OnSite™ Model OS2300

G.SHDSL.bis Customer Premise Equipment

Quick Start Guide

CE **Important**—This is a Class A device and is intended for use in a light industrial environment. It is not intended nor approved for use in an industrial or residential environment.

WARNING

- **This device contains no user serviceable parts. The equipment shall be returned to Patton Electronics for repairs, or repaired by qualified service personnel.**

- **The external power adapter shall be a listed Limited Power Source. The mains outlet that is utilized to power the devise shall be within 10 feet (3 meters) of the device, shall be easily accessible, and protected by a circuit breaker.**

- **If an AC power adapter is used, ensure that the power cable used meets all applicable standards for the country in which it is to be installed, and that it is connected to a wall outlet which has earth ground.**

- **Hazardous network voltages are present in WAN ports regardless of whether power to the unit is ON or OFF. To avoid electric shock, use caution when near WAN ports. When detaching the cables, detach the end away from the device first.**

- **Do not work on the system or connect or disconnect cables during periods of lightning activity.**

1.0 Hardware Installation

1.1 Contents of Package
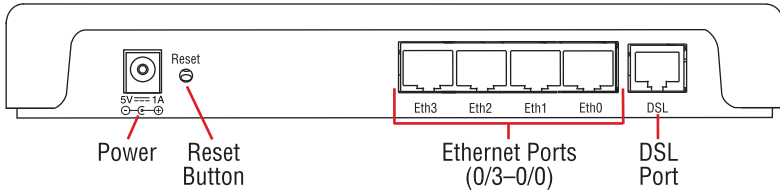
- OS2300 G.SHDSL.bis CPE
- External power supply for OnSite Model OS2300

1.2 Identify the connector and attach the cables

OS2300 connectors are shown in.**figure 1** on page 3.

Figure 1. OS2300 G.SHDSL.bis CPE rear panel

Connect the Line Interface

To function properly, the OS2300 must be connected using a twisted-pair, unconditioned, dry, metal wire, between 19 (0.9mm) and 26 AWG (0.4mm). Leased circuits that run through signal equalization equipment are not acceptable.

The G.SHDSL.bis CPE is equipped with a RJ-45 interface jack (*DSL*), which conforms to the T568B standard. As such, any standard Category 5e cable can be used to directly connect two CPEs. Depending on the G.SHDSL.bis CPE model, it will have a two-wire or four-wire interface.

Observe the signal/pin relationship on the OS2300's *Line* interface jack for each pair in **figure 2** on page 3.
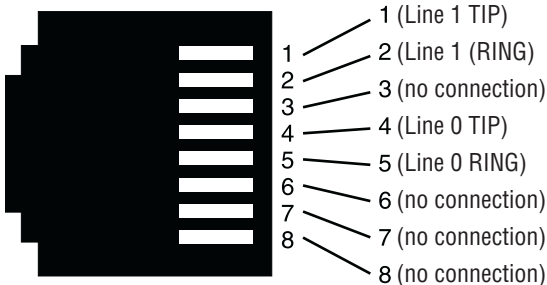
Figure 2. OS2300 (RJ-45) twisted pair line interface

2.0 Connecting Interfaces

2.1 Connect the Ethernet Interface

The G.SHDSL.bis CPE has four unshielded RJ-45 auto-MDIX10/100Base-T interfaces. These are designed to connect directly to a 10/100Base-TX network. shows the signal/pin relationships on this interface. You may connect this port to a hub or PC using a stright through or crossover cable that is up to 328 ft long.

2.2 Connect the Power Source

The G.SHDSL.bis CPE does not have a power switch, so it powers up as soon as it is plugged in.

The power connection is made via the barrel jack on the rear panel of the OS2300. No configuration is necessary for the power supply.

2.3 G.SHDSL.bis CPE Status LEDs

The LEDs indicate the status of power, DSL link, and Ethernet connections (see **figure 3**).

> **Note** When extinguished, the LED indicators are clear; when lit, the indicators are yellow.

Table 1. OS2300 front panel LEDs

LED Name	LED Function	Description
Power	ON	Indicates power is applied.
OnSite Pair One LED for each port (1 on OS2301 or 2 on OS2302)	OFF ON SLOW BLINK FAST BLINK	Port is configured as DOWN. Port is in data mode. Port is in handshake mode (looking for a remote signal). Port is in training mode (active communication with remote).
Ethernet (0/0–0/3)	ON OFF	Port is linked. Data is passing over the port.

