi (806 to 960 MHz) and -1.5 dBi (1710 to 2170 MHz), which includes antenna gain and cable loss • **Maximum RF power tolerated:** 20W • **Connector:** TNC male, right angle • **Cable:** LMR-195, 15 ft. • **VSWR:** < 2.5:1 (806 to 960 MHz) and < 2.5:1 (1710 to 2170 MHz) • **Nominal impedance:** 50 ohms • **Polarization:** Vertical • **Radiation pattern:** -3dB beamwidth • **Horizontal:** Omnidirectional • **Vertical:** 64 deg (806 to 960 MHz) and 90 deg (1710 to 2170 MHz)

Item	Specification
	Mechanical Specifications • **Radome material:** black MakroBlend plastic • **Base material:** Aluminum • **Radome dimensions (outside diameter x height):** 5.65 x 2.06 in. (14.35 x 5.23 cm) • **Radome weight:** 0.375 lb (0.17 kg) • **Cable dimensions (length x diameter):** 15 ft. x 0.195 in. • **Mounting panel thickness:** 0.1 to 0.5 in. (2.54mm to 12.7mm) • All mounting hardware is included
	Environmental Specifications • **Mechanical Impact Rating:** [IK08] 5 joules per IEC-62262 • **Operating and storage temperature:** -40 to 85 deg C • **Wind rating:** 150 mph installed • **Water rating:** IP65 installed
Outdoor Antenna 3G-ANTM-OUT-COMBO	**Includes** • Mast or sall mount antenna • 3G-ACC-OUT-LA (lightning arrestor)
	Description • Multiband outdoor omnidirectional antenna • Mast and wall mount • 3G-ACC-OUT-LA lightning arrestor (see below) • **Can be used with the following cable extensions:** 3G-CAB-ULL-20, 3G-CAB-ULL-50, 3G-CAB-LMR240-25, 3G-CAB-LMR240-50, and 3G-CAB-LMR240-75
	Electrical Specifications • **Frequency range:** 806 to 960 MHz and 1710 to 2170 MHz • **Gain:** +2 dBi (806 to 960 MHz) and +4 dBi (1710 to 2170 MHz) • **Maximum RF power tolerated:** 20W • **Connector:** TNC male • **VSWR:** < 2.5:1 (806 to 960 MHz) and < 2.5:1 (1710 to 2170 MHz) • **Nominal impedance:** 50 ohms • **Polarization:** Vertical • **Radiation Pattern:** (-3 dB beamwidth) • **Horizontal:** Omnidirectional • **Vertical:** 40 deg (806 to 960 MHz) and 40 deg (1710 to 2170 MHz)
	Mechanical Specifications • **Radome material:** Off-white pultruded fiberglass, UV-protected • **Cap material:** Off-white MakroBlend plastic • **Radome dimensions:** 1.25 in. OD x 16 in H (3.175 cm OD x 40.64 cm H) • **Radome weight:** 0.375 lb (0.17 kg) • Mounting hardware • Bracket and clamps (for mast mounting) • Bracket (for wall mounting) • Screws not included (for wall mounting)
	Environmental Specifications • **Operating and storage temperature:** -40 to 85 deg C • **Wind rating:** 100 MPH (operational) and 125 MPH (survival) • **Water rating:** IP65 installed

Item	Specification
Outdoor Antenna Lightning Arrestor 3G-ACC-OUT-LA	**Description** • 3G lightning arrestor for outdoor antennas • **Type:** Inline quarter-wave arrestor with integrated high-pass filter • Bulkhead mounted and grounded with optional ground lug • Can be used with 3G-ANTM-OUT-COMBO outdoor omni antenna with lightning arrestor • **Can be used with the following cable extensions:** 3G-CAB-ULL-20, 3G-CAB-ULL-50, 3G-CAB-LMR240-25, 3G-CAB-LMR240-50, and 3G-CAB-LMR240-75 • Indoor (preferred) or outdoor (optional) installation • No maintenance required
	Electrical Specifications • **Frequency range:** 800 MHz to 2200 MHz • **Maximum insertion loss:** 0.2dB • **Maximum RF power tolerated:** 20W • **Connector:** TNC male (protected side) and TNC female (antenna-facing) • **VSWR:** < 1.22:1 (806 to 2200 MHz) • **Return loss:** > 26 dB • **Nominal impedance:** 50 Ohms • **Surge protection:** 10 kA single and 5 kA multiple strikes (8/20-microsecond test pulse)
	Mechanical Specifications • **Material:** Corrosion-resistant brass • **Dimensions:** 1.25 in. OD x 2.5 in L approx (3.175 cm OD x 6.35 cm L) • Mounting hardware • Ground lug (optional grounding method) • Nut for bulkhead mounting and grounding (preferred grounding method)
	Environmental Specifications • **Operating and storage temperature:** -40 to 85 deg C • **Water rating:** IP67 installed

Ordering Information

To place an order, refer to Tables 3 through 5 and visit the [Cisco Ordering Home](#) Page.

