

Zhone Firmware/Software/Hardware Release Notes

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Release Number: 02.05.22	Date: April 30, 2010			
Release Type: GA Release	Country Type: N/A			
Release History	Affected Product Models			
Release	Type	Date	Model	Priority
BS2600_ALL_020522	Released	April 30, 2010	26xx / 42xx	Minor
BS2600_ALL_020521	Released	January 27, 2010	26xx / 42xx	Minor
BS2600_ALL_020520	Released	August 14, 2009	26xx / 42xx	Minor
BS2600_ALL_020517	Released	April 30, 2009	26xx / 42xx	Minor
BS2600_ALL_020516	Released	March 16, 2009	26xx / 42xx	Minor
BS2600_ALL_020515	Released	July 15, 2008	26xx / 42xx	Major
BS2600_ALL_020513	Released	June 12, 2008	26xx / 42xx	Minor
BS2600_ALL_020511	Released	November 12, 2007	26xx / 42xx	Minor
BS2600_ALL_020507	Released	July 25, 2007	26xx / 42xx	Minor
BS2600_ALL_020505	Released	May 17, 2007	26xx / 42xx	Minor
BS2600_ALL_020501	Released	January 23, 2007	26xx / 42xx	Minor

Feature Enhancements / Functional Changes

- **Cabinet Mode support.** Cabinet mode has been implemented in this load. Refer to the feature description later in this document for details.
- Add support to enable **DHCP filtering on a per-port basis** for ADSL services. This feature offers the customer the ability to block DHCP offers from the DSL subscriber side on a per-port basis on ADSL services. This feature is enabled by default, preventing the DSL subscribers from providing DHCP addressing from the DSL port side. Please refer to the Feature description section at the end of this document for usage information on how to configure this option via the WebUI. Support for SHDSL and ReachDSL will be added in a future release.

Resolved Customer Issues in 02.05.22:

Issue Identifier	Issue Description
59231	2611 unexpected reboot - task tEmWeb Crash The DSLAM fails and reboots with an exception error if you issue the following command from the user level access: sh int t1e1 all per <enter> This command should have only been available on MLPPP models.

85037	DHCP packets dropped by 4279 when using QinQ When using the 2600/4200 to transport QinQ traffic, DHCP packets would be dropped. Note: For the outer VLAN tag TPID, the 2600/4200 supports TPID value of 8100 only.
74807	Protocol Filter setting after upgrade Protocol Filter was set to DENY, but after upgrading the firmware the setting changed to PERMIT.
78093	Error on CLI command - configure igmp-snooping show The 2600/4200 returned a corrupted response when issuing the command configure igmp-snooping show.
149497	Radius should be Disabled by default Changed the default state of the <i>RADIUS State</i> setting in the <i>Configuration / Management / RADIUS</i> screen to disabled. Previous releases had this setting <i>enabled</i> by default, even though the <i>RADIUS Server List</i> was empty. This option is only disabled when a 2600/4200 does not have any RADIUS Server settings provisioned. User settings previously configured on the system prior to an upgrade will be retained.
147085	Move error-log to be available to privileged users Moved the error-log from <i>development</i> to <i>privilege</i> access levels. Sensitive logs that indicate important system events has now been moved to a more generic access point, allowing customers to more readily retrieve event notifications for trouble-shooting purposes. When logged in from the CLI with admin level security privileges, the customer can now type 'error-log display' to retrieve system log events.
146679	Querier should run in Proxy Mode Resolved an issue when using <i>IGMP Proxy</i> mode, where the system would not send queries to the DSL ports connected to video streams unless the system first received a query request from an upstream Querier. The system will now send queries to the DSL ports connected to video streams even if it does not first receive a query from an upstream Querier or does not receive the upstream query.
151065	SNTP should be disabled by default Changed the default state of the <i>SNTP State</i> setting in the <i>Configuration / SNTP</i> screen to disabled. Previous releases had the SNTP server turned on by default. This enhancement eliminates unnecessary log indications when a customer does not use an SNTP server. User settings previously configured on the system prior to an upgrade are retained.
149092	Change default for Set PVID Automatically Changed the default state of the <i>Set PVIDs automatically</i> setting in the <i>Configuration / VLAN / Create</i> screen to enabled (i.e. checked). In the vast majority of cases, customers would need to have this option selected when creating VLANs. Previously, the <i>Set PVIDs automatically</i> setting was always defaulted to <i>disabled</i> (i.e. unchecked).

