



Compal Broadband Networks

CH7486E Wireless Voice Gateway Series

User Guide

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1 Overview

The CBN CH7486E Wireless Gateway is the worldwide most compact EuroDOCSIS 3.0 Voice Gateway with stylish and elegant outlook, designed for your home, home office, or small business/enterprise. It can be used in households with one or more computers capable of wireless connectivity for remote access to the wireless gateway.

This user guide provides product overview and setup information for the CH7486E. It also provides instructions for installing the wireless gateway and configuring the wireless LAN, Ethernet, router, DHCP, and security settings.

Contact Information

- For any questions or assistance with the CH7486E Wireless Gateway, contact your Internet Service provider.

Standard Features

The CH7486E Wireless Gateway combines high-speed Internet access, networking, and computer security for a home or small-office LAN. It offers the following features:

- Combination of five separate products in one compact unit — an EURO DOCSIS® 3.0 cable modem, IEEE 802.11b/g/n/ac wireless access point, Ethernet 10/100/1000 Base-T connections, VoIP Internet telephone connections, and firewall.
- An integrated high-speed cable modem for continuous broadband access to the Internet and other online services with much faster data transfer than traditional dial-up or ISDN modems.
- Advanced firewall for enhanced network security from undesired attacks over the Internet. It supports stateful-inspection, intrusion detection, DMZ, denial-of-service attack prevention, and Network Address Translation (NAT).
- One broadband connection for up to 253 computers to surf the web; all computers on the LAN communicate as if they were connected to the same physical network.
- Two 10/100/1000Base-T Ethernet uplink ports supporting half- or full-duplex connections with auto-MDIX capability.

- An IEEE 802.11n/ac wireless access point to enable laptop users to remain connected while moving around the home or small office or to connect desktop computers without installing network wiring. Depending on distance, wireless connection speeds can vary.
- CH7486E wireless function supports Wi-Fi 2.4G/5G dual-band mode.
- A secure Wireless Fidelity (Wi-Fi) broadband connection for Wi-Fi enabled devices on your network, such as your mobile, laptops, tablet, printers, PDAs, and desktops.
- Routing for a wireless LAN (WLAN) or a wired Ethernet LAN; you can connect more than two computers using hubs and/or switches
- A built-in DHCP server to easily configure a combined wired and/or wireless Class C private LAN.
- Virtual private network (VPN) pass-through operation supporting IPSec, PPTP, or L2TP to securely connect remote computers over the Internet.
- CH7486E Configuration Manager (CMGR) which provides a graphical user interface (GUI) for easy configuration of necessary wireless, Ethernet, router, DHCP, and security settings.

CH7486E LAN Choices

You can connect up to 253 client computers to the CH7486E using one or any combination of the following network connections:

- Wi-Fi wireless LAN (WLAN)
- Ethernet local area network (LAN)

Wireless LAN

Wireless communication occurs over radio waves rather than a wire. Like a cordless telephone, a WLAN uses radio signals instead of wires to exchange data. A wireless network eliminates the need for expensive and intrusive wiring to connect computers throughout the home or office. Mobile users can remain connected to the network even when carrying their laptop to different locations in the home or office.

Each computer or other device on a WLAN must be Wi-Fi enabled with either a built-in or external wireless adapter.

Laptops — Use a built-in wireless notebook adapter, a wireless PCMCIA slot adapter, or a wireless USB adapter.

Desktops — Use a wireless PCI adapter, wireless USB adapter, or compatible product in the PCI slot or USB port, respectively.



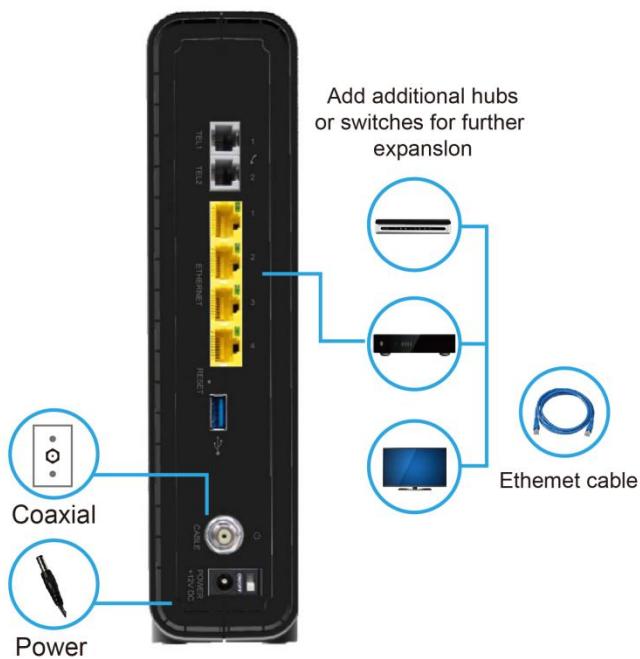
Sample Wireless Network Connections (CH7486E model shown)

Your maximum wireless operation distance depends on the type of materials through which the signal must pass and the location of your CH7486E and clients (stations). CBN cannot guarantee wireless operation for all supported distances in all environments.

Note: To get better wireless coverage, please put your CH7486E wireless gateway VERTICALLY ONLY

Wired Ethernet LAN

You can easily connect any PC with an Ethernet cable to the CH7486E Ethernet port. Because the CH7486E Ethernet port supports auto-MDIX, you can use a straight-through or cross-over cable to connect a hub, switch, or computer. Use category 5, or better, cabling for all Ethernet connections.



Sample Ethernet to Computer Connection (CH7486E model shown)

A wired Ethernet LAN with more than two computers requires one or more hubs, switches, or routers. You can:

- Connect a hub or switch to any Ethernet port on the CH7486E.
 - Use Ethernet hubs, switches, or routers to connect up to any combination of 253 computers and wireless clients to the CH7486E.

More detailed information on Ethernet cabling is beyond the scope of this document.

Front Panel

The CH7486E front panel contains indicator lights and the Wi-Fi / WPS button which is used to configure Wi-Fi Protected Security (WPS) on compatible clients connected to the CH7486E network.