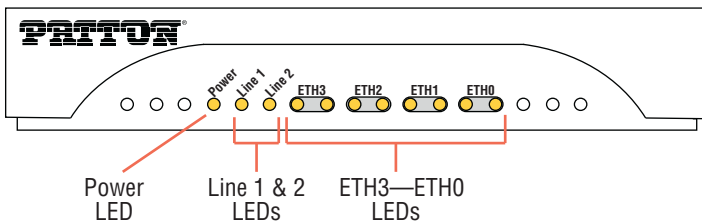Power LED   Line 1 & 2 LEDs   ETH3—ETH0 LEDs

Figure 3. OS2300 front panel

3.0 Configuration

If the factory installed configuration needs to be adjusted, you can configure the device by using:

- DIP switches (while powered off)
- Web Wizards through HTTP access

- Command line interface (CLI) through SSH
- A combination of the above.

For simple and common configurations, you may only need to use the dip switches.

> **Note** If you will not have physical access to the device, it is best to leave the DIP switches disabled, as they will **always** override the other configuration access methods for some settings. This will be problematic if you need to change these settings remotely.

The factory installed configuration is shown below.

```
context ip ROUTER
  interface LAN
    ipaddress 192.168.200.10/24
    ipaddress DHCP dhcp

context switch-group DEFAULT
  bind interface ROUTER LAN
  no shutdown

  interface ETHERNET_0_0

  interface ETHERNET_0_1

  interface ETHERNET_0_2

  interface ETHERNET_0_3

  interface DSL_0_0

port ethernet 0 0
  bind switch-group DEFAULT ETHERNET_0_0
  no shutdown

port ethernet 0 1
  bind switch-group DEFAULT ETHERNET_0_1
  no shutdown

port ethernet 0 2
  bind switch-group DEFAULT ETHERNET_0_2
  no shutdown

port ethernet 0 3
  bind switch-group DEFAULT ETHERNET_0_3
  no shutdown

port dsl 0 0
  service-mode 2-wire
  mode local
  bind switch-group DEFAULT DSL_0_0
  no shutdown
```

3.1 DIP Switches

The DIP switches enable you to configure the CO/CPE and TCPAM/Rate preset. These settings are applied when the device powers on, and they cannot be changed while the device is powered on. Keep this in mind if you plan on adjusting these settings later remotely, as the DIP switch settings at boot will always take priority.

To disable the DIP switches:

1. Power-off the device.

2. Set all DIP switches to OFF.

To enable the DIP switches:

1. Power-off the device.

2. Set DIP #1 to Central Office or Customer Premise. When connecting two G.SHDSL.bis CPEs back to back, one needs to be configured as Central Office, and the other Customer Premise:

    – OFF = Central Office

    – ON = Customer Premise

3. Set DIP #2–5 to a TCPAM/Rate Preset. When connecting two G.SHDSL.bis CPEs back to back, their speeds should be configured to match.

4. Set DIP #6–8 to OFF. These are reserved for future use.

#2	#3	#4	#5	TCPAM/Rate Preset
ON	ON	ON	ON	TCPAM-16/32 Autorate
ON	ON	ON	-	TCPAM-64/128 Autorate
ON	ON	-	ON	TCPAM-4 192 kbps
ON	ON	-	-	TCPAM-4 2496 kbps
ON	-	ON	ON	TCPAM-8 192 kbps
ON	-	ON	-	TCPAM-8 5056 kbps
ON	-	-	ON	TCPAM-16 192 kbps
ON	-	-	-	TCPAM-16 3840 kbps
-	ON	ON	ON	TCPAM-32 768 kbps
-	ON	ON	-	TCPAM-32 5696 kbps
-	ON	-	ON	TCPAM-64 192 kbps
-	ON	-	-	TCPAM-64 12736 kbps
-	-	ON	ON	TCPAM-128 256 kbps
-	-	ON	-	TCPAM-128 15296 kbps
-	-	-	ON	RESERVED
-	-	-	-	DISABLE DIP SWITCHES

4.0 Wizard Interface

The OS2300 provides a browser interface that allows you to configure and manage the G.SHDSL.bis CPE. After you set up the IP address for the OS2300, you can access the Web interface applications directly in your Web browser by entering the configured IP address. You can then use your Web browser to list and manage configuration parameters from a PC.