Model to Shipping Software Level Support – 26xx/42xx.

The following table lists the currently shipping models and associated loads for the 2600 and 4200 family.

Model	Software	Note	Model	Software	Note	Model	Software	Note
2611 – ReachDSL GigE uplink								
2611-A2-420	2.05.22		2611-A2-420-0HY	2.05.17		2611-A2-420-0JP	2.05.15	
2611-A2-424	2.05.22		2611-A2-425	2.05.22		2611-A2-430	2.05.22	
2611-A2-430-0HY	2.05.17		2611-A2-433	2.05.22		2611-A2-434	2.05.22	
2611-A2-435	2.05.22							
2621 – ADSL2+ GigE uplink								
2621-A3-420	2.05.22		2621-A3-423	2.05.22		2621-A3-423-0HY	2.05.17	
2621-A3-424	2.05.22		2621-A3-425	2.05.22		2621-A3-430	2.05.22	
2621-A3-433	2.05.22		2621-A3-433-0HY	2.05.17		2621-A3-434	2.05.22	
2621-A3-435	2.05.22		2621-A3-430-0MT	2.04.25				
2631 – ADSL2+ Annex B GigE uplink								
2631-A3-425	2.05.22		2631-A3-435	2.05.22				
Model	Software	Note	Model	Software	Note	Model	Software	Note
2671 – SHDSL GigE uplink								
2671-A2-420	2.05.22		2671-A2-420-0HY	2.05.17		2671-A2-424	2.05.22	
2671-A2-425	2.05.22							
2674 – SHDSL T1/E1 MLPPP								
2674-A1-420	2.05.22							
4211 – ReachDSL ATM T1								
4211-A1-530	2.03.06							
4213 – ReachDSL T1/E1 IMA								
4213-A1-522	2.03.06		4213-A1-530	2.03.06		4213-A1-532	2.03.06	
4214 – ReachDSL T1/E1 MLPPP								
4214-A1-530	2.05.22		4214-A1-531	2.05.22				
4219 – ReachDSL GigE uplink								
4219-A2-520	2.05.22		4219-A2-530	2.05.22		4219-A2-531	2.05.22	
4223 – ADSL T1/E1 IMA								
4223-A1-530	2.03.06		4223-A1-530-0VC	2.03.06		4223-A1-532	2.03.06	
4224 – ADSL2+ T1/E1 MLPPP								
4224-A1-522	2.05.22		4224-A1-530	2.05.22		4224-A1-531	2.05.22	
4229 – ADSL2+ GigE uplink								
4229-A3-520	2.05.22		4229-A3-520-0HY	2.05.17		4229-A3-530	2.05.22	
4229-A3-530-0MT	2.04.25		4229-A3-531	2.05.22				
4239 – ADSL2+ Annex B GigE uplink								
4239-A3-520	2.05.22		4239-A3-532	2.05.22				
4279 – SHDSL GigE uplink								

4279-A2-520	2.05.22		4279-A2-520-0HY	2.05.17				
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Release Structure and Identification

Filename	Target Destination
BS2600_REVA_020522.bin	Binary for units with Wintegra Revision A
BS2600_ALL_020522.bin	Management Download – combined boot and application load.

Note: DSLAMs running firmware versions **prior to 2.1.0** will need to be upgraded with file **BS2600_REVA_020522.bin** first before upgrading to later builds. Otherwise the Download will fail.

DSLAMs with firmware **2.1.0 or later** use file **BS2600_ALL_020522.bin**

This build may upgrade the unit's bootrom. Customers should not power cycle the unit while a firmware switch is in progress. The bootrom update may take 5-10 minutes.