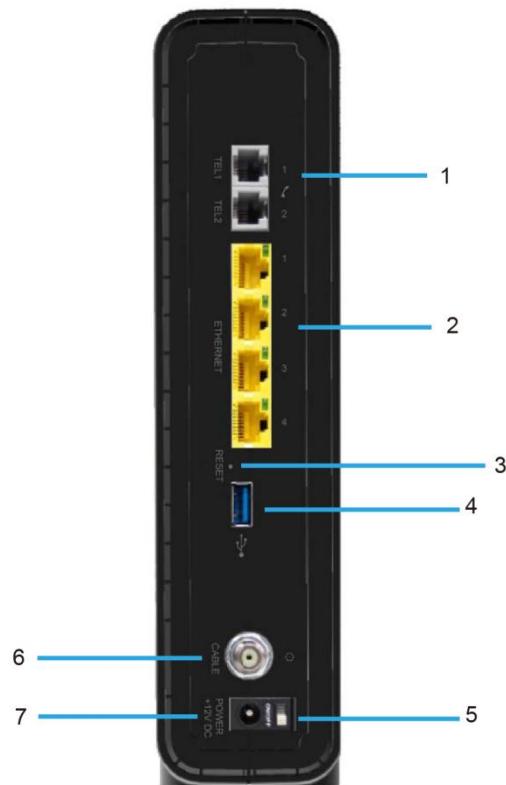


The CH7486E front panel LED indicators provide the following status information for power, communications, and errors:

	LED	Flashing	On
1	POWER	Not applicable — LED does	Green: Power is properly

	LED	Flashing	On
		not flash	connected
2	ONLINE	Scanning for Internet connection; transmitting or receiving data over the Internet	Green: Connected to Internet
3	WIRELESS 2.4GHz 5GHz	Amber: WPS function is enabled.	Green: Wi-Fi wireless interface is active now.
4	TEL 1/2	Telephone is off-hook; dialing or call in progress	Green: Telephone is connected and activated; on-hook

Rear Panel



The CH7486E (shown above) rear panel contains the following cabling port and connectors:

Item	Description
1 PHONE 1 2	VoIP connection for a single telephone.
2 LAN 1 2 3 4	<p>Use any Ethernet port to connect an Ethernet-equipped computer, hub, bridge, or switch using an RJ-45 cable.</p> <p>Activity LED - Green LED defines the activity of the Ethernet connector.</p> <p>When LED is ON, this indicates that there is no data traffic and a connection is stabilized.</p> <p>When LED is FLASHING, this indicates that there is data being transmitted upstream or downstream.</p> <p>When LED is OFF, this indicates that the unit is not powered or there is no Ethernet connection.</p>
3 RESET	Press and hold the RESET button for five seconds or longer to restore CH7486E to factory default settings. After factory default settings are restored, the gateway will restart and may take 5 to 30 minutes to find and lock on the appropriate communication channels.
4 USB	USB host port for print server or network storage function
5 POWER SWITCH	Switch gear for power on/off the CH7486E.
6 COAX	Connect the CH7486E to a cable wall outlet.
7 POWER	Provide power to the CH7486E.

MAC Label

The CH7486E Media Access Control (MAC) label is located on the bottom of the CH7486E. The label contains the MAC address which is a unique, 48-bit value that identifies each Ethernet network device. To receive data service, you will need to provide the MAC address marked HFC MAC ID to your Internet Service provider."



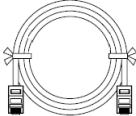
Note: Label may differ according to local settings or requirements.

2

Getting Started

Inside the Box

Before you install the CH7486E Wireless Gateway, verify that the following items are included in the box with the CH7486E:

Item	Description
Power Adapter	 Connect the CH7486E to an AC electrical outlet
WiFi Sticker Card	 For user placing the WiFi SSID/Password information for 2.4GHz and 5GHz for future use.
Ethernet Cable	 Connect the CH7486E to PC or Notebook

You must have the latest service packs and patches installed on your computer for your operating system.

You will need a 75-ohm coaxial cable with F-type connectors to connect the CH7486E to the nearest cable outlet. If a TV is connected to the cable outlet, you may need a 5 to 900 MHz RF splitter and two additional coaxial cables to use the TV and the CH7486E.

Before You Begin

Take the following precautions before installing the CH7486E:

- Postpone installation until there is no risk of thunderstorm or lightning activity in the area.
- To avoid potential shock, always unplug the power cord from the wall outlet or other power source before disconnecting it from the CH7486E rear panel.
- To prevent overheating the CH7486E, do not block the ventilation holes on the sides of the unit. Do not open the unit. Refer all service to your Internet Service provider.

Check that you have the required cables, adapters, and adapter software. Verify that the proper drivers are installed for the Ethernet adapter on each networked computer. For information on WLAN setup, see [Setting Up Your Wireless LAN](#).

System Requirements

Your computer must meet the following minimum requirements:

- Computer with Pentium® class or better processor
- Any web browser, such as Microsoft Internet Explorer, Netscape Navigator®, or Mozilla® Firefox®

Position Your Wireless Router

The CBN CG7486E Wireless Gateway lets you access your network from anywhere within the operating range of your wireless network. However, the operating distance or range of your wireless connection can vary significantly depending on the physical placement of your Gateway. For example, the thickness and number of walls the wireless signal passes through can limit the range. For best results, place your router:

- First and foremost, don't settle prematurely on a location for the wireless access point or router. Experiment; try placing the device in several different promising locations. While trial-and-error may not be the most scientific way to find a good spot for your equipment, it is often the only practical way to assure the best possible Wi-Fi performance.
- Strive to install the wireless access point or router in a central location. If you have only one wireless client, installing the base station near this client is best. For WLANs with multiple wireless clients, find a good compromise position. Clients too far away from the base station will manage only 10% - 50% the bandwidth of clients nearby to it. You might need to sacrifice the network performance of one client for the good of the others.

- Next, avoid physical obstructions whenever possible. Any barriers along the "line of sight" between client and base station will degrade a Wi-Fi radio signal. Plaster or brick walls tend to have the most negative impact, but really any obstruction including cabinets or furniture will weaken the signal to some degree. Obstructions tend to reside closer to floor level; therefore, some folks prefer to install their wireless access point / router on or near the ceiling.
- Avoid reflective surfaces whenever possible. Some Wi-Fi signals literally bounce off of windows, mirrors, metal file cabinets and stainless steel countertops, lessening both network range and performance.
- Install the wireless access point or router at least 1 m (3 feet) away from other home appliances that send wireless signals in the same frequency range. Such appliances include some microwave ovens, cordless telephones, baby monitors, and home automation equipment like X-10 devices. Any appliance that transmits in the same general range as 802.11b or 802.11g (2.4 GHz) can generate interference.
- Likewise, install the unit away from electrical equipment that also generates interference. Avoid electric fans, other motors, and fluorescent lighting.

