



Maintenance Guide

# **Table of Contents**

List of	f Figures _			iv
List of	f Tables_			vi
1.	Introdu	Introduction		1
	1.1.	Related	Publications	2
	1.2.	Convent	tions and Terminology	2
2.	BroadA	Access Syste	em Overview	7
3.	Loggin	g In		9
4.	User In	User Interface		
	4.1.	Configuration Tree		12
	4.2.	Work A	.rea	13
	4.3.	Status B	Status Bar	
	4.4.	Menus a	and Toolbars in the NE Operation Window	15
		4.4.1.	Menu Bar	15
		4.4.2.	Toolbar	19
		4.4.3.	Shortcut Menu	20
	4.5.	Finding	Subscriber Ports	20
	4.6.	4.6. Creating Reports		26
		4.6.1.	Hiding Columns of Data in Tables	27
		4.6.2.	Using the Advanced Database Filter	28
		4.6.3.	Using the Report Designer	30
5.	Fault Management			37
	5.1.	Enabling and Disabling Audible Notification		37
	5.2.	Modifying the Audible Notification Sound		38
	5.3.	Alarm C	Alarm Color Codes and Symbols	
	5.4.	Viewing	Viewing Active Alarms	
	5.5.	Filtering and Sorting Alarms		43
	5.6.	Searchir	ng for Specific Text in the Alarm Table	45
	5.7.	Acknow	vledging and Deacknowledging Active Alarms	47
	5.8.	Entering	g and Editing Free Text for a Specific Alarm	47
	5.9.	Viewing	g the Network's Alarm History	48
	5.10.	Viewing	g the Alarm Archive	48

5.11.	Saving A	Alarm Reports to File	51
5.12.	Printing	Alarm Reports	51
5.13.	Editing I	NEs' Alarm Severity Levels	52
5.14.	Viewing	the Event Log	56
5.15.	Viewing	the Configuration Log	58
	5.15.1.	Searching for Specific Text in the Configuration Log	62
	5.15.2.	Printing Reports from the Configuration Log	63
	5.15.3.	Saving the Configuration Log to File	63
5.16.	Alarms a	and Troubleshooting	64
	5.16.1.	Alarms and Indicators	64
	5.16.2.	Troubleshooting Methodology	65
	5.16.3.	Alarms Generated by BroadAccess	66
	5.16.4.	Other Problems	94
	5.16.5.	Troubleshooting Procedures	96
5.17.	Line Tes	ting	164
	5.17.1.	Viewing Line Test History	169
	5.17.2.	Selecting a Line or Lines to Perform Tests On	169
	5.17.3.	Performing External Line Tests	170
	5.17.4.	Performing Background Line Tests	171
	5.17.5.	Setting Line Test Thresholds	172
	5.17.6.	Performing an Alarm Simulation	174
5.18.	External	Alarm Settings	175
5.19.	Loopbac	k Tests	177
Perform	nance Mana	gement	179
6.1.	Summary of Performance Monitoring Counters		
	6.1.1.	SDH Performance Monitoring	179
	6.1.2.	PDH Performance Monitoring	180
	6.1.3.	HDSL Performance Monitoring	181
	6.1.4.	IP Uplink Performance Monitoring	181
	6.1.5.	ATM Connection Performance Monitoring	185
	6.1.6.	ATM UNI Performance Monitoring	185
	6.1.7.	ADSL Performance Monitoring	186
	6.1.8.	G.SHDSL Performance Monitoring	187
	6.1.9.	Ethernet Service Performance Monitoring	188

6.

6.2.	Setting V	Up a Database of Performance Monitoring Statistics	189
6.3.	Viewing	g Performance Monitoring Statistics	191
	6.3.1.	Viewing ADSL Performance	192
	6.3.2.	Viewing G.SHDSL Performance	200
	6.3.3.	Viewing ATM, Uplink and Bridge Port Statistics, and Learned MACs for the IP-UL-x Card	203
	6.3.4.	Viewing ATM Performance	209
	6.3.5.	Viewing SDH Link Performance	217
	6.3.6.	Viewing PDH Link Performance	221
	6.3.7.	Viewing PCM E1 Link Performance	223
	6.3.8.	Viewing HDSL Link Performance	224
	6.3.9.	Viewing Ethernet Service Performance Monitoring	230
6.4.	Setting u	up Threshold Crossing Alerts	231
6.5.	Viewing Traffic Reports		232
	6.5.1.	Current Active Lines	232
	6.5.2.	Daily Usage	234
	6.5.3.	Current Traffic	235
	6.5.4.	Peak Hour Report	237
	6.5.5.	Hour of Interest Report	238
Glossa	ry of Terms	·	243
Index			247

7. 8.

# **List of Figures**

Figure 1.	BroadAccess Standard Cage General View and Card Locations	3
Figure 2.	BroadAccess Mini Cage General View and Card Locations	4
Figure 3.	BroadAccess Standard Cage	8
Figure 4.	The ClearAccess+ Main Window and NE Operation Secondary Window	11
Figure 5.	Configuration Tree	13
Figure 6.	NE Operation Window's Status Bar	14
Figure 7.	Customer Phones Editor Window	24
Figure 8.	Phone Book Window	25
Figure 9.	Field Chooser Dialog Box	27
Figure 10.	Advanced Database Filter	29
Figure 11.	Report Designer Dialog Box - Options Tab	33
Figure 12.	Report Designer Dialog Box - Colors Tab	34
Figure 13.	Report Designer Dialog Box - Fonts Tab	35
Figure 14.	Report Designer Dialog Box - Behaviors Tab	36
Figure 15.	Alarm Sound Control Dialog Box	38
Figure 16.	Current Alarms Display in ClearAccess+ Main Window	41
Figure 17.	Grouped Alarms Using One Column Heading	45
Figure 18.	Grouped Alarms Using Two Column Headings	45
Figure 19.	Find Text Window	46
Figure 20.	Notes Window	48
Figure 21.	Alarm Archive Window	49
Figure 22.	Alarm Archive Clean-Out Dialog Box - Now Tab	50
Figure 23.	Alarm Archive Clean-Out Dialog Box - Schedule Tab	50
Figure 24.	NE Alarm Configuration Window	54
Figure 25.	Event Viewer Window	56
Figure 26.	Configuration Log Window	59
Figure 27.	Line Tests Window	166
Figure 28.	Line Tests Window - Choose Line Ports Dialog Box	170
Figure 29.	Background Line Tests Dialog Box	171
Figure 30.	Line Test Thresholds Dialog Box	172
Figure 31.	Alarm Simulation Window	175

Figure 32.	External Alarm Settings Window	17
Figure 33.	PM Collection Settings Dialog Box	19
Figure 34.	ADSL Performance Dialog Box, Physical Tab, Interval Tab	19
Figure 35.	ADSL Performance Dialog Box, Channel Fast Tab, Interval Tab	19
Figure 36.	ADSL Performance Dialog Box, TC Layer Tab, Interval Tab	19
Figure 37.	SHDSL Performance Monitoring Window	20
Figure 38.	IP Uplink Window - ATM Statistics	20
Figure 39.	IP Uplink Window - Uplink Statistics	20
Figure 40.	IP Uplink Window - Bridge Port Statistics Index	20
Figure 41.	IP Uplink Window - MACs Learned	20
Figure 42.	ATM Cross-Connect Performance Monitoring Window	21
Figure 43.	STM1-ATM Performance Monitoring Window	21
Figure 44.	SDH Link Configuration Window - SDH Performance Tab, VC-12 Statistics	21
Figure 45.	SDH Link Configuration Window - SDH Performance Tab, STM-1 ATM Statistics	21
Figure 46.	PDH, PCM E1 and HDSL Link Configuration Window - Performance Tab	22
Figure 47.	HDSL Link Configuration Window - HDSL Quarter Hour Span Performance Tab	22
Figure 48.	HDSL Link Configuration Window - HDSL Daily Span Performance Tab	22
Figure 49.	Ethernet Card Performance Monitoring: Port Window	23
Figure 50.	Currently Active Lines Window	23
Figure 51.	Unit Daily Usage Dialog Box	23
Figure 52.	Unit Current Traffic	23
Figure 53.	Unit Peak Hour Report	23
Figure 54.	Hour of Interest Report Dialog Box	23
Figure 55.	Set Hour of Interest Dialog Box	24

# List of Tables

Table 1.	Element Naming Conventions used in the ClearAccess+, LCT and NE Operation Graphical User Interface	4
Table 2.	Conventions used in this Guide	6
Table 3.	Status Bar	14
Table 4.	Menu Bar Commands in the NE Operation Window	15
Table 5.	Buttons in the NE Operation Window's Toolbar	19
Table 6.	Phone Book Window Settings	25
Table 7.	Filter Window Generic Buttons	28
Table 8.	Report Types and Access Methods	30
Table 9.	Alarm Status Color Codes	39
Table 10.	Domain and NE Color Codes	39
Table 11.	Alarm Symbols	40
Table 12.	Active Alarms/Alarm History Windows Settings	41
Table 13.	Find Text Window Settings	46
Table 14.	NE Alarm Configuration Window Settings	54
Table 15.	Event Viewer Window Settings	56
Table 16.	Configuration Log Window Settings	59
Table 17.	BroadAccess Alarms	67
Table 18.	System Problems	94
Table 19.	ATM Problems	94
Table 20.	Transmission Problems	95
Table 21.	Service Problems	95
Table 22.	AC Alarm	96
Table 23.	AC or DC Test Failed	96
Table 24.	ADSL Line LCD Alarm - LI-ADSL4P	97
Table 25.	AIS, RAI, LOS or High/Low Code Error Alarm at LI-4E1 Series Card	97
Table 26.	Allocation Failed	98
Table 27.	ATM Bus Failure	98
Table 28.	ATM Connection Problems	99
Table 29.	ATM Ring Failure at CU	99
Table 30.	ATM Ring Failure at RU	100
Table 31.	ATM VC Alarms	100

Table 32.	ATM VP Alarms	101
Table 33.	Bus Conflict	101
Table 34.	Bus Conflict - VoIP	102
Table 35.	Bus Fail	102
Table 36.	Cage Not Working	103
Table 37.	Cage Slave Out	103
Table 38.	Cannot Dial - Regular Subscriber	104
Table 39.	Card Does Not Respond	104
Table 40.	Card Misplaced	105
Table 41.	ClearAccess+ Access Violation Error	105
Table 42.	ClearAccess+ Client Multi-Homed Computer Problem	105
Table 43.	ClearAccess+/LCT Not Working - Direct Connection	106
Table 44.	Clock Failure	106
Table 45.	Configuration Line Missing	107
Table 46.	Configuration Line Missing - LI-4E1 Series Card	108
Table 47.	Configuration Mismatch - PSDCx/PSRGx	108
Table 48.	Common Control Card Backup Failure	109
Table 49.	CPT Slave Failure	109
Table 50.	CRC Error, LOMF or TS 16 AIS	110
Table 51.	Cross-Connect Configuration Mismatch	110
Table 52.	Data Transfer Problem - LI-ADSL4P	110
Table 53.	DC Alarm	111
Table 54.	Door Open Alarm	111
Table 55.	E1/UNI ATM Failure	112
Table 56.	External Alarm	112
Table 57.	External Links Configuration Mismatch	113
Table 58.	Facility Near/Far End	113
Table 59.	Fan Failure	113
Table 60.	Hardware Loopback Indication	114
Table 61.	Hardware Malfunction	114
Table 62.	Illegal Link Configuration	114
Table 63.	Input Voltage Alarm	115
Table 64.	Leakage Fault	116
Table 65.	Line is Down - LI-ADSL Series Cards	117

Table 66.	Line is Down - LI-SHDSL Series Cards	118
Table 67.	Line is Down - VOIP-MG Series Cards	118
Table 68.	Link Blocked by Local Exchange	119
Table 69.	Link Configuration Mismatch	119
Table 70.	Link Failure - LTM/HDSL Cards	120
Table 71.	LI-SHDSL Card Limit Exceeded	120
Table 72.	LOF Alarm at LI-4E1/LI-16E1 Series Card	121
Table 73.	LOF or LOS Alarm at LI-8Nx64 Card	121
Table 74.	Management Communication Failure on the Link	123
Table 75.	Many Alarm Indication Signal (AIS)	123
Table 76.	Many Line Alarms	123
Table 77.	Many Remote Defect Indication (RDI) - VP ATM Layer	124
Table 78.	Media Failure	125
Table 79.	Metering Mismatch	125
Table 80.	Mismatched HW Version Control	126
Table 81.	Mismatched Subscribers	126
Table 82.	No Clock/Sync Failed	127
Table 83.	No Communication - RU and CU E1 Long Haul (LTM card)	127
Table 84.	No Communication - RU and CU E1 Short Haul (LTM card)	128
Table 85.	No Communication - RU and CU HDSL - 1 Doubler	130
Table 86.	No Communication - RU and CU HDSL - No Doublers	131
Table 87.	No Communication - RU and CU ONTU	132
Table 88.	No Communication - RU and CU ONTU (with backup ONTU cards)	134
Table 89.	No Dial Tone - Group of Subscribers or the Entire Cage (two cards or more)	135
Table 90.	No Dial Tone - Regular Subscriber	136
Table 91.	No Dialing - Group of Subscribers (two cards or more)	136
Table 92.	No Intracalls	137
Table 93.	No Power	138
Table 94.	No Power at CU	138
Table 95.	No Power at an RU	139
Table 96.	No Power Feeding - Regular Subscriber	140
Table 97.	No Power Feeding to a Group of Subscribers (two cards or more)	140
Table 98.	No Ringing - Group of Subscribers (two cards or more)	141

Table 99.	No Service DAT64-CO Subscriber	142
Table 100.	No Service - ISDN Subscriber (ISDNE Card)	143
Table 101.	No Service - ISDN Subscriber (ISDNE or 4B3T Card)	144
Table 102.	No Service - LLSI Channel	145
Table 103.	Power Limit Exceeded, Card Disabled	146
Table 104.	Power Threshold Exceeded	146
Table 105.	PSTN DL Failure	146
Table 106.	Read-Only Access to NEs using ClearAccess+ Client	147
Table 107.	Remote Defect Indication (RDI) - STM1 ATM Interface	148
Table 108.	Same Line Element Detected in More than One RU	149
Table 109.	SHDSL VC12 Interface Alarms	149
Table 110.	Software Version Control Mismatch	150
Table 111.	STM1 ATM Interface Alarms	150
Table 112.	STM1 Problem	151
Table 113.	STM4 Problem	153
Table 114.	STM4 Series Backup Card Failure	154
Table 115.	Temperature Alarm	155
Table 116.	Test Module Failed	155
Table 117.	Transmission Card Does Not Respond	156
Table 118.	Unrecognized Card	156
Table 119.	Unsupported Card	157
Table 120.	V5 Cycling Problem	157
Table 121.	V5 Out of Service	157
Table 122.	V5 Variant Error	158
Table 123.	VC-12 Alarm	159
Table 124.	VC TIM Alarm	160
Table 125.	VF Failure	160
Table 126.	WDM Problem	161
Table 127.	xDSL LCD at Near End	162
Table 128.	xDSL LCD at Near End - SHDSL Line	163
Table 129.	xDSL LCD at Far End - ADSL Line	163
Table 130.	xDSL LCD at Far End - SHDSL Line	164
Table 131.	Line Test Window Settings	166
Table 132.	Line Test Thresholds Dialog Box Settings	173

Table 133. External Alarm Settings Window Settings	176
Table 134. SDH Performance Monitoring	180
Table 135. PDH Performance Monitoring	180
Table 136. HDSL Performance Monitoring	181
Table 137. IP Uplink ATM Connection Performance Me	onitoring 182
Table 138. IP Uplink Performance Monitoring	182
Table 139. IP Uplink Bridge Port Performance Monitor	ing184
Table 140. ATM Connection Performance Monitoring	185
Table 141. ATM-UNI Performance Monitoring	186
Table 142. ADSL Performance Monitoring	186
Table 143. G.SHDSL Performance Monitoring	188
Table 144. Ethernet Service Performance Monitoring	188
Table 145. PM Archive Settings Dialog Box Settings	190
Table 146. ADSL Performance Window, Physical Tab S	Settings 193
Table 147. ADSL Performance Window, Channel Fast         Interleave Tab Settings	Tab and Channel 196
Table 148. ADSL Performance Window, TC Layer Tab	Settings 199
Table 149. SHDSL Performance Window Settings	202
Table 150. IP Uplink Window - ATM Statistics	205
Table 151. IP Uplink Window - Uplink Statistics	206
Table 152. IP Uplink Window - Bridge Port Statistics In	ndex 208
Table 153. IP Uplink Window - MACs Learned	209
Table 154. ATM Cross-Connect Performance Monitorin	ng Window Settings 211
Table 155. STM1-ATM Performance Monitoring Statist	tics215
Table 156. SDH Performance Tabs Settings	218
Table 157. PDH, PCM E1 and HDSL link Performance	Tab Settings 222
Table 158. HDSL Quarter Hour Span Performance Tab	Settings 227
Table 159. HDSL Daily Span Performance Tab Settings	
Table 160. Ethernet Service Performance Monitoring Se	ettings 231
Table 161. Currently Active Lines Window Settings	233
Table 162. Unit Daily Usage Dialog Box Settings	235
Table 163. Unit Current Traffic Window Settings	236
Table 164. Peak Hour Report Window Settings	238
Table 165. Hour of Interest Report Dialog Box Settings	239

Table 166. Set Hour of Interest Dialog Box Settings	240
---	-----

## 1. Introduction

This document explains how to troubleshoot and view performance monitoring statistics for BroadAccess<sup>TM</sup> Rel 7 systems, using either **ClearAccess**+<sup>TM</sup> or **LCT**.

Information about managing BroadAccess Release 7 systems using ClearAccess+ can be found in the following user guides:

- ClearAccess+ Installation and Administration Guide (included in the *ClearAccess+ User Guide*, which is supplied when you purchase *ClearAccess+*) - includes information about installation, logging in, network configuration, security and the alarm database.
- **BroadAccess Configuration Guide** (included in the *BroadAccess Release 7 Service Manual*, and in the *ClearAccess+ User Guide*) - includes detailed information about configuring a BroadAccess Rel 7 system.
- **BroadAccess Maintenance Guide** (this document, which is included in the *BroadAccess Release 7 Service Manual*, and in the *ClearAccess+ User Guide*) includes detailed information about performance monitoring, fault management and troubleshooting a BroadAccess Rel 7 system.

# Information about managing BroadAccess Release 7 systems using LCT can be found in the following user guides:

- LCT Installation and Administration Guide (located in the *BroadAccess Release 7 Service Manual*) provides information about installation, logging in, security, using the Telnet Command Line Interface and the alarm database.
- **BroadAccess Configuration Guide** (included in the *BroadAccess Release 7 Service Manual*, and in the *ClearAccess+ User Guide*) - includes detailed information about configuring a BroadAccess Rel 7 system.
- **BroadAccess Maintenance Guide** (this document, which is included in the *BroadAccess Release 7 Service Manual*, and in the *ClearAccess+ User Guide*) includes detailed information about performance monitoring, fault management and troubleshooting a BroadAccess Rel 7 system.

This guide is intended for system engineers, administrators and end users that are responsible for planning, administering, configuring and maintaining BroadAccess systems. Familiarity with common network technologies, (such as IP, PDH, SDH, ATM, xDSL, POTS, ISDN and V5 telephony) is required.

You access the windows specific to BroadAccess systems from the ClearAccess+ network tree or LCT main window. For more information about main window menu commands, installation and administration of ClearAccess+ or LCT, please refer to the corresponding user guide or access the corresponding help system from the ClearAccess+ or LCT main menu bar. This document includes the following chapters:

This chapter, **Introduction**, includes information about related publications, acronyms, abbreviations, conventions and terminology used in this guide.

**BroadAccess System Overview** on page 7 provides a brief description of the BroadAccess system.

Logging In on page 9 explains how to login to a ClearAccess+ client or to LCT.

**User Interface** on page 11 describes the graphical user interface used to configure and manage BroadAccess systems.

**Fault Management** on page 37 explains how to use ClearAccess+/LCT alarm features, lists the alarms generated by the system and suggested troubleshooting procedures, and explains how to perform tests on the system's lines.

**Performance Management** on page 179 describes how to collect and view performance monitoring and traffic statistics.

### 1.1. Related Publications

The following BroadAccess documentation was available on the release date of this guide:

- System Overview
- System Description
- Service Manual
- Planning Guide
- Applications and Engineering Guide (in Service Manual)
- BroadAccess Configuration Guide (in Service Manual)
- LCT Installation and Administration Guide (in Service Manual)
- ClearAccess+ User Guide

### **1.2.** Conventions and Terminology

A list of acronyms and abbreviations used in this guide can be found in the *Glossary of Terms* on page 243.

ClearAccess+ and LCT refer to lines, links and ports corresponding to their location relative to the cards installed in the cage.

The following figures, *BroadAccess Standard Cage General View and Card Locations* and *BroadAccess Mini Cage General View and Card Locations* show card types and their position in BroadAccess cages. The table *Element Naming Conventions Used in the Graphical User Interface* on page 4 explains the conventions used for each Element.



Figure 1. BroadAccess Standard Cage General View and Card Locations



Figure 2. BroadAccess Mini Cage General View and Card Locations

Table 1.	Element Naming Conventions used in the ClearAccess+, LCT
	and NE Operation Graphical User Interface

Term	Explanation	Format	Example
NE	Network Element: a BroadAccess system, consisting of a Central Unit and one or more Remote Units	The IP address of the NE is displayed in the title bar of the <b>NE</b> <b>Operation</b> window corresponding to the NE.	
CU	Central Unit in the NE		
RU	Remote Unit in the NE		
Unit	Central or Remote Unit in the NE	CU (#33), RU#1 - RU#8	

Term	Explanation	Format	Example
Cage	An NE can contain up to two cages in each CU, RU or single-side unit system. In BroadAccess systems, there are two types of cage: a standard cage that contains up to 21 cards, and a mini-cage that contains up to 10 cards.		
Card	Line (service) Card	<unit> Card <cage#>:<slot#> Refers to service cards in slots 1 - 15</slot#></cage#></unit>	Cage 1:07 RU#3:1:8
СР	Control Card	<unit> CP <cage#><slot#> Refers to Control cards 1 and 2</slot#></cage#></unit>	RU#5 CP 1:02:A/B
Link Card	Link (transmission) Cards	<unit> Link Card <cage#>:<slot#> Refers to Link cards 1 and 2</slot#></cage#></unit>	RU#2 Link #1:02
PS	Power Supply Card	<unit> PS <cage#>:<slot#> Refers to Power Supply cards 1 and 2</slot#></cage#></unit>	CU PS 1:01
Line (Port)	Line port on a card. For instance, if a line card contains 16 lines, their port numbers are 1-16	<unit>Line <cage#>:<slot#>: <port#> Refers to service cards in slots 1 - 15</port#></slot#></cage#></unit>	RU#3 Line 1:05:10
Link	Link port on a card that transmits between the CU and the RU. For instance, if a link card contains 4 links, the port numbers are 1-4	<unit>Link <cage#>:<slot#>: <port#></port#></slot#></cage#></unit>	RU#5 Link 2:01:04
LI - Link	A link that transmits between an LE and CU, or between an RU and a subscriber (for example, LI4E1 card). The LI-Link card is a type of line card, thus it is located in line slots 1 -15	<unit>LI - Link <cage#>:<slot#>: <port#> Refers to service cards in slots 1- 15</port#></slot#></cage#></unit>	CU LI-Link 1:02:04
V5.1 Interface	V5 digital interface standard	V5.1#< Interface#>	V5.1 #15
V5.2 Interface	V5 digital interface standard	V5.2 # 1	V5.2 #1
STM-1	Synchronous Transport Module that transmits at a rate of 155 Mbit/s	CU Link 1:02:1 STM -1 #2	

Term	Explanation	Format	Example
STM-4	Synchronous Transport Module that transmits at a rate of 622 Mbit/s		
VC-12	Virtual Container level 12, which is used in SDH transmission to map services and path overhead information		

You will find the following elements throughout the manual:

#### Table 2. Conventions used in this Guide

Convention	Description
Screen Elements	This font is used to indicate screen elements such as buttons,
	menu options, commands, icons, boxes, fields and options which
	you can select in the graphical user interface. For example, the
	OK button, the Performance menu or the Cage View option.
Shortcut Menu	The Shortcut menu refers to a context sensitive menu, which is
	accessed by clicking the right mouse button. The commands
	displayed differ, depending on the object on the screen that the
	mouse is pointing to when the right mouse button is clicked.
Sequence of Menu	A sequence of menu options is indicated using the pipe ( )
Options	symbol. For example, View/Alarm History means you should
	click View on the menu bar and then select the Alarm History
	option.
File Name	This font indicates file names.
Path Name or	This font indicates a path name on a computer, or text that you
Typed Text	have to type.
<key></key>	This convention indicates the name of the key on the keyboard
	that you need to press; for example, <enter> refers to the</enter>
	"Enter" key. Simultaneous key strokes are represented by a plus
	sign (+) between key names. For example, <ctrl> + <a></a></ctrl>
	indicates that you press the "Ctrl" key and the "A" key at the
	same time.



Λ

**Note:** *Notes contain information about special circumstances.* 

**Caution:** Cautions indicate operations or steps that could induce a safety problem in a managed device, destroy or corrupt information, or interrupt or stop network or client services.

## 2. BroadAccess System Overview

BroadAccess<sup>TM</sup> is a Multiservice Access Gateway (MSAG) based on advanced technology, providing Next Generation Network (NGN) and Triple Play solutions.

The system provides simultaneous support of TDM and VoIP network interfaces, enabling smooth migration from a circuit switch to the NGN, and a gradual transition of the voice subscribers to the VoIP network. The BroadAccess MSAG also combines Access Gateway and IP DSLAM functions in a single solution.

Using the BroadAccess system, Service Providers can select any mix of services (from POTS to xDSL and IP), capacities, and topologies, and can gradually adjust the system according to their needs. The system's effective integrated architecture allows changing network technologies to be implemented by simply replacing plug-in transmission and service cards.

A standard open protocol enables interfacing any standard softswitch via MGCP and H.248. All the media processing - compression, silence suppression and echo cancellation – complies with the relevant standards, with a wide variety of options.

The system offers integrated fiber transmission (up to STM-4), as well as copper transmission.

Automatic configuration enables immediate system commissioning and operation, eliminating complicated and time-consuming system turn-up. BroadAccess systems are managed by ClearAccess+, a smart, comprehensive EMS that offers efficient, cost-effective control of hundreds of BroadAccess MSAGs. The system's advanced functionalities and effortless operation significantly reduce operating costs and improve service quality, thus assuring smooth network performance and maximizing the network's potential.

A single BroadAccess system can also be managed locally or remotely by the BroadAccess' Windows-based Local Craft Terminal (LCT), providing full maintenance functionality via the same, familiar ClearAccess+ graphical user interface (GUI). When connected to the RU and communication between the CU and RU is not available, a limited range of management functions can be performed using a Telnet Command Line Interface (CLI) by connecting a PC to the RU.

For more information about the BroadAccess system, see the *BroadAccess System Overview*, *BroadAccess System Description* or *BroadAccess Planning Guide*.

The system's compact structure enables a single 19" cage, 6U in height, to support as many as 480 subscribers. The BroadAccess CAG40D-M, with cards installed, is shown below.



Figure 3. BroadAccess Standard Cage

## 3. Logging In

This section explains how to log in to a ClearAccess+ client, and to LCT. For more information about user names and passwords, please refer to the ClearAccess+ Installation and Administration Guide or the LCT Installation and Administration Guide, respectively.

After you have logged in, you open the **NE Operation** window for the particular BroadAccess NE that you want to manage. For more information about how to open the **NE Operation** window, see *User Interface* on page 11.



Note:

Before opening a ClearAccess+ session, ensure that:

ClearAccess+ Client software has been installed on your computer.

You know your user name and password for logging in to ClearAccess+.

### To login to ClearAccess+:

- Click the Windows Start button and select the Programs option. The list of program files opens. Select the ClearAccess+ option, and then the ClearAccess+ client option. The ClearAccess+ client opens, and the Login dialog box is displayed.
- 2. In the *Login* dialog box, enter the following and then click *OK*:
  - **User Name** enter your user name.
  - **Password** enter your password.

The ClearAccess+ server IP address that was used the last time that this ClearAccess+ client connected to the server is displayed in the **Server Address** field. You can enter a different IP address, if necessary.

**M** Note: Before opening an LCT session, ensure that:

You have connected your computer to the connector marked "COM3" on the system backplane, using an Ethernet cable.

The CU and RUs have power switched on.

The local craft terminal software has been installed on your computer.

You know your user name and password for logging in to LCT, and your LCT User user name and password for connecting to the NE.

### To log in to the LCT:

- Ensure that the LCT Start application is running (it should appear as one of the buttons on the Windows task bar). If it is not running, start it as follows: Click the Windows Start button and select the Programs option, then the Startup option and then the LCT Start option.
- Click the Windows Start button and select the Programs option, then the LCT option, then the BroadAccess 40 LCT folder, and then the BroadAccess 40 LCT option. The BroadAccess 40 Local Craft Terminal (LCT) opens, and the Login dialog box is displayed.
- 5. In the *Login* dialog box, enter the following:
  - User Name type your user name.
  - **Password** type your password.
  - Server Address read only.
- 6. Click the *OK* button. The LCT main window is displayed.
- Click on the NE icon in the left pane of the LCT main window. If an NE icon has not been defined for the NE, refer to Creating and Configuring a BroadAccess 40 Network Element (in the LCT Installation and Administration Guide/LCT Online Help system).
- 8. Select the *Configuration* menu option, and then the *Connect* option.
- 9. If you are connecting to an NE where no LCT Users have been defined, type admin in the User Name box, and BroadAccess40 in the Password box. If LCT Users have been defined, obtain your user name and password from your system administrator, and enter them.

The LCT connects to the BroadAccess system. If any alarms exist in the system, they are displayed in the right pane of the main LCT window. You can perform configuration activities and view performance data by selecting *Configuration* and then *NE Operation* options from the menu bar.

## 4. User Interface

This section explains how to use the graphical user interface which is used to manage individual BroadAccess NEs. You can access online help at any time for the feature you are currently using, by pressing the  $\langle F1 \rangle$  key.