Unresolved Customer Issues

Issue Identifier	Issue Description
67818	DSLAMs loss of DHCP traffic after a few months up time

System Co-Requirements in 02.05.22

Model	Description	Incorporated Code Base
4214-A1-xxx 4219-A2-xxx	24 Port ReachDSL	Reach DSP Release code 02040
2674-A1-xxx 4279-A2-xxx	24 Port SHDSLbis Annex A	Infineon DSP Release 0.9.3
4224-A1-xxx 4229-A3-xxx	24 Port ADSLS2+ Annex A	Broadcom DSP Release 06.04.08
4239-A3-xxx	24 Port ADSLS2+ Annex B	Broadcom DSP Release 06.04.08

Use of the new Features introduced in this load

2600/4200 Cabinet Mode - Feature Overview

With the introduction of this release, Cabinet mode is supported on the 2600/4200 and is normally used on systems located in outside plant (i.e. street) cabinets which share the same binder group as DSL services originating from the CO. When configured on a DSL port, the Cabinet Mode feature disables the use of all downstream frequencies below a specified cut-off frequency. Up to fifteen (15) different cut-off frequencies can be specified.

Cabinet mode can be provisioned on an individual port-by-port basis using the 2600/4200 Web UI, CLI, and/or SNMP.



Note: While Cabinet mode is beneficial in reducing the disturbances on adjacent ADSL services from the CO, it does so by eliminating the output transmit power over specified frequency ranges. This will reduce the overall rate and reach performance of DSL services from the 2600/4200. Therefore, this feature should only be used in situations where the 2600/4200 is adversely affecting the performance of ADSL services from the CO, or when mandated by the incumbent carrier in loop unbundling applications.



Note: For Cabinet Mode operation, the CPE device on the connection must also support Cabinet Mode operation and must be configured to respond to a shift in frequencies used during link and line training sequences. If the CPE is not able to respond to shifts in the frequencies used for line training, it may take a long time (if ever) to establish sync between the CPE and the 2600/4200.

Cabinet Mode Cut-off Frequencies

Cabinet mode reduces the power output below a specified cut-off frequency. Cabinet mode can be enabled by selecting a Cabinet Mode TX Filter ID ranging in value from 1 to 15. The TX Filter ID value a '0' disables Cabinet mode.

The cut-off frequency represents the point in the PSD spectrum at which power level will begin to be reduced, and can be estimated using the formula:

$$\text{Cut-off Freq} = [130 + 10 * (\text{TX Filter ID})] * 4.3125 \text{ kHz}$$

Table 1 below shows the estimated cut-off frequency for each possible value of the TX Filter ID.

TX Filter ID	Cut-off Freq (kHz)
0	Disabled
1	604
2	647
3	690
4	733
5	776
6	819
7	863
8	906
9	949
10	992
11	1035
12	1078
13	1121
14	1164
15	1208

Table 1: Cabinet Mode Cut-Off Frequencies



Note: Since there is a finite slope to the rate at which power is reduced from the cut-off frequency, operators may need to select a TX Filter ID value greater than that shown in Table 1 to ensure that all power is eliminated below the target cut-off frequency.

Figure 1 below shows an example of the power spectrum of an ADSL2+ circuit with the TX Filter ID set to a value of '14'. The first trace shows the frequency span from 0 to 4 MHz, and the second trace uses an expanded scale to show the power spectrum from 0.950 MHz to 1.1250 MHz. These plots were the results observed when using Thomson 516i modem (Annex B).