> **Note** Earlier versions predating Internet Explorer 9.0 browser are not compatible with the OS2300.

4.1 Connect with Web GUI

1. Connect the Ethernet cable.

2. Connect the power supply.

3. Connect via web browser to the default address 192.168.200.10.

4. Log in with the default username *admin* without a password.

Once the network connection is established, you will be able to reach the OS2300 Web GUI. Log into the Web GUI using the following credentials (see **figure 4**).
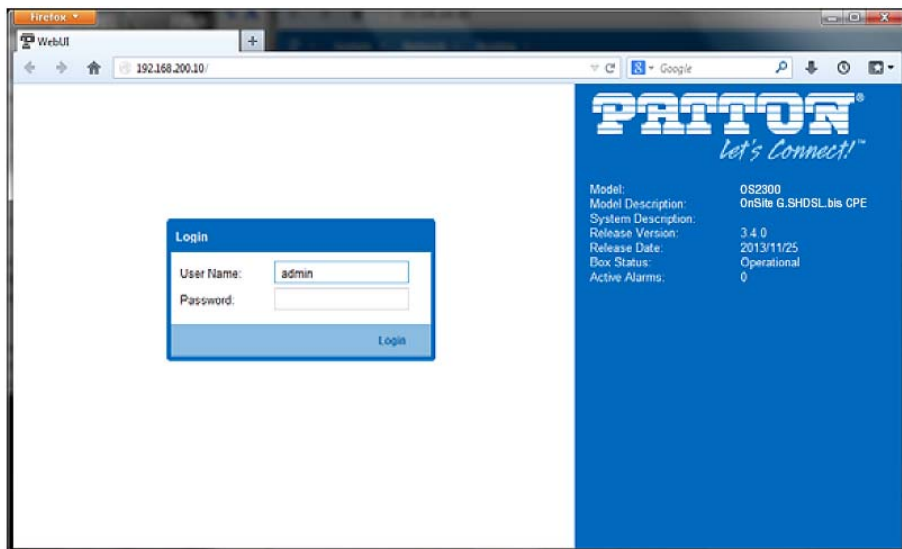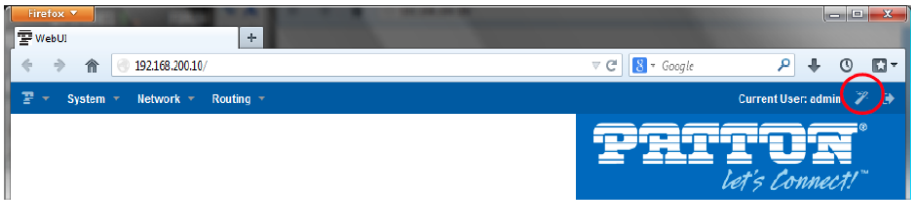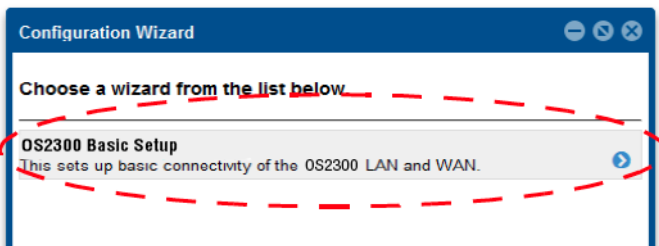
- username: admin
- password: [blank]

Figure 4. Login

The OS2300 includes a Web Wizard within the GUI. The Icon to the wizard is in the top right corner of your browser as shown in **figure 5**.

Figure 5. Web Wizard Home page

Once the wizard icon is selected, you will have the options of supported set-ups as shown in **figure 6**. Click on *OS2300 Basic Setup*.

Figure 6. Choose Wizard

Clicking on the *OS2300 Basic Setup* will bring up the most common configurations used on the OnSite G.SHDSL.bis CPE.