- **Note: To get better wireless coverage, please put your CG7486E wireless gateway VERTICALLY ONLY**

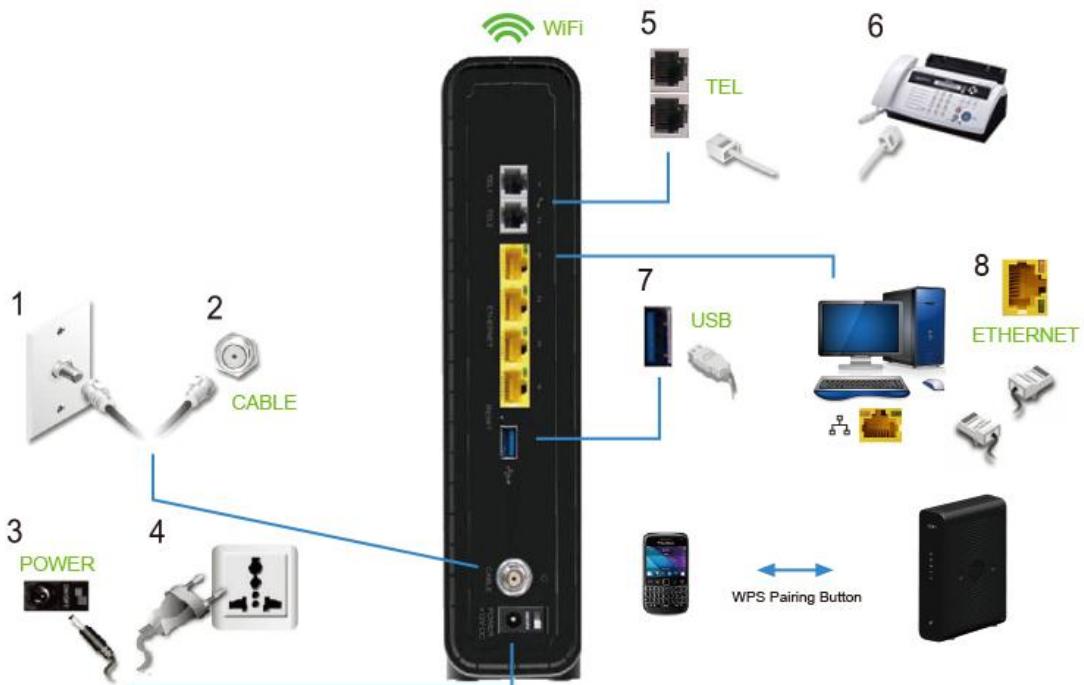
Connecting the CH7486E

Before starting, be sure the computer is turned on and the CH7486E power cord is unplugged.

1. Connect one end of the coaxial cable to the cable outlet or splitter.
2. Connect the other end of the coaxial cable to the Cable connector on the CH7486E. Hand-tighten the connectors to avoid damaging them.
3. Plug the power cord into the Power port on the CH7486E.
4. Plug the other end of the power cord into an electrical wall outlet.

This automatically powers on the gateway. You do not need to unplug the gateway when it is not in use. The first time you plug in the CH7486E, allow it 5 to 30 minutes to find and lock on the appropriate communications channels.

5. Plug the other end of the telephone cord of a single or two-line telephone into the TEL 1/2 port on the rear of the CH7486E.
6. Plug the telephone cord of a single or two-line telephone into the telephone.
7. Connect the Ethernet cable to the Ethernet port on the computer, and connect the other end of the Ethernet cable to the Ethernet port on the gateway.



8. Check that the LEDs on the front panel cycle through the following sequence:

CH7486E LED Activity During Startup

LED	Description
POWER	Turns on when AC power is connected to the CH7486E. Indicates that the power is connected properly.
ONLINE	Flashes during CH7486E registration and configuration. Changes to solid green when the CH7486E is registered successfully and ready for Internet access

Setting Up Internet Access

After installing the CH7486E, check that you can connect to the Internet. You can retrieve an IP address for your computer's network interface using one of the following options:

- Retrieve the statically defined IP address and DNS address
- Automatically retrieve the IP address using the Network DHCP server

The CBN CH7486E Wireless Gateway provides a DHCP server on its LAN. It is recommended that you configure your LAN to obtain the IPs for the LAN and DNS server automatically.

Make sure all computers on your LAN are configured for TCP/IP. After configuring TCP/IP on your computer, you should verify the IP address.

Note: For UNIX or Linux systems, follow the instructions in the applicable user documentation.

Configuring TCP/IP in Windows XP

1. Open the Control Panel.
2. Double-click Network Connections to list the Dial-up and LAN or High-Speed Internet connections.
3. Right-click the network connection for your network interface.
4. Select Properties from the drop-down menu to display the Local Area Connection Properties window. Be sure Internet Protocol (TCP/IP) is checked.
5. Select Internet Protocol (TCP/IP) and click Properties to display the Internet Protocol (TCP/IP) Properties window.
6. Select Obtain an IP address automatically and Obtain DNS server address automatically.
7. Click OK to save the TCP/IP settings and exit the TCP/IP Properties window.

8. Close the Local Area Connection Properties window and then exit the Control Panel.
9. When you complete the TCP/IP configuration, continue with [Verifying the IP Address in Windows XP](#)

Configuring TCP/IP in Windows Vista

1. Open the Control Panel.
2. Click Network and Internet to display the Network and Internet window.
3. Click Network and Sharing Center to display the Network and Sharing Center window.
4. Click Manage network connections to display the LAN or High-Speed Internet connections window.
5. Right-click the network connection for the network interface you want to change.
6. Click Properties to display the Local Area Connection Properties window.
Vista may prompt you for an administrator password or confirmation. Type the password or confirmation, then click Continue.
7. Click Networking tab, then select Internet Protocol Version 4 (IPv4).
8. Click Properties to display the Internet Protocol Version 4 (TCP/IPv4) Properties window.
9. Select Obtain an IP address automatically and Obtain DNS server address automatically.
10. Click OK to save the TCP/IP settings and close the Internet Protocol Version 4 (TCP/IPv4) Properties window.
11. Click OK to close the Local Area Connection Properties window.
12. Close the remaining windows and exit the Control Panel.
13. When you complete the TCP/IP configuration, continue with [Verifying the IP Address in Windows Vista](#).

Verifying the IP Address in Windows XP

To check the IP address:

1. On the Windows Desktop, click Start.
2. Select Run. The Run window is displayed.
3. Type cmd and click OK.
4. Type ipconfig and press ENTER to display your IP configuration.

If an Auto-configuration IP Address displays, this indicates possible cable network problems or an improper connection between your computer and the CH748E.

Check the following:

- Your cable connections
- Whether you can see cable-TV channels on your television

After successfully verifying your cable connections and proper cable-TV operation, you can renew your IP address.

Verifying the IP Address in Windows Vista

Do the following to verify the IP address:

1. On the Windows Desktop, click Start.
2. Click All Programs.
3. Click Accessories.
4. Click Command Prompt to open a command prompt window.
5. Type ipconfig and press Enter to display the IP address.

If an Auto-configuration IP Address displays, this indicates an improper connection between your computer and the CH7486E, or there are possible cable network problems.

Renewing Your IP Address

To renew your IP address in Windows XP or Windows Vista:

1. Open a command prompt window.
2. At the command prompt, type ipconfig /renew and press ENTER to obtain a new IP address.
3. Type exit and press ENTER to close the command prompt window.

If after performing this procedure your computer still cannot access the Internet, call your cable service provider for assistance.