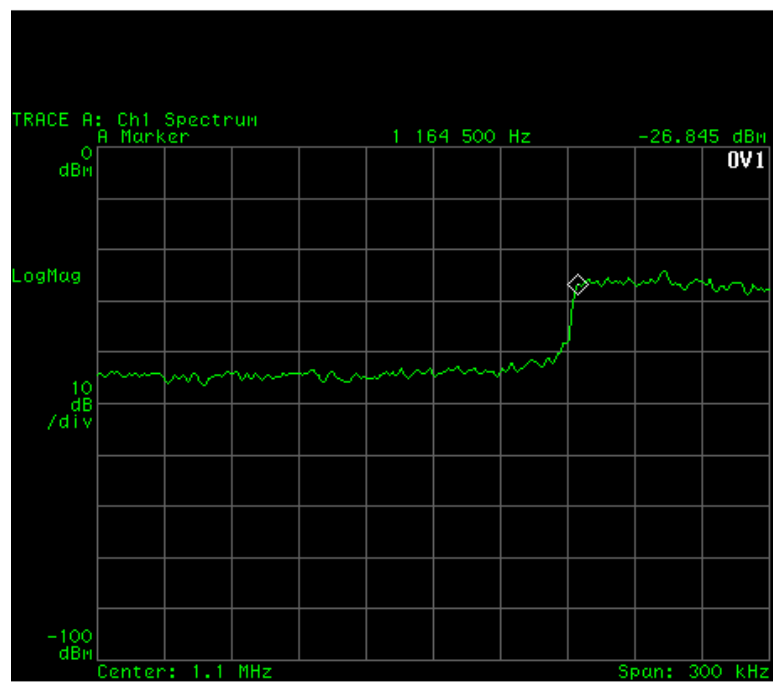
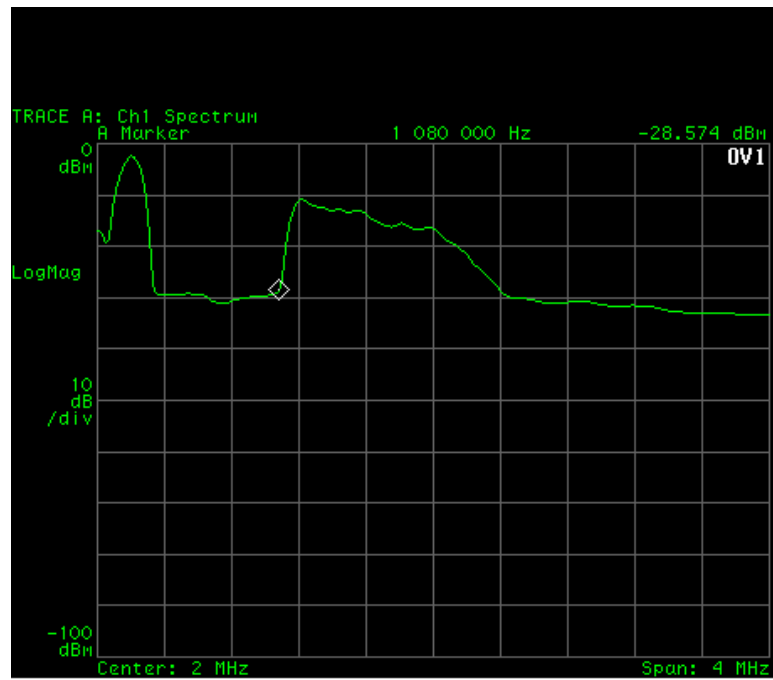


Figure 1 Thomson 516i Modem (Annex B)
Cabinet Mode TX Filter ID = 14

Web UI Interface

Cabinet Mode is configured on the 2600/4200 on a port-by-port basis using the **Configuration / Interface / DSL** screen as shown in Figure 2 below. A new Cabinet Mode TX Filter ID field has been added to this screen, and will accept a value ranging from 0 to 15. A value of '0' disables cabinet mode on the port, with values 1 to 15 resulting in a cut-off frequency (estimated) as shown in Table 1 above.