Network-wide operations and alarm monitoring features are accessed from the main ClearAccess+ or LCT window. Configuration and Performance Monitoring activities are performed using the *NE Operation* window. The following figure illustrates the *ClearAccess+* main window, and a secondary *NE Operation* window, which is used to manage a BroadAccess NE.



## Figure 4. The ClearAccess+ Main Window and NE Operation Secondary Window

The *NE Operation* window is identical in both ClearAccess+ and LCT applications, but is accessed in different ways:

- If you are managing a BroadAccess system using ClearAccess+, you access the *NE Operation* window via the ClearAccess+ Network Tree. Refer to *ClearAccess+ Installation and Administration Guide* or the ClearAccess+ online help system (accessed from the ClearAccess+ menu bar) for more information about network-wide operations using ClearAccess+. You open the *NE Operation* window using one of the following methods:
  - WAN and ATM Inband network connection you right click on the BroadAccess network element on the Network Tree, and then select the *NE Operation* option.
  - PSTN connection you select the required NE on the Network Tree, and then from the ClearAccess+ main window's menu bar, select Configuration/Connect (Dial-Up).
- If you are managing a BroadAccess system using LCT, you access the **NE Operation** window by right clicking on the BroadAccess network element displayed in the left pane of the LCT's main window, clicking the **Connect** button to connect to the system, and then right clicking on the NE icon and selecting the **NE Operation** option. Refer to the *LCT Installation and Administration Guide* (located in the Service Manual) or the LCT online help system (accessed from the LCT menu bar) for more information about connecting to a BroadAccess system using LCT.

When procedures in this manual direct you to point to a BroadAccess NE, you should use one of the methods described above, depending on whether you are using ClearAccess+ or LCT.

The BroadAccess **NE Operation** window consists of the following main areas:

- Menu Bar
- Toolbar
- Configuration Tree
- Work Area
- Status Bar

### 4.1. Configuration Tree

The configuration tree includes the following features:

- Highlights the element currently being configured: for example, unit, cage, slot, port
- Displays the names of the cards installed in the cage slots
- Opens the corresponding configuration window when you double-click on a port icon

- A toolbar, which lets you shrink or restore the configuration tree pane, collapse or expand the elements in the tree, and lets you display the telephone number and other information assigned to the selected port
- Context-sensitive shortcut menus for items displayed in the tree
- Alarm indications on icons representing units, cages, cards or ports where alarms are active

**Note:** STM4-AEL cards are displayed as STM4-AE cards in the configuration tree. To determine whether a card is an STM4-AE or STM4-AEL, check the card's Part Number in the Card Inventory window (accessed from the Cage View).



Figure 5. Configuration Tree

### 4.2. Work Area

A

When you select commands from the Menu Bar or from the Toolbar in the BroadAccess **NE Operation** window, a corresponding window or dialog box is displayed in the **NE Operation** window's work area.

### 4.3. Status Bar

The *NE Operation* window's Status bar provides you with information about the NE's communication status, your Authorization level, Access Mode and the name of the ClearAccess+ user who currently has Write privileges for the NE.



Figure 6. NE Operation Window's Status Bar

Screen Element	Options	Description	Default
NE Communication	OK LOSS	Displays the current communication status between the NE and ClearAccess+/LCT <b>OK</b> - Communication between ClearAccess+ server/LCT and the NE is functioning normally <b>LOSS</b> - there is no communication (ping) between the NE and the ClearAccess+ server	
Authorization	Administrator Supervisor Configurator Service Operator	Displays the authorization level of the user currently using the NE Operation window on this client.	
Access Mode	Normal View Only	Displays the current access mode of the user using the NE Operation window on this client: <b>Normal</b> - has all the privileges allowed for this user for the NE being managed <b>View Only</b> - has read-only privileges for this NE because another user is managing it	
Locked By		Displays the name of the user who currently has management (normal) privileges for this NE. If your user name does not appear here, you cannot make any changes to this NE. If you have administrator privileges, you can force another user to logout, by using the <i>Logout</i> button in the <i>Users</i> window.	

#### Table 3. Status Bar

### 4.4. Menus and Toolbars in the NE Operation Window

Commands can be accessed from the *NE Operation* window's menu bar, the toolbar and shortcut menus. Some of the commands are accessible in more than one way (for example, from the menu bar and from a shortcut menu).

A description of the menu commands and toolbar buttons that appear in ClearAccess+ and LCT's **main window** can be found in *ClearAccess+ Installation and Administration Guide* and *LCT Installation and Administration Guide*, respectively.

### 4.4.1. Menu Bar

The *NE Operation* window's Menu Bar includes the commands listed in the table below. Some of the commands can also be accessed using shortcut menus or buttons on the Toolbar. Functions of the ClearAccess+ and LCT main window's menu bar and toolbar are described in the *ClearAccess+ Installation and Administration Guide* and *LCT Installation and Administration Guide*, respectively. You can access online help for the feature you are currently using by pressing the <F1> key.

A sequence of options is indicated using the pipe (|) symbol.

Command	Action
Fault/Tests/Line Test	Performs tests on specified
	lines. Available tests
	include: AC, DC, Leakage,
	Capacitance, VF and Noise
Fault/Tests/External Line Test/Disconnect	Disables line testing with
	external test equipment
Fault/Tests/External Line Test/Connect	Enables line testing with
	external test equipment
Fault/Tests/Lines Background Test	Tests all lines in the
	background, without
	BroadAccess management
	software supervision. VF
	and metallic are the
	available tests.
Fault/Tests/Line Test Thresholds	Sets threshold values used
	to determine pass or fail
	results in line tests
Fault/Tests/History Results	Lets you view results of
	line tests that were
	performed in the past
Fault/Tests/Alarm Simulation	Simulates an alarm in order
	to check the alarm
	mechanism

### Table 4. Menu Bar Commands in the NE Operation Window

Command	Action
Fault/External Alarm Settings	Displays a list of External
	systems administrator. The
	names can be modified as
	required.
Configuration/General Unit Information	Displays information about
	active and backup control
	cards, metering and voltage
	jumper settings and
	software version. See
	Guide for more
	information.
Configuration/Configure NE/Links	Displays link performance
	and mapping data, and link
	properties; enables
	loopback tests; enables and
	disables links. See
	BroadAccess Configuration
	information
Configuration/Configure NE/V5.1	Lets you configure V5.1
	protocol settings. See
	BroadAccess Configuration
	Guide for more
	information.
Configuration/Configure NE/V5.2	Lets you configure V5.2
	protocol settings. See BroadAccess Configuration
	Guide for more
	information.
Configuration/Configure NE/National Protocol	Lets you configure national
	protocol settings. See
	BroadAccess Configuration
	Guide for more
Configuration/Configura NE/Cons. View	information.
Configuration/Configure NE/Cage view	Displays a graphical
	selected RU or CU cage
	and the cards installed in it.
	See BroadAccess
	Configuration Guide for
	more information.
Configuration/Configure NE/Cross-Connect	Lets you cross-connect
	lines (TDM). See
	BroadAccess Configuration
	information

Command	Action
Configuration/Configure NE/Voice over IP	Lets you configure Voice
	over IP settings. See
	BroadAccess Configuration
	Guide for more
	information.
Configuration/Configure NE/Broadband	Lets you establish ATM
Cross-Connect	connections between the
	broadband network and
	xDSL or Ethernet Service
	subscribers. See
	BroadAccess Configuration
	Guide for more
	information.
Configuration/Configure NE/Synchronization	Sets each unit's SDH
	synchronization parameters
	and CPT's clock priorities.
	See BroadAccess
	Configuration Guide for
Operations and Operations NEIO sectors Operations	more information.
Configuration/Configure NE/System Settings	Lets you modify system
	settings. See BroadAccess
	Configuration Guide for
Configuration/CDT Suran Control	more information.
Configuration/CPT Swap Control	Swap Control - passes
	(swaps) control from the
	to the healtur control card
	to the backup control card.
	See BroauAccess
	configuration Guide for
Configuration/NE Configuration Eiles/Download to	Loada (restores) previously
NE	saved configuration files
	from a PC to the
	Broad Access system See
	BroadAccess Configuration
	Guide for more
	information
Configuration/NF Configuration Files/Unload from	Saves the NF's
NE	configuration data to file on
	a PC See Broad $\triangle$ ccess
	Configuration Guide for
	more information
	more mitormation.

Command	Action
Configuration/Software Download	Opens the Software
	Download window, from
	which you can import
	software version profiles,
	download software files to
	cards and swap active
	software versions. See
	BroadAccess Configuration
	Guide for more
	information.
Configuration IP Address Settings	Lets you edit IP Address
	settings for the
	BroadAccess system's
	communication with the
	carrier's IP network, and for
	management of the CU and
	RU that comprise the NE.
	For more information, see
	the ClearAccess+ or LC1
	Installation and
Configuration/BULE1 Dalay	Administration Guide.
Configuration RO ET Delay	sets the delay time for the
	between the PU and CU
	when the link is transmitted
	over satellite See
	BroadAccess Configuration
	Guide for more
	information.
Performance/Performance Monitoring	Opens the <b>Performance</b>
, 5	<b>Monitoring</b> window for the
	port currently selected in
	the NE Configuration Tree.
Performance/Threshold Crossing Alert	Lets you configure
	Threshold Crossing Alert
	profiles for ADSL and
	SHDSL ports. See
	BroadAccess Configuration
	Guide for more
	information.
Performance/Traffic/NE Current Active Lines	Displays a list of non-idle
	lines in the system
Performance/Traffic/Unit Daily Usage	Displays the accumulated
	hourly usage for the
	selected unit
Performance/Traffic/Unit Current Traffic	Displays current traffic data
Performance/Traffic/Unit Peak Hour Traffic	Displays the traffic during
	the selected unit's peak hour

Command	Action
Performance/Traffic/Unit Hour of Interest Traffic/Hour of Interest Report	Displays the selected unit's traffic during the hour defined as the "hour of interest"
Performance/Traffic/Unit Hour of Interest Traffic/Set NE hour of Interest	Defines a specific hour of the day for which traffic data is collected
Window/Cascade	Arranges windows in an overlapping order from back to front, tip left to bottom right
Window Tile Horizontally	Arranges windows in equal horizontal proportion in the BroadAccess management software Work Area
Window/Tile Vertically	Arranges windows in equal vertical proportion in the BroadAccess management software Work Area
Window Minimize All	Minimizes all windows opened from the NE Operation window
Window/Arrange	Arranges the windows

### 4.4.2. Toolbar

The buttons on the **NE Operation** window's Toolbar are used to perform the commands listed in the table below. Most of the commands can also be accessed from the Menu Bar or shortcut menus. Functions of the ClearAccess+ and LCT main window's menu bar and toolbar are described in the *ClearAccess+ Installation and Administration Guide* and *LCT Installation and Administration Guide*, respectively.

Table 5.	Buttons in the NE Operation Window's Toolbar
----------	--

Name	Description
Configure Line	Opens the line configuration window corresponding to the selected port in the configuration tree. The type of window opened depends on the type of service provided by the port. See BroadAccess Configuration Guide for more information.
Links	Displays link performance and mapping data, and link properties; enables loopback tests; enables and disables links. See BroadAccess Configuration Guide for more information.
Cage View	Opens the Cage View window, where a graphical representation of a CU or RU cage and installed cards are displayed. See BroadAccess Configuration Guide for more information.

Name	Description
Voice over IP	Opens the <b>Voice over IP</b> window, where you configure lines connected to a soft-switch using VoIP technology. See BroadAccess Configuration Guide for more information.
V5.1	Lets you configure V5.1 protocol settings. See BroadAccess Configuration Guide for more information.
V5.2 V52 V5.2	Lets you configure V5.2 protocol settings. See BroadAccess Configuration Guide for more information.
National Protocol	Lets you configure national protocol settings. See BroadAccess Configuration Guide for more information.
Cross-Connect	Lets you cross-connect lines (TDM). See BroadAccess Configuration Guide for more information.
Broadband Cross- Connect Broadband Cross Connect	Lets you establish broadband connections between the ATM or IP network and xDSL or Ethernet service subscribers. See BroadAccess Configuration Guide for more information.
Synchronization	Sets each unit's SDH synchronization parameters and CPT card's clock priority table. See BroadAccess Configuration Guide for more information.
Refresh Tree	Refreshes the Configuration Tree
Auto Refresh	The system automatically refreshes the Configuration Tree every 10 minutes

### 4.4.3. Shortcut Menu

The shortcut menu is a context sensitive pop-up menu, which is displayed by clicking the right mouse button. You can access the shortcut menu for a specific port, by selecting a card displayed in the Configuration Tree and right-clicking on a port icon. The options available in the shortcut menus vary, depending on the item upon which you click. Many of the shortcut menu options can also be accessed from the Menu Bar or from the Toolbar.

### 4.5. Finding Subscriber Ports

ClearAccess+ provides you with an easy way of locating ports and drilling down to configuration and status information about a specific subscriber port in a BroadAccess 40 SNMP system, according to the subscriber's telephone number, ID number (in the case of G.SHDSL lines), or information configured in the **Description** field for the port. You can also sort the phone numbers in the **Customer Phones** table according to Phone #, Description, Network Element, Port Location or Card Type.

For each port, you can configure one "Main Number" and an unlimited number of other phone numbers or IDs. The Main Numbers are saved in the NE itself, and can be configured or viewed using ClearAccess+ or LCT. When phone numbers are configured for an NE using LCT, they are automatically configured as Main Numbers. The non-Main Numbers can only be configured or viewed using ClearAccess+, and are saved in the ClearAccess+ database.

Although the phone book is accessed from the ClearAccess+ main menu bar, entries in the phone book are created and deleted using the *NE Operation* window. You can view, create or delete a phone book entry by selecting an RU port in the

configuration tree, and then clicking the <sup>66</sup> button in the configuration tree's tool bar. You can also view, create or delete phone book entries for ADSL ports directly from the **ADSL Port Configuration** window, on the **Line** tab.

During provisioning of a BroadAccess system, the telephone or ID number and subscriber name (or other free text) is entered for each port and is stored in the *Customer Phones* phone book. Ports can be configured individually or as a bulk operation. When a subscriber reports a problem with a line, you can easily locate the corresponding port in the BroadAccess system, using the *Customer Phones* window. When you click the *Go to Port* button, you can choose to either open the configuration window corresponding to the selected port, or perform a line test on the line.

- ▲ Note: If no configuration window is associated to the port, the NE Operation window corresponding to the BroadAccess system to which the port belongs, is displayed.
  - **Note:** Only the "Main" phone numbers in the phone book feature are available when using LCT.

### To drill-down to a port using the phone book:

- 1. On the ClearAccess+ main menu bar, select *Configuration* option and then *Customer Phones* option. The *Customer Phones* window is displayed.
- **2.** Locate the port you require in the phone book, using one of the sorting, filtering or search methods described in the following procedures in this section.
- 3. Click the *Go to Port* button and select one of the following options:
  - **Configure Port** displays the corresponding **Line Configuration** window for the port
  - *Line Test* performs a line test on the port

### To sort the rows in the phone book:

1. On the ClearAccess+ main menu bar, select **Configuration** and then **Customer Phones**. The **Customer Phones** window is displayed.

2. Click on the arrow in the heading cell of the column by which you want to sort the table. A gray arrow appears, which indicates the sort direction currently in use.

#### To filter the rows in the phone book:

- 1. On the ClearAccess+ main menu bar, select **Configuration** and then **Customer Phones**. The **Customer Phones** window is displayed.
- **2.** Do one of the following:
  - If a filter has already been defined, click the *Filtered* button.
  - If no filter has been defined, or if you want to modify the filter, click the *Define Filter* button. Set up the filter as required and click the *OK* button (for more information, see *Using the Advanced Database Filter* on page 28).
- **3.** To cancel the filtering mechanism, click the *Filtered* button.

### To search for specific text in the phone book:

- 1. On the ClearAccess+ main menu bar, select **Configuration** and then **Customer Phones**. The **Customer Phones** window is displayed.
- 2. Click the **Search** button. The **Find Text** dialog box is displayed.
- **3.** Type the required text in the *Text to find* box, and select the other options you require for the text search.
- 4. Click the *Find Text* button, and repeat until you find the item you are searching for.

#### To save the data in the phone book:

- 1. On the ClearAccess+ main menu bar, select **Configuration** and then **Customer Phones**. The **Customer Phones** window is displayed.
- 2. Click the Save As button. The Save As dialog box is displayed.
- **3.** Navigate to the required location, enter a file name, select the file type and click the *Save* button.

### To format and print a report from the phone book:

- 1. On the ClearAccess+ main menu bar, select **Configuration** and then **Customer Phones**. The **Customer Phones** window is displayed.
- Click the *Report* button. Choose the options you require to set up page and report formatting and then click the *Print* button. For more information about using the Report Designer, see *Creating Reports* on page 26.
#### To create or delete individual phone book entries:

- Select a port in the *NE Operation* window's configuration tree and then click the solution. The *Customer Phones Editor* window is displayed.
- **2.** Do one of the following:
  - To create a new entry for the port, click the *New Row* button. Type the subscriber's telephone or ID number in the *Phone* # cell (only numbers and spaces can be used), and the subscriber's name or other free text in the *Description* cell. If this number is the main number for this subscriber, select the *Main Number* box (the *Main Number* is stored at the NE; other numbers are only stored in the ClearAccess+ database, and cannot be accessed using LCT).
  - To delete the entry, ensure that the row you wish to delete is selected, and click the *Delete* button.
- **3.** Click the *Apply* button. The changes you made are applied to the phone book.

#### To create a set of phone numbers in the phone book:

1. Select the first port in the series that you want to configure in the **NE** 

**Operation** window's configuration tree, and then click the solution. The **Customer Phones Editor** window is displayed.

- 2. Click the *New Row* button. Type the first subscriber's telephone number of the set in the *Phone* # cell.
- 3. In the *Bulk Insert* box, enter the total number of lines for which you want to configure telephone or ID numbers. When using LCT, the maximum number of lines you can enter is 32 (you should not exceed the maximum number of lines supported by the service card that you intend to install in that slot), and they are saved as *Main Numbers*; however there is no limitation when using ClearAccess+ (one *Main Number* and an unlimited amount of non-Main Numbers can be saved for each line when using ClearAccess+).
- 4. Click the *Apply* button. Numbers are automatically assigned to the ports in increments of 1. If a telephone or ID number in the series is already in use, an error message is displayed. If a port in the sequence is already assigned with a *Main Number*, a warning message appears, and you may choose one of the following options:
  - Choose the Only on Current option to configure the new number as the Main Number. The old number will revert to a non-Main Number for that port (ClearAccess+ only)
  - Choose the *Apply on All* option to configure all the new numbers as *Main Numbers*. The old numbers will revert to a non-Main Numbers for those ports (ClearAccess+ only)
  - Choose the *Abort* option to cancel the bulk insertion process

- **5.** To enter subscriber details for each port, select the corresponding row for the port and type the subscriber's name or other free text in the *Description* cell. If this number is the main number for this subscriber, check the *Main Number* box (the *Main Number* is stored at the NE; other numbers are only stored in the ClearAccess+ database, and cannot be accessed using LCT).
- 6. Click the *Apply* button after modifying details for a specific port.
- ▲ Note: The <sup>DPI</sup> button at the bottom of the Customer Phones Editor window allows you to navigate to ports in the system. In cases where cards are not yet installed in certain slots, you can configure them by clicking this button and entering the Unit: Cage: Slot: Port location in the upper box of the dialog box that is displayed, and then clicking Set Entity.

à	Customer	Phones Editor						
E	Bulk Insert: 1	📑 🛛 😓 Net	w Row	🗮 Delete	🗸 Apply	🤰 Cancel		
	Port	Phone #	Description				Main Number	
	1	257						
	2	258						
	3	259						
	4	260						
	5	261						
Þ	6	262						
	7	263						
	8	264						
	9	265						
	10	266						
	11	267						
	12	268						
	13	269						<b>•</b>
P	'hysical Locat	ion: <b>RU#1:1:9</b>	137	Card: IS	DNE-RU			

Figure 7. Customer Phones Editor Window

Customers	Phones											2
🔁 Refresh	Source Rows	s 🏾 💯 Define Filter	💎 Filtered	Search	🕞 Report 🕶	🔡 Save As	🍞 Goto port 🔻	•				
Drag a column ł	header here to	group by that column										
Phone #	▼ De	escription	•	DOMAIN	•	Network-Elem	nent 🔻	Port Location	▼ Card-Ty	ipe 🔻	Main Number	-
09 95914441	Do	o, Steve		Orchard Rd 3		10.100.15.3		RU16:1:5:2	LI16M-F	30	~	_
09 99992 32 3	3 Le	e, Linda		Marina		10.100.15.3		RU16:1:5:1	LI16M-F	RU	<b>~</b>	
06 9494565	i6 Joi	nes, Kim		Chinatown 1		10.100.7.181		RU12:1:14:16	LI16M-F	9U	<b>~</b>	
06 9495112	2 Ha	an, Peter		Chinatown 2		10.100.15.3		RU16:1:3:2	LI16E-R	iU		
06 9495345	6 Ch	nan, Robert		Chinatown 2		10.100.15.3		RU32:1:5:1	LI16E-R	iU	~	
08 6658616	i2 Ch	nan, Jim		Little India		10.100.15.3		RU16:1:3:2	LI16E-R	iU	~	
07 3435657	'2 Co	ollins, Henry		Shenton Way		10.100.8.236		BU1:1:1:1	LI-4E1C	F		
07 3435767	'6 Su	unshine Trading Ltd		Shenton Way	•	10.100.15.3		RU16:1:3:7	LI16E-R	iU	~	
03 7321728	9 Tri	avel Asia Ltd		Suntec City		10.100.15.3		RU16:1:3:1	LI16E-R	iU	✓	
16 Items												

### Figure 8. Phone Book Window

### Table 6. Phone Book Window Settings

Screen Element	Options	Description	Default
Refresh button		Refreshes the information displayed in the window	
More Rows button		Displays the next set of rows saved in the database	
Define Filter button		Lets you define a filter with which to filter the rows displayed in the phone book. For more information, see <i>Using the Advanced Database</i> <i>Filter</i> on page 28.	
Filtered button		Toggles between filtered and unfiltered display of the rows in the phone book	
Search button		Lets you search for specific text in the phone book	
Report button		Lets you format and print a report from the data in the phone book	
Save As button		Lets you save the data in the phone book in the following file formats: TXT, XML, HTML and XLS	ТХТ

Screen Element	Options	Description	Default
Go to Port button	Configuration Line Test	Opens the <b>NE Operation</b> window, and inside it, the corresponding port configuration window ( <b>Configuration</b> option), if one exists for that port, or Line Test window ( <b>Line Test</b> option)	
Phone #		Displays the telephone numbers or ID numbers (for G.SHDSL lines) that were entered in the phone book for the ports	
Description		Displays the free text entered in the phone book for the ports	
Domain		Displays the domain where the port is located	
Network-Element		Displays the name assigned to the BroadAccess NE, to which the port belongs	
Port Location		Displays the location of the port according to RU number, cage number, card slot number and port number	
Card Type		Displays the type of card to which the port belongs	
Main Number	Selected Cleared	Indicates whether or not this is the main telephone number for the port. Main Numbers are saved at the NE. Other numbers are only saved in the ClearAccess+ database.	

## 4.6. Creating Reports

You filter data, and save or print reports about data collected by the system using the field chooser, database filter and the report designer.

#### To create a report:

- 1. Hide the columns in the table that you do not require (Broadband Cross-Connect table, Alarm display and Dial-Up Alarms window only - see *Hiding Columns of Data in Tables* on page 27 for more information).
- 2. Sort, group and change the order of the columns in the table from which you want to generate the report.

- **3.** Filter the desired data using the advanced database filter feature (see *Using the Advanced Database Filter* on page 28 for more information), or using the table's built-in grid filter (depending on the data you are viewing). If you want to use the same advanced database filter again in the future, you can save the filter to file.
- 4. Use the report designer to format the design of the report (see *Using the Report Designer* on page 30 for more information).
- **5.** Print and/or save the report (in windows where print/save features are supported).

### 4.6.1. Hiding Columns of Data in Tables

You can hide columns in the alarm display and in the *Dial-Up Alarms* window, so that only the columns that you require are displayed. The columns will remain hidden every time you view that table, unless you drag the column headings from the field chooser back into the heading row of the table.

#### To hide columns in a table:

- 1. Click the Customize Columns button on the ClearAccess+/LCT main toolbar. A dialog box is displayed.
- 2. Drag the header cells of the columns you want to hide into the dialog box.
- 3. Close the window. The columns you dragged into dialog box are hidden.

#### To return hidden columns to the table:

- 1. Click the Customize Columns button. A dialog box is displayed.
- **2.** Drag the header cells of the columns you want to display from the dialog box back to the table's header row.

Drag a column header here to hide it 🛛 🗵
External Alarm
Maintenance State
Product Type

Figure 9. Field Chooser Dialog Box

### 4.6.2. Using the Advanced Database Filter

The ClearAccess+ and LCT GUIs include an advanced database filter, which lets you filter the rows displayed in a particular window, so that only information relevant to your needs appears on the screen. The filter is available for a variety of data types. You can filter the display according to a combination of categories and sub-categories. The items that appear in the advanced database window vary, depending on the type of data being filtered.

Each box in the advanced filter represents the columns that appear in the table which you want to filter. Each box also includes the sub-types which are displayed in the corresponding column. For example:

- Example 1 if you are filtering the alarm table, two possible sub-types in the *Acknowledged* box are **Yes** and **No**. If you want to display all the alarms in the network which have not been acknowledged, you select the *Acknowledged* checkbox, and the **No** checkbox.
- Example 2 if you want to display all unacknowledged alarms for G.SHDSL lines, you select the *Acknowledged* checkbox, the *No* checkbox, the *Originator Type* checkbox and the *SHDSL Line* checkbox.

When you have finished defining your filter, click the *Apply* button and then the *OK* button, to close the window. If you want to save the filter for later use, save it using the *Save Filter* button, and reuse later it by using the *Load Filter* button.

The following table explains the use of the generic buttons that appear at the bottom of all the various filter windows.

Screen Element	Options	Description	Default
Clear All button		Clears all parameters currently selected in the filter	
Apply button		Applies the filtering criteria to the table without closing the filter	
Refresh button		Refreshes the criteria displayed in the filter window, and updates the options available if they were recently changed	
Save Filter button		Saves the filter to file in XML format. You can use the filter again in the future by loading it into the <i>Filter</i> window.	
Load Filter button		Lets you load and reuse a filter that was saved to file in XML format	
OK button		Applies the filter criteria to the table, and closes the filter window	

 Table 7.
 Filter Window Generic Buttons

Screen Element	Options	Description	Default
Cancel button		Closes the filter window, and reverts the table display to the data displayed before the filter criteria were changed, or since the <b>Apply</b> button was last clicked	

Represents a colum table displayed in th You can select one column types.	nn in the le GUI. or more	
🚰 Alarm Filter		
From · · · ·	From V	
	00.00.00	
🗹 Until 🔹 👻	V Until	
00:00:00 🗘	00:00:00 🗘	
Acknowledged		
Yes Vo	Configuration	
	Configuration (Legacy)	
	Element Fault	
	Equipment	
	Line Fault Line Fault (Legacy)	
Criginator Type	Severity	
Gshdsl Line		
HDSL \ N64 Interface	Minor	
Hdsl/N64 Line	Warhing	
Isdn Card		
✓ LI-16 Card		
✓ LI-32 Card		
Clear All Apply Befresh Loa	d Filter Save Filter OK Cancel	
Represents the sub-types of data that can be displayed in each column of the table in the GUI. You can select one or more sub-types for your filter.		

Figure 10. Advanced Database Filter

### 4.6.3. Using the Report Designer

ClearAccess+/LCT lets you create reports from data collected by the system, and allows you to present them in a number of formats, using the Report Designer feature.

The following table lists the type of data from which you can create reports, and how to access the Report Designer for each data type. In addition, some windows offer a Print Preview option, and the Report Designer can also be accessed from the *Print Preview* window. The Report Designer only modifies the way data is arranged when the reports are printed, not how data is displayed in the ClearAccess+/LCT GUI.

Type of Report	Access Method	Comments	
Faults (Alarms)	From the main ClearAccess+/LCT	Information available	
	window's menu bar:	at network level when	
	Fault/Report/Report Designer	using ClearAccess+	
Event Log	From the main ClearAccess+/LCT	Information available	
	window's menu bar:	at network level when	
	Fault/Events Log; then click the	using ClearAccess+	
	Report Designer button		
Security Log	From the main ClearAccess+/LCT	Information available	
	window's menu bar:	at network level when	
	Security/Security Log; then click	using ClearAccess+	
	the <i>Report Designer</i> button		
Configuration Log	From the main ClearAccess+	Information available	
	window's menu bar:	at network level when	
	Configuration/Configuration Log;	using ClearAccess+	
	then click the <b>Report Designer</b>		
	button		
Threshold Crossing Alert	From the main ClearAccess+/LCT	Information available	
Log	window's toolbar, click the	at network level when	
	Threshold Crossing Alert button	using ClearAccess+	
Customer Phone	From the main ClearAccess+	Information available	
Numbers	window's menu bar:	at network level when	
	Configuration/Customer Phones;	using ClearAccess+	
	then click the <i>Report</i> button; and the	-	
	Report Designer option		
NE Units List	From the main ClearAccess+	Information available	
	window's menu bar:	at network level when	
	Configuration/NE Units List, then	using ClearAccess+	
	click the <i>Report</i> button and choose		
	the <i>Report Designer</i> option.		
Line Test History Results	From the <b>NE Operation</b> window's	Per individual	
	menu bar:	BroadAccess 40 NE	
	Fault/Tests/History Results; then		
	click the <i>Report</i> button and choose		
	the <b>Report Designer</b> option.		