Setting Up a Wi-Fi Network

Do the following to set up a Wi-Fi network using the WPS button on the CH7486E :

1. Power on the CH7486E.
2. Power on the WPS-enabled devices you want to have access to the network, such as a PC, router, or telephone.

The Wi-Fi network will automatically detect the WPS devices.

3. Press WPS button on the CH7486E.
4. If applicable, press WPS button on the other WPS devices.

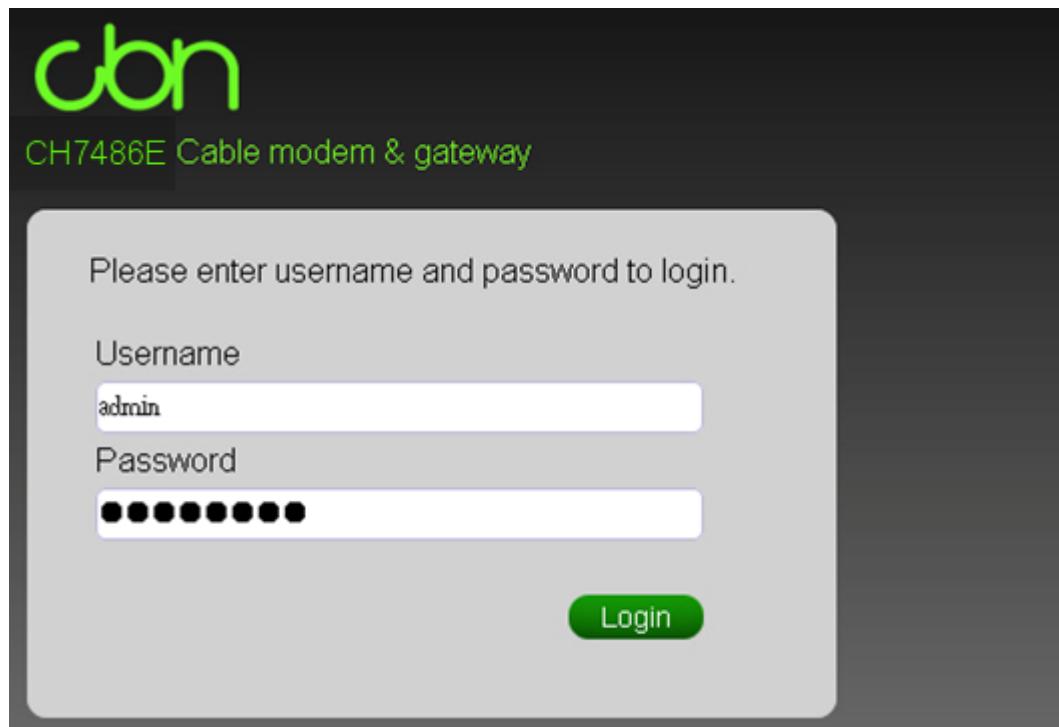
3 Status

For normal operation, you do not need to change most default settings. Carefully consider the following caution statements:

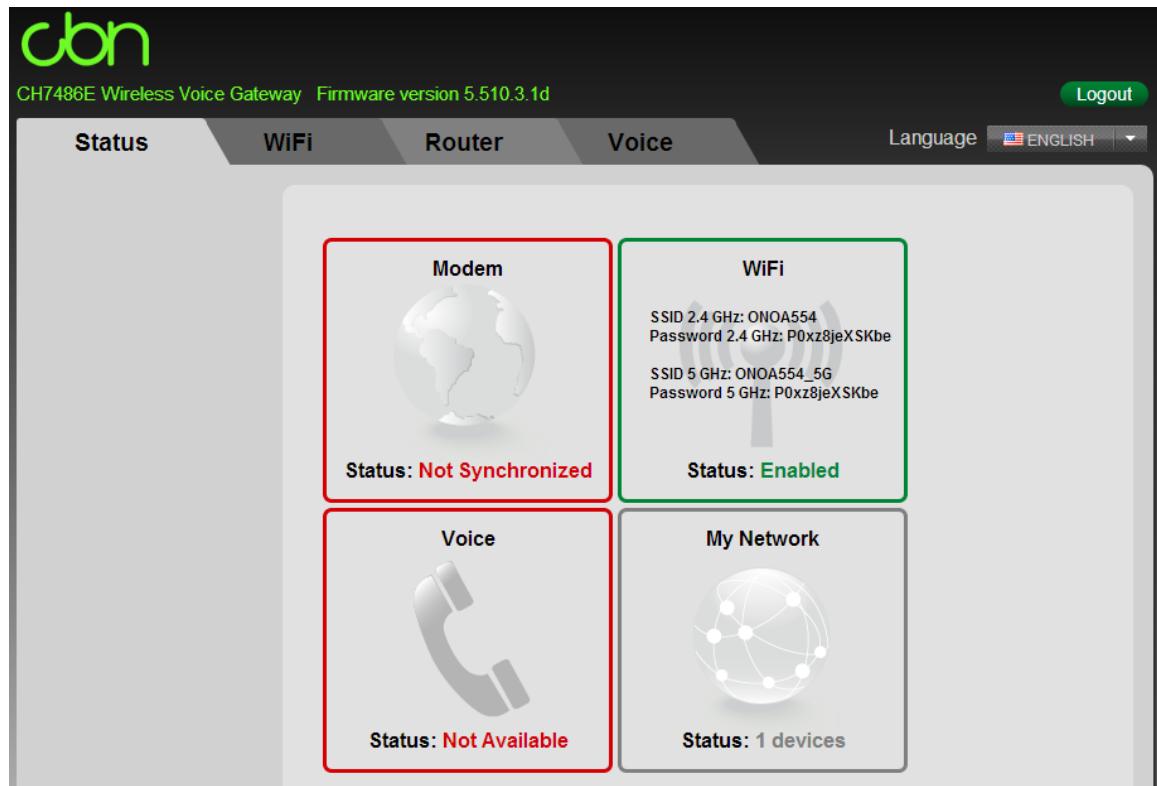
Starting the CH7486E Configuration Manager (CMGR)

The CH7486E Configuration Manager (CMGR) allows you to change and view the settings on your CH7486E.

In order to login CMGR, you should key in the correct Username and Password. By default, they should be admin and password.