Figure 7 on page 9 depicts options to configure through the Basic Setup wizard.
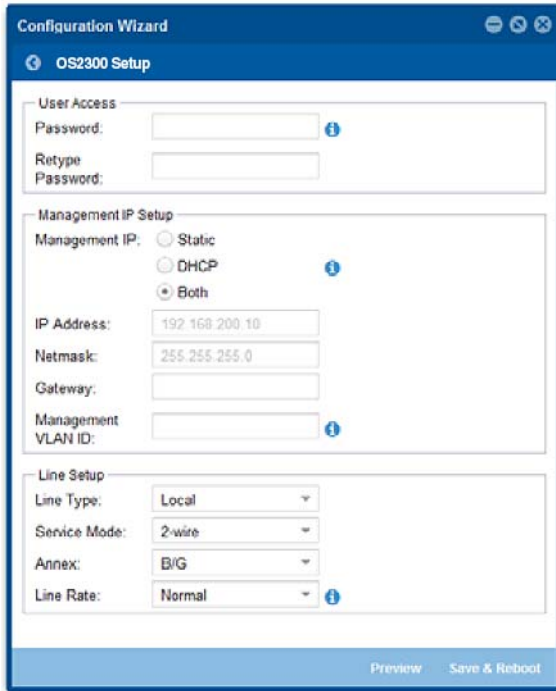
Figure 7. Basic Setup

User Access: (optional configuration) Users may change the password for the admin user.

- **Management IP Setup:**
  - **Static**: Create your own IP address, netmask and gateway (optional–the gateway is required for remote management).
  - **DHCP**: The OS2300 management port will accept an IP address from a DHCP server.
  - **Both**: This choice will assign two IP addresses (one static and one DHCP to the management port
 - **Management VLAN ID**: (Optional) define a VLAN ID for management traffic.
- **Line Setup**: This where you can manually set your DSL line options.
  - **Line Type (Central Office or Customer Premise)**: This will set the G.SHDSL.bis CPE as CO or CPE. CO is typically used at the network, CPE is typically used at the remote device or remote network.
  - **Service Mode**: Configures the number of pairs (wires) you want to use. The OS2300 will default to the maximum number of wires available on your version of the G.SHDSL.bis CPE: OS2301 (2-wire) or OS2302 (4-wire).

- **Annex**: Consult technical support before changing this setting.
- **Line Rate Configuration**: This will increase the potential line rate of the OS2300. Your OnSite OS2300 is defaulted to automatically select the optimal rate based on the distance (adaptive).

> **Note** There are two modes: Normal (TCPAM16|32) and Extended (TCPAM64|128). Selecting the Extended mode will double the bandwidth, but will reduce the reach (distance) in half. Default is normal.

On the bottom right corner of the OS2300 Basic Configuration wizard page to preview configurations and reboot. **Figure 8** depicts what you can expect to see if you click on the preview tab.
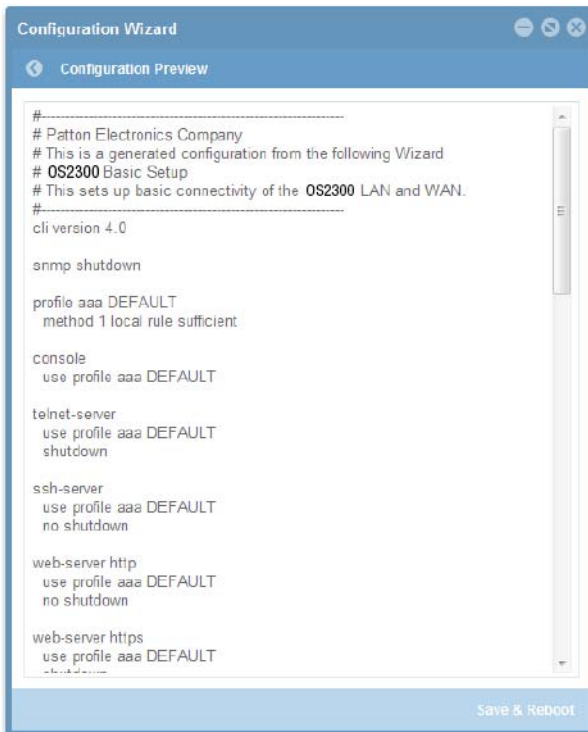
Figure 8. Configure Preview Option

When the user chooses the save and reboot option a prompt will ask you to confirm. If the configuration is correct, select *Yes* as shown in **figure 9**.
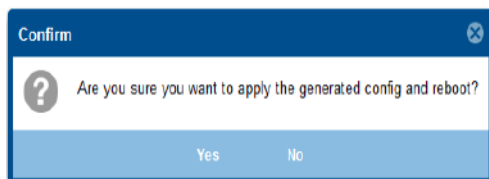
Figure 9. Confirmation

Typically the time to reboot and reestablish a DSL link so it can pass traffic will be less than 2 minutes.