#### Table 8. Report Types and Access Methods

Type of Report	Access Method	Comments		
SDH Performance	From the <b>NE Operation</b> window's	Per individual		
	menu bar:	BroadAccess 40 NE		
	Configuration/Configure NE/Links;			
	then click the <b>More Details</b> button,			
	Benerit hutten and the Benerit			
	<b>Designer</b> option			
V5.2 Configuration	Erom the NE Operation window's	Dorindividual		
V 5.2 Configuration	monu har:	Per mulvidual Broad Access 40 NE		
	Configuration/Configure NE/V5 2	DIOAUACCESS 40 NE		
	then click the <b>Benort</b> button and			
	choose the <b>Report Designer</b> option			
Broadband	From the <b>NE Operation</b> window's	Per individual		
Cross-Connections	menu har	Broad Access 40 NF		
cross-connections	Configuration/Configure	Diodul lecess 40 ILL		
	NE/Broadband Cross-Connect			
	then click the <b>Report</b> button and			
	choose the <b>Report Designer</b> option.			
TDM Cross-Connections	From the <b>NE Operation</b> window's	Per individual		
	menu bar:	BroadAccess 40 NE		
	Configuration/Configure NE/			
	Cross-Connect, then click the			
	Report button and choose the			
	Report Designer option.			
Currently Active Lines	From the <b>NE Operation</b> window's	Per individual		
	menu bar:	BroadAccess 40 NE		
	Traffic/NE Current Active Lines;			
	click the <b>Report</b> button.			
ADSL Performance	Select the required port on the NE's	Per individual ADSL		
	configuration tree. From the <b>NE</b>	port.		
	<b>Operation</b> window's menu bar:			
	Performance/Performance			
	Monitoring; in the LI-ADSL			
	<b>Performance</b> window, click the			
	<b>Report</b> button, and choose the			
	Report Designer option.			
ATM Performance	In the <b>NE Operation</b> window, click	Per individual		
	the Broadband Cross-Connect	BroadAccess 40 NE		
	button. In the <b>Broadband</b>			
	Cross-Connect window, click the			
	Performance button. In the AIM			
	Cross-Connect Performance			
	<b>Boport</b> hutton and choose the			
	Report Designer option			
Inventory	From the main Close Access	Information available		
mventor y	window's menu har	at network level when		
	Configuration/Inventory	using Clear Access		
	Sonngulation	using Clear Access+		

Type of Report	Access Method	Comments
Bulk Operation Entities	In the <b>NE Operation</b> window, select	Per individual
	configuration tree, select the	bloadAccess 40 NE
	<b>Configure Line</b> option from the	
	shortcut menu, then click the	
	button for the required field. In the	
	window that opens, click the <b>Report</b>	
	button.	
NE Configuration Backup	From the main ClearAccess+	Information available
	window's menu bar:	at network level when
	Tools/Configuration	using ClearAccess+

The Report Designer lets you format both the types of information that will be displayed in your printed report, and the format in which the report will be printed. The *Preview* pane in the *Report Designer* dialog box immediately displays the effects your selections will have on the printed report. Each tab in the *Report Designer* dialog box controls different aspects of the report, as follows:

- **Options** tab controls header and footer rows, sub-total rows and checkmarks
- **Colors** tab controls the colors used in the table's cells and grid lines (borders)
- Fonts tab controls the fonts used in the various types of rows in the table
- **Behaviors** tab controls recurring rows (headers, footers, etc.), printing of selected text only, and 3D and graphic effects

In addition, you can edit and format title headers using the *Title Properties* button. The following figures summarize how to use each of the tabs in the dialog box.



Figure 11. Report Designer Dialog Box - Options Tab



Figure 12. Report Designer Dialog Box - Colors Tab

Report Designer							1	
Options Colors Fo	onts Behaviors							
		P	revi	iew				
Band Font	8 pt. Times New Roman		Item Data					
Font	Font 8 pt. Times New Roman		Name		Axisymmetric	Shape		
Odd Font	8 pt. Times New Roman		Ξ	Regular		<ul> <li>Image: A start of the start of</li></ul>		
Even Font Group Node Foot	8 pt. Times New Roman 8 pt. Times New Roman			Con	ie	<ul> <li>Image: A start of the start of</li></ul>		
Footer Font	8 pt. Times New Roman				Axisymmetri	c geometry figure		
Header Font	8 pt. Times New Roman			Cyli	inder	<ul> <li>Image: A start of the start of</li></ul>	<b></b>	
Preview Font	8 pt. Times New Roman				Axisymmetri	c geometry figure		
Group Footer Font	8 pt. Times New Roman			Руг	amid	>	4	
ļ					Acute-angled	geometry figure	metry figure	
Change Font				Box				
				Con	ınt is: 4	]		
			Ξ	Inregula	r			
				Free	Surface			
					Simple extrus	ion surface		
				Con	ınt is: l			
						1		
			Co	unt 15: C	)			
Title Properties					ОК	Cancel	Apply	
		Lets y the ta (for ex this ta	ou ble kan	set sp . To ch nple, B e, and t	ecific fonts nange the fo ands), clict then click to	for each of the ont for a partic < on the corres ne Change For	e row types in ular row type ponding type i ht button. Make	

Figure 13. Report Designer Dialog Box - Fonts Tab

Lets you include or omit Bands, Headers or Footers on every printed page				e		
	Lets you print se	lect arer	ed text only It nodes as well as	s the selected t	lext	
Beport Desi	gner					×
On Every Page		Prev	riew			
	Bands On Every Page		I	tem Data		Ш
	Feders On Every Page	Na	ame	Axisymmetric	Shape	I
	$\Box$ for the set of Every Page		Regular	✓		н
Selection			Cone			Ш
	Monly Selected		Axisymmetri	c geometry figure		Ш
	Extended Select		Axisymmetri	∟ ⊡ c zeometrv fizure		Ш
Node Expanding			Pyramid	<u> </u>		Ш
	Auto Nodes Expand		Acute-angled	geometry figure		Ш
			Box		<b></b>	Ш
	$\mathbf{X}$		Count is: 4	]		Ш
3D Effects			Irregular			Ш
			Free Surface			Ш
	M pouřan		Simple extrus	ion surface		Ш
Graphics			Count is: 1			Ш
	I Iransparent Graphics					Ш
		C	ount is: 6			I
Title Properties			ОК	Cancel	Apply	
			Expands categor they are collapse	ies in the print d in the displa	ed report, ever y on the scree	n if n
		Lets	you apply three c s in the table (ban	limensional eff ds, headers, fo	ects to the fixe ooters, etc.).	əd

Figure 14. Report Designer Dialog Box - Behaviors Tab

# 5. Fault Management

ClearAccess+ and LCT provide you with easy access to current information on active alarms detected in the BroadAccess system, as well as a database which stores a history of alarms that are no longer active. You can filter, sort, save and print alarm information. You can also modify the default alarm severity levels and enter a free text note for each alarm. These activities are performed using the *ClearAccess+* or *LCT* main window.

In addition to alarms, BroadAccess NEs also generate Performance Monitoring data and Event logs, which can assist you in identifying faults in the system. For more information, see *Performance Management* on page 179 and *Viewing the Event Log* on page 56.

For a detailed alarm list and troubleshooting procedures for BroadAccess systems, please refer to *Alarms and Troubleshooting* on page 64.

The *NE Operation* window's fault management features allow you to:

- Perform line tests
- Perform external line tests
- Perform background line tests
- Set line test thresholds
- View current line test results
- View history line test results
- Define external alarm labels
- Simulate a major or critical alarm

For more information, see *Line Testing* on page 164 and *External Alarm Settings* on page 175.

### 5.1. Enabling and Disabling Audible Notification

ClearAccess+ and LCT generate an audible "beep", using your computer speakers, every time a new critical or major alarm is detected in the system.

To mute or enable the audible alarm, select the ClearAccess+/LCT main window's *Fault/Enable Alarm Sound* option from the Menu Bar.

Once you have acknowledged an alarm, the "beep" sound is muted. See *Acknowledging Current Alarms* on page 47 for more information about acknowledging alarms.

## 5.2. Modifying the Audible Notification Sound

You can modify the alarm notification sound emitted by your computer, by either changing the beep frequency and beep duration, or by using an audio file of your choice. You can also return the beep settings to the factory default settings.

#### To modify the audible notification sound:

- 1. Select the ClearAccess+/LCT main window's *Tools/Options* option from the Menu Bar. The *Options* window is displayed.
- 2. On the *Alarm Sound Control* tab, do one of the following:
  - Select the Use Beep option and then drag the sliders to change Beep frequency for the first, second, third and fourth beeps, and use the arrows to set the time duration of first, second, third and fourth beeps.
  - Select the Use Audio file option and then use the Browse button to navigate to an audio file saved on your computer.
  - Click the *Default* button to return all the settings in the *Use Beep* option to default settings.

Options		×
<ul> <li>Use Beep</li> </ul>		
	Beep frequency Beep duration	(Milliseconds)
First beep	392 150	
Second beep	0 250 500 330 150 €	
Third beep	0 250 500	[
Fourth beep	0 250 500 ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓	1
C Use Audio file	File location Pause	(Milliseconds)
	1000 🗲	
	🗁 <u>B</u> rowse	
	Default 🖌 Set 🈏 Undo	

3. Click the **Set** button to apply the changes you made.

Figure 15. Alarm Sound Control Dialog Box

## 5.3. Alarm Color Codes and Symbols

ClearAccess+ and LCT use color coding and symbols to graphically display information about alarms.

In the Work Area on the ClearAccess+ Network layout, and on the Network Tree, ClearAccess+ displays faults detected in the system by color coding the Domain icons, and by coloring the frames around each of the NE icons where alarms are active. In LCT, the frame around the icon representing the BroadAccess system to which you are connected, is colored. The coloring is determined according to the alarm with the highest severity level that is currently active in the system. In addition, alarms are indicated by the icons of the configuration tree in the **NE Operation** window (BroadAccess 40 SNMP systems only).

In the ClearAccess+/LCT main window's work area, colored symbols are used to indicate the severity level of each alarm and the background of each alarm line changes shades, from dark to light, once a user acknowledges an alarm.

The table *Alarm Symbols* on page 40 describes the meaning of each symbol, the table *Alarm Status Color Codes* on page 39 describes the meaning of each color in the *Current Alarm* and *History Alarm* windows and the table *Domain and NE Color Codes* on page 39 describes the meaning of each color on the Network Tree.

Color	Indication	
Red	Critical Alarm	
Light Red	Critical alarm has been acknowledged	
Orange	Major Alarm	
Light Orange Major alarm has been acknowledged		
Yellow	Minor Alarm	
Light Yellow	Minor alarm has been acknowledged	
Sky Blue Warning		
Light Sky Blue Warning alarm has been acknowledged		

#### Table 9. Alarm Status Color Codes

#### Table 10. Domain and NE Color Codes

Color	Indication	
Red	Critical Alarm	
Orange	Major Alarm	
Yellow	Minor Alarm	
Sky Blue	Warning	
Gray	Illegal connection attempt	
Green	No faults detected	

Alarm Severity	Symbol
Critical	8
Major	$\diamond$
Minor	Δ
Warning	$\diamond$

#### Table 11. Alarm Symbols

## 5.4. Viewing Active Alarms

You can use ClearAccess+ to view the alarms that are currently active in the network. This information is automatically updated when a new alarm occurs and when an alarm is cleared. When you use LCT, the alarms currently active in the NE to which you are connected are displayed.

ClearAccess+ automatically downloads the first 500 alarms when you view the alarms for the network or for a particular domain or NE. The *More Rows* button shows the next set of alarms, but while you are viewing them, new alarms detected are not automatically displayed. ClearAccess+ notifies you of new alarms using the following methods:

- the ClearAccess+ or LCT button on the Windows task bar flashes 10 times
- an alarm icon **a** is displayed in the Windows system tray toolbar; clicking this icon refreshes and restores the Active Alarms display, and brings the ClearAccess+/LCT main window to the front if other applications or windows are open
- the *Pending Alarm* indicator **See** on the main toolbar flashes, indicating that new alarms have been detected while you are viewing alarms in "More Rows" mode

#### To view active alarms using ClearAccess+:

- Click on the Domain or NE in the Network Tree for which you want to view active alarms. Active alarms for the tree node you selected are displayed in the Work Area of the ClearAccess+ main window.
- To return to the *Active Alarms* display, from the main ClearAccess+ window, select the *Fault/Show Active Alarms* menu option.
- To show all the alarms that appear in the network, ensure the *Fault/Tree is filtering alarms* menu option or icon in the ClearAccess+ main window is not selected.

#### Note:

You can access online troubleshooting procedures for each alarm by selecting the row corresponding to the alarm in the alarm display, and pressing the <F1> key (BroadAccess 40 SNMP systems only).

#### To view active alarms using LCT:

Connect to the system, as explained in *Logging In*. on page 9 Active alarms for the system are displayed in the Work Area of the LCT main window. You can return to the *Active Alarms* display by selecting the LCT main window's *Fault/Show Active Alarms* menu option.

#### To view active dial-up alarms:

• Select the *Fault/Dial-Up Alarms* menu option.

<b>P</b>	📴 🕅 🖏 🕼 🍠 🌮 🥲 😻 🎬 📇 🥘 🖉 Wore Rows 🖕						
Drag a colu	Drag a column header here to group by that column						
ID	Severity	Category	Description	External Ala   Originator Type   Lo	ocation		
183	Minor 🕺	Processing	Software Version Control Mismatch	LI-32 Card	RU#01:01		
186	A Minor	Processing	Software Version Control Mismatch	CPU Card	CU:01:CP		
186	A Minor	Processing	Software Version Control Mismatch	CPU Card	RU#01:01:0		
182	A Minor	Processing	Software Version Control Mismatch	Isdn Card	RU#01:01		
181	A Minor	Processing	Software Version Control Mismatch	SHDSL Card	RU#01:01		
185	🛛 🛞 Critical	Processing	Software Version Control Mismatch	Stm4 Card	RU#01:01:L		
145	A Minor	Communication	Loss of Signal (LOS) at HDSL Level - Nx6	Hdsl/N64 Line	RU#01:01:1		
145	A Minor	Communication	Loss of Signal (LOS) at HDSL Level - Nx6	Hdsl/N64 Line	RU#01:01:1		
134	A Minor	Communication	Line is Down	Adsl Line	RU#01:01:I		
134	A Minor	Communication	Line is Down	Adsl Line	RU#01:01:I		
134	A Minor	Communication	Line is Down	Adsl Line	RU#01:01:I		
184	A Minor	Processing	Software Version Control Mismatch	4E1 Card	CU:01:1		
185	🗙 Critical	Processing	Software Version Control Mismatch	Stm4 Card	CU:01:Ln		
13	🖉 Major	Communication	Loss of Signal (LOS)	E1 Interface	CU:01:11		
13	🖉 Major	Communication	Loss of Signal (LOS)	E1 Interface	CU:01:11		
13	🖉 Major	Communication	Loss of Signal (LOS)	E1 Interface	CU:01:11		
13	🖉 Major	Communication	Loss of Signal (LOS)	E1 Interface	CU:01:11		



 $\wedge$ 

**Note:** The position of the columns displayed in the window can be changed; therefore they may not necessarily appear in the order listed below.

#### Table 12. Active Alarms/Alarm History Windows Settings

Screen Element	Options	Description	Default
ID		Displays the alarm's unique	
		ID number	
Severity	Critical	Displays the severity of the	
	Major	alarm	
	Minor		
	Warning		
Category	Configuration	Displays the category of	
	Communicatio	alarms to which the alarm	
	n	belongs	
	Processing		
	Equipment		
	External		

Screen Element	Options	Description	Default
Description	See the alarm	Provides a detailed	
1	list provided in	description of the alarm; for	
	your system's	example: Door Open,	
	User's Guide	Configuration Mismatch,	
	or online help	Loss of Frame, No RUs.	
	system		
External Alarms		For BroadAccess SNMP	
		systems only: displays the	
		external alarm that has been	
		triggered by the system.	
		There are 8 external alarms;	
		of which the last 5 are	
		configurable. For more	
		information, see External	
		Alarm Settings on page 175	
		(BroadAccess Maintenance	
		Guide or NE Operation online	
		help system).	
Originator Type		Displays the name of the	
		module or interface in the	
		system which generated the	
		alarm	
Location		Displays the location of the	
2000000		module or interface in the	
		system which generated the	
		alarm, according to Unit Type	
		and number (CU or RU).	
		cage, card, slot and port	
Start Time		Displays the date and time at	
Start Time		which the alarm was triggered	
End Time		Displays the date and time at	
		which the alarm was cleared	
On/Off	On	Displays whether the alarm is	
011/011	Off	active (On) or closed (Off)	
Domain	011	Displays the name of the	
Domani		Domain to which the NE is	
		assigned in the Clear Access	
		Network Tree or I CT main	
		window	
Network Flement		Using ClearAccess+:	
Network Element		Displays the name of the NE	
		as it appears in the Network	
		Trop	
		Liging I CT: Displays the	
		name configured for the NE	
		in the I CT main window	
Asknowladged	Chaolad	Displays whether or not the	Cloarad
Acknowledged	Cleared	alarm has been asknowledged	Cleared
	Cicaleu	by a user: Checked	
		ocknowledged	
		Classed not asknowledged	
	1	Cical cu - not acknowledged	

Screen Element	Options	Description	Default
Acknowledged By		Displays the name of the user who acknowledged the alarm	
Acked Time		Displays the time/date on which the alarm was acknowledged	
Unacknowledged By		Displays the name of the user who unacknowledged the alarm	
Unacked Time		Displays the time/date on which the alarm was unacknowledged	
Notes		Displays free text entered by a user about the alarm	
Exact End Time	Blank Yes No	Indicates whether the time displayed for the alarm closure reflects the time reported by the NE or the server's time stamp. <b>Blank</b> - alarm is still active <b>Yes</b> - reflects the time reported by the NE <b>No</b> - reflects the server's time stamp	

### 5.5. Filtering and Sorting Alarms

You can filter alarms to display a subset of all the alarms reported by ClearAccess+ and LCT, or sort them according to the items displayed in each column. The alarm filters that you define can be saved to file in XML format, and restored to the system when required again.

You can also group the alarms according to one or more column headings. When you use this feature, the alarms are gathered into groups and sub-groups, and a summary of the number of alarms belonging to each group is displayed.

### To filter alarms according to Domain or NE:

1. Click on a Domain or NE icon on the ClearAccess+ Network Tree. Only the alarms corresponding to that Domain or NE are displayed in the Work Area.

#### To sort the information provided in the alarm display:

- 1. Click on the 💌 button in the header cell of the column by which you want to sort the table (not including Domain or NE).
- 2. Select one of the options that appears (but not the *Custom* option). The table will be sorted according to the option you selected.

#### To define a filter for the information provided in the alarm display:

- 1. From the ClearAccess+ main menu bar, select the *Fault* option and then the *Define Filter* option. The *Alarm Filter* window is displayed.
- 2. Set up the filter as required. To apply the filter to the alarm display, click the *Apply* button. To save for later use, click the *OK* button.
- **3.** To save to file in XML format, click the *Save Filter* button. Navigate to the location of your choice, assign a name to the file and click the *Save* button.

 $\wedge$ 

**Note:** For more information about defining the database filter, see Using the Advanced Database Filter on page 28.

#### To load a filter saved in XML file format:

- 1. From the ClearAccess+ main menu bar, select the *Fault* option and then the *Define Filter* option. The *Alarm Filter* window is displayed.
- 2. Click the *Load Filter* button. Navigate to the filter file that you require and click the *Open* button.
- **3.** To apply the filter to the alarm display, click the *Apply* button. To save for later use, click the *OK* button.

#### To filter the information provided in the alarm display:

- 1. Ensure that you have defined or loaded a filter, as described in the previous procedures.
- 2. From the ClearAccess+ main menu bar, select the *Fault* option and then ensure that the *Filter Enabled* option is selected.

#### To group alarms according to one or more column headings:

- 1. Drag a column heading cell to the dark gray area above the heading row of the alarm table.
- **2.** To group alarms according to a combination of column headings, drag another column heading cell as described in step 1.

**3.** Click on the + or - signs next to each group to expand or collapse the items displayed for each group.

E	Severity	A		
ID	I	▼ External ▼ Description	Category	💌 Orig
Ξ	Severity :	Critical (Total=5)		
	0	Loss Communi	Communication Loss	s
	0	Loss Communi	Communication Loss	s
	0	Loss Communi	Communication Loss	s
	0	Loss Communi	Communication Loss	s
	0	Loss Communi	Communication Loss	s
+	Severity :	Major (Total=11)		
+	Severity :	Minor (Total=122)		

Figure 17. Grouped Alarms Using One Column Heading

Severity A
ID External V Description V Or
Severity : Critical (Total=5)
🖃 Severity : Major (Total=11)
Category : Communication (Total=4)
Category : Configuration (Total=2)
Category : External (Total=1)
Category : Processing (Total=4)
Severity : Minor (Total=121)

Figure 18. Grouped Alarms Using Two Column Headings

### 5.6. Searching for Specific Text in the Alarm Table

You can search for specific text in the alarm table, using the *Find Text* window.

#### To search for text in the alarm list:

- 1. In the ClearAccess+ or LCT main window, select the *Fault/Find* menu option. The *Find Text* window is displayed.
- 2. Type the text that you are searching for in the *Text to Find* box.
- 3. Set the other options in the window as required.
- 4. Click the *Find Next* button. The first item that matches your search requirements is highlighted in the alarm table.

**5.** To continue searching, click the *Find Next* button until you find the item you require.

Find Text		
Text to find:		
✓ <u>S</u> earch all columns	<u>D</u> irection:	Forward 🔻
	Cancel	Find Next

### Figure 19. Find Text Window

### Table 13. Find Text Window Settings

Screen Element	Options	Description	Default
Text to Find		Lets you type the text that you are looking for	
Search All Columns checkbox	Cleared Selected	When <b>selected</b> , the search is performed on the entire table. When <b>cleared</b> , the search is performed only on the column selected in the table.	Selected
Match Case checkbox	Cleared Selected	When <b>selected</b> , searches for the text with the same case as you entered the text in the <b>Text to Find</b> box (for example, all capital letters, all small letters, or title case).	Cleared
Direction	Forward Backward	Searches from the point you started in either <b>forward</b> or <b>backward</b> directions.	Forward
Cancel button		Cancels the search and closes the window.	
Find Next button		Searches for the next instance of the text in the <b>Text to Find</b> box.	

## 5.7. Acknowledging and Deacknowledging Active Alarms

#### To acknowledge an active alarm:

• Select the check box in the *Acknowledgement* column of the alarm that you want to acknowledge.

#### To acknowledge a group of alarms:

• Select the alarms that you want to acknowledge using <Shift>+Click or <Ctrl>+Click, and then right-click and select the *Acknowledge* option.

#### To deacknowledge an active alarm:

• Clear the check box in the *Acknowledgement* column of the alarm that you want to deacknowledge.

#### To deacknowledge a group of alarms:

• Select the alarms that you want to deacknowledge using <Shift>+Click or <Ctrl>+Click, and then right-click and select the *Deacknowledge* option.

### 5.8. Entering and Editing Free Text for a Specific Alarm

You can enter text for a specific alarm in the *Notes* column of the Active Alarms or History Alarms displayed in the work area.

#### Entering free text for an alarm:

- From the ClearAccess+ or LCT window's main menu bar, select the *Fault/Show Active Alarms* menu option, or *Fault/Show History Alarms* option, as required.
- 2. Scroll to the alarm for which you want to enter text, and click on the cell in the *Notes* column for that row. The *Notes* window is displayed.
- **3.** Type the text you require and click the *OK* button. The text that you entered is now displayed in the *Notes* column.

#### Editing or deleting note text:

- From the ClearAccess+ or LCT window's main menu bar, select the *Fault/Show Active Alarms* menu option, or *Fault/Show History Alarms* option, as required.
- 2. Scroll to the alarm for which you want to edit note text, and click on the cell in the *Notes* column for that row. The *Notes* window is displayed.
- **3.** Edit or delete the text, as required.

4. Click the *OK* button. The changes you made are reflected in the *Notes* column for the alarm note that you edited.

No	otes	<u>_   ×</u>
	Debbie has gone to RU site to solve the problem.	
	V OK Kancel	

Figure 20. Notes Window

## 5.9. Viewing the Network's Alarm History

You can view a log of alarms that occurred in the network by selecting the *Fault/Show History Alarms* menu option. A log of alarms that occurred in the network is displayed in the Work Area. The layout of the alarms table, and filtering and sorting capabilities are similar to the Active Alarms display.

## 5.10. Viewing the Alarm Archive

You can view the alarm archive by selecting the *Fault/Alarm Archive* menu option. A log of alarms that are saved in the archive is displayed in the Work Area. When the number of alarms for a particular NE saved in the History Alarms table is more than 400 rows, the oldest ones are moved to the Alarm Archive. When the Alarm Archive contains more than 300 rows for a particular NE, the oldest ones for that NE are deleted.

The layout of the alarms table, and filtering and sorting capabilities are similar to the Active Alarms display.

The *Clean-Out* button opens a dialog box which lets you delete alarms from the Alarm Archive. You can perform an immediate clean-out, or schedule clean-outs for later on. You can delete all the entries in the archive, using the *Clean out all* checkbox, or delete a set of alarms, according to the following criteria:

- **Older than # days** deletes all the alarms older than the number of days you specify
- *Leave at least # per NE* leaves no less than the number of alarms you specify for each of the NEs
- **Periodic # days** (on **Schedule** tab) deletes all the alarms in the Alarm Archive periodically. The number of days between clean-outs is set in this box.

After you have selected the criteria you require, click the *Clean-Out* button (on the *Now* tab) or *Apply* button (on the *Schedule* tab).

🚭 Alarm	Archive			
8 🌮	🖪 😂 🖷	📇 🕶 况 🤜 More Rows 🛛 Cl	ean-out 🖕	
Drag a coli	umn header 😽 t	o group by that column		▲
ID	Soveritu	A Category	Description	External Ala
7	Critical	Processing	No Bus	Sustem
13	Major	Communication	Loss of Signal (LOS)	E1 Interface
10000	Major	Management	Communication Loss with Network Elemen	Null
149	Major	Fauipment	ATM Rus Esil	Atro Pue
140	Major Major	Equipment	ATM Dus Fail	Atm Bus
140	Major	Equipment	ATM Dus Fail	Aun Bus
27	Major	Equipment	Card Not Responding	Atte Card
140		Equipment	ATM Due Cell	Auricald
140	Major	Equipment	ATM Bus Fall	Atm Bus
27	Major	Equipment	Lard Not Responding	Atm Card
148		Equipment	ATM Bus Fall	Atm Bus
10000	Major	Management	Communication Loss with Network Elemen	Null
313	🖉 Major	Equipment	Unrecognized Card Sub Type	Line Card
10000	🖉 Major	Management	Communication Loss with Network Elemer	Null
10000	🕗 Major	Management	Communication Loss with Network Elemen	Null
15	🖉 Major	Communication	Loss of Frame (LOF)	E1 Interface
13	🖉 Major	Communication	Loss of Signal (LOS)	E1 Interface
10000	🖉 Major	Management	Communication Loss with Network Elemen	Null
314	🖉 Major	Equipment	Unrecognized Card Sub Type	Link Card
108	🖉 Major	Processing	Secondary Clock Failed	Stm4 Card
314	🖉 Major	Equipment	Unrecognized Card Sub Type	Link Card
10000	🖉 Major	Management	Communication Loss with Network Elemen	Null
10000	Maior	Management	Communication Loss with Natwork Flamer	Null 🚬 💌

Figure 21. Alarm Archive Window

Alarm Archive Clean-c	
Clean out <u>a</u> ll 🔽	
Clean <u>o</u> lder than:	Leave at least:
3 🔮 days	200 per NE
Clean-out	🗙 Cancel

Figure 22. Alarm Archive Clean-Out Dialog Box - Now Tab

🗐 Alarm Archive Clean-out
Now Schedule
Clean out <u>a</u> ll 🔽
Clean <u>o</u> lder than: <u>L</u> eave at least:
3 ➡ days 200 ➡ per NE
Period: 1 🚖 days
Next clean-out on: 08-Jun-05 🗾 12:00:00 🚍
Clean-out 🗙 Cancel

Figure 23. Alarm Archive Clean-Out Dialog Box - Schedule Tab

## 5.11. Saving Alarm Reports to File

The alarm list displayed in the ClearAccess+/LCT main window's Work Area (Active Alarms or History Alarms) can be saved in XML, HTML, Excel or text file format. Only the alarms displayed will be saved. If you want to save all active alarms, make sure that you have cancelled filtering before saving it to file.

#### To save an alarm report:

- 1. Display either *Active Alarms* or *History Alarms* in the Work Area, as required.
- From the ClearAccess+ or LCT window's main menu bar, select the Fault/Save Alarms As menu option. The Save Alarms dialog box is displayed.
- 3. Navigate to the folder of your choice, if required.
- 4. Enter a file name for the alarm report.
- 5. Select the file format you require.
- 6. Click the **Save** button. The alarm report is saved to file.

### 5.12. Printing Alarm Reports

The *Print* option lets you print out the alarms displayed in the Work Area, according the filters currently selected. Before you print the alarms, you can do the following:

- Preview how the alarms will be printed out, by selecting the *Fault/Report/Print Preview* option from the ClearAccess+ or LCT main menu bar
- Edit page setup, including page size, margins, scale, headers and footers, by selecting the *Fault/Report/Page Setup* option from the ClearAccess+ or LCT main menu bar
- Use the Report Designer to set up alarm reports in a variety of formats, using the *Fault/Report/Report Designer* option from the ClearAccess+ or LCT window's main menu bar (for more information about the Report Designer, see *Creating Reports* on page 26)

#### To print an alarm report:

- 1. Display Active Alarms or History Alarms in the Work Area.
- 2. Filter the alarm display as required.
- 3. From the ClearAccess+ or LCT window's main menu bar, select the *Fault/Report* option.
- 4. Select the options you require, modify if necessary, and click the *Print* button when you are ready to print.

## 5.13. Editing NEs' Alarm Severity Levels

You can change the factory-set severity levels assigned to alarms in the system, or prevent the reporting of specific alarms. The modifications you make can be saved in text file format, and can be loaded to other NEs. You can also restore the default factory-set severity levels to the system, if required.

#### To modify alarm severity levels for a single NE:

- 1. Select the NE you require in the Network Tree.
- From the ClearAccess+/LCT main window's menu bar, select the *Fault* option, the *Alarm Configuration* option and then the *Network Element* option. The *NE Alarm Configuration* window is displayed.
- **3.** Select the row corresponding to the alarm whose severity level you want to edit.
- 4. Select a severity level from the *Modify To:* box at the bottom of the window, or from the corresponding cell in the *Modify To* column.
- 5. Click the *Apply Changes* button.