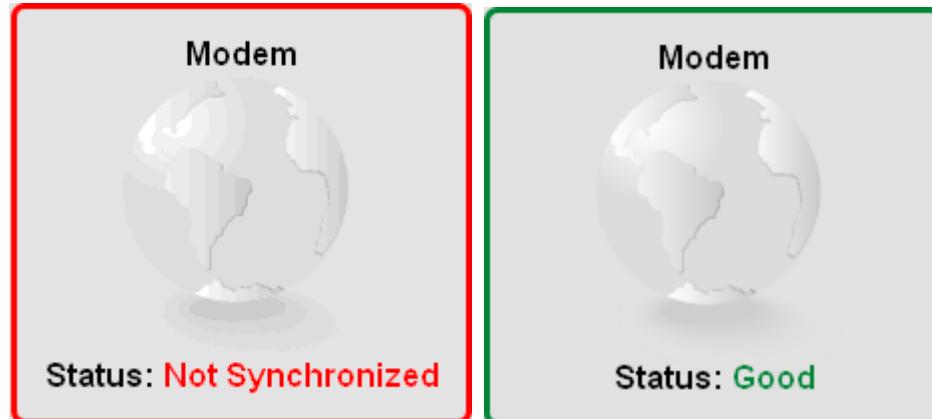
After login management system, the home page shows the current status of CH7486E.



Note: may differ according to local settings or requirements.

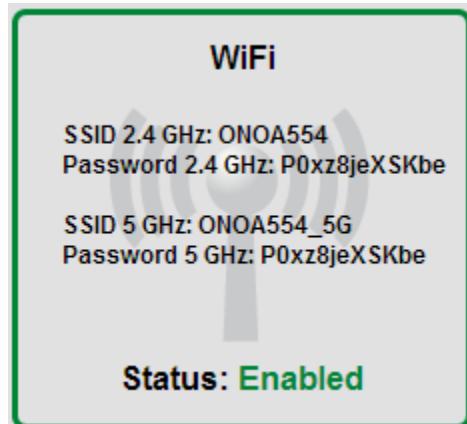
Modem

This item displays the status of cable modem, the red block means off-line state and the green means on-line. Users can press it to connect to the next page for more details of the cable modem's HFC and IP network connectivity.



WiFi

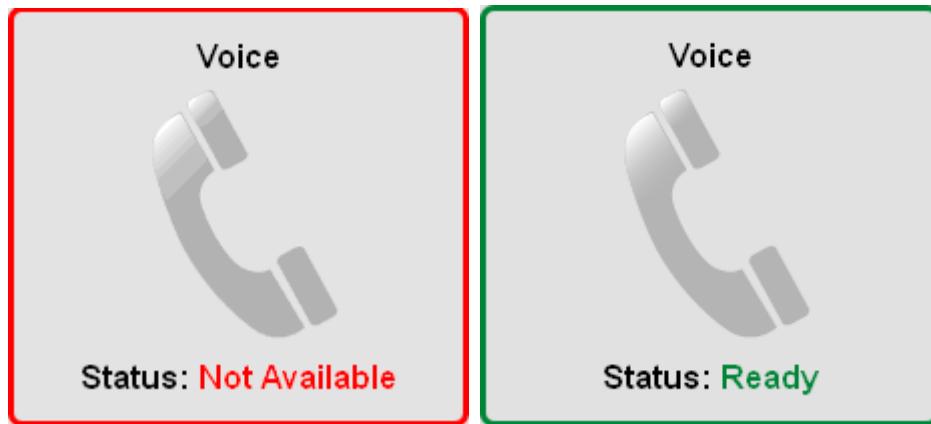
This item shows current WiFi status and you can press it to connect to the next page for more details.



Note: may differ according to local settings or requirements.

Voice

This item displays the status of voice, the red block means off-line state and the green means on-line. Users can press it to connect to the next page for more details of the telephony.



My Network

This item shows how many CPEs connect to CH7486E.



4 Wireless Pages

The CH7486E Wireless Pages allow you to configure your wireless LAN (WLAN). You can click WiFi submenu option to view or change the configuration information for that option.



Note: may differ according to local settings or requirements.

Basic Settings

CH7486E is a dual band product and all the basic settings of 2.4GHz and 5GHz can be changed in this page. You can configure basic features of your Wi-Fi wireless network, including to enable or to disable the wireless interface, to hide the network from active scans, to set the wireless network name (also known as SSID), to change security key for wireless connection and to select the working channel.

WiFi » Main Network

This page allows you to configure basic features of your Wi-Fi wireless network. You can enable or disable the wireless interface, hide the network from active scans, set the wireless network name (also known as SSID) and select the working channel.

Band Mode	2.4 GHz	5 GHz
Wireless Radio:	<input checked="" type="radio"/> Enabled <input type="radio"/> Disabled	<input checked="" type="radio"/> Enabled <input type="radio"/> Disabled
Network Name (SSID):	ONOA554	ONOA554_5G
Hide Network:	<input type="radio"/> Yes <input checked="" type="radio"/> No	<input type="radio"/> Yes <input checked="" type="radio"/> No
Channel:	1 <input type="button" value="▼"/> Current : 6	Auto <input type="button" value="▼"/> Current : 100/80
Bandwidth:	40 Mhz <input type="button" value="▼"/> Current : 40 Mhz	80 Mhz <input type="button" value="▼"/> Current : 80 Mhz
Transmission Mode:	802.11b/g/n mixed <input type="button" value="▼"/>	802.11a/n/ac mixed <input type="button" value="▼"/>
Transmission Rate:	Auto <input type="button" value="▼"/>	Auto <input type="button" value="▼"/>
Multicast Rate:	Auto <input type="button" value="▼"/>	Auto <input type="button" value="▼"/>
OBSS Coexistence:	<input checked="" type="radio"/> Enabled <input type="radio"/> Disabled	<input checked="" type="radio"/> Enabled <input type="radio"/> Disabled
Security:	WPA-PSK/WPA2-PSK <input type="button" value="▼"/> Encryption: TKIP+AES	WPA-PSK/WPA2-PSK <input type="button" value="▼"/> Encryption: TKIP+AES
Pre-Shared Key:	P0xz8jeXSKbe	P0xz8jeXSKbe
Group Rekey Interval:	0 <input type="button" value="seconds"/>	0 <input type="button" value="seconds"/>

Apply

Cancel

Restore Wireless Defaults

Note: may differ according to local settings or requirements.

WPS

CH7486E provide WPS (Wi-Fi Protected Setup) function, with it enable will support WPS clients to join the network very easily. It is a standard for easy and secure establishment of a wireless network. With WPS you can setup and protect your wireless network in just a few easy steps.

We suggest users to press Add Client button to start WPS directly. By default, that will be PBC (Push Button Configuration) and easy for users.

WiFi » WPS

Wi-Fi Protected Setup allows users to setup secure wireless network easily.

WPS : Enabled Disabled

AP Configuration

AP Self-PIN number :

Configure by External Registrar : Enabled Disabled

Client Configuration

Method :

Push Button Configuration (PBC)
 Personal Identification Number (PIN)

Access Control

This page allows users to specify those wireless clients that are allowed to connect to this device. This offers additional protection against unwanted connections. You can choose Allow or Deny rule at first, and then fill in the client MAC to enable access control function.