Table 3.   Cisco 3G WWAN EHWIC Ordering Information

Description	Part Number
3.7G HSPA Wireless WAN EHWIC supporting GPRS/EDGE/UMTS/HSDPA/HSUPA/HSPA (Global SKU)	EHWIC-3G-HSPA+7 EHWIC-3G-HSPA+7= (Spare)
3.7G HSPA Wireless WAN EHWIC supporting GPRS/EDGE/UMTS/HSDPA/HSUPA/HSPA (North America SKU)	EHWIC-3G-HSPA+7 EHWIC-3G-HSPA+7-A= (Spare)
3.5G HSPA Wireless WAN EHWIC supporting GPRS/EDGE/UMTS/HSDPA/HSUPA (Global SKU)	EHWIC-3G-HSPA-U EHWIC-3G-HSPA-U= (Spare)
3G EV-DO Wireless WAN EHWIC supporting 1xRTT, EV-DO Rev A/Rev 0 (Verizon SKU)	EHWIC-3G-EVDO-V EHWIC-3G-EVDO-V= (Spare)
3G EV-DO Wireless WAN EHWIC supporting 1xRTT, EV-DO Rev A/Rev 0 (Sprint SKU)	EHWIC-3G-EVDO-S EHWIC-3G-EVDO-S= (Spare)
3G EV-DO Wireless WAN EHWIC supporting 1xRTT, EV-DO Rev A/Rev 0 (BSNL SKU)	EHWIC-3G-EVDO-B EHWIC-3G-EVDO-B= (Spare)

Table 4.   Antenna Ordering Information

Description	Part Number
Multi-Band Swivel Mount Dipole Antenna-Faceplate Mount	3G-ANTM1919D

Description	Part Number
	3G-ANTM1919D= (Spare)
Multi-Band Omnidirectional Antenna-Ceiling Mount	3G-ANTM1916-CM 3G-ANTM1916-CM= (Spare)
Single Unit Antenna Extension Base (10-ft cable included(	3G-AE010-R 3G-AE010-R= (Spare)
Single Unit Antenna Extension Base (15-ft cable included)	3G-AE015-R 3G-AE015-R= (Spare)
50-ft (15m) Ultra Low Loss LMR 400 Cable with TNC Connector	3G-CAB-ULL-50 3G-CAB-ULL-50= (Spare)
20-ft (6m) Ultra Low Loss LMR 400 Cable with TNC Connector	3G-CAB-ULL-20 3G-CAB-ULL-20= (Spare)
3G Outdoor Antenna Lightning Arrestor	3G-ACC-OUT-LA 3G-ACC-OUT-LA= (Spare)
Multi-Band Outdoor Low Profile Antenna with 15ft cable	3G-ANT-OUT-LP 3G-ANT-OUT-LP= (Spare)
Multi-Band Outdoor Omnidirectional Antenna Mast/Wall Mount and 3G Outdoor Antenna Lightning Arrestor (3G-ACC-OUT-LA)	3G-ANT-OUT-COMBO 3G-ANT-OUT-COMBO= (Spare)
25-ft (7.5 m) Low Loss LMR 240 Cable with TNC Connector	3G-CAB-LMR240-25 3G-CAB-LMR240-25= (Spare)
50-ft (15 m) Low Loss LMR 240 Cable with TNC Connector	3G-CAB-LMR240-50 3G-CAB-LMR240-50= (Spare)
75-ft (23 m) Low Loss LMR 240 Cable with TNC Connector	3G-CAB-LMR240-75 3G-CAB-LMR240-75= (Spare)

Note: All 3G EHWICs (including spares) ship with one default dipole antenna 3G-ANTM1919D and 3G-AE010-R.

Table 5.   3G 1921 Integrated Services Router G2 Bundles Ordering Information

Description	Part Number
CISCO1921 bundle w/EHWIC-3G-HSPA+7, Universal Base, 256FL/512DR	C1921-3G+7-K9[1]
CISCO1921 bundle w/EHWIC-3G-HSPA+7-A, Universal Base, 256FL/512DR	C1921-3G+7A-K9[1]
CISCO1921 bundle w/EHWIC-3G-HSPA-U, Universal Base, 256FL/512DR	C1921-3G-U-K9[1]
CISCO1921 bundle w/HWIC-3G-HSPA-G, Universal Base, 256FL/512DR	C1921-3G-G-K9[1]
CISCO1921 bundle w/EHWIC-3G-EVDO-V, Universal Base, 256FL/512DR	C1921-3G-V-K9[1]
CISCO1921 bundle w/EHWIC-3G-EVDO-S, Universal Base, 256FL/512DR	C1921-3G-S-K9[1]
CISCO1921 bundle w/EHWIC-3G-HSPA+7, Universal Base, 256FL/512DR, Adv Security	C1921-3G+7-SEC/K9[1]
CISCO1921 bundle w/EHWIC-3G-HSPA+7-A, Universal Base, 256FL/512DR, Adv Security	C1921-3G+7A-SEC/K9[1]
CISCO1921 bundle w/EHWIC-3G-HSPA-U, Universal Base, 256FL/512DR, Adv Security	C1921-3G-U-SEC/K9[1]
CISCO1921 bundle w/HWIC-3G-HSPA-G, Universal Base, 256FL/512DR, Adv Security	C1921-3G-G-SEC/K9[1]
CISCO1921 bundle w/EHWIC-3G-EVDO-V, 256FL/512DR, Adv Security	C1921-3G-V-SEC/K9[1]
CISCO1921 bundle w/EHWIC-3G-EVDO-S, 256FL/512DR, Adv Security	C1921-3G-V-SEC/K9[1]

[1] Mobile IP requires separate data licence

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For More Information

For more information about the Cisco 3G WWAN EHWICs, visit http://www.cisco.com/go/3g or contact your local Cisco account representative.

Configuration Guides
http://www.cisco.com/en/US/products/hw/routers/ps380/products_installation_and_configuration_guides_list.html

Configuring Cisco EHWIC for 3G (EV-DO Rev A)
http://www.cisco.com/en/US/docs/routers/access/1800/1861/software/feature/guide/mrwls_evdo.html

Configuring Cisco EHWIC for 3.7G (HSPA+)/3.5G (HSPA)
http://www.cisco.com/en/US/docs/routers/access/1800/1861/software/feature/guide/mrwls_hspa.html

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