#### To modify alarm severity levels for several NEs:

- 1. Select one of the NEs you require in the Network Tree.
- From the ClearAccess+ main window's menu bar, select the *Fault* option, the *Alarm Configuration* option and then the *Network Element* option. The *NE Alarm Configuration* window is displayed.
- **3.** Select the row corresponding to the alarm whose severity level you want to edit.
- 4. Select a severity level from the *Modify To:* box at the bottom of the window, or from the corresponding cell in the *Modify To* column.
- 5. Click the *Modify NEs* button. Select the NEs to which you want the changes applied (the NE you selected in step 1 is automatically included).
- 6. Click the *Apply Changes* button.

#### To copy alarm severities from one NE to other NEs:

- 1. Select the NE from which you want to copy (source NE), in the Network Tree.
- 2. Click the *Copy to NEs* button.
- 3. Select all the NEs to which you want to copy alarm severities (target NEs).
- 4. Click the *Apply Changes* button.

#### To save alarm severity levels to file:

- 1. Select the NE you require in the Network Tree.
- From the ClearAccess+/LCT main window's menu bar, select the *Fault* option, the *Alarm Configuration* option and then the *Network Element* option. The *NE Alarm Configuration* window is displayed.
- 3. Click the *File Options* button.
- 4. Select the **Save Severities** option. The **Save Alarm Table Files** dialog box is displayed.
- 5. Navigate to a different location, if required, and enter a name for the file.
- 6. Click the Save button. The alarm severities are saved in \*.txt file format.

#### To load an alarm severities file to the NE:

- 1. Select the NE you require in the Network Tree.
- From the ClearAccess+/LCT main window's menu bar, select the *Fault* option, the *Alarm Configuration* option and then the *Network Element* option. The *NE Alarm Configuration* window is displayed.
- 3. Click the *File Options* button.
- 4. Select the *Load Severities* option. The *Load Alarm Table Files* dialog box is displayed.
- 5. Navigate to and select the file that you wish to load to the system, and click the *Open* button.

Singapore		-	ID ∆[	<b>-</b> D	escription 💌	Category 💌	Originator	▼ Default	•	Current	<ul> <li>Modify To</li> </ul>	
🔆 BA1	📈 Modifi			1 T	emperature	External	CPT Card	🕗 Major		🕗 Major	<click></click>	
				2 T	emperature	External	Psrg/Psdc Card	🕗 Major		🕗 Major	<click></click>	
				3 T	emperature	External	LI-32 Card	🕗 Major		🕗 Major	<click></click>	
				4 T	emperature	External	LI-Shdsl Card	🕗 Major		🕗 Major	<click></click>	
				5 D	oor Open	External	Unit	🕗 Major		🕗 Major	<click></click>	
				6 F	linger	Equipment	Psrg/Psdc Card	🕗 Major		🕗 Major	<click></click>	
				-7 N	lo Rus	Processing	System	🛛 🚫 Critical		🚫 Critical	<click></click>	
				8 A	larm Test	Processing	System	🛛 🚫 Critical		🚫 Critical	<click></click>	
				9 A	larm Test	Processing	System	🕗 Major		🕗 Major	<click></click>	
				10 B	ackup Failure	Equipment	CPT Card	🔥 Minor		<u> Minor</u>	<click></click>	
				11 S	ync failed	Processing	Unit	🕗 Major		🕗 Major	<click></click>	
				12 C	onfiguration line mi	Configuration	E1 Line	🔥 Minor		🔥 Minor	<click></click>	
				13 L	oss of Signal (LOS)	Communication	E1 Interface	🕗 Major		🕗 Major	<click></click>	
				14 L	oss of Signal (LOS)	Communication	HDSL \ N64 Inte	rfac🕗 Major 🛛		🕗 Major	<click></click>	
				15 L	oss of Frame (LOF)	Communication	E1 Interface	🕗 Major		🕗 Major	<click></click>	
				16 A	larm Indication Sigr	Communication	E1 Interface	🕗 Major		🕗 Major	<click></click>	
				17 F	emote Alarm Indica	Communication	E1 Interface	🕗 Major		🕗 Major	<click></click>	
				18 T	est Module Fail	Equipment	CPT Card	🔥 Minor		<u> Minor</u>	<click></click>	
				19 H	lardware Malfunctio	Equipment	LI4E1 Card	🕗 Major		🕗 Major	<click></click>	
				20 H	lardware Malfunctio	Equipment	Adsl Card	🕗 Major		🕗 Major	<click></click>	
				21 H	lardware Malfunctio	Equipment	LI-Shdsl Card	🕗 Major		🕗 Major	<click></click>	
				22 H	lardware Malfunctio	Equipment	LI-32 Card	💋 Maior		🙆 Maior	<click></click>	
	м	lodify to:				🗹 Modify NEs	opy to NE	s 🕞	File Opt	ions 🗐	Restore Defaults	\$
			- 🔷 War	ning								_

Figure 24. NE Alarm Configuration Window

Screen Element	Options	Description	Default
Apply Changes		Applies the changes you	
button		made to alarm severity levels	
Clear Selection		Clears the alarms selected in	
button		the Checkbox column	
Reload from DB		Refreshes the display of	
button		alarm severities from the	
		database. The database	
		contains the severities of	
		"master" NE's alarms the last	
		time they were fetched from	
		this NE. "Master" means the	
		NE whose alarm severities	
		are displayed in the screen	
		and which is used as a	
		template to which other NEs	
		will be changed. Master NE	
		is marked with	
		(unchangeable) teal color	
		selection on the	
		configuration tree.	
Reload from NE		Fetches the master NE's	
button		severities, stores them in the	
		DB and refreshes the display	

### Table 14. NE Alarm Configuration Window Settings

Screen Element	Options	Description	Default
Exit button		Closes the window	
Configuration		Displays the NE whose	
tree		alarm configuration is	
		displayed in the table	
Checkbox	Selected	Applies the severity level	Cleared
column	Cleared	you select in the Modify To	
		box to all alarms selected in	
		the table	
ID column		Displays each alarm's unique	
		ID number	
Description		Displays a description of the	
column		alarm	
Category		Displays the alarm category	
column		to which the alarm belongs	
Originator		Displays the module or	
column		interface which generates the	
		alarm	
Default column		Displays the default alarm	
		severity for the alarm	
Current column		Displays the severity level	
		currently assigned to the	
		alarm	
Modify To	<click></click>	Lets you select an severity	
column	Critical	level to assign to the alarm.	
	Major	When you click on <b><click></click></b> ,	
	Minor	the rest of the options are	
	Warning	displayed.	
	Disabled	<b>Note: Disabled</b> is only	
		supported by BroadAccess	
		system release 7 or higher.	
Modify To box	Critical	Lets you select an alarm	
2	Major	severity level to assign to the	
	Minor	selected alarms	
	Warning	<b>Note: Disabled</b> is only	
	Disabled	supported by BroadAccess	
		system release 7 or higher.	
Modify NEs		Lets user apply only the	
button		changes to severities to all	
		the selected NEs	
Copy to NEs		Lets user copy all the	
button		severities to all the selected	
		NEs	
File Options	Load Severities	Lets you save the alarms that	
button	Save Severities	appear in the table as a text	
		file, or load an alarm	
		severities text file to the NE	
Restore		Restores the default severity	
Defaults button		levels to the alarms in the	
		selected NE	

## 5.14. Viewing the Event Log

You can view an event log which lists all the events that occurred in the network, which are not alarms. This can be helpful when you are trying to troubleshoot problems with a system or track a system's performance. You can sort the event log in the same way as you sort the Active or History Alarm display (for more information, see *Filtering and Sorting Alarms* on page 43). You can print a list of events and save the events in text file format.

#### To view the event Log:

• In the ClearAccess+ or LCT main window, select the *Fault/Event Log* menu option.

Entry ID 🛛 🔽 💌	Category 💌	Event ID 💌	Description 💌	Details 💌	Originator 💌	Location 🔹
478	Configuration	1	Card In	Card Type: LI32A-RU	LI-32 Card	RU#01:01:02
477	Configuration	2	Card Out	Card Type: LI32-RU	LI-32 Card	RU#01:01:02
476	Configuration	1	Card In	Card Type: LI32-RU	LI-32 Card	RU#01:01:02
475	Configuration	2	Card Out	Card Type: LI32-RU	LI-32 Card	RU#01:01:02
474	Configuration	1	Card In	Card Type: LI32-RU	LI-32 Card	RU#01:01:02
473	Configuration	2	Card Out	Card Type: LI32A-RU	LI-32 Card	RU#01:01:01
472	Configuration	1	Card In	Card Type: LI32A-RU	LI-32 Card	RU#01:01:01
471	Configuration	2	Card Out	Card Type: LI32-RU	LI-32 Card	RU#01:01:01
470	Configuration	1	Card In	Card Type: LI32-RU	LI-32 Card	RU#01:01:01
469	Configuration	2	Card Out	Card Type: LI32-RU	LI-32 Card	RU#01:01:01
468	Configuration	1	Card In	Card Type: LI32-RU	LI-32 Card	RU#01:01:01
467	Configuration	2	Card Out	Card Type: LI32A-RU	LI-32 Card	RU#01:01:01
466	Configuration	1	Card In	Card Type: LI32A-RU	LI-32 Card	RU#01:01:01
465	Configuration	2	Card Out	Card Type: LI32A-RU	LI-32 Card	RU#01:01:01
464	Configuration	1	Card In	Card Type: LI32A-RU	LI-32 Card	RU#01:01:01
463	Configuration	2	Card Out	Card Type: LI32-RU	LI-32 Card	RU#01:01:01
462	Configuration	2	Card Out	Card Type: LI32A-RU	LI-32 Card	RU#01:01:02
461	Configuration	1	Card In	Card Type: LI32A-RU	LI-32 Card	RU#01:01:02
460	Configuration	2	Card Out	Card Type: LI32A-RU	LI-32 Card	RU#01:01:02
459	Configuration	1	Card In	Card Type: LI32A-RU	LI-32 Card	RU#01:01:02

Figure 25. Event Viewer Window

Table 15.	Event Viewer	Window	Settings
-----------	--------------	--------	----------

Screen Element	Options	Description	Default
Refresh button		Refreshes the information displayed in the event viewer	

Screen Element	Options	Description	Default
Auto Refresh button		Automatically refreshes the information displayed in the event viewer, in the following situations: <b>No active filter (generic)</b> – when there is a change, all and only the new rows that were appended since the last refresh will be retrieved from the database <b>A filter is active</b> – when there is a change, the same	
		query is re-executed with the same filter criteria (therefore, any new rows not meeting the filter criteria will not be retrieved from the database)	
More Rows		Displays the next set of rows of information from the database	
Define Filter button		Lets you define the filter to be applied to the event viewer. For more information, see <i>Using the</i> <i>Advanced Database Filter</i> on page 28	
Filtered	Selected Cleared	When selected, indicates that the event viewer is currently being filtered.	
Report button		Lets you set up and print alarm reports in a variety of formats	
Save Log As button		Lets you save the event log to file in *.txt file format	
		number	
Category		which each event belongs, such as Configuration events, Processing events, etc.	
Description		Displays a brief description of the event	
Details		Displays more details about the event, such as the location and type of the component corresponding to the event	
Originator		Displays the component that triggered the event report	

Screen Element	Options	Description	Default
Location		Displays the location of the component that triggered the event according to Unit	
		type, unit number, cage number, slot number and port number (where relevant)	
Time		Displays the time at which the event occurred	
Network Element		Displays the name of the Network Element	
Domain		Displays the domain to which the NE belongs	
Maintenance	Yes No	Displays whether or not an LCT User is currently connected to the NE	

## 5.15. Viewing the Configuration Log

You can view a configuration log, which lists the configuration changes that have been made to the NEs, and details about each configuration change that was made. You can sort the log using the column heading cells, you can search for specific text, and you can filter the rows displayed in the window. You can also save the log to file, or print a report.

 $\mathbb{A}$ 

**Note:** This feature is only available for BroadAccess 40 SNMP systems.

#### To view the configuration log:

• From the ClearAccess+ or LCT main menu bar, select the *Configuration/Configuration Log* menu option. The *Configuration Log* window is displayed.
Confi	iguration Log						
🛛 📿 Ref	fresh 👅 More Rows 江	Auto Row Height 🏾 💯 Defi	ine Filter 🦙 Filtered 🙀 Sear	ch 🕼 Report 🔹 🔛	Save As 🖕		
							<b>▲</b>
ID 🗖	<ul> <li>Date &amp; Time</li> </ul>	🕶 Domain 💌	Network Element	User 💌	Function 💌	Operation 💌	Details
695	24-Sep-03 11:14:36	Ronen	10.100.7.181	RONEN1	Software Download	Start Download	Profile = NONE , SW Type = ISDN-12 , SW Version = 04.02
694	24-Sep-03 11:14:29	Ronen	10.100.7.181	RONEN1	Software Download	End TFTP Process	Profile = NONE , SW Type = ISDN-12 , SW Version = 04.02 , Filename = i1212v2D.bin , Status: Successfully Transfered
693	24-Sep-03 11:13:53	Ronen	10.100.7.181	RONEN1	Software Download	Start TFTP Process	Profile = NONE, SW Type = ISDN-12, SW Version = 04.02, Filename = i1212v2D.bin
692	24-Sep-03 11:10:30	Ronen	10.100.7.181	RONEN1	Software Download	End Download	Profile = NONE , SW Type = ISDN-12 , SW Version = 04.02 , Status: 0K
691	24-Sep-03 10:56:16	Ronen	10.100.7.181	RONEN1	Software Download	Start Download	Profile = NONE , SW Type = ISDN-12 , SW Version = 04.02
690	24-Sep-03 10:56:08	Ronen	10.100.7.181	RONEN1	Software Download	End TFTP Process	Profile = NONE , SW Type = ISDN-12 , SW Version = 04.02 , Filename = i1212v2D,bin , Status: Successfully Transfered
689	24-Sep-03 10:55:30	Ronen	10.100.7.181	RONEN1	Software Download	Start TFTP Process	Profile = NONE , SW Type = ISDN-12 , SW Version = 04.02 , Filename = i1212v2D.bin
688	24-Sep-03 10:50:14	Ronen	10.100.7.181	RONEN1	Software Download	End Download	Profile = NONE , SW Type =
692 Item	ns						-

## Figure 26. Configuration Log Window

## Table 16. Configuration Log Window Settings

Screen Element	Options	Description	Default
Refresh button		Refreshes the items displayed in the <b>Configuration Log</b> window	
More Rows button		Lets you view the next set of rows in the <b>Configuration Log</b> window	
Auto Row Height		Automatically sets the row height in the table	
Define Filter button		Lets you set up criteria for filtering the events displayed in the <b>Configuration Log</b> window. For more information, see Using the Advanced Database Filter on page 28.	
Filtered button		Applies or turns off the filtering mechanism used to filter the data displayed in the <b>Configuration Log</b> window	
Search button		Lets you search for specific text in the <b>Configuration</b> <b>Log</b> window	

Screen Element	Options	Description	Default
Report button	Print Preview Page Setup Report Designer	Lets you format, preview and print a report from the log	
Save As button	1 0	Lets you save the log to file	
ID		Displays the ID number of each configuration event	
Date and Time		Displays the date and time that the configuration event occurred	
Domain		Displays the domain where the configuration event occurred	
Network Element		Displays the name of the NE where the configuration event occurred	
User		Displays the name of the user who performed the configuration event	
Function	Alarm Configuration Configuration	Displays the type of function which was performed on the system	
	Software Download		
	Maintenance		
	Topology Operations		

Screen Element	Options	Description	Default
Operation	Alarm Configuration types: Change Alarm Severity	Displays the type of operation that was performed on the system (a subtype of the Function type)	
	Restore Default Severities		
	<b>Software</b> <b>Download types:</b> Start TFTP Process		
	End TFTP Process		
	Start Download		
	End Download		
	Stop Download		
	Abort Download		
	Swap Request		
	Abort Swap		
	Set Running Versions		
	1		1

Screen Element	Options	Description	Default
Operation (cont.)	<b>Configuration</b> <b>Download types:</b> Download to NE Upload from NE	Displays the type of operation that was performed on the system (a subtype of the Function type)	
	Maintenance types: Card Reset		
	Topology Operations types: Add NE Add Domain Delete NE Delete Domain Modify NE Modify Domain Move NE Move Domain		
Details	Software Download details: Profile Software Type Software Version File Name Status Delay Time	Displays details about the configuration event, such as the success or failure of the operation, details about software version changes, the software profile that was used, etc.	
	Configuration Download details: Downloading Succeeded Downloading Failed Uploading Completed		

# 5.15.1. Searching for Specific Text in the Configuration Log

You can search for specific text in the configuration log, using the *Find Text* window.

#### To search for text in the alarm list:

- 1. Click the **Search** button in the **Configuration Log** window (see *Viewing the Configuration Log*) on page 58. The **Find Text** window is displayed.
- 2. Type the text that you are searching for in the *Text to Find* box.
- 3. Set the other options in the window as required.
- 4. Click the *Find Next* button. The first item that matches your search requirements is highlighted in the configuration log.
- **5.** To continue searching, click the *Find Next* button until you find the item you require.

### 5.15.2. Printing Reports from the Configuration Log

The *Report* button in the *Configuration Log* window lets you print out the configuration events displayed in the window, according to the filters currently selected. Before you print the events, you can do the following:

- Preview how the events will be printed out, by clicking the *Report* button and selecting the *Print Preview* option
- Edit page setup, including page size, margins, scale, headers and footers, by clicking the *Report* button and selecting the *Page Setup* option
- Use the Report Designer to set up configuration log reports in a variety of formats, by clicking the *Report* button and selecting the *Report Designer* option. For more information about using the Report Designer, see *Creating Reports* on page 26.

#### To print a configuration log report:

- 1. Open the *Configuration Log* window, as described in *Viewing the Configuration Log* on page 58.
- 2. Filter the configuration log as required, as described in *Using the Advanced Database Filter* on page 28.
- **3.** Click the *Report* button. Select the options you require, modify if necessary, and click the *Print* button when you are ready to print.

### 5.15.3. Saving the Configuration Log to File

The configuration log can be saved in XML, HTML, Excel or text file format. Only the events displayed will be saved. If you want to save all the events, make sure that you have cancelled filtering, using the *Filtered* button, before saving the log to file.

#### To save the configuration log to file:

1. Click the **Save** button in the **Configuration Log** window (see *Viewing the Configuration Log*) on page 58. The **Save As** dialog box is displayed.

- 2. Navigate to the folder of your choice, if required.
- **3.** Enter a file name for the configuration log.
- 4. Select the file format you require.
- 5. Click the *Save* button. The configuration log is saved to file.

# 5.16. Alarms and Troubleshooting

BroadAccess systems generate alarm messages, which help you to identify and rectify problems with the system. This section includes a summary of the alarms that can be generated, and suggested troubleshooting methodology for solving problems with the system.

# 5.16.1. Alarms and Indicators

The BroadAccess system produces two kinds of alarms and indicators: card LEDs and alarm reports displayed via ClearAccess+ and LCT. These reports can be either displayed on the screen or printed out. In addition, the BroadAccess system has dry contacts that can be coupled to the scanning system of an exchange.

- Alarms—ClearAccess+ and LCT report alarms that occur in the various units and elements of the system. Each alarm is reported along with a description, severity level (can be modified), category, origin of the alarm, location of the element causing the alarm and date and time that the alarm occurred. In addition, alarm conditions for specific cards can be viewed in the *Cage View* window and on the nodes of the NE's configuration tree. For a list of the alarms that can be generated by BroadAccess, see *Alarms Generated by BroadAccess* on page 66.
- **LEDs**—On-site visual alarms are indicated by LEDs, at both the CU and at the RU. Each card has at least two on-board LED indicators, where a green LED indicates normal operation and a red LED indicates a fault condition. More information about card LEDs can be found in the corresponding card installation instructions.
- **Dry contact relays**—Dry contact relays at the CU can signal critical, major, minor and AL\_OUT alarms. These relays can be used for external alarm inputs (for example, fire or water level alarms), to be transferred to the exchange building. An AL\_OUT solid state relay is closed if one or more of the eight user-defined external alarms, located at either the CU or RU are activated. These alarms are conveyed directly to ClearAccess+ or LCT, without system intervention.

Any critical, major, minor or external alarm condition activates a specific alarm relay that can be connected to an external central alarm system (audible, visible, or both) in the exchange building. A total of four different alarm relays are provided for alarm distribution: critical, major, minor and AL\_OUT.

**Note:** In addition to the alarms generated by the IP-UL-x card which are displayed in the alarm list, more specific alarms for the card can be viewed in the card's configuration window. For more information, see Managing the IP-UL-x Card via the Switched Network in the BroadAccess Configuration Guide.

# 5.16.2. Troubleshooting Methodology

Λ

If you are not able to troubleshoot the system by yourself, by following the general guidelines mentioned here, or the troubleshooting procedures mentioned in this chapter, please contact the technical assistance representative in your country.

As the primary management interface to the system, ClearAccess+/LCT is used to diagnose problems. This allows you to begin isolating the problem, and in some cases, solving it, before visiting the remote site. If the problem cannot be solved using ClearAccess+/LCT, it may be hardware related. In this case, check items such as cable connections and card operation at the CU side first, then at the RU side, and then check the repeaters or doublers, when used. Another way of determining whether a problem is located at either the CU or RU side, is to perform loopback tests, however it should be noted that loopbacks can cause interruption to services provided to subscribers. Some loopback tests can be performed using ClearAccess+ or LCT. Others require you to physically perform loopbacks at the CU or RU cable connections or distribution blocks. Finally, cards may need to be replaced in either the CU or RU.

When setting out to the RU site, take supplies of the components that may need to be replaced and spare cables for performing loopbacks.

For convenience sake, if you are already located at the RU site, you can perform all relevant checks at the RU first, and then if the problem is still not solved, check the CU.

- ▲ Note: Familiarize yourself with the BroadAccess system's hardware and software configuration prior to making any modifications to the system. You can make a backup file of the system's configuration data before you begin to make changes to system configuration (see Saving and Restoring NE Configuration Data in the BroadAccess Configuration Guide for more information).
- ▲ Note: Before beginning to isolate and diagnose problems with the system, check that the subscriber's telephone equipment, modem or CPE is in working order. If it is not working properly, replace the equipment and see if the problem persists.

### **General Troubleshooting Guidelines:**

- Connect to the system with ClearAccess+ or LCT, and check whether the problem is at the CU or the RU, according to the alarm message displayed. Observe the other current alarms active in the system, and the alarm history. Note the alarms that have occurred in the past weeks. You may be able to spot a pattern of alarms, or a single alarm that may have an implication on the current system status. Check the status of card LEDs using the cage view. Performance Monitoring statistics (viewed from the NE Operation window) may also provide you with more detailed information. If connection to the system using ClearAccess+ or LCT fails, see *ClearAccess+/LCT Not Working Direct Connection* on page 106.
- 2. If the problem is at the RU, skip the checks at the CU, and perform the recommended steps at the RU.
- **3.** Check that the system is configured correctly, using the *NE Operation* window for the BroadAccess system where the problem occurs.
- 4. Check physical cable connections, backplane dipswitch configuration and LEDs at the CU.
- **5.** Perform loopback tests at the CU.
- 6. Check physical cable connections, backplane dipswitch configuration and LEDs at the RU.
- 7. Perform loopback tests at the RU.
- 8. Check HDSL doublers or PCM repeaters, if they exist.
- **9.** Replace cards at the CU and then at the RU (if you are already at the RU site, replace cards there, first).

## 5.16.3. Alarms Generated by BroadAccess

The following table summarizes the alarm messages that can be generated by the BroadAccess system.

▲ Note: In addition to the alarms generated by the IP-UL-x card which are displayed in the alarm list, more specific alarms for the card can be viewed in the card's configuration window. For more information, see Viewing Alarms Generated by the IP-UL-x Card in the BroadAccess Configuration Guide.

The alarms are arranged in this section according to their ID numbers, which are displayed in the *Alarm ID* column of the *Alarm* window in ClearAccess+ or LCT. Each alarm has a unique ID number, despite the fact that the *Description* may be similar to other alarms.

Each row in the table corresponds to a particular alarm, and refers you to the appropriate troubleshooting procedure.

Alarm ID	Description	Troubleshooting Solution	Category	Originator Type	Default Severity	Can be Viewed by LCT Telnet
1	Temperature	<i>Temperature Alarm</i> on page 155	External	CPU Card	Major	Yes
2	Temperature	<i>Temperature Alarm</i> on page 155	External	Power Supply Card	Major	Yes
3	Temperature	<i>Temperature Alarm</i> on page 155	External	LI32 Card	Major	No
4	Temperature	<i>Temperature Alarm</i> on page 155	External	SHDSL Card	Major	No
5	Door Open	<i>Door Open Alarm</i> on page 111	External	Unit	Major	Yes
6	Ringer	No Ringing - Group of Subscribers on page 141	Equipment	Power Supply Card	Major	Yes

#### 5. Fault Management

Alarm ID	Description	Troubleshooting Solution	Category	Originator Type	Default Severity	Can be Viewed by LCT Telnet
7	No RUs	When STM4 cards are used: STM4 Problem on page 153 When LTM cards are used: No Communication - RU and CU E1 Short Haul (LTM card) on page 128 No Communication - RU and CU E1 Long Haul (LTM card) on page 127 When HDSL cards are used: No Communication - RU and CU HDSL - No Doublers on page 131 No Communication - RU and CU HDSL - 1 Doubler on page 130 When ONTU cards are used: No Communication - RU and CU ONTU on page 132 No Communication - RU and CU ONTU on page 132 No Communication - RU and CU ONTU (with backup ONTU	Processing	System	Critical	Νο

Alarm ID	Description	Troubleshooting Solution	Category	Originator Type	Default Severity	Can be Viewed by LCT Telnet
8	Alarm Test	No actions are required. This alarm indicates that the critical alarm mechanism has been tested and is functioning normally.	Processing	System	Critical	No
9	Alarm Test	No actions are required. This alarm indicates that the major alarm mechanism has been tested and is functioning normally.	Processing	System	Major	No
10	CPU Slave Fault	<i>CPT Slave Failure</i> on page 109	Equipment	CPU Card	Minor	No
11	Sync Failed	<i>No Clock/Sync</i> <i>Failed</i> on page 127	Processing	Unit	Major	No
12	Configuration Line Missing	Configuration Line Missing - LI-4E1 Series Card on page 108	Configuration	E1 Line	Minor	No
13	Loss of Signal (LOS)	AIS, RAI, LOS or High/Low CODE Error Alarm at LI- 4E1 Series Card on page 97	Communication	E1 Interface	Major	No
14	Loss of Signal (LOS)	LOS Alarm at LI-8Nx64 Card on page 121	Communication	HDSL/N64 IF	Major	No

Alarm ID	Description	Troubleshooting Solution	Category	Originator Type	Default Severity	Can be Viewed by LCT Telnet
15	Loss of Frame (LOF)	LOF Alarm at LI- 4E1 Series Card on page 121	Communication	E1 Interface	Major	No
16	Alarm Indication Signal (AIS)	AIS, RAI, LOS or High/Low CODE Error Alarm at LI- 4E1 Series Card on page 97	Communication	E1 Interface	Major	No
17	Remote Alarm Indication (RAI)	AIS, RAI, LOS or High/Low CODE Error Alarm at LI- 4E1 Series Card on page 97	Communication	E1 Interface	Major	No
18	Test Module Fail	<i>Test Module Failed</i> on page 155	Equipment	CPU Card	Minor	Yes
19	Hardware Malfunction	Card Does Not Respond on page 104	Equipment	4E1 Card	Major	No
20	Hardware Malfunction	Card Does Not Respond on page 104	Equipment	ADSL Card	Major	No
21	Hardware Malfunction	Card Does Not Respond on page 104	Equipment	SHDSL Card	Major	No
22	Hardware Malfunction	Card Does Not Respond on page 104	Equipment	LI32 Card	Major	No
23	Card not Responding	Card Does Not Respond on page 104	Equipment	STM4 Card	Major	No
24	Card not Responding	Card Does Not Respond on page 104	Equipment	4E1 Card	Major	No
25	Card not Responding	Card Does Not Respond on page 104	Equipment	ISDN Card	Major	No
26	Card not Responding	Card Does Not Respond on page 104	Equipment	ADSL Card	Major	No

Alarm ID	Description	Troubleshooting Solution	Category	Originator Type	Default Severity	Can be Viewed by LCT Telnet
27	Card not Responding	<i>Card Does Not</i> <i>Respond</i> on page 104	Equipment	ATM Card	Major	No
28	Card not Responding	Card Does Not Respond on page 104	Equipment	SHDSL Card	Major	No
29	Card not Responding	Card Does Not Respond on page 104	Equipment	LI32 Card	Major	No
30	Card not Responding	Card Does Not Respond on page 104 Common Control Card Backup Failure on page 109	Equipment	CPU Card	Major	Yes
31	Restart Failed	<i>V5 Out of Service</i> on page 157	Processing	V5 IF	Critical	No
32	Variant Error	<i>V5 Variant Error</i> on page 158	Configuration	V5 IF	Major	No
33	External Alarm	<i>External Alarm</i> on page 112	External	External Alarm	Major	Yes
34	Link Configuration Mismatch	Link Configuration Mismatch on page 119	Configuration	Unit	Major	No
35	High BER (>10E-3)	Link Failure - LTM/HDSL Cards on page 120	Communication	LTM HDSL E1 Link	Major	No
36	High BER (>10E-3)	No Communication - RU and CU ONTU on page 132	Communication	ONTU E3 Link	Major	No
37	Low BER (10E-6 - 10E-3)	Link Failure - LTM/HDSL Cards on page 120	Communication	LTM HDSL E1 Link	Minor	No
38	Low BER (10E-6 - 10E-3)	<i>No Communication - RU and CU ONTU</i> on page 132	Communication	ONTU E3 Link	Minor	No