The screenshot shows the Zhone 4200IP Web UI. The left sidebar contains a navigation menu with categories: Diagnostics, Status, System, and Configuration. Under Configuration, there are links for Bridge, Filters (Protocol, Rules, DHCP Snooping Rules, IGMP Rules), Profiles, Bind, Priority Matrix, EtherType, Rule, Filter, Binding, Interface, Console, DSL, General, Port, Line Profile, Alarm Profile, Traffic Profile, PSD Profile, SELT Options, Bonding Groups, Bonding Alarm, Profile, Ethernet, IP, Proxy ARP, and Management. The main content area is titled 'Configuration / Interface / DSL' and prompts the user to 'Enter the port number or name.' The 'Port' field is set to '24'. Below this, various DSL parameters are configured: Line Circuit Name (empty), Line Code (MultiMode), DSL Line Profile Name (DEFVAL), DSL Alarm Profile Name (DEFVAL), ADSL2 PSD Profile Name (DEFVAL_ADSL2), ADSL2+ PSD Profile Name (DEFVAL_ADSL2PLUS), Power Management (Disabled), Power Management State Enabling (Both), L0 Time (seconds) (255), L2 Time (seconds) (60), L2 ATPR (dB) (1), L2 ATPRT (dB) (6), and Cabinet Mode TX Filter ID (0, highlighted with a red box). Other settings include DHCP Filtering (Enabled), Link Up Down Trap (Enabled), and Port Status (Enabled). An 'Apply' button is at the bottom.

Parameter	Value	Range
Line Circuit Name		
Line Code	MultiMode	
DSL Line Profile Name	DEFVAL	
DSL Alarm Profile Name	DEFVAL	
ADSL2 PSD Profile Name	DEFVAL_ADSL2	
ADSL2+ PSD Profile Name	DEFVAL_ADSL2PLUS	
Power Management	Disabled	
Power Management State Enabling	Both	
L0 Time (seconds)	255	0 - 255
L2 Time (seconds)	60	0 - 255
L2 ATPR (dB)	1	0 - 15
L2 ATPRT (dB)	6	0 - 15
Cabinet Mode TX Filter ID	0	0 - 15
DHCP Filtering	Enabled	
Link Up Down Trap	Enabled	
Port Status	Enabled	

Figure 2: Configuring Cabinet Mode

In addition, the online help for this screen has been updated to include a reference to Cabinet Mode and the estimated cut-off frequency associated with different TX Filter ID values. To invoke online help for this screen, click on the  button in the top-right corner. A new window will pop-up with additional information on how to use this screen.

Figure 3 shows the additional help text that has been added to describe the Cabinet Mode feature.