5.0 CLI Operation and Configuration

You can connect a PC to configure the OnSite OS2300 using the CLI.

5.1 Connect with SSH

1. Connect the Ethernet cable.

2. Connect the power supply.

3. Connect via SSH to the G.SHDSL.bis CPE through CO or CPE IP addresses:

   – Default CPE IP address: 192.168.200.10

4. Login with the default username *admin* and no password.

5.2 Change the IP address (default: 192.168.200.10)

Follow the command sequence below.

```
node~>enable
node~#configure
node~(cfg)#context ip router
node~(ctx-ip)[router]#interface LAN
node~(if-ip)[router.LAN]#no ipaddress 192.168.200.10/24
node~(if-ip)[router.LAN]#ipaddress <new address>/<new
   mask>
```

5.3 Change the default username

The default username will be removed once a new one is created.

Follow the command sequence below:

```
node~>enable
node~#configure
node~(cfg)#superuser <username> password <password>
```

5.4 Save the Configuration

Follow the command sequence below:

```
node~>enable
node~#configure
node~(cfg)#copy running-config startup-config
```

5.5 DSL Commands

DSL Ports

The configurations below are used to configure various aspects of the OnSite port(s).

```
node~(cfg)# port dsl 0 0
```

CO and CPE

This will set the G.SHDSL.bis CPE as CO or CPE. CO is typically used at the network, CPE is typically used at the remote device or remote network.

```
node(prt-dsl)[0/0]# mode {co|cpe}
```

Annex Type

Please consult support before changing this setting.

```
node(prt-dsl)[0/0]# annex-type { b-g | a-f }
```

Line Rate Configuration

This will increase the line rate of the OS2300. Your OnSite OS2300 is defaulted to automatically select the optimal rate based on the distance (adaptive).

```
node(prt-dsl)[0/0]# payload-rate {adaptive [max
    <192..15296>] | <192..15296>}
```

Modulation Scheme

Note higher TC-PAM rates will increase maximum payload rates available but will decrease distance. Your OnSite OS2300 is defaulted to automatically select the optimal setting. Please consult manual for rate reach chart to determine your optimal setting if you choose to hard set this value. Higher TC-PAM rates are ideal for shorter cable runs offering max symmetrical (upstream/downstream) speeds of 11.4 Mbps (TCPAM64) and 15.3 Mbps (TCPAM128) per pair.

```
node(prt-dsl)[0/0]# tcpam {auto(16/32) | auto(64/128) | 16
    | 32 | 64 | 128}
```

Signal to Noise Ratio

Configures the acceptable noise margin for adaptive rate. SNR is the relative strength of the DSL signal to Noise ratio. 6dB is generally the lowest dB recommended in order for the modem to be able to synch. Generally speaking, as overall bandwidth increases,

your signal to noise ratio decreases. The higher the number the better. Your OS2300 is defaulted at 6 giving you the highest likelihood to connect.

```
node(prt-dsl)[0/0]# snr-margin <-10..22>
```

Below 6dB	bad
6dB–10dB	fair
11dB–20dB	good

Description
This is the description of the port/line (DSL connection). (Ex: "This line goes to building 4") When entering a description with spaces in the text, the description must be in quotations.

```
node~(prt-dsl)[0/0]# description <description>
```

Service Mode
Configures the number of pairs (wires) you want to use. The OS2300 will default to the maximum number of wires available on your version of the G.SHDSL.bis CPE: OS2301 (2-wire) or OS2302 (4-wire).

```
node~(prt-dsl)[0/0]# service-mode { 2-wire | 4-wire }
```

Shutdown
Disables or enables DSL port(s).

```
node~(prt-dsl)[0/0]# [no] shutdown
```

Exit
Goes back to parent mode.

```
node~(prt-dsl)[0/0]# exit
```

Show
Displays all the configured options of the OS2300 DSL port(s)

```
node(cfg)# show port dsl 0 0
```

6.0 Additional Information

For detailed information about configuring and operating guidance, set up procedures, and troubleshooting, refer to the *OnSite OS2300 Series User Manual* and *Trinity Release 3.10.X Command Line Reference Guide* available online at *www.patton.com/ manuals*

7.0 Customer and Technical Support

Toll-Free VoIP support: call *sip:support@patton.com* with a VoIP SIP phone

Online support: *www.patton.com*

E-mail support: *support@patton.com*—answered within 1 business day

Telephone support:

Standard	USA	+1 (301) 975-1007	Monday–Friday	8:00 am–5:00 pm EST (1300–2200 UTC/GMT)
Alternate	Switzerland	+41 (0)31-985-2555	Monday–Friday	8:00 am–5:00 pm CET (0900–1800 UTC/GMT)
Fax	USA Switzerland	+1 (301) 869-9293 +41 (0)31-985-2526		

8.0 Compliance

8.1 EMC

- FCC Part 15, Class A
- EN55022, Class A
- EN55024

8.2 Safety

- UL 60950-1/CSA C22.2 N0. 60950-1
- IEC/EN60950-1
- AS/NZS 60950-1

8.3 PSTN Regulatory

- FCC Part 68
- CS-03
- AS/ACIF S043:2003

8.4 FCC Part 68 (ACTA) Statement

This equipment complies with Part 68 of FCC rules and the requirements adopted by ACTA. On the bottom side of this equipment is a label that contains—among other information—a product identifier in the format *US: AAAEQ##TXXXX*. If requested, this number must be provided to the telephone company.

The method used to connect this equipment to the premises wiring and telephone network must comply with the applicable FCC Part 68 rules and requirements adopted by the ACTA.

If this equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice isn't practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens the telephone company will provide advance notice in order for you to make necessary modifications to maintain uninterrupted service.

If trouble is experienced with this equipment, for repair or warranty information, please contact our company. If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved.

Connection to party line service is subject to state tariffs. Contact the state public utility commission, public service commission or corporation commission for information.

8.5 Industry Canada Notice

This equipment meets the applicable Industry Canada Terminal Equipment Technical Specifications. This is confirmed by the registration number. The abbreviation, IC, before the registration number signifies that registration was performed based on a Declaration of Conformity indicating that Industry Canada technical specifications were met. It does not imply that Industry Canada approved the equipment.

This Declaration of Conformity means that the equipment meets certain telecommunications network protective, operational and safety requirements. The Department does not guarantee the equipment will operate to the user's satisfaction. Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the company's inside wiring associated with a single line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above condition may not prevent degradation of service in some situations. Repairs to some certified equipment should be made by an authorized maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment. Users should ensure for their own protection that the ground connections of the power utility, telephone lines and internal metallic water pipe system, are connected together. This protection may be particularly important in rural areas.

8.6 Radio and TV Interference (FCC Part 15)

This equipment generates and uses radio frequency energy, and if not installed and used properly—that is, in strict accordance with the manufacturer's instructions—may cause interference to radio and television reception. This equipment has been tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart B of Part 15 of FCC rules, which are designed to provide reasonable protection from such interference in a commercial installation. However, there is no guarantee that interference will not occur in a particular installation. If the equipment causes interference to radio or television reception, which can be determined by disconnecting the cables, try to correct the interference by one or more of the following measures: moving the computing equipment away from the receiver, re-orienting the receiving antenna, and/or plugging the receiving equipment into a different AC outlet (such that the computing equipment and receiver are on different branches).

8.7 EC Declaration of Conformity

Product Description: OnSite G.SHDSL.bis CPE

We certify that the apparatus identified above conforms to the requirements of Council Directive 1999/5/EC on the approximation of the laws of the member states relating to Radio and Telecommunication Terminal Equipment and the mutual recognition of their conformity.

ϵ The safety advises in the documentation accompanying the products shall be obeyed. The conformity to the above directive is indicated by the CE sign on the device.

The signed Declaration of Conformity can be downloaded from *www.patton.com/certifications/*.

9.0 Authorized European Representative

Martin Green
European Compliance Services Limited
Milestone House
Longcot Road
Shrivenham
SN6 8AL, UK

10.0 Copyright statement

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11.0 Trademarks statement

The term *OnSite* is a trademark of Patton Electronics Company. All other trademarks presented in this document are the property of their respective owners.

12.0 Warranty, Trademark, & Compliance Information

For warranty, trademark and compliance information, refer to the *OnSite and Trinity* manuals located online at www.patton.com/manuals.

In accordance with the requirements of council directive 2002/96/EC on Waste of Electrical and Electronic Equipment (WEEE), ensure that at end-of-life you separate this product from other waste and scrap and deliver to the WEEE collection system in your country for recycling.

Notes

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