Alarm ID	Description	Troubleshooting Solution	Category	Originator Type	Default Severity	Can be Viewed by LCT Telnet
39	Loss of Frame (LOF)	<i>Link Failure - LTM/HDSL Cards</i> on page 120	Communication	LTM HDSL E1 Link	Major	No
40	Loss of Frame (LOF)	No Communication - RU and CU ONTU on page 132	Communication	ONTU E1 Link	Major	No
41	Alarm Indication Signal (AIS)	When LTM cards are used: No Communication - RU and CU E1 Short Haul (LTM card) on page 128 No Communication - RU and CU E1 Long Haul (LTM card) on page 127 When HDSL cards are used: No Communication - RU and CU HDSL - No Doublers on page 131 No Communication - RU and CU HDSL - 1 Doubler on page 130	Communication	LTM HDSL E1 Link	Major	No
42	Alarm Indication Signal (AIS)	No Communication - RU and CU ONTU on page 132 No Communication - RU and CU ONTU (with backup ONTU cards) on page 134	Communication	ONTU E1 Link	Major	No

Alarm ID	Description	Troubleshooting Solution	Category	Originator Type	Default Severity	Can be Viewed by LCT Telnet
43	Loss of Signal (LOS)	When LTM cards are used: No Communication - RU and CU E1 Short Haul (LTM card) on page 128 No Communication - RU and CU E1 Long Haul (LTM card) on page 127 When HDSL cards are used: No Communication - RU and CU HDSL - No Doublers on page 131 No Communication - RU and CU HDSL - 1 Doubler on page 130	Communication	LTM HDSL E1 Link	Major	No
44	Loss of Signal (LOS)	No Communication - RU and CU ONTU on page 132 No Communication - RU and CU ONTU (with backup ONTU cards) on page 134	Communication	ONTU E1 Link	Major	No
45	Suspected HW Loopback	Hardware Loopback Indication on page 114	Processing	LTM HDSL E1 Link	Major	No
46	Suspected HW Loopback	Hardware Loopback Indication on page 114	Processing	ONTU E1 Link	Major	No

#### 5. Fault Management

Alarm ID	Description	Troubleshooting Solution	Category	Originator Type	Default Severity	Can be Viewed by LCT Telnet
47	Out of Sync	Link Failure - LTM/HDSL Cards on page 120; When LTM cards are used: No Communication - RU and CU E1 Short Haul (LTM card) on page 128 No Communication - RU and CU E1 Long Haul (LTM card) on page 127 When HDSL cards are used: No Communication - RU and CU HDSL - No Doublers on page 131 No Communication - RU and CU HDSL - I Doubler on page 130	Communication	LTM HDSL E1 Link	Major	No
48	Out of Sync	No Communication - RU and CU ONTU on page 132 No Communication - RU and CU ONTU (with backup ONTU cards) on page 134	Communication	ONTU E1 Link	Major	No

Alarm ID	Description	Troubleshooting Solution	Category	Originator Type	Default Severity	Can be Viewed by LCT Telnet
49	Remote Side out of Sync	When LTM cards are used: No Communication - RU and CU E1 Short Haul (LTM card) on page 128 No Communication - RU and CU E1 Long Haul (LTM card) on page 127 When HDSL cards are used: No Communication - RU and CU HDSL - No Doublers on page 131 No Communication - RU and CU HDSL - 1 Doubler on page 130	Communication	LTM HDSL E1 Link	Major	No
50	Remote Side Out of Sync	No Communication - RU and CU ONTU on page 132 No Communication - RU and CU ONTU (with backup ONTU (with backup ONTU cards) on page 134	Communication	ONTU E1 Link	Major	No
52	Hardware Malfunction	Card Does Not Respond on page 104	Equipment	STM4 Card	Major	No
53	Mate Comm Fail	<i>STM4 Series Backup Card Failure</i> on page 154	Equipment	STM4 Card	Minor	No

Alarm ID	Description	Troubleshooting Solution	Category	Originator Type	Default Severity	Can be Viewed by LCT Telnet
54	Loss of Signal (LOS)	<i>STM4 Problem</i> on page 153	Communication	STM4 Link	Major	No
55	Loss of Frame (LOF)	<i>STM4 Problem</i> on page 153	Communication	STM4 Link	Major	No
56	Loss of Pointer (LOP)	<i>STM1 Problem</i> on page 151	Communication	STM1 Link	Major	No
57	Loss of Pointer (LOP)	<i>VC-12 Alarm</i> on page 159	Communication	VC12 Link	Major	No
58	Loss of Multiframe	<i>STM1 Problem</i> on page 151	Communication	STM1 Link	Major	No
59	Alarm Indication Signal	<i>STM4 Problem</i> on page 153	Communication	STM4 Link	Major	No
60	Alarm Indication Signal (AIS)	<i>STM1 Problem</i> on page 151	Communication	STM1 Link	Major	No
61	Alarm Indication Signal (AIS)	<i>VC-12 Alarm</i> on page 159	Communication	VC12 Link	Major	No
62	Signal Failure	<i>STM4 Problem</i> on page 153	Communication	STM4 Link	Major	No
63	Signal Failure	<i>STM1 Problem</i> on page 151	Communication	STM1 Link	Major	No
64	Signal Failure	<i>VC-12 Alarm</i> on page 159	Communication	VC12 Link	Major	No
65	Signal Degraded	<i>STM4 Problem</i> on page 153	Communication	STM4 Link	Minor	No
66	Signal Degraded	<i>STM1 Problem</i> on page 151	Communication	STM1 Link	Minor	No
67	Signal Degraded	<i>VC-12 Alarm</i> on page 159	Communication	VC12 Link	Minor	No
68	External Links Configuration Mismatch	Link Configuration Mismatch on page 119	Configuration	LTM HDSL E1 Link Card	Major	No

Alarm ID	Description	Troubleshooting Solution	Category	Originator Type	Default Severity	Can be Viewed by LCT Telnet
69	External Links Configuration Mismatch	<i>External Links</i> <i>Configuration</i> <i>Mismatch</i> on page 113	Configuration	ONTU E1 Link Card	Major	No
70	Unequipped	<i>STM1 Problem</i> on page 151	Communication	STM1 Link	Major	No
71	Unequipped	<i>VC-12 Alarm</i> on page 159	Communication	VC12 Link	Major	No
74	TIM Alarm	<i>VC TIM Alarm</i> on page 160	Communication	VC12 Link	Major	No
75	SLM Alarm	<i>STM1 Problem</i> on page 151	Communication	STM1 Link	Major	No
76	SLM Alarm	<i>VC-12 Alarm</i> on page 159	Communication	VC12 Link	Major	No
77	Remote Defect Indication (RDI)	<i>STM4 Problem</i> on page 153	Communication	STM4 Link	Minor	No
78	Remote Defect Indication (RDI)	<i>STM1 Problem</i> on page 151	Communication	STM1 Link	Minor	No
79	Connectivity Remote Defect Indication (CRDI)	<i>VC-12 Alarm</i> on page 159	Communication	VC12 Link	Minor	No
80	Payload Remote Defect Indication (PRDI)	<i>VC-12 Alarm</i> on page 159	Communication	VC12 Link	Minor	No
81	Server Remote Defect Indication (SRDI)	<i>VC-12 Alarm</i> on page 159	Communication	VC12 Link	Minor	No
82	Rx Errors	Transmission Card Does Not Respond on page 156	Communication	LTM HDSL E1 Link	Major	No
83	Rx Errors	Transmission Card Does Not Respond on page 156	Communication	ONTU E1 Link	Major	No
84	Voice Frequency Test Failed	<i>VF Failure</i> on page 160	Processing	POTS Line	Minor	No

Alarm ID	Description	Troubleshooting Solution	Category	Originator Type	Default Severity	Can be Viewed by LCT Telnet
85	Voice Frequency Test Failed	<i>VF Failure</i> on page 160	Processing	ADSL Line	Minor	No
86	Voice Frequency Test Failed	<i>VF Failure</i> on page 160	Processing	Special Service Line	Minor	No
87	Voice Frequency Test Failed	<i>VF Failure</i> on page 160	Processing	ISDN Line	Minor	No
88	AC Test Failed	AC or DC Test Failed on page 96	Processing	POTS Line	Minor	No
89	AC Test Failed	AC or DC Test Failed on page 96	Processing	ADSL Line	Minor	No
90	AC Test Failed	AC or DC Test Failed on page 96	Processing	Special Service Line	Minor	No
91	AC Test Failed	AC or DC Test Failed on page 96	Processing	ISDN line	Minor	No
92	DC Test Failed	AC or DC Test Failed on page 96	Processing	POTS Line	Minor	No
93	DC Test Failed	AC or DC Test Failed on page 96	Processing	ADSL Line	Minor	No
94	DC Test Failed	AC or DC Test Failed on page 96	Processing	Special Service Line	Minor	No
95	DC Test Failed	AC or DC Test Failed on page 96	Processing	ISDN Line	Minor	No
96	Leakage Fault	<i>Leakage Fault</i> on page 116	Processing	POTS Line	Minor	No
97	Leakage Fault	<i>Leakage Fault</i> on page 116	Processing	ADSL Line	Minor	No
98	Leakage Fault	<i>Leakage Fault</i> on page 116	Processing	Special Service Line	Minor	No
99	Leakage Fault	Leakage Fault on page 116	Processing	ISDN Line	Minor	No
100	Many Line Alarms	Many Line Alarms on page 123	Configuration	System	Minor	No

Alarm ID	Description	Troubleshooting Solution	Category	Originator Type	Default Severity	Can be Viewed by LCT Telnet
101	Configuration Mismatch	Cross-Connect Configuration Mismatch on page 110	Configuration	System	Minor	No
102	Multiple Connection in Automatic Mode	Same Line Element Detected in More than One RU on page 149	Configuration	System	Minor	No
103	Configuration Line Missing	<i>Configuration Line</i> <i>Missing</i> on page 107	Configuration	System	Minor	No
104	AC Alarm	<i>AC Alarm</i> on page 96	External	Unit	Major	No
106	Input Voltage Alarm	<i>Input Voltage Alarm</i> on page 115	External	Power Supply Card	Major	Yes
107	Primary Clock Failed	<i>Clock Failure</i> on page 106	Processing	STM4 Card	Major	No
108	Secondary Clock Failed	<i>Clock Failure</i> on page 106	Processing	STM4 Card	Major	No
109	Configuration Mismatch	Configuration Mismatch - PSDCx/PSRGx on page 108	Configuration	Power Supply Card	Major	No
110	Metering Mismatch	Metering Mismatch on page 125	Configuration	Unit	Minor	No
111	Illegal Link Configuration	Illegal Link Configuration on page 114	Configuration	Unit	Major	No
112	5V Output Voltage Alarm	<i>DC Alarm</i> on page 111	Equipment	Power Supply Card	Major	Yes
113	-5V Output Voltage Alarm	<i>DC Alarm</i> on page 111	Equipment	Power Supply Card	Major	Yes

Alarm ID	Description	Troubleshooting Solution	Category	Originator Type	Default Severity	Can be Viewed by LCT Telnet
114	+3.3V Output Voltage Alarm	<i>DC Alarm</i> on page 111	Equipment	Power Supply Card	Major	Yes
115	Voltage Output Alarm	<i>DC Alarm</i> on page 111	Equipment	Power Supply Card	Major	Yes
116	Loss of Pointer (LOP)	<i>VC-12 Alarm</i> on page 159	Communication	VC12 IF	Major	No
117	Alarm Indication Signal (AIS)	<i>VC-12 Alarm</i> on page 159	Communication	VC12 IF	Major	No
120	Unequipped	<i>VC-12 Alarm</i> on page 159	Communication	VC12 IF	Major	No
121	Ring Comm Fail	Management Communication Failure on the Link on page 123	Processing	STM4 Link	Minor	No
122	Loss of Cell Delineation (LCD)	<i>STM1 Problem</i> on page 151	Communication	STM1 Link	Major	No
123	SLM Alarm	<i>VC-12 Alarm</i> on page 159	Communication	VC12 IF	Major	No
124	Connectivity Remote Defect Indication (CRDI)	<i>VC-12 Alarm</i> on page 159	Communication	VC12 IF	Minor	No
125	Payload Remote Defect Indication (PRDI)	<i>VC-12 Alarm</i> on page 159	Communication	VC12 IF	Minor	No
126	Server Remote Defect Indication (SRDI)	<i>VC-12 Alarm</i> on page 159	Communication	VC12 IF	Minor	No
127	Bus Conflict	Bus Conflict on page 101	Configuration	4E1 Card	Major	No
128	Bus Conflict	Bus Conflict on page 101	Configuration	ISDN Card	Major	No
129	Bus Conflict	Bus Conflict on page 101 or Bus Conflict - VoIP on page 102	Configuration	ADSL Card	Major	No

Alarm ID	Description	Troubleshooting Solution	Category	Originator Type	Default Severity	Can be Viewed by LCT Telnet
131	Bus Conflict	Bus Conflict on page 101	Configuration	LI8-N64 Card	Major	No
132	Bus Conflict	Bus Conflict on page 101	Configuration	SHDSL Card	Major	No
133	Bus Conflict	Bus Conflict on page 101	Configuration	LI32 Card	Major	No
134	Line is Down	<i>Line is Down - xDSL</i> <i>Cards</i> on page 117	Communication	ADSL Line	Minor	No
135	xDSL LCD at Near End	<i>xDSL LCD at Near</i> <i>End - ADSL Line</i> on page 162	Communication	ADSL Line	Minor	No
136	xDSL LCD at Far End	<i>xDSL LCD at Far</i> <i>End - ADSL Line</i> on page 163	Communication	ADSL Line	Minor	No
137	Allocation Failed	Allocation Failed on page 98	Processing	HDSL N64 Line	Minor	No
138	Allocation Failed	Allocation Failed on page 98	Processing	GSHDSL Line	Minor	No
139	Allocation Failed	Allocation Failed on page 98	Processing	ADSL Line	Minor	No
140	E1/UNI ATM Failure	<i>E1/UNI ATM Failure</i> on page 112	Communication	ADSL Line	Minor	No
143	Loss of Signal (LOS) at G703 Level - NX64	<i>LOF or LOS Alarm</i> <i>at LI-8Nx64 Card</i> on page 121	Communication	HDSL N64 Line	Minor	No
144	Loss of Frame (LOF) at G703 Level - NX64	LOF or LOS Alarm at LI-8Nx64 Card on page 121	Communication	HDSL N64 Line	Minor	No
145	Loss of Signal (LOS) at HDSL Level - NX64	LOF or LOS Alarm at LI-8Nx64 Card on page 121	Communication	HDSL N64 Line	Minor	No

Alarm ID	Description	Troubleshooting Solution	Category	Originator Type	Default Severity	Can be Viewed by LCT Telnet
146	Loss of Frame (LOF) at HDSL Level - NX64	<i>LOF or LOS Alarm</i> <i>at LI-8Nx64 Card</i> on page 121	Communication	HDSL N64 Line	Minor	No
147	Line Configuration Missing	Mismatched Subscribers on page 126	Configuration	ADSL Line	Minor	No
148	ATM Bus Fail	ATM Bus Failure on page 98	Equipment	ATM Bus	Major	No
149	Alarm Indication Signal	ATM VP Alarms on page 101	Communication	VP ATM Layer	Minor	No
151	Remote Defect Indication (RDI)	ATM VP Alarms on page 101	Communication	VP ATM Layer	Minor	No
155	Many Alarm Indication Signal (AIS)	ATM VP Alarms on page 101 Many Alarm Indication Signal (AIS) on page 123	Communication	VP ATM Layer	Major	No
158	Many Remote Defect Indication (RDI)	ATM VP Alarms on page 101 Many Remote Defect Indication (RDI) - VP ATM Layer on page 124	Communication	VP ATM Layer	Major	No
162	Hardware Malfunction	Card Does Not Respond on page 104	Equipment	ATM Card	Major	No
163	Loss of Signal (LOS)	<i>STM1 ATM Interface</i> <i>Alarms</i> on page 150	Communication	STM1 ATM IF	Major	No
164	Loss of Frame (LOF)	<i>STM1 ATM Interface</i> <i>Alarms</i> on page 150	Communication	STM1 ATM IF	Major	No
165	Loss of Pointer (LOP)	<i>STM1 ATM Interface</i> <i>Alarms</i> on page 150	Communication	STM1 ATM IF	Major	No

Alarm ID	Description	Troubleshooting Solution	Category	Originator Type	Default Severity	Can be Viewed by LCT Telnet
166	Alarm Indication Signal (AIS)	STM1 ATM Interface Alarms on page 150	Communication	STM1 ATM IF	Major	No
167	Remote Defect Indication (RDI)	STM1 ATM Interface Alarms on page 150	Communication	STM1 ATM IF	Major	No
168	Signal Failure	STM1 ATM Interface Alarms on page 150	Communication	STM1 ATM IF	Major	No
169	Loss of Cell Delineation	<i>STM1 ATM Interface</i> <i>Alarms</i> on page 150	Communication	STM1 ATM IF	Major	No
170	Signal Degraded	<i>STM1 ATM Interface</i> <i>Alarms</i> on page 150	Communication	STM1 ATM IF	Major	No
171	Loss of Pointer (LOP)	SHDSL VC12 Interface Alarms on page 149	Communication	SHDSL VC12 IF	Major	No
172	SLM Alarm	SHDSL VC12 Interface Alarms on page 149	Communication	SHDSL VC12 IF	Major	No
173	Alarm Indication Signal (AIS)	SHDSL VC12 Interface Alarms on page 149	Communication	SHDSL VC12 IF	Major	No
174	Connectivity Remote Defect Indication (CRDI)	SHDSL VC12 Interface Alarms on page 149	Communication	SHDSL VC12 IF	Minor	No
175	Payload Remote Defect Indication (PRDI)	SHDSL VC12 Interface Alarms on page 149	Communication	SHDSL VC12 IF	Minor	No
176	Server Remote Defect Indication (SRDI)	SHDSL VC12 Interface Alarms on page 149	Communication	SHDSL VC12 IF	Minor	No
177	Signal Failure	SHDSL VC12 Interface Alarms on page 149	Communication	SHDSL VC12 IF	Major	No

Alarm ID	Description	Troubleshooting Solution	Category	Originator Type	Default Severity	Can be Viewed by LCT Telnet
178	Signal Degraded	SHDSL VC12 Interface Alarms on page 149	Communication	SHDSL VC12 IF	Minor	No
179	Unequipped	<i>VC-12 Alarm</i> on page 159	Communication	SHDSL VC12 IF	Major	No
180	Software Version Control Mismatch	Software Version Control Mismatch on page 150	Processing	ATM Card	Minor	No
181	Software Version Control Mismatch	Software Version Control Mismatch on page 150	Processing	SHDSL Card	Minor	No
182	Software Version Control Mismatch	Software Version Control Mismatch on page 150	Processing	ISDN Card	Minor	No
183	Software Version Control Mismatch	Software Version Control Mismatch on page 150	Processing	LI32 Card	Minor	No
184	Software Version Control Mismatch	Software Version Control Mismatch on page 150	Processing	4E1 Card	Minor	No
185	Software Version Control Mismatch	Software Version Control Mismatch on page 150	Processing	STM4 Card	Minor	No
186	Software Version Control Mismatch	Software Version Control Mismatch on page 150	Processing	CPU Card	Minor	No
187	Ring ATM Fail at CU	ATM Ring Failure at CU on page 99	Communication	VC ATM layer	Major	No
188	Ring ATM Fail at RU	ATM Ring Failure at RU on page 100	Communication	VC ATM Layer	Major	No

Alarm ID	Description	Troubleshooting Solution	Category	Originator Type	Default Severity	Can be Viewed by LCT Telnet
189	SHDSL Card Limit Exceeded (L)	<i>LI-SHDSL Card</i> <i>Limit Exceeded</i> on page 120	Configuration	Cage	Minor	No
190	SHDSL Card Limit Exceeded (H)	<i>LI-SHDSL Card</i> <i>Limit Exceeded</i> on page 120	Configuration	Cage	Minor	No
191	Fan Fail	<i>Fan Failure</i> on page 113	External	Cage	Major	Yes
192	Line is Down	Line is Down - LI- SHDSL Series Cards on page 118	Communication	GSHDSL Line	Minor	No
193	xDSL LCD at Near End	<i>xDSL LCD at Near</i> <i>End - LI-SHDSL</i> <i>Line</i> on page 163	Communication	GSHDSL Line	Minor	No
194	xDSL LCD at Far End	<i>xDSL LCD at Far</i> <i>End - LI-SHDSL</i> <i>Line</i> on page 164	Communication	GSHDSL Line	Minor	No
195	Primary Clock Failed	<i>Clock Failure</i> on page 106	Processing	Unit	Major	No
196	Software Version Control Mismatch	Software Version Control Mismatch on page 150	Processing	ADSL Card	Minor	No
197	Temperature	<i>Temperature Alarm</i> on page 155	External	ADSL Card	Major	No
198	High Code Error	AIS, RAI, LOS or High/Low Code Error Alarm at LI- 4E1 Series Card on page 97	Communication	E1 Interface	Major	No
199	High CRC4 Error	<i>CRC Error, LOMF</i> <i>or TS 16 AIS</i> on page 110	Communication	E1 Interface	Major	No

Alarm ID	Description	Troubleshooting Solution	Category	Originator Type	Default Severity	Can be Viewed by LCT Telnet
200	Temperature	<i>Temperature Alarm</i> on page 155	External	STM4 Card	Major	No
201	Link Blocked by Local Exchange	<i>Link Blocked by</i> <i>Local Exchange</i> on page 119	Configuration	V5 Interface	Minor	No
207	Facility Near End	<i>Facility Near/Far</i> <i>End</i> on page 113	Communication	Application Line	Major	No
209	Facility Far End	<i>Facility Near/Far</i> <i>End</i> on page 113	Communication	Application Line	Major	No
213	Power Threshold Exceeded	<i>Power Threshold</i> <i>Exceeded</i> on page 146	Processing	Cage	Major	No
214	Card Disabled Power Limit Exceeded	<i>Power Limit</i> <i>Exceeded, Card</i> <i>Disabled</i> on page 146	Processing	SHDSL Card	Major	No
215	Card Disabled Power Limit Exceeded	Power Limit Exceeded, Card Disabled on page 146	Processing	ADSL Card	Major	No
216	Unrecognized Card	Unrecognized Card on page 156	Configuration	Line Card	Major	No
217	Unrecognized Card	<i>Unrecognized Card</i> on page 156	Configuration	Link Card	Major	No
218	Unrecognized Card	<i>Unrecognized Card</i> on page 156	Configuration	General Card	Major	No
251	LOMF	<i>CRC Error, LOMF</i> <i>or TS 16 AIS</i> on page 110	Communication	E1 Interface	Major	No
252	TS 16 AIS	<i>CRC Error, LOMF</i> <i>or TS 16 AIS</i> on page 110	Communication	E1 Interface	Major	No

Alarm ID	Description	Troubleshooting Solution	Category	Originator Type	Default Severity	Can be Viewed by LCT Telnet
253	Low CODE Error	AIS, RAI, LOS or High/Low Code Error Alarm at LI- 4E1 Series Card on page 97	Communication	E1 Interface	Minor	No
254	Low CRC Error	<i>CRC Error, LOMF</i> <i>or TS 16 AIS</i> on page 110	Communication	E1 Interface	Minor	No
255	Mismatch HW Version Control	<i>Mismatch HW</i> <i>Version Control</i> on page 126	Processing	ATM Card	Major	No
260	Unequipped	STM1 ATM Interface Alarms on page 150	Communication	STM1 ATM Interface	Major	No
261	Communication	STM1 ATM Interface Alarms on page 150	Communication	STM1 ATM Interface	Major	No
262	Intermittent Facility Alarm	<i>STM4 Problem</i> on page 153	Communication	STM4 Card	Major	No
263	Card Misplaced	Card Misplaced on page 105	Configuration	System	Minor	No
264	Card Misplaced	Card Misplaced on page 105	Configuration	System	Major	No
265	Card Misplaced	Card Misplaced on page 105	Configuration	System	Major	No
266	Hardware Malfunction	Hardware Malfunction on page 114	Equipment	Application Card	Major	No
267	Hardware Malfunction	Hardware Malfunction on page 114	Equipment	Application Card	Major	No
268	Port 2 Laser Fail	Hardware Malfunction on page 114	Equipment	WDM Card	Major	No

Alarm ID	Description	Troubleshooting Solution	Category	Originator Type	Default Severity	Can be Viewed by LCT Telnet
269	Supervisory Channel Fail	<i>Hardware</i> <i>Malfunction</i> on page 114	Equipment	WDM Card	Major	No
270	Near End LOS	<i>WDM Problem</i> on page 161	Communication	WDM Line	Major	No
271	1500 Trunk LOS	<i>WDM Problem</i> on page 161	Communication	WDM Line	Major	No
272	Far End LOS	<i>WDM Problem</i> on page 161	Communication	WDM Line	Major	No
273	1300 Trunk LOS	<i>WDM Problem</i> on page 161	Communication	WDM Line	Major	No
274	Cage Slave Out	<i>Cage Slave Out</i> on page 103	Processing	Unit	Major	No
275	Bus Fail	Bus Fail on page 102	Equipment	SDH Bus	Major	No
276	Software Version Control Mismatch	Software Version Control Mismatch on page 150	Processing	IP Uplink Card	Minor	No
277	Card not Responding	Card Does Not Respond on page 104	Equipment	IP Uplink Card	Major	No
278	Bus Conflict	Bus Conflict on page 101	Configuration	VoDSL Card	Major	No
279	Software Version Control Mismatch	Software Version Control Mismatch on page 150	Processing	VoDSL Card	Minor	No
280	Hardware Malfunction	Hardware Malfunction on page 114	Equipment	VoIP Card	Major	No
281	Card not Responding	Card Does Not Respond on page 104	Equipment	VoIP Card	Major	No
282	Temperature	<i>Temperature Alarm</i> on page 155	External	VoIP Card	Major	No

Alarm ID	Description	Troubleshooting Solution	Category	Originator Type	Default Severity	Can be Viewed by LCT Telnet
283	Bus Conflict	Bus Conflict - VoIP on page 102	Configuration	VoIP Card	Major	No
284	Software Version Control Mismatch	Software Version Control Mismatch on page 150	Processing	VoIP Card	Minor	No
285	Temperature	<i>Temperature Alarm</i> on page 155	External	16E1 Card	Major	No
286	Hardware Malfunction	Hardware Malfunction on page 114	Equipment	16E1 Card	Major	No
287	Software Version Control Mismatch	Software Version Control Mismatch on page 150	Processing	16E1 Card	Minor	No
288	Bus Conflict	Bus Conflict on page 101	Configuration	16E1 Card	Major	No
289	Card not Responding	Card Does Not Respond on page 104	Equipment	16E1 Card	Major	No
290	Loss of Signal (LOS)	AIS, RAI, LOS or High/Low Code Error Alarm at LI- 4E1 Series Card on page 97	Communication	E1 Interface	Major	No
291	Loss of Frame (LOF)	LOF Alarm at LI- 4E1/LI-16E1 Series Card on page 121	Communication	E1 Interface	Major	No
292	Alarm Indication Signal	AIS, RAI, LOS or High/Low Code Error Alarm at LI- 4E1 Series Card on page 97	Communication	E1 Interface	Major	No

Alarm ID	Description	Troubleshooting Solution	Category	Originator Type	Default Severity	Can be Viewed by LCT Telnet
293	Remote Alarm Indication (RAI)	AIS, RAI, LOS or High/Low Code Error Alarm at LI- 4E1 Series Card on page 97	Communication	E1 Interface	Major	No
294	High Code Error	AIS, RAI, LOS or High/Low Code Error Alarm at LI- 4E1 Series Card on page 97	Communication	E1 Interface	Major	No
295	Low Code Error	AIS, RAI, LOS or High/Low Code Error Alarm at LI- 4E1 Series Card on page 97	Communication	E1 Interface	Minor	No
296	High CRC4 Error	<i>CRC Error, LOMF</i> <i>or TS 16 AIS</i> on page 110	Communication	E1 Interface	Major	No
297	Low CRC Error	<i>CRC Error, LOMF</i> <i>or TS 16 AIS</i> on page 110	Communication	E1 Interface	Minor	No
298	LOMF	<i>CRC Error, LOMF</i> <i>or TS 16 AIS</i> on page 110	Communication	E1 Interface	Major	No
299	TS 16 AIS	<i>CRC Error, LOMF</i> <i>or TS 16 AIS</i> on page 110	Communication	E1 Interface	Major	No
300	Loss of Pointer (LOP)	<i>VC-12 Alarm</i> on page 159	Communication	Vc12 Interface	Major	No
301	Alarm Indication Signal (AIS)	<i>VC-12 Alarm</i> on page 159	Communication	Vc12 Interface	Major	No
302	Signal Failure	<i>VC-12 Alarm</i> on page 159	Communication	Vc12 Interface	Major	No

Alarm ID	Description	Troubleshooting Solution	Category	Originator Type	Default Severity	Can be Viewed by LCT Telnet
303	Signal Degraded	<i>VC-12 Alarm</i> on page 159	Communication	Vc12 Interface	Minor	No
304	Unequipped	<i>VC-12 Alarm</i> on page 159	Communication	Vc12 Interface	Major	No
305	SLM Alarm	<i>VC-12 Alarm</i> on page 159	Communication	Vc12 Interface	Major	No
306	Connectivity Remote Defect Indication (CRDI)	<i>VC-12 Alarm</i> on page 159	Communication	Vc12 Interface	Minor	No
307	Payload Remote Defect Indication (PRDI)	<i>VC-12 Alarm</i> on page 159	Communication	Vc12 Interface	Minor	No
308	Server Remote Defect Indication (SRDI)	<i>VC-12 Alarm</i> on page 159	Communication	Vc12 Interface	Minor	No
309	PSTN DL Failure	<i>PSTN DL Failure</i> on page 146	Processing	V5 Interface	Major	No
310	Unsupported Card	Unsupported Card on page 157	Equipment	Line Card	Major	No
311	Unsupported Card	Unsupported Card on page 157	Equipment	Link Card	Major	No
312	Unsupported Card	Unsupported Card on page 157	Equipment	General Card	Major	No
313	Unrecognized Card	Unrecognized Card on page 156	Equipment	Line Card	Major	No
314	Unrecognized Card	Unrecognized Card on page 156	Equipment	Link Card	Major	No
315	Unrecognized Card	Unrecognized Card on page 156	Equipment	General Card	Major	No
316	Hardware Malfunction	Hardware Malfunction on page 114	Equipment	VoDSL Card	Major	No
317	Mismatch HW Version Control	<i>Mismatch HW</i> <i>Version Control</i> on page 126	Processing	CPU Card	Minor	No

Alarm ID	Description	Troubleshooting Solution	Category	Originator Type	Default Severity	Can be Viewed by LCT Telnet
318	Card not Responding	<i>Card Does Not</i> <i>Respond</i> on page 104	Equipment	VoDSL card	Major	No
319	Temperature	<i>Temperature Alarm</i> on page 155	External	VoDSL Card	Major	No
320	Media Failure	<i>Media Failure</i> on page 125	Equipment	ETH Card	Minor	No
321	Hardware Malfunction	Hardware Malfunction on page 114	Equipment	ETH Card	Major	No
322	Card not Responding	Card Does Not Respond on page 104	Equipment	ETH Card	Major	No
323	ATM Bus Fail	ATM Bus Failure on page 98	Equipment	ATM Bus	Major	No
324	Software Version Control Mismatch	Software Version Control Mismatch on page 150	Processing	ETH Card	Minor	No
325	Temperature	<i>Temperature Alarm</i> on page 155	External	ETH Card	Major	No
326	Alarm Indication Signal (AIS)	ATM VC Alarms on page 100	Communication	VC ATM Layer	Minor	No
327	Remote Defect Indication (RDI)	ATM VC Alarms on page 100	Communication	VC ATM Layer	Minor	No
328	CC	ATM VC Alarms on page 100	Communication	VC ATM Layer	Minor	No
329	Hardware Malfunction	Hardware Malfunction on page 114	Equipment	CPU Card	Major	No
331	TDM Bus Collision	Bus Conflict - VoIP on page 102	Processing	Special Service Card	Major	No
332	Hardware Malfunction	Hardware Malfunction on page 114	Equipment	VoIP Card	Major	No

Alarm ID	Description	Troubleshooting Solution	Category	Originator Type	Default Severity	Can be Viewed by LCT Telnet
333	Media Failure	<i>Media Failure</i> on page 125	Processing	VoIP Card	Major	No
334	Line is Down	<i>Line is Down -</i> <i>VOIP-MG Series</i> <i>Cards</i> on page 118	Processing	Virtual Access Gateway	Major	No
335	External Alarm	<i>External Alarm</i> on page 112	External	External Alarm	Major	Yes
336	External Alarm	<i>External Alarm</i> on page 112	External	External Alarm	Major	Yes
337	External Alarm	<i>External Alarm</i> on page 112	External	External Alarm	Major	Yes
338	External Alarm	<i>External Alarm</i> on page 112	External	External Alarm	Major	Yes
339	External Alarm	<i>External Alarm</i> on page 112	External	External Alarm	Major	Yes
340	External Alarm	<i>External Alarm</i> on page 112	External	External Alarm	Major	Yes
341	External Alarm	<i>External Alarm</i> on page 112	External	External Alarm	Major	Yes
342	External Alarm	<i>External Alarm</i> on page 112	External	External Alarm	Major	Yes

# 5.16.4. Other Problems

The following problems might not be reported by ClearAccess+ or LCT, but may be reported by on-site technicians or by subscribers.