Wireless Interface: cbn-E51E1-5G (5C:35:3B:AE:53:03)

MAC Restrict Mode:

MAC Addresses:	<input type="button" value="Disabled"/>	<input type="button" value="Allow"/>	<input type="button" value="Deny"/>

Connected Clients:

Host Name	MAC Address	IP Address	RSSI (dBm)	Mode	Speed (kbps)	Age (second)
No wireless clients are connected.						

WMM

CH7486E provides WMM page to configure Wi-Fi Multimedia QoS. Actually, we suggest users to use default settings.

Band Mode	2.4G Hz	5G Hz
WMM Support:	<input checked="" type="radio"/> On <input type="radio"/> Off	<input checked="" type="radio"/> On <input type="radio"/> Off
No-Acknowledgement:	<input type="radio"/> On <input checked="" type="radio"/> Off	<input type="radio"/> On <input checked="" type="radio"/> Off
Power Save Support:	<input checked="" type="radio"/> On <input type="radio"/> Off	<input checked="" type="radio"/> On <input type="radio"/> Off

Neighbor APs

CH7486E supports Neighbor APs function and this page shows the details of all the nearby APs.

Nearby Wireless Access Points							Refresh
Network Name	Security Mode	Mode	PHY Mode	RSSI	Channel	BSSID	
cbn_8999F8	WPA2-PSK AES-CCMP TKIP	Managed	802.11n	-42 dBm	1	5c:35:3b:89:99:fe	
cbn-E51D9111	WPA2-PSK AES-CCMP TKIP	Managed	802.11n	-48 dBm	1	10:50:80:08:05:01	
524_11a	WEP	Managed	802.11b/g	-69 dBm	1	00:19:cb:2e:0f:4f	

5 Router

The CABLE MODEM pages provide the information of cable connection status, channel signals and channel configuration during the establishment of cable connection to cable service provider's CMTS.

Basic

LAN Settings

CH7486E allows users to configure private LAN IP for their home gateway.

LAN Settings

IP Address: 192 . 168 . 0 . 1

MAC Address 5c:35:3b:ae:53:01

Interface/Prefix

None Specified

UPnP

Enabled Disabled

Apply

Cancel

New settings only take effect after your gateway is rebooted.
If necessary, reconfigure your PC's IP address to match new settings.

DHCP Server

CH7486E provides DHCP server to manage IP addresses to CPEs and supports Reserved IP Address for users' private and static clients.

Starting Local Address: **192.168.0.2**

Number of CPEs: **253**

Lease Time: **3600** seconds

Apply **Cancel**

Reserved IP Addresses

MAC Address (e.g.11:22:33:aa:bb:cc)	IP Address	Action
	192.168.0.1	Add

WAN Settings

This page displays WAN status after CH7486E gets online and provides users to change Operation Mode.

Operation Mode: Bridging (NAT off) Routing (NAT on)

Apply **Cancel**

The current settings of home gateway interface are displayed below.

IP Address:	172.16.180.205
MAC Address:	5c:35:3b:ae:52:ff
Duration	D: 00 H: 03 M: 00 S: 00
Expires:	Mon Aug 05 17:53:50 2013
IPv4 DNS Servers:	172.16.3.30

Release WAN Lease **Renew WAN Lease**

Network Map

This page shows how many CPEs connect to CH7486E.

					Refresh
MAC Address	IP Address	Subnet Mask	Lease Time	Connected to	
00:25:11:68:02:fe	192.168.100.101	255.255.255.000	permanent	 Ethernet	

Users can browse here directly through the item at home index.



Advanced

MAC Filtering

This page allows configuration of MAC address filters in order to block Internet traffic to specific network devices on your local network.

MAC Addresses (example: 01:23:45:67:89:AB)	<input type="text"/>	Add MAC Address
<div style="border: 1px solid #ccc; padding: 5px; height: 150px; vertical-align: top;"> <p>Address list area (scrollable)</p> </div> <p>Addresses entered: 0/20</p>		
Remove MAC Address Clear All		

IP Filtering

This page allows you to specify the IP packet filtering rules to prevent the service accessed from the Internet hosts or limit the Internet access for local hosts.

Port Filtering

This page allows you to specify the IP packet filtering rules to prevent the service accessed from the Internet hosts or limit the Internet access for local hosts.

Port Forwarding

This allows for incoming requests on specific port numbers to reach web servers, FTP servers, mail servers, etc. so they can be accessible from the public Internet.

1. Press Create IPv4 Rule button to add new rules.

2. Fill in needed information, and then press Apply button.

Local IP:	192.168.100.101
Local Start Port:	21
Local End Port:	23
External Start Port:	21
External End Port:	23
Protocol:	TCP
Description:	
Enabled:	Off

Apply **Cancel**

3. One rule is created. And also, you can Modify or Delete the existed rules.

Local		External						Delete All	
IP Address	Start Port	End Port	Start Port	End Port	Prot	Description	Enabled	Delete All	
192.168.100.101	21	23	21	23	TCP		No	Modify	Delete

Port Triggering

Port triggering function is a conditional port forwarding feature. When this device detects outbound traffic on a specific port (triggered ports), it will set up the port forwarding rules temporarily on the port ranges you specify to allow inbound traffic. This is supposed to increase the support for Internet gaming, video conferencing, and Internet telephony due to these applications require multiple connections.

1. Press Create Rule button to add Port Triggers.

Create Rule

Trigger		Target							
Start Port	End Port	Start Port	End Port	Prot	Description	Enabled	Delete All		

2. Fill in needed information and Apply.

Trigger Start Port:	21
Trigger End Port:	23
Target Start Port:	21
Target End Port:	23
Protocol:	BOTH
Description:	
Enabled:	Off
Apply Cancel	

3. One new Port Trigger is generated. And also, you can Modify or Delete the existed Port Trigger.

Trigger		Target						Delete All
Start Port	End Port	Start Port	End Port	Prot	Description	Enabled		
21	23	21	23	BOTH		No	Modify	Delete

URL Filtering

This page is used to configure filtering of outbound connections and display configured filtering rule of firewall.

1. Press Create Rule button to add one filtering rule.

Create Rule								
Description	MAC Address	URL	Days	Time Start	Time End	Allow/Block	Enabled	Delete All

2. Configure outbound information and then press Apply button.

Description:	CBN Test
MAC Address	00:11:22:33:44:55
URL	http://www.google.com
Days:	
<input checked="" type="checkbox"/> EveryDay <input type="checkbox"/> Sunday <input type="checkbox"/> Monday <input type="checkbox"/> Tuesday	
<input type="checkbox"/> Wednesday <input type="checkbox"/> Thursday <input type="checkbox"/> Friday <input type="checkbox"/> Saturday	
Time:	
<input type="checkbox"/> All day	
Start:	12 (hour) 00 (min) AM
End:	12 (hour) 00 (min) AM
Allow/Block:	Block
Enabled	On

Apply **Cancel**

3. One rule is created. And also, you can Modify or Delete the existed rules.

Description	MAC Address	URL	Days	Time Start	Time End	Allow/Block	Enabled	Delete All
CBN Test	00:11:22:33:44:55	http://www.google.com	ALL	12:00 AM	12:00 AM	Block	Yes	Modify Delete

DMZ

This page is for DMZ (Demilitarized Zone) configuration. You can fill in the exposed host and press Apply button.