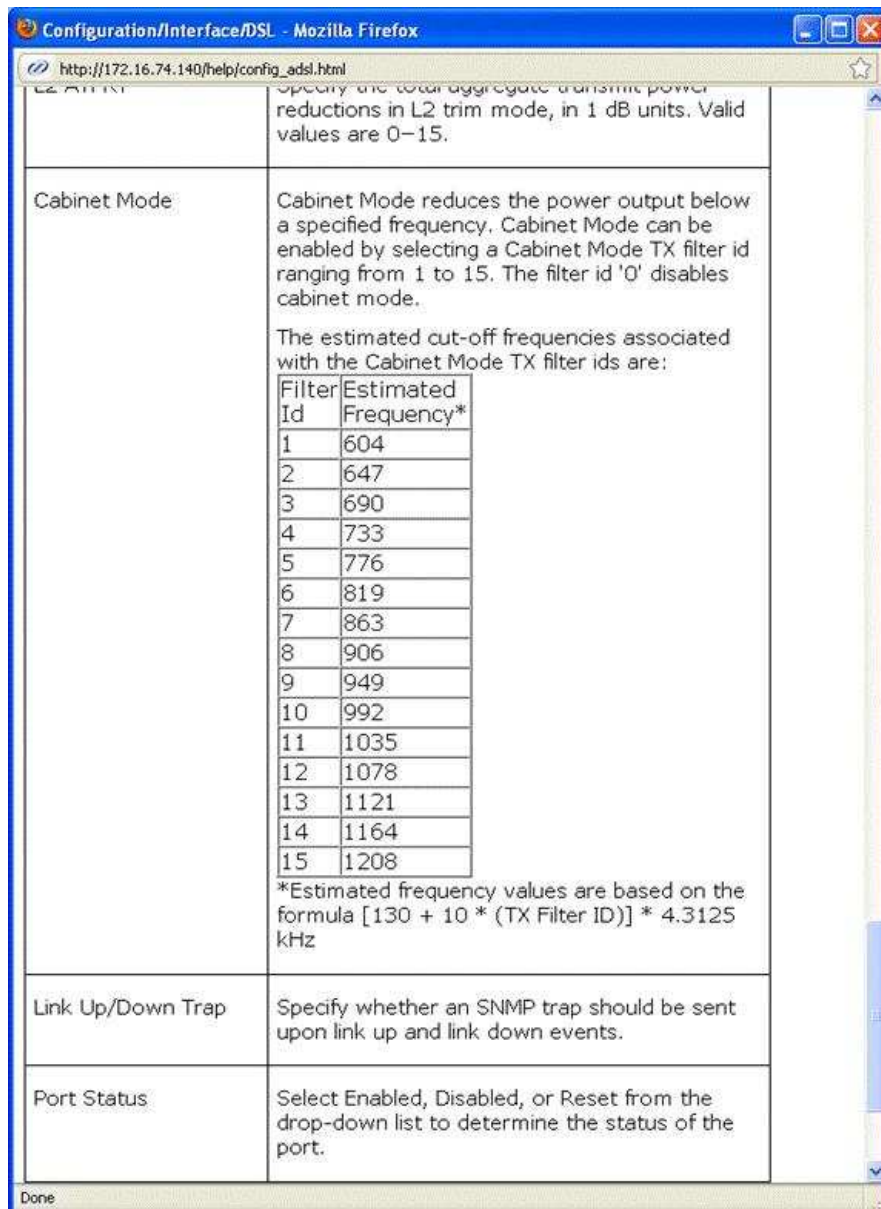


Figure 3: Online Help for Configuration / Interface / DSL screen (partial view)

Command Line Interface (CLI) – Cabinet Mode

Cabinet Mode can be configured on the 2600/4200 on a port-by-port basis using the Command Line Interface (CLI). Below are a couple of examples on how to enable and disable cabinet mode for a selected DSL port. These commands can only be entered after logging into the 2600/4200 with PRIV level access.

The first example shows Cabinet Mode being enabled for port #1, with a TX Filter ID value of '14':

```
PDYN#! configure interface dsl 1 cabinet-mode 14
ADSL2 port 1 Cabinet Mode TX filter id is set to 14
```

To confirm the correct setting, you can use the ‘show’ command:

```
PDYN#! show interface dsl 1 configuration
```

DSL Port 1 Configuration

DSL Port 1 Configuration

name		
state	enabled	
Transmission Mode	multimode	
latency	interleaved	
linkupdown-trap	enabled	
pwrmgmt-state	disabled	
pwrmgmt-enabling	both	
l0-time	255 sec	
l2-time	60 sec	
l2-atpr	1 dB	
l2-atprt	6 dB	
Cabinet Mode Filter id	14	
dhcp-filtering	enabled	
Line Profile Name	DEFVAL	
Alarm Profile Name	DEFVAL	
ADSL2 PSD Profile Name	DEFVAL_ADSL2	
ADSL2 Plus PSD Profile Name	DEFVAL_ADSL2PLUS	
	Upstream	Downstream
behavior	adaptive	adaptive

<snip>

The following example shows how Cabinet Mode can be disabled on port #1 (it is disabled by default).

```
PDYN#! configure interface dsl 1 cabinet-mode 0
ADSL2 port 1 Cabinet Mode TX filter id is set to 0
```

To confirm the correct setting, you can use the ‘show’ command:

```
PDYN#! show interface dsl 1 configuration

DSL Port 1 Configuration

name
state                               enabled
Transmission Mode                  multimode
latency                             interleaved
linkupdown-trap                     enabled
pwrmgmt-state                       disabled
pwrmgmt-enabling                    both
l0-time                             255 sec
l2-time                             60 sec
l2-atpr                             1 dB
l2-atprt                            6 dB
Cabinet Mode Filter id            0
dhcp-filtering                      enabled
Line Profile Name                   DEFVAL
Alarm Profile Name                  DEFVAL
ADSL2 PSD Profile Name              DEFVAL_ADSL2
ADSL2 Plus PSD Profile Name         DEFVAL_ADSL2PLUS

behavior                            Upstream      Downstream
                                   adaptive        adaptive

<snip>
```