Each row in the following tables corresponds to a particular problem, and refers you to the appropriate troubleshooting procedure.

Problem	Description	See
CPT Failure	Hardware or Software failure in the active CPT card. No backup.	Common Control Card Backup Failure on page 109
Cage Not Working	Cage not working; power may or may not be working, expansion cage not working properly	Cage Not Working on page 103
No Power	No power in the cage	No Power on page 138
Read-only access to NEs	When connecting to a BroadAccess NEs using a ClearAccess+ client, the NE Operation window provides read-only access	Read-Only Access to NEs using ClearAccess+ Client on page 147
ClearAccess+ failure due to 2 network cards installed in ClearAccess+ Client computer	ClearAccess+ may not function properly if the computer where ClearAccess+ Client is installed is a multi-homed computer. For example, the Go To Port feature fails.	ClearAccess+ Client Multi- Homed Computer Problem on page 105
Access Violation Error Message when closing ClearAccess+ Client	ClearAccess+ Client does not function/close properly when a utility called NewDotNet is installed on the Client computer.	ClearAccess+ Access Violation Error on page 105
ClearAccess+ or LCT Failure	No direct connection to serial port	ClearAccess+/LCT Not Working - Direct Connection on page 106
Intracall Failure	Internal calls not linked up to RU	No Intracalls on page 137

Table 18. System Problems

### Table 19.ATM Problems

Problem	Description	See
ATM	Unreported ATM connection	ATM Connection Problems on
Connection	problems detected by the craft	page 99
Problems	terminal	
Problem	Description	See
------------	--	---------------------------------------
V5 Problem	The interface stays in the Out of Service state, or stays in the Restart state, or cycles repeatedly from Restart, to Out of Service, to Restart. Normally, auto-recovery causes the interface to transit from Out of Service to Restart after 90 seconds.	<i>V5 Cycling Problem</i> on page 157

# Table 20. Transmission Problems

# Table 21. Service Problems

Problem	Description	See
No Service - Group of subscribers (more than 16 lines)	No power feeding	No Power Feeding to a Group of Subscribers (two cards or more) on page 140
	Subscribers have no dial tone	No Dial Tone - Group of Subscribers or the Entire Cage (two cards or more) on page 135
	Subscribers cannot dial	No Dialing - Group of Subscribers (two cards or more) on page 136
	No ring for incoming calls	No Ringing - Group of Subscribers (two cards or more) on page 141
No service - group of subscribers (less than 16 lines)	No power feeding	<i>No Power Feeding - Regular Subscriber</i> on page 140
	Subscribers have no dial tone	<i>No Dial Tone - Regular</i> <i>Subscriber</i> on page 136
	Subscribers cannot dial	No Dialing - Group of Subscribers (two cards or more) on page 136
No service - special subscriber	No service	No Service DAT64-CO Subscriber on page 142 No Service - ISDN Subscriber (ISDNE or 4B3T Card) on page 144 No Service - ISDN Subscriber (ISDNE Card) on page 143 No Service - LLSI Channel on page 145

Problem	Description	See
LI-ADSL4P card - problem with data transfer	Data is not being transmitted/received	Data Transfer Problem - LI- ADSL4P on page 110

# 5.16.5. Troubleshooting Procedures

The tables that follow provide instructions for solving problems you may be having with the system. In order to locate the correct procedure for your problem, do one of the following:

- For alarms reported in LCT or ClearAccess+, look up the ID number of the alarm in *Alarms Generated by BroadAccess* on page 66 and then refer to the recommended procedure
- For other problems reported by technicians or subscribers, look them up in *Other Problems* on page 94 and then refer to the recommended procedure

## Table 22. AC Alarm

## Relevant for the following Alarm IDs: 104

	Check / Action	Result / Indication	Perform
1.	Is AC power connected to the cabinet?	Yes	Go to step 2.
2.	Is the circuit breaker switch up?	Yes	Go to step 5.
		No	Go to step 3.
3.	Raise the circuit breaker switch.	Circuit breaker	Go to step 4.
	Does the circuit breaker jump?	jumped	
4.	Is there an overload on the	Yes	Replace charger/AC
	charger/AC box?		box.
		No	Go to step 5.
5.	Is the charger switched ON?	Yes	Replace charger.

## Table 23. AC or DC Test Failed

## Relevant for the following Alarm IDs: 88, 89, 90, 91, 92, 93, 94, 95

	Check / Action	Result / Indication	Perform
1.	Check that the wires are connected properly (and that they haven't been damaged) between the RU and the subscriber's equipment.		Fix if necessary.

# Table 24. ADSL Line LCD Alarm - LI-ADSL4P

## Relevant for the following Alarm IDs: 135, 136

	Check / Action	Result / Indication	Perform
1.	Check that E1 links are		
	configured between the LI-4E1		
	card and the LI-ADSL4P port.		

# Table 25. AIS, RAI, LOS or High/Low Code Error Alarm at LI-4E1 Series Card Card

# Relevant for the following Alarm IDs: 13, 16, 17, 198, 253, 290, 292, 293, 294, 295

	Check / Action	Result / Indication	Perform
1.	Is the alarm an RAI alarm?	No	Go to step 2.
		Yes	Go to the local
			exchange (LE) end of
			the link or subscriber
			end and solve the
			problem at the
			LE/subscriber
-			equipment.
2.	Go to the CU or RU reporting the	Alarm cleared	Go to step 3.
	problem. Create a local loop by		
	shorting between the 1x and Kx at		
	Alternatively, use	Alarm not alaarad	Co to stan 4
	Clear $\Lambda$ ccess $\downarrow$ /I CT to set a	Alami not cleared	00 to step 4.
	loophack on the F1		
3	The problem is between the	Alarm cleared	The problem is solved
5.	connection block and the LE or	r Harm cleared	The problem is solved.
	subscriber. Check the cable to the		
	distribution block and fix the		
	connection if necessary.		
		Alarm not cleared	Go to step 4.
4.	Check the configuration of the	Alarm cleared	The problem is solved.
	port, and fix if necessary.		-
		Alarm not cleared	Go to step 5.
5.	Replace the LI-4E1 card.	Alarm cleared	The problem is solved.
		Alarm not cleared	Go to step 6.
6.	Reset the CPT card using the RST	Alarm not cleared	Contact Customer
	button on the card's front panel. If		Support.
	this doesn't solve the problem,		
	replace the CPT card at the CU.		

# Table 26. Allocation Failed

# Relevant for the following Alarm IDs: 137, 138, 139

	Check / Action	Result / Indication	Perform
1.	Using ClearAccess+/LCT, check if the number of links in the system is sufficient for the number of active subscribers (including all the permanently allocated lines)	Number of links is not sufficient	Add links to the system.

# Table 27.ATM Bus Failure

	Check / Action	Result / Indication	Perform
1.	Using ClearAccess+/LCT, check which card raised the alarm. It could be an ATM card, and SDH card or an xDSL card.		Go to step 2.
2.	Check if hardware failure alarms are reported for the card.	Yes	Refer to procedures for those alarms.
3.	Check if the cards are installed in the cage properly.	Installed properly	Go to step 4.
		Not installed properly	Install card securely in the cage. If the problem is not solved, go to step 4.
4.	Replace the card reporting the alarm.	Alarm clears	The problem is solved.
		Alarm still on	Go to step 5.
5.	Replace the ATM card in the cage where the alarm is reported.	Alarm clears	The problem is solved.
		Alarm still on	Contact Customer Support.

# Table 28. ATM Connection Problems

## Relevant for the following Alarm IDs: Not Applicable - see Other Problems on page 94

	Check / Action	Result / Indication	Perform
1.	Many connections have alarms.	Yes	Perform the procedure described in UNI Alarm to solve network side problems. Perform the following procedures for system side problems: <i>ATM Ring Failure at</i> <i>CU</i> on page 99 <i>ATM Ring Failure at</i> <i>RU</i> on page 100 <i>ATM VP Alarms</i> on page 101

# Table 29. ATM Ring Failure at CU

	Check / Action	Result / Indication	Perform
1.	Check for multiple STM alarms or multiple topology failures.	Alarms or topology failures exist	Follow procedure for <i>STM1 Problem</i> on page 151.
		No alarms or failures	Go to step 2.
2.	Check that there is an ATMX card installed in the reported RU.	No ATM card installed	Install ATMX card in the RU.
		ATM card installed	Go to step 3.
3.	Check that the appropriate STM4 series card for your system's configuration is installed in the reported RU (refer to the Card Installation Overview in the Service Manual for more information).	Wrong type of STM4 series card installed	Replace incorrect card with the appropriate STM4 series card.
4.	Replace the ATMX card in the reported RU.	Problem not solved	Go to step 5.
5.	Contact Customer Support.		

# Table 30.ATM Ring Failure at RU

# Relevant for the following Alarm IDs: 188

	Check / Action	Result / Indication	Perform
1.	Check for multiple STM alarms or multiple topology failures.	Alarms or topology failures exist No alarms or failures	Follow procedure for STM1 Problem on page 151. Go to step 2.
2.	Check that there is an ATM-UNI card installed in the CU.	No ATM-UNI card installed ATM-UNI card installed	Install ATM-UNI card in the CU. Go to step 3.
3.	Check that the appropriate STM4 series card for your system's configuration is installed in the reported CU/RU (refer to the Card Installation Overview in the Service Manual for more information).	Wrong type of STM4 series card installed	Replace incorrect card with the appropriate STM4 series card.
4.	Replace the ATM-UNI card in the reported CU.	Problem not solved	Go to step 5.
5.	Contact Customer Support.		

# Table 31.ATM VC Alarms

# Relevant for the following Alarm IDs: 326, 327, 328

	Check / Action	Result / Indication	Perform
1.	Does the problem originate from the subscriber's equipment or from the ATM network?	Subscriber equipment	Fix the problem at the subscriber's premises. If problem persists, go to step 2.
		Network equipment	Fix the problem in the ATM network. If the problem persists, go to step 2.
		Subscriber and ATM network equipment are OK.	Go to step 2.
2.	Delete the ATM connection and reconfigure it on the same or on a different VP/VC.	Problem not solved	Go to step 3.
3.	Reset the VoATM-MG card that reported the problem.	Problem not solved	Go to step 4.
4.	Reset the ATM-UNI card or ATM- X card that reported the problem.	Problem not solved	Contact Customer Support.

# Table 32. ATM VP Alarms

	Check / Action	Result / Indication	Perform
1.	Does the problem originate from the subscriber's equipment or from the ATM network?	Subscriber equipment	Fix the problem at the subscriber's premises. If problem persists, go to step 2.
		Network equipment	Fix the problem in the ATM network. If the problem persists, go to step 2.
		Subscriber and ATM network equipment are OK.	Go to step 2.
2.	Delete the VP and reconfigure it.	Problem not solved	Go to step 3.
3.	Reset the ATM-UNI card or ATM-X card that reported the problem.	Problem not solved	Contact Customer Support.

# Table 33.Bus Conflict

Relevant for the following	g Alarm IDs: '	127, 128, 129,	131, 132, 133	8, 278, 288
----------------------------	----------------	----------------	---------------	-------------

	Check / Action	Result / Indication	Perform
1.	Check whether more than one card is using the same bus, using ClearAccess+/LCT. Details about card/bus limitations are included in the Service Manual, in the <i>Card Installation Overview</i> .	Current configuration is illegal	Change the system configuration.
		Configuration is OK	Contact Customer Support.

# Table 34. Bus Conflict - VoIP

# Relevant for the following Alarm IDs: 129, 283, 331

	Check / Action	Result / Indication	Perform
1.	Using ClearAccess+/LCT, <b>NE</b> <b>Operation</b> window, <b>Cage View</b> window, check whether one of the following cards is installed in cage slot 15:	Yes	Remove the card from slot 15 (these cards cannot be used in slot 15 when VoIP is used).
	LLSI, LI-4WEM, LI-DDO, LI- DDI, LI-TIE, LI-MGNT, LI-RMT-CU, LI-RMT-RU, LI-DAT64-CO, LI-PLAR, LI-DGT, LI-ADSL series?	No	Go to step 2.
2.	Is one of the cards mentioned in step 1 installed in slots 1 - 12, or 14?	Yes	Go to step 3.
		No	Go to step 4.
3.	Using ClearAccess+/LCT, check whether the VoIP interface has been configured for 256 simultaneous calls, or 512 simultaneous calls ( <i>NE Operation</i> window, <i>VoIP Configuration</i> window, <i>System</i> tab).	256	Go to step 4.
		512	Change the configuration to 256 simultaneous calls.
4.	Contact Customer Support.		

# Table 35. Bus Fail

	Check / Action	Result / Indication	Perform
1.	Go the unit which is generating the alarm. One of the following cards installed in the unit has shorted the COM bus: LI-4E1CF, STM4 series, LI-SHDSLTS. Remove cards of these types one by one	Alarm clears when a specific card is removed.	Replace the faulty card with a new card. Reinstall the other cards that you removed.
		Alarm still on when all cards of these types removed.	Contact Customer Support.

# Table 36. Cage Not Working

# Relevant for the following Alarm IDs: Not Applicable - see Other Problems on page 94

	Check / Action	Result / Indication	Perform
1.	Are the following dipswitches located on the backplane set correctly? - RU/CU - Cage number - RU number (if installed as an RU) - CU cage number (if installed at RU)	Dipswitches are OK	Go to step 2.
		Dipswitches not OK	Adjust the dipswitch settings as necessary.
2.	Is the cage power supply working?	No power	Refer to <i>AC Alarm</i> on page 96.
		Power exists	Go to step 3.
3.	If cage #2 exists, check that the expansion cables are connected according to the installation instructions in the Service Manual and correct if necessary.	Still not OK	Go to step 4.
4.	Reset the CPT/CPTE/CPT-S card using the RST button on the card's front panel. If this doesn't solve the problem, replace the CPT/CPTE/CPT-S card in the problematic cage. Is the problem solved?	Still not OK	Replace the cage.

# Table 37. Cage Slave Out

	Check / Action	Result / Indication	Perform
1.	Go to the slave cage, and check if a CPT-S or power supply card is missing from the slave cage.	No cards missing	Check that expansion cable connecting between the main and slave cages is securely installed on the backplane connectors of both cages. Check that the power supply card in the slave cage is switched on.
		Cards missing	Install the missing cards.

# Table 38. Cannot Dial - Regular Subscriber

## Relevant for the following Alarm IDs: Not Applicable - see Other Problems on page 94

	Check / Action	Result / Indication	Perform
1.	Connect a telephone to the distribution block at the CU. Can you dial from there?	No	Problem in the exchange.
		Yes	Go to step 2.
2.	Replace the service card at the CU. Can the subscriber dial?	Still no subscriber dialing	Replace the service card at the RU.

## Table 39.Card Does Not Respond

# Relevant for the following Alarm IDs: 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 162, 277,

281,	289,	318,	322
------	------	------	-----

	Check / Action	Result / Indication	Perform
1.	Is there a Hardware Malfunction alarm?	Yes	Check the ClearAccess+/LCT alarm message: it provides the location of the problematic card. Replace the card.
		No	Go to step 2.
2.	Check if more than one card is reporting Card Not Responding alarm.	Only one card	Go to step 4.
		More than one card	Go to step 3.
3.	Check if there is a problem with the CPT card.	Problem with CPT card	Fix the problem with CPT card, or replace the CPT card.
		CPT card is OK	Go to step 4.
4.	Check the ClearAccess+/LCT alarm message: it provides the location of the problematic card. Replace the card.		

# Table 40. Card Misplaced

## Relevant for the following Alarm IDs: 263, 264, 265

	Check / Action	Result / Indication	Perform
1.	The wrong type of card is installed		Remove the card from
	in the card slot indicated by the		the slot and install it in
	alarm. Identify the location of the		a slot suitable for the
	card slot reporting the alarm.		card. The installation
			instructions for the
			card (in the Service
			Manual) detail the
			card slots in which the
			card can be installed.

## Table 41. ClearAccess+ Access Violation Error

### Relevant for the following Alarm IDs: N/A

	Check / Action	Result / Indication	Perform
1.	Search for <i>newdotnet</i> *.* on all hard drives.	File found	Go to step 2.
		File not found	Contact Customer Support.
2.	Uninstall the NewDotNet utility by using the <i>Add/Remove Programs</i> feature in Windows' Control Panel.		

## Table 42. ClearAccess+ Client Multi-Homed Computer Problem

	Check / Action	Result / Indication	Perform
1.	Disable the second network card (the one not on the management subnet), or if that card is on DHCP and the management subnet's card is fixed, use the DOS command <b>ipconfig</b> /release. However, this solution requires you to do it every time you restart Windows.		

# Table 43. ClearAccess+/LCT Not Working - Direct Connection

## Relevant for the following Alarm IDs: Not Applicable - see Other Problems on page 94

	Check / Action	Result / Indication	Perform
1.	Make sure that the cable from the PC to the cage backplane is: - connected to connector COM1 - connected to the PC comm. port of the PC running ClearAccess+/LCT	Still not OK	Go to step 2.
2.	Check that the PC port # set in the ClearAccess+/LCT is correct.	Still not OK	Go to step 3.
3.	Check that the baud rate of the port is set to 19200.	Still not OK	Go to step 4.
4.	Replace the cable connecting the PC to the cage backplane.	Still not OK	Replace CPT card (at CU).

## Table 44.Clock Failure

## Relevant for the following Alarm IDs: 107, 108, 195

**Note:** The default CU clock is internal; the default RU clock is recovered.

	Check / Action	Result / Indication	Perform
1.	ClearAccess+/LCT alarm shows which clock is primary and which is secondary. Check the source of the failed clock.	Internal clock	Go to step 2.
		Recovered clock	Go to step 5.
		External clock	Go to step 5.
2.	Is the card that is the source of the clock operating normally?	Card is OK	Go to step 3.
		Card is not OK	Replace the card.
		Card is missing	Install an STM4 card in the slot or change the clock settings using ClearAccess+/LCT (for more information, see Setting SDH Synchronization Status in the BroadAccess Configuration Guide)

	Check / Action	Result / Indication	Perform
3.	In the ClearAccess+/LCT Sync. Settings window, change the clock source type to None, then change the clock selection back to its previous state.	Alarm is cleared	The problem is solved.
	(for more information, see Setting SDH Synchronization Status in the BroadAccess Configuration Guide)	Alarm reappears	Replace the card that raised the alarm.
4.	Check if the alarm is raised on both STM4 cards.	Both cards	Replace the card that sourced the clock.
		One card	Replace the card that raised the alarm.
5.	Check for an alarm on the signal source.	Alarm on source	Refer to <i>STM4 Problem</i> on page 153 or to the relevant No Communication procedure.
6.	Check that the clock source is connected.	No alarm on source	Go to step 2.
		Source is connected	Go to step 7.
		Source is not connected	Connect the source or change the clock selection using ClearAccess+/LCT (for more information, see Setting SDH Synchronization Status) in the BroadAccess Configuration Guide.
7.	Check that both STM4 cards have the same alarm.	Both cards	Swap the CPT with its backup. Go to step 4.
		One card	Contact Customer Support.

# Table 45. Configuration Line Missing

	Check / Action	Result / Indication	Perform
1.	Using ClearAccess+/LCT, check which service cards are installed in the RU reporting the alarm.	Empty service card slots exist	Go to step 2.
		All slots have cards installed	Contact Customer Support.

	Check / Action	Result / Indication	Perform
2.	Check whether cross-connections (TDM) are configured for the empty slots.	Cross- connections exist	Install a service card in the slot for which cross-connections have been configured, and configure the ports, or delete the cross-connections configured for that card slot.
		No cross- connections exist	Contact Customer Support.

# Table 46. Configuration Line Missing - LI-4E1 Series Card

# Relevant for the following Alarm IDs: 12

	Check / Action	Result / Indication	Perform
1.	Using ClearAccess+/LCT, check that the E1s supported by the LI- 4E1 card are configured correctly.	Not configured	Fix configuration.
		Configured correctly	Contact Customer Support.

# Table 47. Configuration Mismatch - PSDCx/PSRGx

	Check / Action	Result / Indication	Perform
1.	This alarm is raised if a PSDCx card is installed in an RU.	maication	Replace the card with a PSRGx card to cancel the alarm. If installation of a PSDCx card in the RU is intentional, you can change the alarm severity level to a lower severity, using the Alarm Severities window (see <i>Editing</i>
			<i>Alarm Severities</i> on page 52 for more information).

# Table 48. Common Control Card Backup Failure

#### Check / Action Result / Perform Indication 1. Check that there is a second Yes Go to step 2. CPT/CPTE card in the cage, and that it is operating properly. No Go to step 5. Go to the problematic side (either 2. Go to step 3. CU or RU), as reported by ClearAccess+/LCT. 3. Are both control cards in cage #1 Yes Go to step 4. CPT or CPTE (CPT-S should not be installed in cage #1)? Replace the CPT-S No with a CPT (in CU) or CPTE (in RU) card. Replace the failed card. 4.

## **Relevant for the following Alarm IDs: 30**

### Table 49.CPT Slave Failure

	Check / Action	Result / Indication	Perform
1.	Check that expansion cables connecting between the cages is securely connected.	Problem not solved	Go to step 2.
2.	Does the slave cage have power?	Yes	Go to step 3.
		No	Fix power supply problem.
3.	Is there a backup CPT-S card in the slave cage?	Yes	Perform a swap and then go to step 4. If the swap fails, go to step 4.
		No	Go to step 4.
4.	Replace the problematic CPT-S card.		

# Table 50. CRC Error, LOMF or TS 16 AIS

## Relevant for the following Alarm IDs: 199, 254, 251, 252, 296, 297, 298, 299

	Check / Action	Result / Indication	Perform
1.	Check that framing is configured in the same mode on the LI-4E1 card and at the far end. (LOMF and TS 16 AIS alarms indicate that Multiframe mode is configured at near or far end).	Settings not identical on card and at far end.	Fix framing settings. If problem persists, go to step 2.
	You set framing mode on the card using ClearAccess+/LCT, in the <i>LI-4E1 Properties</i> window, <i>Mode</i> box.	Framing settings are identical at the far end and on the LI-4E1 card.	Go to step 2.
2.	Replace the LI-4E1 card reporting the problem.	Problem persists.	Contact Customer Support.

## Table 51. Cross-Connect Configuration Mismatch

### Relevant for the following Alarm IDs: 101

	Check / Action	Result / Indication	Perform
1.	Using ClearAccess+/LCT, check whether the type of cards installed in the RU reporting the alarm support the type of lines configured in the <b>Cross-</b> <b>Connect</b> window (TDM).	Unsuitable card	Remove the card and replace with a suitable service card, or delete the cross-connections assigned to that slot.
		Suitable card	Contact Customer Support.

## Table 52. Data Transfer Problem - LI-ADSL4P

## Relevant for the following Alarm IDs: Not Applicable - see Other Problems on page 94

	Check / Action	Result / Indication	Perform
1. Are there BER alarms betwee the CU and the RU?	Are there BER alarms between the CU and the RU?	No alarms	Go to step 2.
		Alarms exist	Fix cause of BER alarms.

	Check / Action	Result / Indication	Perform
2.	Is the scrambling option of the LI-ADSL4P card configured the same way as the exchange of the operating company?	No	Fix the configuration.
		Yes	Go to step 3.
3.	If there is an HEC error, check that the COSET option setting on the card is consistent with the network.		

# Table 53. DC Alarm

## Relevant for the following Alarm IDs: 112, 113, 114, 115

	Check / Action	Result / Indication	Perform
1.	Use ClearAccess+/LCT to find out at which side (CU or RU) the problem occurred.	Go to the problematic side	Go to step 2.
2.	On the PSDCx/PSRGx card, are the green LED and red LED on (check physically or using ClearAccess+/LCT cage view)?	No	Go to step 3.
		Yes	Go to step 4.
3.	Set power switch to OFF and replace PSRGx and PSDCx cards.	Still not OK	Go to step 4.
4.	One of the other cards is causing a problem. Set the power switch to OFF and remove all service and transmission cards from the cage.		Turn on the power and replace the cards one by one until you find the problematic card.

## Table 54.Door Open Alarm

	Check / Action	Result / Indication	Perform
1.	Are the doors of the outdoor cabinet securely closed?	Yes	Go to step 2.
		No	Close the doors. If alarm persists, go to step 2.
2.	When the door is closed, make sure the door switches are pressed all the way in. Does the alarm turn off?	Switches closed; door alarm still on	Go to step 3.

	Check / Action	Result / Indication	Perform
3.	Check the wiring between the door switches and the distribution block, and fix if necessary. Does alarm turn off?	Alarm still on	Reset the CPTE card, using the RST button on the card's front panel. If this does not solve the problem, replace the CPTE card at the RU.

# Table 55. E1/UNI ATM Failure

	Check / Action	Result / Indication	Perform
1.	Check the physical connections between the exchange and the E1 UNI link and secure if necessary.	Alarm cleared	The problem is solved.
		Alarm still active	Go to step 2.
2.	Check that links are configured between the LI-4E1 and the LI-ADSL4P ports.	Links are configured	Go to step 3.
		Links are not configured	Configure the links.
3.	Is the scrambling option of the LI-ADSL4P card the same as in the exchange of the operating company?	No	Configure scrambling options correctly.
		Yes	Go to step 4.
4.	Check the COSET option setting on the card is consistent with the network.		

# Table 56.External Alarm

# Relevant for the following Alarm IDs: 33, 335, 336, 337, 338, 339, 340, 341, 342

	Check / Action	Result / Indication	Perform
1.	The cause of the alarm is outside your BroadAccess system. The alarm's <i>Location</i> column provides the External Alarm ID number of the external equipment triggering the alarm. Check ClearAccess+/LCT to find out which piece of equipment is assigned to that external equipment ID number.		Check external equipment supported by the BroadAccess system.

# Table 57. External Links Configuration Mismatch

# Relevant for the following Alarm IDs: 69

	Check / Action	Result / Indication	Perform
1.	Check the jumper configuration on the ONTU card.		

## Table 58.Facility Near/Far End

## Relevant for the following Alarm IDs: 207, 209

	Check / Action	Result / Indication	Perform
1.	For a Near End alarm, check the cable connections at each end of the Rx cable connected to the card.	Connections not OK	Fix cable connections. If problem persists, go to step 2.
	For a Far End alarm, check the cable connections at each end of the Rx cable connected to the card.	Connections OK	Go to step 2.
2.	Replace the card reporting the alarm.	Alarm clears	Problem solved.
		Alarm still on	Go to step 3.
3.	Check that cables connected to the card are intact: Rx cable for near end	Cables are OK	Contact Customer Support.
	alarm or Tx cable for far end alarm.	Cables not OK	Fix or replace the cables.

## Table 59.Fan Failure

	Check / Action	Result / Indication	Perform
1.	Go to the CU or RU where the fan tray is installed. Check if all the fans in the fan tray are moving.	Fans moving	Go to step 2.
		Fans not moving	Go to step 3.
2.	Check the cable that connects the fan tray to the system backplane. Is the cable intact, and is it connected properly?	Yes	Go to step 3.
		No	Fix connections or replace the cable, as necessary.
3.	Replace the fan tray.		

# Table 60. Hardware Loopback Indication

# Relevant for the following Alarm IDs: 45, 46

	Check / Action	Result / Indication	Perform
1.	Check the connections for the link on the distribution blocks and fix if necessary. If fiber optic links are	Alarm cleared	The problem is solved.
	used, check the connections on the	Alarm not	Contact Customer
	nder optic tray.	cleared	Support.