DMZ Address:	192.168.0.0
Apply	Cancel

DDNS

This page is for DDNS (Dynamic DNS) configuration. You can fill in the registered DDNS information here, and then press Apply button to enable your DDNS function.

DDNS Service: **Disabled**

User Name: **root**

Password: **██████████**

Host Name:

IP Address: **172.16.180.201**

Status: *DDNS service is not enabled.*

Firewall

This page is used to configure Firewall Protection level and display all allowed services.

IPv4 Firewall Protection **Medium**

Block Fragmented IP Packets: *Enable*

Port Scan Detection: *Enable*

IP Flood Detection: *Enable*

ICMP Blocking: *Enable*

Allowed Services

AIM/ICQ	5190	5190	TCP	<input type="button" value="▲"/>
DHCPv6	546	547	UDP	<input type="button" value="▼"/>
DNS TCP	53	53	TCP	<input type="button" value="≡"/>
DNS UDP	53	53	UDP	
FTP-S	989	990	TCP	
HTTP	80	80	TCP	
HTTP ALT	8080	8080	TCP	
HTTP-S	443	443	TCP	
IMAP	143	143	TCP	
IMAP-S	993	993	TCP	
IPSec NAT-T	4500	4500	UDP	
NTP	123	123	UDP	
POP3	110	110	TCP	<input type="button" value="▼"/>

Firewall Logs

This page allows optional configuration of events to be sent to a local SysLog server.

Send selected events

- Permitted Connections
- Blocked Connections
- Known Internet Attacks
- Product Configuration Events

to SysLog server at **192.168.0.**

Apply

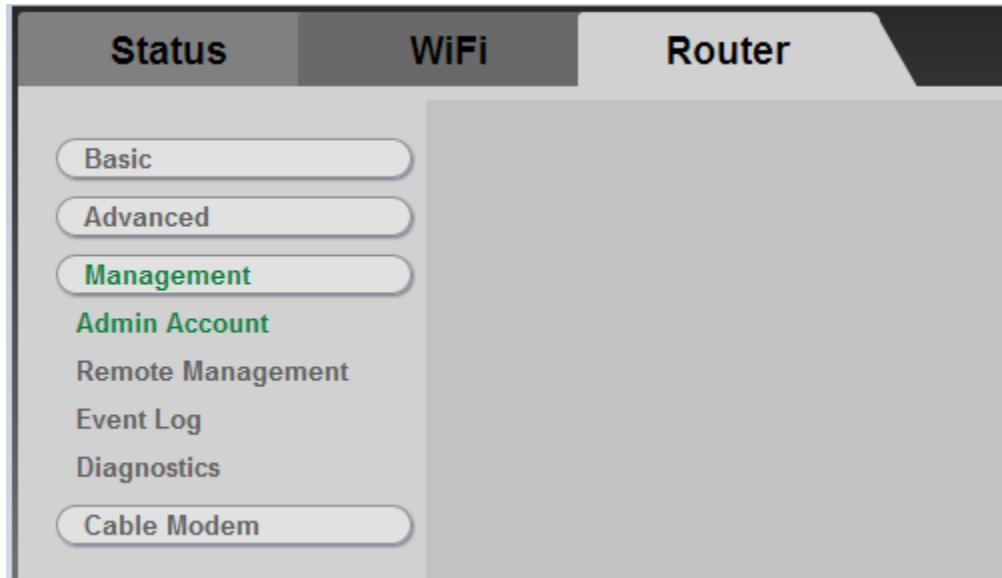
Cancel

Clear Log

Description	Count	Last Occurrence	Target	Source
-------------	-------	-----------------	--------	--------

Management

The CH7486E support management for web browser login password including change password, CM even log, diagnostic tests and backup device current settings.



Admin Account

CH7486E allows changing admin password for web browser login. Configure Password and retype the Password again and then click Apply and when you login in next time, you must use this new password. For secure, we strongly suggest to change default password as soon as possible.

Router » Management » Admin Account

This page allows you to change the password of the admin account (used for logging in to the modem).

Old Password:	<input type="password" value="*****"/>
New Password:	<input type="password"/>
Re-Enter New Password:	<input type="password"/>

Apply **Cancel**

Remote Management

Enable to allow remote management to home gateway interface via web browser (web server port is 8080).

Remote Management: Enabled Disabled

Apply **Cancel**

Event Log

CH7486E allows users to review critical system events in chronological order in the SNMP event log. Also, users can press Clear Log button to clean all records.

Router » Management » Event Log		
		This page displays the contents of the SNMP event log.
Time	Priority	Description
Mon Aug 05 18:47:00 2013	Error (4)	Missing BP Configuration Setting TLV Type: 17.9;CM-MAC=5c:35:3b:ae:51:e1;CMTS-MAC=68:ef:bd:86:42:3c; CM-QOS=1.1;CM-VER=3.0;
Mon Aug 05 18:47:00 2013	Error (4)	Missing BP Configuration Setting TLV Type: 17.8;CM-MAC=5c:35:3b:ae:51:e1;CMTS-MAC=68:ef:bd:86:42:3c; CM-QOS=1.1;CM-VER=3.0;
Mon Aug 05 18:47:00 2013	Error (4)	Missing BP Configuration Setting TLV Type: 17.7;CM-MAC=5c:35:3b:ae:51:e1;CMTS-MAC=68:ef:bd:86:42:3c; CM-QOS=1.1;CM-VER=3.0;
Mon Aug 05 18:47:00 2013	Error (4)	Missing BP Configuration Setting TLV Type: 17.6;CM-MAC=5c:35:3b:ae:51:e1;CMTS-MAC=68:ef:bd:86:42:3c; CM-QOS=1.1;CM-VER=3.0;
Mon Aug 05 18:47:00 2013	Error (4)	Missing BP Configuration Setting TLV Type: 17.5;CM-MAC=5c:35:3b:ae:51:e1;CMTS-MAC=68:ef:bd:86:42:3c; CM-QOS=1.1;CM-VER=3.0;

Diagnostics

CH7486E allows users to ping diagnostics (LAN) and traceroute (WAN) to help with IP connectivity problems. And the FTP speed test tool can help to measure the bandwidth of your downstream Internet connection. You can fill in the IP to the Target and Start Test.