DHCP per-port Filtering for ADSL subscribers

With release 2.05.22 (and above), DHCP Filtering can be enabled or disabled on a per-port basis for ADSL subscribers. The DHCP Filtering option is **enabled** by default, which means that the DSLAM will prevent DHCP offers from being made on the DSL side. Customers who wish to allow DSL subscribers to respond to DHCP requests can do so by changing the DHCP Filtering option to **disabled**. Figure 4 below shows this new per-port feature.

Z H O N E

4200IP

Diagnostics

Status

System

Configuration

Bridge

Filters

Protocol

Rules

DHCP Snooping Rules

IGMP Rules

Profiles

Bind

Priority Matrix

EtherType

Rule

Filter

Binding

Interface

Console

DSL

General

Port

Line Profile

Alarm Profile

Traffic Profile

PSD Profile

SELT Options

Bonding Groups

Bonding Alarm

Profile

Ethernet

IP

Proxy ARP

Management

Access List

Configuration / Interface / DSL

Enter the port number or name.

Port Related

Line Circuit Name

Line Code

DSL Line Profile Name

DSL Alarm Profile Name

ADSL2 PSD Profile Name

ADSL2+ PSD Profile Name

Power Management

Power Management State Enabling

L0 Time (seconds)

L2 Time (seconds)

L2 ATPR (dB)

L2 ATPRT (dB)

Cabinet Mode TX Filter ID

DHCP Filtering

Link Up Down Trap

Port Status

MultiMode

DEFVAL

DEFVAL

DEFVAL_ADSL2

DEFVAL_ADSL2PLUS

Disabled

Both

255

60

1

6

0

Enabled

Enabled

Enabled

0 - 255

0 - 255

0 - 15

0 - 15

0 - 15

Figure 4: DHCP Filtering Enabled on a Per-port basis.

Command Line Interface (CLI) – DHCP Filtering

DHCP filtering can be configured on the 2600/4200 on a port-by-port basis using the Command Line Interface (CLI). Below are a couple of examples on how to enable and disable DHCP filtering for a selected DSL port. These commands can only be entered after logging into the 2600/4200 with PRIV level access.

The first example shows DHCP filtering being enabled for port #6:

```
PDYN#! configure interface dsl 6 dhcp-filtering enable
```

This next example shows DHCP filtering being disabled for port #6:

```
PDYN#! configure interface dsl 6 dhcp-filtering disable
```

To confirm the correct setting, you can use the ‘show’ command:

```
PDYN#! show interface dsl 6 configuration
```

```
DSL Port 6 Configuration

name
state                               enabled
Transmission Mode                  multimode
latency                            interleaved
linkupdown-trap                    enabled
pwrmgmt-state                      disabled
pwrmgmt-enabling                   both
l0-time                             255 sec
l2-time                             60 sec
l2-atpr                             1 dB
l2-atprt                            6 dB
Cabinet Mode Filter id             0
dhcp-filtering                    enabled
Line Profile Name                   DEFVAL
Alarm Profile Name                  DEFVAL
ADSL2 PSD Profile Name              DEFVAL_ADSL2
ADSL2 Plus PSD Profile Name         DEFVAL_ADSL2PLUS

behavior                           Upstream      Downstream
                                adaptive        adaptive

<snip>
```

SNMP Support

Cabinet Mode and DHCP filtering can also be configured using SNMP. A Zhone Proprietary MIB extension has been implemented to support this functionality. It is contained in the load file for this release at the download page found at www.Zhone.com/support/downloads/. Note that this link does require login access to the Zhone Service and Support web pages, available for free to all service contract customers, or by calling Zhone support at 1-877-ZHONE-20.