## Table 61. Hardware Malfunction

# Relevant for the following Alarm IDs: 266, 267, 268, 269, 280, 286, 316, 321, 329, 332

	Check / Action	Result / Indication	Perform
1.	Replace the card reporting the problem	Alarm clears	Problem solved.
		Alarm still on	For a Supervisory Channel Fail alarm, go to step 2. For other alarms, contact Customer Support.
2.	Replace the card transmitting to the card raising the alarm.	Alarm clears	Problem solved.
		Alarm still on	Contact Customer Support.

## Table 62. Illegal Link Configuration

	Check / Action	Result / Indication	Perform
1.	Check the CU's backplane dipswitch configuration; check which transmission cards are installed in the BroadAccess system. Refer to the cage installation instructions for the correct dipswitch settings. If you change dipswitch settings, reset the CPT card. Check that the links are configured correctly, using ClearAccess+/LCT, and fix if necessary.	Alarm clears	The problem is solved.
		Alarm does not clear	Contact Customer Support.

# Table 63. Input Voltage Alarm

## Relevant for the following Alarm IDs: 106

**Note:** This alarm indicates that the DC power supply to the system is below the required level. At the exchange, there may be a problem with the power source to the cage. At an RU in an outdoor cabinet, the cause of this alarm could be that the system is running on batteries due to AC power failure, and the batteries are running out of power.

	Check / Action	Result / Indication	Perform
1.	Is the problem reported at the CU,	CU	Go to step 2.
	at an RU in an outdoor cabinet, or	RU in a cabinet	Go to step 6.
	an RU installed in a rack?	RU in a rack	Go to step 2.
2.	Check the voltage of the cables	Voltage within	Go to step 3.
	connected to the power connectors	the normal range	
	on the system backplane		
	Normal ranges should be as	Voltage outside	Go to step 4.
	follows:	the normal range	
	CU (using PSDCx cards):		
	-48V system: -44V $\pm 2\%$		
	-60V system: -55V $\pm 2\%$		
	<b>RU</b> (using PSRGx cards):		
	$-48V \text{ system: } -47V \pm 2\%$		
2	-60V system: -58.5V $\pm 2\%$	Duchlans u of	Cata star 4
3.	Check that the power cable	Problem not	Go to step 4.
	to the backplane connected securely	solved	
4	Check that the evolution of a power	Dower course	Co to star 5
4.	source is providing power at the		00 to step 5.
	correct voltage	OK.	
	concer voltage.	Power source not	Fix the problem with
		OK	the exchange's power
		011	source.
5.	Check that the correct type of	Problem not	Contact Customer
	cables are used between the power	solved	Support.
	source and the system.		
6.	Check if the system is also	Yes	Go to step 7.
	reporting an AC Alarm (Alarm ID		_
	104).		
		No	Go to step 8.
7.	Perform the procedure for AC	Problem not	There is a problem with
	alarms (see AC Alarm on page 96).	solved	the power source to the
			charger.
8.	Check the voltage of the cables	Voltage within	Go to step 9.
	connected to the power connectors	normal range	
	on the system backplane. The		
	normal range should be as follows:		
	RU (using PSRGx cards):	Voltage outside	Go to step 10.
	-48V system: $-47V \pm 2\%$	normal range	
	-60V system: $-58.5V \pm 2\%$		

 $<sup>\</sup>wedge$ 

	Check / Action	Result / Indication	Perform
9.	Check that the power cable connectors are connected securely to the backplane connectors.	Problem not solved	Go to step 10.
10.	Check that the charger is providing power at the correct voltage	Power source OK Power source not OK	Contact Customer Support. There is a problem with the power source to the charger, or a problem
11.	Check that the correct type of cables are used between the system backplane, the charger, the DC box and the batteries.	Problem not solved	with the charger. Contact Customer Support.

# Table 64. Leakage Fault

# Relevant for the following Alarm IDs: 96, 97, 98, 99

	Check / Action	Result / Indication	Perform
1.	Identify the service card that failed the leakage test via the service card red ERR LED (physically, or using the ClearAccess+/LCT cage view). Is it an individual service card?	Individual service card	Go to step 2.
		All service cards	Go to step 3.
2.	From the distribution block, disconnect the lines, and test the loop using ClearAccess+/LCT.	Leakage test failed	Go to step 3.
		Leakage test passed	Fix the problematic loop.
3.	Reset the CPTE card, using the RST button on the card's front panel. If the problem persists, replace the CPTE card at the RU.		

# Table 65. Line is Down - LI-ADSL Series Cards

	Check / Action	Result / Indication	Perform
1.	Check for the "No Peer ATUR" status message in the corresponding line configuration window in ClearAccess+/LCT (e.g. <i>ADSL Configuration</i> window, Line tab for ADSL lines).	Message appears	Go to step 2.
		Message does not appear	Go to step 3.
2.	Check the connections to the CPE or the system and secure if necessary.	Alarm cleared	The problem is solved.
		Alarm still exists	Go to step 3.
3.	Check for an LPR (Loss of Power) alarm.	LPR alarm exists	Go to step 4.
		No LPR alarm	Go to step 5.
4.	Check that CPE power is on.	On	Go to step 5.
		Off	Turn CPE power on.
5.	Check for Protocol Initiate Fail message in ClearAccess+/LCT in the line's configuration window.	Message appears	Go to step 6.
		Message does not appear	Go to step 7.
6.	Check that the service type defined in the CPE is the same as configured in ClearAccess+/LCT.	Same service type	Go to step 7.
		Different service type	Fix configuration at either CPE or ClearAccess+/LCT.
7.	There is a modem training problem. Using the ADSL port's <b>Configuration</b> window in ClearAccess+/LCT, try to reduce the modem rate or SNR margin, or change the profile to <b>Adaptive</b> <b>at Startup</b> .		

# Table 66. Line is Down - LI-SHDSL Series Cards

	Check / Action	Result / Indication	Perform
1.	In the port's <b>Configuration</b> window, <b>Endpoint Maintenance</b> tab (in ClearAccess+/LCT, <b>NE</b> <b>Operation</b> window), check the status of the line.	No defects	Go to step 3.
		Endpoint failure	Go to step 2.
2.	Check the cables and cable connections to the CPE and at the RU and fix if necessary.	Alarm cleared	The problem is solved.
		Alarm still exists	Go to step 3.
3.	Check that CPE power is on.	Power off	Turn CPE power on. If problem persists, go to step 4.
		Power on	Go to step 4.
4.	Check that the service type defined at the CPE is the same as is configured in ClearAccess+/LCT.	Same service type	Go to step 5.
		Different service type	Fix the configuration at either the CPE or ClearAccess+/LCT. If the problem persists, go to step 5.
5.	There is a modem training problem. Try to reduce the modem rate or SNR margin.		î

# Relevant for the following Alarm IDs: 192

# Table 67. Line is Down - VOIP-MG Series Cards

	Check / Action	Result / Indication	Perform
1.	In the Voice over IP	Enabled/In	Go to step 4.
	Configuration window, System	Service	
	tab (in ClearAccess+/LCT, <b>NE</b>		
	Operation		
	window), verify that the Admin	Enabled/Out of	Go to step 2.
	Status and Operational Status of	Service	
	the Virtual Access Gateway are		
	Enabled/In Service.		
2.	Check the cables and cable	Alarm cleared	The problem is solved.
	connections between the		-
	VOIP-MG card and the uplink		
	card or other network equipment,	Alarm still exists	Go to step 3.
	and fix if necessary.		_
3.	Contact Customer Support.		

# Table 68. Link Blocked by Local Exchange

Relevant f	or the	following	Alarm	IDs:	201
------------	--------	-----------	-------	------	-----

	Check / Action	Result / Indication	Perform
1.	Check if one or more links on the V5 interface are blocked by the exchange.	Yes	It is possible that the links were blocked intentionally. To attempt to release them, go to step 2.
		No	Contact Customer Support.
2.	Block and then unblock the link(s) using ClearAccess+/LCT as described in Blocking V5.2 Links in the Configuring V5.2 Links section of the BroadAccess Configuration Guide.	Alarm clears	The problem is solved.
		Problem persists	The links were indeed blocked intentionally by the exchange. The alarm is for information only; no action is needed.

# Table 69. Link Configuration Mismatch

	Check / Action	Result / Indication	Perform
1.	Check the configuration of the optical dipswitches on the master CU cage backplane Check that the link cards present in the BroadAccess system are operating normally, and check the configuration using ClearAccess+/LCT, and fix if necessary. See the cage installation guide in the service manual for more information about dipswitch settings. If you change the dipswitch settings, reset the CPT card.	Alarm clears	The problem is solved.
		Alarm does not clear	Contact Customer Support.

# Table 70. Link Failure - LTM/HDSL Cards

## Relevant for the following Alarm IDs: 14, 35, 36, 39, 41, 82

After each step described here, test the link using ClearAccess+/LCT. When the problem is fixed, the red LED on the transmission card will no longer be lit, and ClearAccess+/LCT will indicate the link's status.

	Check / Action	Result / Indication	Perform
1.	Is the link cable connection between the CU and RU secured?	No	Secure cable connections.
		Yes	Go to step 2.
2.	Verify which link has failed using ClearAccess+/LCT (cage view or link configuration properties) or LEDs on the LTM/HDSL card.		Go to step 3.
3.	Use an external jumper to create a loop between Tx and Rx of the failed loop at the distribution block of the CU. Does the corresponding red LTM/HDSL LED turn off?	ER LED at CU is still on	Go to step 4.
		ER LED at CU turned off	Go to step 6.
4.	At the CU, check that the P16 connector on the backplane is correctly connected to the distribution block and fix if necessary. Does the appropriate red LTM/HDSL LED turn off?	ER LED still on	Go to step 5.
5.	Replace the LTM/HDSL card at the CU.		
6.	Use an external jumper to create a loop between Tx and Rx at the RU. Did the corresponding red LTM/HDSL LED turn off?	ER LED at RU is still on	Connection problem or over-attenuation between CU and RU.
		is still on	card at the RU.

#### Table 71. LI-SHDSL Card Limit Exceeded

	Check / Action	Result / Indication	Perform
1.	Check that the number of LI- SHDSL cards installed in the cage does not exceed the number allowed per cage.	Too many LI-SHDSL cards	Remove the excess cards from the cage.
		Alarm still active	Go to step 2.
2.	Contact Customer Support.		

**A** Note:

# Table 72. LOF Alarm at LI-4E1/LI-16E1 Series Card

	Check / Action	Result / Indication	Perform
1.	Go to the CU or RU where the problem is reported. Create a local loop by shorting between the Tx and Rx at the distribution block of the unit. Alternatively, use ClearAccess+/LCT to set a loop back to the exchange or the subscriber, depending on the location of the alarm reporting the	Alarm cleared	Go to step 2.
	alarm.		~ ^ ^
		Alarm not cleared	Go to step 3.
2.	The problem is between the connection block and the exchange/subscriber. Check the cable to the distribution block and fix the connection if necessary.	Alarm cleared	The problem is solved.
		Alarm not cleared	Go to step 3.
3.	Check the configuration of the port and fix if necessary.	Alarm cleared	The problem is solved.
		Alarm not cleared	Go to step 4.
4.	Replace the LI-4E1/LI-16E1 card.	Alarm cleared	The problem is solved.
			Go to step 5
5.	Reset the CPT card, using the RST button on the card's front panel. If the problem persists, replace the CPT card at the CU.	Alarm not cleared	Contact Customer Support.

# Relevant for the following Alarm IDs: 15, 291

# Table 73. LOF or LOS Alarm at LI-8Nx64 Card

# Relevant for the following Alarm IDs: 14, 143, 144, 145, 146

	Check / Action	Result / Indication	Perform
1.	Is the alarm an HDSL alarm or a G703 alarm?	HDSL	Go to step 2.
		G703	Go to step 6.

	Check / Action	Result / Indication	Perform
2.	Using ClearAccess+/LCT, perform a loopback test on the LI-Nx64 line, using the LDR option. (see Performing a Loopback Test on a Line Supported by a LI-8NX64 Card in the BroadAccess Configuration Guide for more information)	Loop OK	Go to step 5.
		Loopback test failed	Go to step 3.
3.	Using ClearAccess+/LCT, perform a loopback test on the LI-Nx64 card using the Analog option (see Performing a Loopback Test on a Line Supported by a LI-8NX64 Card in the BroadAccess Configuration Guide for more information).	Loop OK	Fix the problem with the wires between the CPE and the RU, or connections at subscriber end or RU connection blocks.
		Loopback test failed	Go to step 4.
4.	Check that the LI-Nx64 card is configured appropriately for use with the CPE (framing).	Configuration wrong.	Fix configuration. If the problem persists, go to step 9.
		Configuration OK	Replace the LI-Nx64 card. If the problem persists, go to step 9.
5.	Go to the CPE and perform a loopback tests (LAL, LDL) from the CPE unit (see corresponding CPE installation instructions in the Service Manual for more information).	Loopback OK	Go to step 4.
		Loopback test failed	Replace the CPE.
6.	Is the alarm LOS or LOF?	LOF LOS	Go to step 7. Go to step 8.
7.	Check that the LI-Nx64 card is configured appropriately for use with the LE equipment (framing).	Configuration wrong.	Fix configuration. If the problem persists, go to step 9.
		Configuration OK	Replace the LI-Nx64 card. If the problem persists, go to step 9.
8.	Check that the cable and cable connections between the CU LI- 4E1CF port and the LE equipment are OK.	Problem with cable or cable connections	Fix the problem. If the problem persists, go to step 9.
		No problem	Replace the LI-Nx64 card. If the problem persists, go to step 9.

	Check / Action	Result / Indication	Perform
9.	Replace the CPE card in the RU.	Alarm cleared	The problem is solved.
		Alarm not cleared	Go to step 10.
10.	Reset the CPT card, using the RST	Alarm not cleared	Contact Customer
	button on the card's front panel. If		Support.
	the problem persists, replace the		
	CPT card at the CU.		

## Table 74. Management Communication Failure on the Link

## **Relevant for the following Alarm IDs: 121**

	Check / Action	Result / Indication	Perform
1.	Reset the STM4 series card.	The alarm is cleared	The problem is solved.
		Alarm still on	Go to step 2.
2.	There may be a hardware problem. Swap/replace the STM4 series card.		

# Table 75. Many Alarm Indication Signal (AIS)

### **Relevant for the following Alarm IDs: 155**

	Check / Action	Result / Indication	Perform
1.	Check the network for all of the configured ATM connections.	ATM network connection configurations are OK.	Go to step 2.
		ATM network configurations wrong.	Fix ATM network configurations.
2.	Contact Customer Support.		

## Table 76.Many Line Alarms

	Check / Action	Result / Indication	Perform
1.	Are any No Communication or Rx Error alarms active for the system?	Yes	Follow the troubleshooting procedures for those alarms. If the problem persists, go to step 2.
		No	Go to step 2.

	Check / Action	Result / Indication	Perform
2.	Perform the procedure for <i>Cross-Connect Configuration Mismatch</i> on page 110. Is the alarm still active?	No	Problem solved.
		Yes	Go to step 3.
3.	Perform the procedure for <i>Line</i> <i>Configuration Missing</i> on page 107. Is the alarm still active?	No	Problem solved.
		Yes	Contact Customer Support.

# Table 77. Many Remote Defect Indication (RDI) - VP ATM Layer

	Check / Action	Result / Indication	Perform
1.	How many VP RDI alarms are there? Are there RDI alarms on most of or all of the connections?	One alarm	Delete the connection and set it up on a different VPI both on the BroadAccess side and at the ATM switch.
		Many alarms on most or all connections	Check the physical STM1 connection from the Tx of the ATM-UNI card to the Rx of the ATM switch.
2.	Check the fiber optic cable with an optical power meter.	Problem with optical power	Check the fiber optic cable connections. If the connections are OK, go to step 3.
3.	Replace the fiber.	Problem not solved	Go to step 4.
4.	Replace the ATM-UNI card.	Problem not solved	Go to step 5.
5.	Contact Customer Support.		

## Table 78. Media Failure

	Check / Action	Result / Indication	Perform
1.	Identify the card reporting the alarm. Are the cables connected to the card intact, and connected	Yes	Go to step 3.
	properly to the card's front or rear connectors?	No	Go to step 2.
2.	Fix the cable or cable connections, as necessary. Is the problem	Yes	
	solved?	No	Go to step 3.
3.	Check that the cables are connected properly to the network device at the far end (user side), and that the network device is powered up and operating normally	Cables are connected; device operating normally	Go to step 4.
		Problem with cables or far end network device	Fix the problem with the cables or network device.
4.	Contact Customer Support.		

# Table 79. Metering Mismatch

	Check / Action	Result / Indication	Perform
1.	Using ClearAccess+/LCT, verify whether the CU or RU side has reported a fault, as well as the cage number where the fault is reported.		Go to step 2.
2.	Is backplane dipswitch 11 setting correct?	No	Set dipswitch correctly.
		Yes	Go to step 3.
3.	Reset the CPT card, using the RST button on the card's front panel. If the problem persists, replace the CPT card. Is the problem solved?	No	Replace the cage.

# Table 80. Mismatched HW Version Control

# Relevant for the following Alarm IDs: 255, 317

	Check / Action	Result / Indication	Perform
1.	Using ClearAccess+/LCT, check that the hardware version of the card matches the software version (using the Card Inventory window, accessed from the Cage View window).	Hardware and software versions match	Contact Customer Support.
		Hardware and software versions do not match	Download the correct software version to the card.

## Table 81. Mismatched Subscribers

	Check / Action	Result / Indication	Perform
1.	When using automatic cross- connect mode, check if service cards are positioned correctly in the corresponding slots at both the CU and RU (automatic mode only, without cross-connect). When using manual cross-connect mode, check that cross- connections are configured	Not positioned correctly (automatic mode); not configured correctly (manual mode)	Place the cards in the correct slots and secure the cards in their slots (automatic mode). Fix cross-connections (manual mode).
		Positioned correctly/ configured correctly	One of the cards has failed. Use ClearAccess+/LCT to identify the card that indicates a mismatch in the CU or RU, and replace it.

# Table 82. No Clock/Sync Failed

# Relevant for the following Alarm IDs: 11

	Check / Action	Result / Indication	Perform
1.	Verify that the clock source wire is inserted into the correct CU distribution block connector. Is the connection correct?	No	Reconnect the source.
		Yes	Reset the CPT card, using the RST button on the card's front panel. If the problem persists, replace the CPT card at the CU.

# Table 83. No Communication - RU and CU E1 Long Haul (LTM card)

Relevant for the following	Alarm IDs:	7, 41,	43, 47,	49
----------------------------	------------	--------	---------	----

	Check / Action	Result / Indication	Perform
1.	Is there a problem with all the links or with just one link?	One link	Go to step 4.
		All the links	Go to step 2.
2.	Are the cables connected and secured properly to P16 on the CU and RU backplanes?	Yes	Go to step 3.
		No	Secure cable connections.
3.	Is there a problem with the cables connecting the CU to the RU?	Yes	Replace the problematic cable.
		No	Go to step 8.
4.	Is the red ER LED on at the LTM card (check physically or using ClearAccess+/LCT cage view)?	Yes, at CU side	Go to step 5.
		Yes, at RU side	Go to step 6.
		No	Go to step 10.
5.	At the CU side, create a local loop by shorting between the Tx and Rx for the digital link at the distribution block. Is the ER LED still on?	LED is off	Go to step 6.
		LED is still on	Go to step 7.
6.	At the RU side, create a local loop by shorting between Tx and Rx for the digital link at the distribution block. Is the ER LED still on?	LED is still on	Go to step 7.
		LED is off	Go to step 11.

	Check / Action	Result / Indication	Perform
7.	Check and secure the cable connection from P16 on the backplane. Is the LED still on?	LED is still on	Go to step 8.
8.	Replace the LTM card in the CU. Is the problem solved?	Problem is not solved	Go to step 9.
9.	Replace the LTM card in the RU. Is the problem solved?	Problem is not solved	Go to step 10.
10.	Reset the CPT card using the RST button on the card's front panel. If this doesn't solve the problem, replace the CPT card.	Problem is not solved	Reset the CPTE card using the RST button on the card's front panel. If this doesn't solve the problem, replace the CPTE card. If the problem is still not solved, go to step 11.
11.	Is the system configured the same way at both the RU and CU sides?	Yes	Go to step 12.
12.	Is there a problem with the link between the CU and the RU?	No	Go to step 13.
13.	Go to the first repeater from the CU side and perform a local loop by shorting between the Tx and Rx. Does the ER LED go off?	LED is off	Go to step 14.
		LED is on	Go to step 15.
14.	Go to the next repeater and perform a loop.		Go to step 13.
15.	You have a problem in the link that runs between the repeater and the CU, or at the repeater. Replace the repeater.	Problem not solved	Go to step 16.
16.	Check the loop between the repeater and the CU.	Problem not solved	Contact Customer Support.

Table 84.	No Communication	RU and CU E1	1 Short Haul (LTM card)
-----------	------------------	--------------	-------------------------

# Relevant for the following Alarm IDs: 7, 41, 43, 47, 49

	Check / Action	Result / Indication	Perform
1.	Is there a problem with all the links or with just one link?	One link	Go to step 4.
		All the links	Go to step 2.
2.	Is the cable connected and secured properly to P16 on the CU and RU backplanes?	Yes	Go to step 3.
	-	No	Secure cable connections.

	Check / Action	Result / Indication	Perform
3.	Is there a problem with the cable connecting the CU to the RU?	Yes	Replace the cable.
		No	Go to step 8.
4.	Is a red ER LED on at the LTM card (check physically or using ClearAccess+/LCT cage view)?	Yes, at CU side	Go to step 5.
		Yes, at RU side	Go to step 6.
		No	Go to step 9.
5.	At the CU side, create a local loop by shorting between the Tx and Rx for the digital link at the distribution block. Is the red ER LED still on?	LED is still on	Go to step 7.
		LED is off	Go to step 6.
6.	At the RU side, create a local loop by shorting between Tx and Rx for the digital link at the distribution block. Is the ER LED still on?	LED is still on	Go to step 7.
		LED is off	There is a problem with the link between the CU and the RU.
7.	Check the cable from P16 to the distribution block and fix the connection if necessary. Is the ER LED still on?	LED is still on	Go to step 8.
8.	Replace the LTM card in the CU.	Problem not solved	Go to step 9.
9.	Replace the LTM card in the RU.	Problem not solved	Go to step 10.
10.	Are the backplane dipswitches configured correctly at the CU and the RU?	Yes	Go to step 11.
11.	Reset the CPT card using the RST button on the card's front panel. If this doesn't solve the problem, replace the CPT card.	Problem not solved	Reset the CPTE card using the RST button on the card's front panel. If this doesn't solve the problem, replace the CPTE card.
12.	is the problem solved?	Problem not solved	Support.

# Table 85. No Communication - RU and CU HDSL - 1 Doubler

	Check / Action	Result / Indication	Perform
1.	Is there a problem with all the links or with just one link?	One link	Go to step 4.
		All the links	Go to step 2.
2.	Are the cables connected and secured properly to P16 on the CU and RU backplanes?	Yes	Go to step 3.
		No	Secure cable connections.
3.	Is there a problem with the cables connecting the CU to the RU?	Yes	Replace the problematic cable.
		No	Go to step 8.
4.	Is a red ER LED on the HDSL card on (check physically or using ClearAccess+/LCT cage view)?	No	Go to step 5.
		Yes	Go to step 6.
5.	Is the green ACT LED on the HDSL card on?	Power card OK	Go to step 7.
6.	Is the card recognized by ClearAccess+/LCT?	No	Go to step 7.
		Yes	Go to step 8.
7.	Replace the HDSL card in the CU. Does ClearAccess+/LCT recognize the card now?	No	Reset the CPT card using the RST button on the card's front panel. If this doesn't solve the problem, replace the CPT card in the CU.
8.	Does ClearAccess+/LCT indicate Section I loop failure or Section II loop failure?	Section I failure	Go to step 11.
		Section II failure	Go to step 9.
9.	Check the quality of the failed loop and the connections at the distribution block. Is the loop suitable for HDSL requirements?	No (too long or too noisy)	Use another loop.
		Yes	Go to step 10.
10.	Replace the HDSL card at the RU side.	Still no communication	Replace the doubler.
11.	Measure the voltage between loop 1 and loop 2. Wait for 2 minutes.	Measured 118V +2V	Go to step 12.
		Measured 0V	Go to step 15.
12.	Check the connection to the doubler	Connection OK	Go to step 14.
	Check / Action	Result / Indication	Perform
-----	--	------------------------	---
13.	Measure the voltage of the doubler.	V<85V	The loop is too long. Change to a thicker line.
		V>85V	Go to step 7.
14.	Disconnect the doubler; does the power turn on every 2 minutes?	Power OK	Replace doubler.
		Power failure	Go to step 15.
15.	Check if there is any leakage or short circuit or AC/DC voltage between the two loops.	No leakage	Go to step 7.

#### Table 86. No Communication - RU and CU HDSL - No Doublers

	Check / Action	Result / Indication	Perform
1.	Is there a problem with all the links or with just one link?	One link	Go to step 4.
		All the links	Go to step 2.
2.	Is the cable connected and secured properly to P16 on the CU and RU backplanes?	Yes	Go to step 3.
		No	Secure cable connections.
3.	Is there a problem with the cable connecting the CU to the RU?	Yes	Replace the problematic cable.
		No	Go to step 7.
4.	Is a red ER LED of the HDSL card on (check physically or using ClearAccess+/LCT cage view)?	Red LED off	Go to step 5.
		Red LED on	Go to step 6.
5.	Is the green ACT LED of the HDSL card on?	Green LED on	Go to step 6.
		Green LED off	Go to step 7.
6.	Is the card recognized by ClearAccess+/LCT?	No	Go to step 7.
		Yes	Go to step 8.
7.	Replace HDSL card in the CU. Does ClearAccess+/LCT recognize the card now?	Not recognized	Reset the CPT card using the RST button on the card's front panel. If this doesn't solve the problem, replace the CPT card at the CU.
		No communication	at the RU.

	Check / Action	Result / Indication	Perform
8.	What do the properties of the card ClearAccess+/LCT indicate?	OEM communication error	Go to step 7.
		Loop A,B failed	Go to step 9.
9.	Check the quality of the failed loop and the connections at the distribution block at the RU and CU sides. Is the loop suitable for HDSL requirements?	No (too noisy or too long)	Choose a better loop.
		Yes	Go to step 7.

#### Table 87. No Communication - RU and CU ONTU

	Check / Action	Result / Indication	Perform
1.	At the CU, which LEDs on the ONTU card are on and which are off (check physically or use ClearAccess+/LCT cage view)?	Green LED flashing, red LEDs off	Go to step 6.
		Green LED on, Red ERR LED on	Go to step 2.
		Green LED on, Tx red LED on	Go to step 6.
		Green LED on, Rx LED on	Go to step 7.
2.	Check that the CU backplane dipswitches are configured correctly (13 - 15) and correct the settings if necessary. If you change the dipswitch settings, reset the CPT card. Is the problem solved?	Problem not solved	Go to step 3.
3.	Verify that the E1 external jumper on the CU ONTU card is in the correct position, and fix if necessary.	Problem not solved	Go to step 4.
4.	If two cages exist in the CU, check the expansion cable connections between the cages, and fix if necessary.	Problem not solved	Go to step 5.
5.	Reset the CPT card in the CU using the RST button on the card's front panel. If this doesn't solve the problem, replace CPT card. Is the red LED still on?	Problem not solved	Go to step 6.
6.	Replace the ONTU card in the CU	Problem not solved	Go to step 9.

# Relevant for the following Alarm IDs: 7, 36, 38, 42, 44, 48, 50

	Check / Action	Result / Indication	Perform
7.	At the CU, using an optical power meter, measure the optical power on the fiber optic cable connected between the CU's F-Tray (fiber optic splicing tray) Tx connector, and the Rx connector on the CU backplane. Push the Reset button on the CU's ONTU card. Does the attenuation meet the card's specified requirements?	No	Replace the fiber optic connectors on the backplane. If problem persists, go to step 6.
	<b>x x</b>	Yes	Go to step 8.
8.	At the CU, measure the optical power on the fiber optic cable connected between the CU's F- Tray (fiber optic splicing tray) Rx connector, and the Tx connector at the RU. Push the Reset button on the CU's ONTU card. Does the attenuation meet the card's specified requirements?	No	Go to step 9.
		Yes	Go to step 2.
9.	At the RU, which LEDs on the ONTU card are on and which are off?	Green LED flashing, red LEDs off	Go to step 14.
		Green LED on, Red ERR LED on	Go to step 10.
		Green LED on, Tx red LED on	Go to step 13.
		Green LED on, Rx LED on	Go to step 14.
10.	Verify that the E1 external jumper on the RU ONTU card is in the correct position, and fix if necessary.	Problem not solved	Go to step 11.
11.	If two cages exist in the RU, check the expansion cable connections between the cages, and fix if necessary.	Problem not solved	Go to step 12.
12.	Reset the CPTE card in the RU using the RST button on the card's front panel. If this doesn't solve the problem, replace CPTE card. Is the red LED still on?	Problem not solved	Go to step 13.
13.	Replace the ONTU card in the RU.	Problem not solved	Contact Customer Support.

	Check / Action	Result / Indication	Perform
14.	At the RU, using an optical power meter, measure the optical power on the fiber optic cable connected between the RU's F-Tray (fiber optic splicing tray) Tx connector, and the Rx connector on the RU backplane. Push the Reset button on the RU's ONTU card. Does the attenuation meet the card's specified requirements?	No	Contact Customer Support.
		Yes	Go to step 15.
15.	At the RU, measure the optical power on the fiber optic cable connected between the RU's F- Tray (fiber optic splicing tray) Rx connector, and the Tx connector at the CU. Push the Reset button on the RU's ONTU card. Does the attenuation meet the card's specified requirements?	No	Replace the fiber optic connectors on the backplane. If problem persists, replace the fiber optic cables.
		Yes	Contact Customer Support.