◆ Traceroute Test (WAN)

Test Utility: **Traceroute** ▾

Target: **172.16.1.2** (IP address or Name)

Max Hops: **30**

Data Size: **32** bytes

Base Port: **33434**

Resolve Host: **Off** ▾

Start Test **Clear Results**

Results

```
Performing traceroute to (172.16.1.2) from (172.16.180.201), 30 hops max, 72 byte packets
01 172.16.180.1 20 ms 10 ms <1 ms
02 172.16.3.1 10 ms 40 ms 10 ms
03 172.16.1.2 10 ms 10 ms 10 ms
Traceroute complete.
```

◆ FTP Speed Test

Test Utility: **Ftp Speed** ▾

Start Test **Abort Test**

Results

```
Waiting for input...
```

◆ Ping Diagnostics Test (LAN)

Test Utility: **Ping**

Target: **192.168.0.1**

Ping Size: **64** bytes

No. of Pings: **3**

Ping Interval: **1000** ms

Start Test **Abort Test** **Clear Results**

Results

```
Pinging 192.168.0.1 with 64 bytes of data:[Complete]
Reply from 192.168.0.1: bytes = 64, time = 0 ms
Reply from 192.168.0.1: bytes = 64, time = 0 ms
Reply from 192.168.0.1: bytes = 64, time = 0 ms
3/3 replies received.
min time=0 ms, max time=1 ms, avg time=0 ms
```

Cable Modem

Device Information

CH7486E allows a page to show current status of this home gateway.

Standard Specification Compliant	DOCSIS 3.0
Hardware Version	V1.0
Software Version	CH7496E-5.59.0.8d-SH
Cable Modem MAC Address	5c:35:3b:89:99:78
Cable Modem Serial Number	604099313000006701010000
System Up Time	0 days 01h:29m:36s
Network Access	Allowed

Note: *may differ according to local settings or requirements.*

Connection

This page shows information on the status of the cable modem's HFC and IP network connectivity.

Startup Procedure		
Procedure	Status	Comment
Acquire Downstream Channel	410000000 Hz	Locked
Connectivity State	OK	Operational
Boot State	OK	Operational

Downstream Bonded Channels								
Channel	Lock Status	Modulation	Channel ID	Frequency	Power	SNR	Correctables	Uncorrectables
1	Locked	QAM64	124	410000000 Hz	1.7 dBmV	49.3 dB	0	0
2		Unknown		0 Hz	0.0 dBmV	0.0 dB	0	0
3		Unknown		0 Hz	0.0 dBmV	0.0 dB	0	0
4		Unknown		0 Hz	0.0 dBmV	0.0 dB	0	0
5		Unknown		0 Hz	0.0 dBmV	0.0 dB	0	0

Total Correctables	Total Uncorrectables
0	0

Upstream Bonded Channels						
Channel	Lock Status	US Channel Type	Channel ID	Symbol Rate	Frequency	Power
1	Locked	ATDMA	1	1280 Ksym/sec	35000000 Hz	53.0 dBmV
2	Not Locked	Unknown	0	0 Ksym/sec	0 Hz	0.0 dBmV
3	Not Locked	Unknown	0	0 Ksym/sec	0 Hz	0.0 dBmV
4	Not Locked	Unknown	0	0 Ksym/sec	0 Hz	0.0 dBmV

Configuration

This page provides information about the manually configurable settings of the Cable Modem.

Item	Value
Frequency Plan	European PAL I/B/G
Frequency (Hz)	410000000

Note:
Resetting the cable modem to its factory default configuration will remove all stored parameters learned by the cable modem during prior initializations. The process to get back online from a factory default condition could take from 3 to 5 minutes. Please refer to the cable modem User Guide for details on the power up sequence.

[Restore Factory Defaults](#)

[Restart Cable Modem](#)

Current System Time: Mon Jul 22 16:41:12 2013

Telephony Status

This page displays the initialization status of the MTA.

Basic	Router » Cable Modem » Telephony Status			
Advanced	This page displays initial status of telephony function.			
<hr/>				
Management				
Device Information	Startup Procedure			
Connection	Task	Status		
Configuration	Telephony DHCP	Completed		
Telephony Status	Telephony Security	Disabled		
	Telephony TFTP	Completed		
	Telephony Call Server Registration	L1: Operational		
	Telephony Registration Complete	Pass With Warnings		
<hr/>				
Telephony Line State				
<hr/>				
Line Number	Registration Status	Hook Status		
Line 1	Registered	On-hook		

6

Troubleshooting

If the solutions listed here do not solve your problem, contact your service provider.

Before calling your service provider, try pressing the Reset button on the rear panel of the CH7486E. Please note, if you press the Reset button, you will lose all your custom configuration settings, including Firewall and Advanced settings. Your service provider may ask for the front panel LED status; see Front-Panel LEDs and Error Conditions.

Solutions

Table 1 – Troubleshooting Solutions

Problem	Possible Solution
Power light is off	<p>Check that the CH7486E is properly plugged into the electrical outlet.</p> <p>Check that the electrical outlet is working.</p>
Cannot send or receive data	<p>On the front panel, note the status of the LEDs and refer to Front-Panel LEDs and Error Conditions to identify the error. If you have cable TV, check that the TV is working and the picture is clear. If you cannot receive regular TV channels, the data service will not function.</p> <p>Check the coaxial cable at the CH7486E and wall outlet. Hand-tighten, if necessary.</p> <p>Check the IP address.</p> <p>Check that the Ethernet cable is properly connected to the CH7486E and the computer.</p> <p>If a device is connected via the Ethernet port, verify connectivity by checking the LINK LEDs on the rear panel.</p>

Problem	Possible Solution
Wireless client(s) cannot send or receive data	<p>Perform the first four checks in "Cannot send or receive data."</p> <p>Check the Security Mode setting on the Wireless Security Page:</p> <ul style="list-style-type: none"> • If you enabled WPA and configured a passphrase on the CH7486E, be sure each affected wireless client has the identical passphrase. If this does not solve the problem, check whether the wireless client supports WPA. • If you enabled WEP and configured a key on the CH7486E, be sure each affected wireless client has the identical WEP key. If this does not solve the problem, check whether the client's wireless adapter supports the type of WEP key configured on the CH7486E. • To temporarily eliminate the Security Mode as a potential issue, disable security. <p>After resolving your problem, be sure to re-enable wireless security.</p> <ul style="list-style-type: none"> • On the Wireless Access Control Page, be sure the MAC address for each affected wireless client is correctly listed.
Slow wireless transmission speed with WPA enabled	On the Wireless Primary Network Page, check whether the WPA Encryption type is TKIP. If all of your wireless clients support AES, change the WPA Encryption to AES.

Front-Panel LEDs and Error Conditions

The CH7486E front panel LEDs provide status information for the following error conditions:

Table 2 – Front-Panel LEDs and Error Conditions

LED	Status	if, During Startup:	if, During Normal Operation:
POWER	OFF	CH7486E is not properly plugged into the power outlet	The CH7486E is unplugged
ONLINE	FLASHING	IP registration is unsuccessful	The IP registration is lost

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