

# CH6541E

## EuroDOCSIS 3.0 Wireless Gateway

### Introduction

The Compal Broadband Networks' CH6541E EuroDOCSIS 3.0 Wireless Digital Voice Gateway is a fully integrated all-in-one home networking, communication solution that combines the functionality of a EuroDOCSIS 3.0 digital voice modem, a four-port 10/100/1000 Gigabit Ethernet switch with advanced firewall, and an 802.11n wireless access point in one convenient package.

The CH6541E is the perfect broadband solution for the home, home officer or small business; allowing users to create a custom home network to share a single ultra-broadband connection, files, and networked peripherals, using wired or wireless connectivity. Cost-effective, efficient, and secure, the CH6541E enables users to maximize the potential of their existing resources, while benefiting from next generation high-bandwidth data and IP voice services.

Provides cable operators with an intelligent way to offer their customers high-speed data, IP-based telephone services, and an enhanced high-bandwidth home networking experience using a single broadband communication solution.



### Highlights

- EuroDOCSIS 3.0 / 2.0 / 1.x compliant
- 8x4 channel bonding
- 2 RJ-11 voice ports
- 2.4GHz /5GHz 802.11n wireless access point, Backwards compatible to 802.11b/g
- 2x2 internal antennas
- Multiple SSIDs
- Hometown WiFi
- WPS
- 4-port auto-sensing gigabit Ethernet switch
- Support DLNA DMS for media sharing
- Supports IPv4 and IPv6
- Firewall and parental controls
- Enhanced security with AES traffic encryption and advanced SNMP network management
- Easy setup and installation
- User-friendly online diagnostics
- Low-power consumption

### Features

#### ⦿ Increased Data Rates

Utilising the power of EuroDOCSIS 3.0, the CH6541E enables channel bonding of up to 8 downstream and 4 upstream channels. This allows an operator to offer their customers advanced multi-media services, increasing data rates of well over 300 Mbps in DOCSIS in the received (downstream) data stream and over 100 Mbps in the send (upstream) data stream. The CH6541E's high-speed services enable operators to:

- Protect their installed base of premium high-speed data customers.
- Deliver high-bandwidth, multimedia services to residential customers.
- Deliver competitive, high-capacity commercial services to their business customers.

The CH6541E eliminates the need for stand-alone routers, hubs, and access points. Its four Gigabit Ethernet RJ-45 ports and integrated 802.11n wireless access point with an internal 2 x 2 antenna array and dual on-board radios (2.4 and 5 GHz) enable users to maximize the high-bandwidth potential of their home or business network.

The CH6541E includes an enhanced tuner that supports up to a 1 GHz downstream input allowing operators to increase the frequency spectrum for deployment of new high-value services, such as IP-based telephony, bandwidth on-demand, commercial services, inter-active gaming, and IPTV to their customers.

### © Digital Voice Telephone Service

The CH6541E delivers up to two lines of primary-line digital voice telephone service (terminating in RJ-11 connectors) over cable's broadband connection to the home. Voice traffic is prioritised over Internet traffic, giving the user high-quality voice calls, even while surfing the Web. The CH6541E also supports a variety of rich CLASS features, such as caller ID, call waiting, three-way calling, and call forwarding.

The CH6541E also supports:

Automatic fax modem processing, including support for T.38 protocol G.711, G.729, and other low-rate vocoders

Network Call Signaling (NCS) and Session Initiation Protocol (SIP) support And is configured to meet multiple telco market standards: ETSI harmonized impedance, 600Ω

### © High Performance Wireless Access

One way to avoid the challenges of re-wiring or contending with varying wiring in the home is to eliminate wires altogether. The CH6541E is equipped with a next-generation 802.11n Wi-Fi® access point with single band radio operation.

#### 802.11n:

802.11n, the most current superset of the widely used wireless standard utilized by consumers in more than 100 million deployed PCs and mobile devices, is a compelling networking option for operators and consumers.

The CH6541E's 802.11n integrated access point eliminates the need for wires altogether – enabling users to easily/wirelessly network all of their 802.11a/b/g/n equipped devices.

#### Dual Radio Operation:

the CH6541E is configured with a switched radios (802.11 a/b/g/n at 2.4 GHz or 802.11a/n at 5 GHz) to support LAN flexibility. This radio operation enables the CH6541E to work with the lowest common denominator Wi-Fi peripherals, allowing consumers to network previous and next-generation computers, gaming consoles, and other peripherals anywhere in the home

#### Built-In Security

The CH6541E is equipped with a number of security features to offer consumers peace of mind, including:

- Firewall with DoS protection and intrusion prevention
- DHCP, NAT, VPN endpoint, VPN tunneling
- Wi-Fi Security WEP/WPA/WPA2 with an easy setup wizard
- User-friendly, secure mobile pairing for Wi-Fi enabled handsets
- Power management enhancements optimize Wi-Fi handset battery performance
- Wi-Fi Wizard removes end-user complexity for secure PC client setup
- Push button configuration for WPS compliant clients

## Service Assurance

Supporting the Wi-Fi home network is a new challenge for the cable industry. As a leading worldwide provider of Euro- DOCSIS products, CBN is helping ease cable operators into Wi-Fi delivery. By combining the highest-performing and lowest cost of ownership modems in the industry, with easy-to-use Wi-Fi installation and pairing tools as well as advanced remote management features, CBN is offering an all-in-one approach to broadband home networking.

## Front Panel



Feature	Description
<b>Indicator</b>	Power, Receive, Send, Online, TEL1, TEL2, Wireless, WPS Button
<b>Color</b>	Black textured, black face plate, white text, dual-color green/blue LED
<b>Branding</b>	CBN and Model number

## Back Panel



Feature	Description
<b>Tel 1 Tel 2</b>	VoIP connection for a single telephone. Two sets of telephone can be supported.
<b>Ethernet</b>	Use any Ethernet port to connect an Ethernet-equipped computer, hub, bridge, or switch using an RJ- 45 cable.
<b>Reset</b>	Press and hold the RESET button for five seconds or longer to restore CH6541E to factory default settings.
<b>Cable</b>	Connect the CH6541E to a cable wall outlet.
<b>Power Switch</b>	Switch gear for power on/off the CH6541E.
<b>Power On/Off</b>	Provide power to the CH6541E.

## Specifications

GENERAL	
Standards	DOCSIS/Euro-DOCSIS 3.0 and PacketCable/Euro-PacketCable 1.5 certified; interoperable with DOCSIS/Euro-DOCSIS 2.0, 1.0 and 1.1 and compatible with PacketCable/Euro-PacketCable 1.0; SIP; NCS
Cable Interface	F-Connector, female, 75Ω
Network Interface	Four 10/100/1000 Ethernet Ports
Wireless Interface	802.11b/g/e/i /n Wi-Fi
Dimensions	(H) 208.49 mm x (L) 179mm x (W)50mm
Regulatory	RoHS compliant, CE, ENERGY STAR qualified, COC compliant
INPUT POWER	100 to 240 VAC, 50 to 60 Hz
ENVIRONMENTAL	
Operating Temperature	32 °F to 104 °F (0 °C to 40 °C)
Storage Temperature	-22 °F to 158 °F (-30 °C to 70 °C)
Operating Humidity	5 to 95% R.H. (non-condensing)

<b>DOWNSTREAM</b>	
Modulation	64 or 256 QAM
Maximum Theoretical Dara Rata DICSIS	343.072 Mbps (8 channels) /42.884 (single channel) @ 256 QAM at 5.36 Msym/s
Maximum Bandwidth Required EuroDICSIS	8MHz * 8 channels
Symbol Rate EuroDOCSIS	64 QAM 6.952 Msym/s; 256 QAM 6.952 Msym/s
Operating Level Range	—13 to +17 dBmV (256 QAM) —17 to +13 dBmV (64 QAM)
Frequency Range	108 to 1002MHz <sup>8</sup>
Input Impedance	75 $\Omega$ (nominal)

<b>UPSTREAM</b>	
Modulation	8, 16, 32, 64,128 QAM or QPSK
Maxumum Channel Rate	120 Mbps(4 channels)
@128QAM Bandwidth	200 kHz, 400 kHz, 800 kHz, 1.6MHz, 3.2 MHz, 6.4 MHz***
Symbol Rates	160, 320, 640, 1280, 2560, and 512***ksym/s
Operating Level Range A-TDMA S-CDMA	8 to 54 dBmV (32 QAM, 64 QAM) 8 to 55 dBmV (8 QAM, 16 QAM) 8 to 58 dBmV (QPSK) 8 to 53 dBmV (all modulations)
Output Impedance	75 $\Omega$ (nominal)
Frequency Range(edge to edge)	5 to 65 MHz(edge to edge)

<b>NETWORK</b>	
Gateway	DHCP, NAT, VPN tunneling; static routing and dynamic IP routing (RIPv1, RIPv2); SPI firewall with DoS protection and intrusion prevention; port, packet,and URL keyword filtering; full suite of ALGs; UPnP IGD 1.0
Wireless LAN	802.11b/g/n Wi-Fi, WDS bridging,802.11e WMM admission control. Up to 4 SSIDs, QoS Both BW 20MHz and 40MHz 802.11e WMM power save/U-
Power Management	APSD (Unscheduled-Automatic Power Save Delivery)
802.11i Security	WEP-64/128,WPA-PSK,WPA,WPA2,TKIP,AES,802.1x,802.11i(pre-authentication)
Mobile Pairing	User-friendly Wi-Fi protected setup (WPS) for secure mobile pairing with compatible dual-mode handset



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