# Table 88. No Communication - RU and CU ONTU (with backup ONTU cards)

# Relevant for the following Alarm IDs: 7, 42, 44, 48, 50

	Check / Action	Result / Indication	Perform
1.	Pull the ONTU card halfway out of its slot at both CU and RU sides.		Go to step 2.
2.	Perform the procedure for <i>No</i> <i>Communication - RU and CU</i> <i>ONTU</i> on page 132. Is the problem solved?	Still not OK	Go to step 3.
3.	Perform the same procedure as in step 2 on the backup transmission cards.		If each link operates OK on its own, replace the cards and test the links in the following order until the problematic link is identified: - CU Slot 1 - RU Slot 1 - CU Slot 2 - RU Slot 2

# Table 89.No Dial Tone - Group of Subscribers or the Entire Cage (two<br/>cards or more)

	Check / Action	Result / Indication	Perform
1.	Does the group have dial tones?	No	Go to step 2.
2.	Is line allocation, indicated by the green LED or through the ClearAccess+/LCT, working normally?	No	Go to step 3.
		Yes	Go to step 5.
3.	Does ClearAccess+/LCT indicate many line mismatches or "Configuration Line Missing" alarms?	Yes	Fix the problem.
		No	Go to step 4.
4.	Check that the lines between the CU and RU are cross-connected.	Cross-connected	Go to step 5.
		Not cross- connected	Using the ClearAccess+/LCT, cross-connect the lines between the CU and the RU.
5.	At the CU, for a random subscriber in the group which is properly connected, check if there is a dial tone at the exchange distribution block. Was a dial tone detected?	No	Fix the problem between the CU and the exchange.
		Yes	Go to step 6.
6.	Are the cables connecting the exchange to the backplane at the CU (cables P1 to P15) properly connected?	Yes	Go to step 7.
		No	Go to step 12.
7.	Are the cables connecting the subscribers to the backplane at the RU (cables P1 to P15) properly connected?	Still no dial tone	Go to step 8.
		Not connected	Go to step 12.
8.	Replace CPT card at the CU. Is there a dial tone now?	Still no dial tone	Go to step 9.
9.	Replace transmission card at CU. Is there a dial tone now?	Still no dial tone	Go to step 10.
10.	Replace CPTE card at the RU. Is there a dial tone now?	Still no dial tone	Go to step 11.
11.	Replace transmission card at the RU.	Still no dial tone	Go to step 12.

	Check / Action	Result / Indication	Perform
12.	Secure all cable connections at CU/RU mentioned in steps 6 and 7.	Still no dial tone	Contact Customer Support.

# Table 90. No Dial Tone - Regular Subscriber

#### Relevant for the following Alarm IDs: Not applicable - see Other Problems on page 94

**Note:** At each step of the processes described here, check whether or not there is a dial tone. If there is no dial tone, follow the steps in the table.

	Check / Action	Result / Indication	Perform
1.	Check line allocation via the ClearAccess+/LCT and the green LED turned on in the corresponding card. Are indications normal?	Yes	Go to step 2.
	(check LEDs physically or use ClearAccess+/LCT cage view)	No	Go to step 5.
2.	Is there dial tone at the CU distribution block?	No	There is a problem between the CU and the exchange.
3.	Are the cables connecting the exchange to the backplane (cables P1 to P15) in the CU properly connected?	Yes Not connected	Secure cable connection.
		Yes	Go to step 4.
4.	Replace the service card at the CU side. Does the subscriber have a dial tone?	Still no dial tone	Go to step 5.
5.	Replace the service card at the RU side. Does the subscriber have a dial tone?	Still no dial tone	Check the subscriber cable at the RU side (cables P1 to P15).

#### Table 91. No Dialing - Group of Subscribers (two cards or more)

	Check / Action	Result / Indication	Perform
1.	Can subscribers dial?	No	Go to step 2.

 $<sup>\</sup>wedge$ 

	Check / Action	Result / Indication	Perform
2.	Connect a telephone to the distribution block at the CU and try dialing from there. Can you dial?	No	Fix the problem between the CU and the exchange.
		Yes	Go to step 3.
3.	Reset the CPT card, using the RST button on the card's front panel. If the problem persists, replace the CPT card at the CU. Can subscribers dial now?	Still no subscriber dialing.	Go to step 4
4.	Reset the CPTE card, using the RST button on the card's front panel. If the problem persists, replace the CPTE card at the RU.	Still no subscriber dialing.	Go to step 5.
5.	Replace the transmission card at CU. Can subscribers dial now?	No	Go to step 6.
6.	Replace the transmission card at the RU. Can subscribers dial now?	Still no subscriber dialing.	Replace the transmission card at the RU.

# Table 92. No Intracalls

	Check / Action	Result / Indication	Perform
1.	Does ClearAccess+/LCT show that intracall is enabled?	No	Enable Intracalls using ClearAccess+/LCT.
2.	Is failure partial or for all subscribers?	Yes No intracalls for all subscribers	Go to step 2. Go to step 3.
		Partial failure	Go to step 4.
3.	Reset the CPT card, using the RST button on the card's front panel. If the problem persists, replace the CPT card at the CU.	Still no intracalls	Check for over- attenuation of subscribers between the CU and the exchange.
4.	Reset the CPTE card, using the RST button on the card's front panel. If the problem persists, replace the CPTE card at the RU.	Still no intracalls	Contact Customer Support.

#### Table 93. No Power

# Relevant for the following Alarm IDs: N/A

	Check / Action	Result / Indication	Perform
1.	Is power off in the entire system or in one of the voltages only?	Total failure	Go to step 2.
		Partial failure	Go to step 6.
2.	Verify that the power switch of the PSRGx/PSDCx card is set to ON. Is the problem solved?	Still no power	Go to step 3.
3.	Is the pointer of the backplane dipswitch 12 set as follows: Left60 V system Right48 V system	Correct	Go to step 4.
		Incorrect	Correct the dipswitch position.
4.	Do the supply lines (-48/60 V) on the backplane have a minimum voltage and are they connected properly?	Not enough voltage	Make sure the voltage entering the system meets the required specifications.
		Yes, enough voltage	Go to step 5.
5.	Is the PSDCx/PSRGx card securely positioned in the cage?	Yes, card is secure	Go to step 6.
6.	Replace PSDCx/PSRGx card. Is the problem solved?	Still no power	Go to step 7.
7.	<ul> <li>Probably, one of the cards in this cage is overloading the power supply.</li> <li>Turn power off.</li> <li>Remove all the cards (except the power cards).</li> <li>Turn power on.</li> </ul>		Go to step 8.
8.	Is there still a power failure on an individual voltage?	No	Insert the cards one by one and verify which card is causing the power fault. Replace that card.
		1 68	Replace the cage.

#### Table 94.No Power at CU

	Check / Action	Result / Indication	Perform
1.	Check red and black power cable connections.	OK	Go to step 3.
		Not OK	Go to step 2.

	Check / Action	Result / Indication	Perform
2.	Tighten connections or replace cable.	OK	Problem is solved.
		Not OK	Go to step 3.
3.	Check -48 V source from the operating company.	OK	Problem is solved.
		Not OK	Go to step 4.
4.	Make sure the power switch on the CU's power card is ON.	OK	Problem is solved.
		Not OK	Go to step 5.
5.	Replace the power supply.	ОК	Problem is solved.
		Not OK	Contact Customer Support.

#### Table 95.No Power at an RU

	Check / Action	Result / Indication	Perform
1.	Check the DC circuit breaker (load circuit breaker and battery circuit breaker).	OK	Problem is solved.
		Not OK	Go to step 2.
2.	Check the AC power source.	OK	Go to step 3.
		Not OK	Go to step 3.
3.	Check the mains circuit breaker.	ОК	The problem is the external power source.
		Not OK	Turn switch ON. Go to step 4.
4.	Charger has ON/OFF switch. Make sure that the charger switch in ON.	No	Go to step 5.
		OK	Problem is solved.
		Not OK	Go to step 5.
5.	Set the load and batteries circuit breakers to OFF.		Go to step 6.
6.	Check the charger output.	OK	Go to step 8.
		Not OK	Go to step 7.
7.	Replace the charger.	OK	Go to step 8.
		Not OK	Contact Customer Support.
8.	Set the load and battery circuit breakers to ON.	OK	Problem is solved.
		Not OK	Go to step 9.
9.	RU has DC box and LVLD?	Yes	Go to step 10.
		No	Go to step 12.
10.	Check the LVLD box.	OK	Go to step 12.
		Not OK	Go to step 11.

	Check / Action	Result / Indication	Perform
11.	Replace the LVLD box.	OK	The problem is solved.
		Not OK	Go to step 12.
12.	Check the connection of the red and black cables.	OK	Go to step 13.
		Not OK	Tighten connections or replace cable.
13.	Make sure that the PSRGx series card switch is ON.	OK	Problem is solved.
		Not OK	Go to step 14.
14.	Replace the PSRGx series card.	Still no power.	Contact Customer Support.

#### Table 96. No Power Feeding - Regular Subscriber

Relevant for the following Alarm IDs: Not applicable - see Other Problems on page 94

	Check / Action	Result / Indication	Perform
1.	Does subscriber have power feeding on the lines?	No	Go to step 2.
2.	Is the proper service card installed?	No Yes	Replace the service card. Go to step 3.
3.	Is the cable connection to the RU OK?	Yes	Go to step 4.
4.	Replace the service card.		

# Table 97. No Power Feeding to a Group of Subscribers (two cards or more)

	Check / Action	Result / Indication	Perform
1.	Is group power feeding on?	No	Go to step 2.
2.	Are subscribers connected to the proper service card(s) at the RU?	No	Connect subscribers to the card(s) at the RU.
3.	Check power feeding to a subscriber by connecting a telephone to the distribution block close to the RU. Is there power feeding to the subscriber?	Yes	Check cables connecting subscribers from the exchange distribution block to the system (connectors P1 to P15).
		No	Go to step 4.
4.	Is there -48V power feeding at the -48VF (filtered) test point on the backplane?	No feeding	Go to step 5.

	Check / Action	Result / Indication	Perform
5.	Is there -48V power feeding at the input point?	No feeding	Check the batteries/power supply charger.
		OK	Replace PSRGx series card.

# Table 98. No Ringing - Group of Subscribers (two cards or more)

	Check / Action	Result / Indication	Perform
1.	Do subscribers hear rings for incoming calls?	No	Go to step 2.
2.	Can subscribers dial?	Yes	Go to step 3.
		No	Perform the following procedure: <i>No Dialing -</i> <i>Group of Subscribers</i> ( <i>two cards or more</i> ) on page 136.
3.	Does the ClearAccess+/LCT report on ringer failure?	Yes	Go to step 6.
		No	Go to step 4.
4.	When the telephone should be ringing, is the green LED on the POTS service card on?	No	Go to step 5.
	(check physically or use ClearAccess+/LCT cage view)	Yes	Go to step 6.
5.	Connect a telephone to the distribution block at the CU. Does the telephone ring?	No	Fix the problem between the CU and the exchange.
	(skip this step if V5.x protocols are used - instead, check if there are problems between the LI-4E1 card and the exchange)	Yes	Go to step 6.
6.	Replace PSRGx card at the RU. If more than one PSRGx is installed in the cage, replace them both. Do subscribers hear rings now?	Green LED on, still no ringing	Go to step 7.
7.	Replace the service cards in the RU for the problematic lines.	Green LED on, still no ringing	Go to step 8.
8.	Replace CPTE card at the RU. Do subscribers hear rings now?	Green LED on, still no ringing	Go to step 9.
9.	Replace transmission card at the RU. Do subscribers hear rings now?	Green LED on, still no ringing	Go to step 10.
10.	Replace CPT card at the CU. Do subscribers hear rings now?	Still no ringing	Go to step 11.
11.	Replace transmission card at the CU. Do subscribers hear rings now?	Still no ringing	Contact Customer Support.

# Table 99. No Service DAT64-CO Subscriber

	Check / Action	Result / Indication	Perform
1.	Check card allocation via ClearAccess+/LCT and whether green LEDs are ON. Check that yellow LED status, for the specific channel of the DAT64- CO card is ON (check LEDs physically or	LEDs ON	Go to step 7.
	use ClearAccess+/LCT cage view).	LEDs OFF	Go to step 2.
2.	Check the configuration of the DAT64-CO card at the CU (jumpers). In case of automatic cross-connect mode, check that DAT64-CO card is in the same slot in both the CU and the RU. In the case of manual cross- connect mode, make sure that the DAT64-CO channel at the RU is cross-connected to the DAT64- CO channel at the RU.	Not same slot (manual mode)/ channel (automatic mode)	Move DAT64-CO card so that position is the same at both CU and RU (automatic mode)
		Same slot (manual mode).	Correct the cross- connection of channels.
3.	Check that the DAT64-CO card jumper is correctly configured at the RU.	Yes	Go to step 4.
4.	Check the yellow LED status for the specific channel.	LED is ON	Go to step 7.
		LED is OFF	Go to step 5.
5.	Replace the DAT64-CO card at the CU. Has service been established?	Still no service	Go to step 6.
6.	Replace the DAT64-CO card at the RU. Has service been established?	Still no service	Go to step 7.
7.	Check the connections at the CU or connect a modem to the CU. Does it work?	Does not work	Problem between the CU and the exchange.
		Works	Check the cable connection at the RU side.

# Table 100. No Service - ISDN Subscriber (ISDNE Card)

	Check / Action	Result / Indication	Perform
1.	Do regular subscribers have service?	Yes	Go to step 2.
		No	The problem is in the system, and not the ISDNE cards. Fix the service to regular subscribers first.
2.	Is the red LED on or green LED off on the ISDNE card?	Yes	Go to step 3.
	(check physically or use ClearAccess+/LCT cage view).	No	Go to step 4.
3.	Replace the ISDNE card at one side. Was the problem solved?	Problem not solved	Replace the ISDNE card at the other side.
4.	Make a call from the subscriber that doesn't have service. Does the yellow LED flash?	Yes	Go to step 6.
		No	Go to step 5.
5.	Check connection to the distribution block at the RU side and fix if necessary.	Problem not solved	Go to step 3.
6.	Check connection to the distribution block at the CU side and fix if necessary.	Problem not solved	Go to step 7.
7.	Connect the NT directly to the exchange. Does it work?	No	Exchange problem - there is no problem in the BroadAccess system.

#### Table 101. No Service - ISDN Subscriber (ISDNE or 4B3T Card)

#### Relevant for the following Alarm IDs: Not Applicable - see Other Problems on page 94

Note:

1. Yellow LED indications on ISDNE card (CU or RU): LED is on -U-interface is active

2. A LED flashing on the 4B3T card can mean that either the CU is not connected to the exchange, or that there is a short circuit between A and B at the RU.

	Check / Action	Result / Indication	Perform
1.	Do regular subscribers have service?	Yes	Go to step 2.
		No	The problem is in the system, and not the ISDNE/4B3T cards. Fix the service to regular subscribers first.
2.	Is ISDNE card red FAIL LED on, and green OK LED off? or Is 4B3T card red UERR LED on, and green ACT LED off?	Yes	Go to step 5.
	(check physically or use ClearAccess+/LCT cage view)	No	Go to step 3.
3.	Does the ClearAccess+/LCT show that communication has been established between the CU and RU?	No	Fix the problem so that communication is restored.
		Yes	Go to step 4.
4.	Replace ISDNE/4B3T card at one side (CU or RU). Do the subscribers have service?	Problem not solved.	Replace ISDN card at the other side.
5.	Does the ClearAccess+/LCT report Loop or VF failure?	VF failure	Go to step 6.
		Loop failure	Go to step 8.
6.	Perform a VF test.	VF Test failure	Go to step 7.
7.	Replace ISDNE/4B3T card.	Problem not solved.	Go to step 8.
8.	Check the wires between the RU and the subscribers to see where the problem is, and fix the wires if necessary. Is the red LED still on?	Red LED on ISDN card	Contact Customer Support.

 $<sup>\</sup>wedge$ 

# Table 102. No Service - LLSI Channel

	Check / Action	Result / Indication	Perform
1.	Check the card allocation via the ClearAccess+/LCT and that the green LEDs are turned on in LLSI CU and RU cards. Are green LEDs turned on?	On	Go to step 4.
	(check physically or use ClearAccess+/LCT cage view)	Off	Go to step 2.
2.	Replace LLSI card at the CU.	Still no service	Go to step 3.
3.	Replace the LLSI card at the RU.	Still no service	Go to step 4.
4.	In case of manual cross-connect mode, make sure that the LLSI channel at the RU is connected to the LLSI channel at the CU. In case of automatic cross- connect mode, make sure that the LLSI card is located in matching CU and RU slots. Is the card in matching slots/cross-connected correctly?	Not same slot (when using manual mode)	Move LLSI card so that position is the same at both CU and RU.
		Yes	Go to step 5.
5.	Is the LLSI card jumper at the CU side configured correctly for operation at the CU side?	Yes	Go to step 6.
6.	Is the LLSI jumper at the RU side configured correctly for operation at the RU side?	Yes	Go to step 7.
7.	Is the card configured for 2W or 4W operation?	2W	Go to step 8.
		4W	Go to step 9.
8.	Verify that LLSI cards at the CU and RU have 2W configuration.	Configured for 2W	Go to step 10.
9.	Verify that LLSI cards at the CU and RU have 4W configuration.	Configured for 4W	Go to step 10.
10.	Connect a modem at the CU side. Does the modem work properly?	Modem does not work.	Problem between the CU and the exchange.
		Yes; works at CU	Check connection between the RU and the subscriber.

# Table 103. Power Limit Exceeded, Card Disabled

# Relevant for the following Alarm IDs: 214, 215

	Check / Action	Result / Indication	Perform
1.	This alarm specifies the cards which have been disabled by the system due to insufficient power supply to the system (as indicated by alarm ID 213). This alarm will be displayed for each card that has been disabled.		Follow the instructions described in <i>Power</i> <i>Threshold Exceeded</i> on page 146 to solve the problem.

## Table 104. Power Threshold Exceeded

	Check / Action	Result / Indication	Perform
1.	Do one of the following: - Replace the PSRG40 or PSDC40 card installed in the unit reporting the alarm with a PSRG-E or PSDC-E card	The alarm cleared	Problem solved
	- Reduce the number of service cards installed in the unit reporting the alarm	Alarm still on	Contact Customer Support.

#### **Relevant for the following Alarm IDs: 213**

# Table 105. PSTN DL Failure

	Check / Action	Result / Indication	Perform
1.	Check that the V5.2 Link ID is configured correctly in the ClearAccess+/LCT <b>V5.2</b> <b>Configuration</b> window. Check that	Configuration wrong	Fix the configuration parameters as necessary.
	configuration parameters for the Link ID in the BroadAccess system match the Link ID parameters configured at the Local Exchange.	Configuration OK	Go to step 2.
2.	Check the physical cable connections between the LI- 4E1/LI-16E1 card connectors (on the	Connections not OK	Fix cables/cable connections.
	BroadAccess cage backplane) and the Local Exchange; check that the cables are intact.	Connections OK	Contact Customer Support.

# Table 106. Read-Only Access to NEs using ClearAccess+ Client

	Check / Action	Result / Indication	Perform
1.	Do you have the appropriate security authorization level to configure the NE?	Yes	Go to step 2.
		No	Ask your system administrator to configure your User permissions to include the tasks you need to perform. See the section Security Management in the ClearAccess+ Installation and Administration Guide or ClearAccess+ online help system for more information.
2.	Is another ClearAccess+ user logged into the same NE?	Yes	Wait until that User has logged out, or use the Force User Logout feature, if you are a Supervisor or have the required authorization privileges to do so. See the section Security Management in the ClearAccess+ Installation and Administration Guide or ClearAccess+ online help system for more information.
		No	Go to step 3.

Relevant for the following Alarm IDs: N/A

	Check / Action	Result / Indication	Perform
3.	Is an LCT User logged in to the NE?	Yes	Wait until the LCT User has logged out, or force the disconnection of the LCT User, using the Force LCT Disconnection feature, if you have the required authorization privileges to do so. See the section <i>Forcing LCT</i> <i>Disconnection</i> in the <i>ClearAccess+</i> <i>Installation and</i> <i>Administration Guide</i> or ClearAccess+ online help system for more information.

Table 407	Demote Defect Indiantien (DDI) CTM4 ATM Interfece
Table 107.	Remote Defect indication (RDI) - STMT ATM Interface

	Check / Action	Result / Indication	Perform
1.	Check the physical STM1 connection from the Tx of the ATM-UNI card to the Rx of the ATM switch.	Connections OK	Go to step 2.
		Problems with connections	Secure cable connections.
2.	Check the fiber with an optical power meter.	Problem with optical power	If there is a problem, check the fiber optic cable connections. If the connections are OK, go to Step 3.
3.	Check if there are alarms in the ATM network.	Alarms exist in the network	Fix the alarms. If the problem persists, go to step 4.
		No alarms in the network	Go to step 4.
4.	Replace the fiber.	Problem not solved	Go to step 5.
5.	Replace the ATM-UNI card.	Problem not solved.	Go to step 6.
6.	Contact Customer Support.		

#### Table 108. Same Line Element Detected in More than One RU

	Check / Action	Result / Indication	Perform
1.	Check if a service card is installed in the same slot number in more than one RU cage.	Yes	Go to step 2.
		No	Go to step 3.
2.	Is automatic or manual cross- connect mode used?	Automatic	Install the service cards in the correct RU slots, or change to manual cross-connect mode. If problem still exists, go to step 3.
		Manual	Go to step 3.
3.	Contact Customer Support.		

# Relevant for the following Alarm IDs: 102

#### Table 109. SHDSL VC12 Interface Alarms

# Relevant for the following Alarm IDs: 171, 172, 173, 174, 175, 176, 177, 178

	Check / Action	Result / Indication	Perform
1.	Check for STM4 alarms in ClearAccess+/LCT at all CUs and RUs on the fiber link/ring.	There is an STM4 alarm	Follow the procedure for <i>STM4 Problem</i> on page 153.
		There is no STM4 alarm	Go to step 2.
2.	Check for STM1 alarms.	There is an STM1 alarm	Follow the procedure for <i>STM1 Problem</i> on page 151.
		There is no STM1 alarm	Go to step 3.
3.	Are alarms indicated on all VCs to a particular CU or RU?	Yes	Follow the procedure for <i>STM1 Problem</i> on page 151.
		No	Go to step 4.
4.	Check VC cross-connect table in ClearAccess+/LCT for the local CU or RU.	Cross-connect configuration is OK	Go to step 6.
		Cross-connect configuration is not OK	Go to step 5.
5.	Correct cross-connect table.	The alarm is cleared	The problem is solved.
		The alarm is not cleared	Go to step 6.

	Check / Action	Result / Indication	Perform
6.	Delete the VC and assign a different VC.	The alarm is cleared	The problem is solved.
		The alarm is not cleared	Go to step 7.
7.	Replace the LI-SHDSL series card for external links. Swap the STM4 series card for internal links if a backup exists. Replace the STM4 card.	The alarm is cleared	The problem is solved.
		The alarm is not cleared	Contact Customer Support.

#### Table 110. Software Version Control Mismatch

Relevant for the following Alarm IDs: 180, 181, 182, 183, 184, 185, 186, 196, 276, 279, 284, 287, 324

	Check / Action	Result / Indication	Perform
1.	Check the software version profile currently used by the system, using the ClearAccess+/LCT <b>Software</b> <b>Download</b> window (accessed from the <b>NE Operation</b> window)	Software in card's active bank doesn't match software version profile	If a compatible version is saved in the inactive bank, swap the bank controlling the card. If no compatible software version is saved on the card, download the correct version to the card and swap.
		Software version of card's active bank is the same as the system version profile	Go to step 2.
2.	Contact Customer Support.		

#### Table 111. STM1 ATM Interface Alarms

Relevant for the following Alarm IDs: 163, 164, 165, 166, 167, 168, 169, 170, 260, 261

	Check / Action	Result / Indication	Perform
1.	Is the optical fiber connected properly to the ATM card?	Yes	Go to step 2.
		No	Fix connection.

	Check / Action	Result / Indication	Perform
2.	Check the optical fiber between the ATM card and the ATM switch, using an optical power meter.	Problem with the cable	Check that the fiber optical cable connectors are properly connected. If they are OK and there is still a problem with the cable, replace the cable.
		No problem with the cable	Go to step 3.
3.	Perform a loopback on the STM1, using ClearAccess+/LCT, in the ATM card's STM1-UNI configuration window.	Passed loopback test	Go to step 4.
		Failed loopback test	Fix or replace the fiber optic cables or connections; remove the loop back.
4.	In ClearAccess+/LCT's ATM card's configuration window, check that the parameters configured there match the parameters configured at the ATM switch (for example, SDH/SONET, scrambling). If SDH/SONET configuration is incompatible, a LOP alarm may also be reported by the system. If HEC configuration is incompatible, an LCD alarm may also be reported by the system.	Configuration not correct	Fix the configuration either in the BroadAccess system (using ClearAccess+/LCT) or at the ATM switch.
		Configuration OK	Contact Customer Support.

# Table 112. STM1 Problem

# Relevant for the following Alarm IDs: 56, 58, 60, 63, 66, 75, 78, 122, 169

	Check / Action	Result / Indication	Perform
1.	Are STM4 alarms also reported in the system?	Yes	Fix STM4 problem first (see <i>STM4</i> <i>Problem</i> on page 153). If the STM1 alarms do not clear, go to step 2.
		No	Go to step 2.

	Check / Action	Result / Indication	Perform
2.	Using ClearAccess+/LCT, check whether the problem in the STM4 series card is a near end alarm or a remote alarm.	STM1 is reporting near end and remote alarms	Go to step 3.
		STM1 is reporting remote alarms only	Go to step 7.
		STM1 is reporting near end alarms only	Go to step 3.
3.	Go to the RU where the problem occurs. If the alarm is a remote alarm, note that the card reporting the alarm is not the card with the problem - it is the card that transmits to the card reporting the problem that is causing the alarm.		Go to step 4.
4.	On the backplane of the cage (CU or RU), physically set a fiber loop back by connecting the Tx and the Rx.	The alarm cleared	Go to step 5.
	Alternatively, use the management system to set a local loop back on the fiber link.	Alarm still on	Go to step 6.
5.	Replace the fiber cable or remove the software loop back.		Go to the unit transmitting to the unit reporting the problem, and replace the STM4 card there.
6.	Swap the STM4 card if a backup card exists, and then replace the failed STM4 card.	The alarm cleared	The problem is solved.
7.	Go to the unit transmitting to the unit reporting the problem, and replace the STM4 card there.	Alarm still on The alarm cleared	Go to step 8. The problem is solved.
		Alarm still on	Go to step 8.
8.	Swap the CPT card.	The alarm cleared	Go to step 9.
		Alarm still on	Contact Customer Support.
9.	Replace the standby CPT card.		

#### Table 113. STM4 Problem

# Relevant for the following Alarm IDs: 54, 55, 59, 62, 65, 77, 262

	Check / Action	Result / Indication	Perform
1.	For all alarms except for LOS and Intermittent Facility alarms, check the Rx (Receive) optical power level of the card reporting the problem, using ClearAccess+/LCT <i>Link</i> <i>Configuration</i> window.	LOS or Intermittent Facility alarm	Check the fiber optic cables, the fiber optic cable connectors, etc., and fix if necessary. If problem persists, go to step 2.
		Optical power levels are lower than the card specifications	Check the fiber optic cables, the fiber optic cable connectors, etc., and fix if necessary. If problem persists, go to step 2.
		Optical power levels are OK.	Go to step 2.
2.	Does the problem occur in a system installed on a multi-CU ring?	Yes	Check the numbering of the CUs and if necessary, renumber them with unique numbers, using dipswitches 9-10 on the system backplane, and reset the CPT card. If the problem persists, go to step 3.
3.	Using ClearAccess+/LCT, check whether the problem in the STM4 series card is a near end alarm or a remote alarm. If the alarm is a remote alarm, note that the card reporting the alarm is not the card with the problem - it is the card that transmits to the card reporting the problem that is causing the alarm.	No STM4 card is reporting near end and remote alarms	Go to step 3. Go to step 4.
	Ŭ,	STM4 card is reporting remote alarms only	Go to step 7.
		STM4 card is reporting near end alarms only	Go to step 4.

	Check / Action	Result / Indication	Perform
4.	Physically set a fiber loop back to the location where the alarm was generated, by connecting the Tx and the Rx.	The alarm cleared	Go to step 5.
		Alarm still on	Go to step 6.
5.	Fix or replace the fiber optic cables or connections; remove the loop back.	Alarm still on	Go to step 6.
		The alarm cleared	The problem is solved.
б.	Reset the STM4 card reporting the problem. If the problem is not solved, replace the card (swap it to backup mode first, if a backup STM4 card exists in the cage).	Alarm still on	Go to step 7.
7.	Reset the STM4 card which transmits to the STM4 card reporting the problem.	The alarm is cleared	The problem is solved. (Remove the loop back).
		Alarm still on	Replace the failed STM4 card. If the problem persists, go to step 8.
8.	If there is a backup CPT card in the CU, swap the CPT card. If there is no backup CPT card, reset the CPT card.	The alarm is cleared	Go to step 9.
		Alarm still on	Contact Customer Support.
9.	Remove the loop back. Replace the failed CPT card (now on standby if there is a backup card).		

# Table 114. STM4 Series Backup Card Failure

	Check / Action	Result / Indication	Perform
1.	Replace the backup card.	Alarm clears.	
		Alarm does not	Go to step 2.
		clear.	
2.	Replace the active card.	Alarm clears.	
		Alarm does not	Contact Customer
		clear.	Support.

#### Table 115. Temperature Alarm

# Relevant for the following Alarm IDs: 1, 2, 3, 4, 197, 200, 282, 285, 319, 325

	Check / Action	Result / Indication	Perform
1.	Are the cage or roof fans operating?	Yes	Go to step 2.
		No	Go to step 3.
2.	Is the outdoor cabinet well ventilated?	Yes	Replace the card which caused the alarm.
		No	Clean the filter to improve ventilation.
3.	Is the fan wiring connected correctly?	No	Fix the wiring.
		Yes	Replace the roof fans.

#### Table 116. Test Module Failed

	Check / Action	Result / Indication	Perform
1.	Reset the CPT card, using the RST button on the card's front panel. If the problem persists, replace the CPT card where the test module failed.		

# Table 117. Transmission Card Does Not Respond

# Relevant for the following Alarm IDs: 82, 83

	Check / Action	Result / Indication	Perform
1.	For ONTU cards, refer to the following procedures: <i>No Communication - RU and CU</i> <i>ONTU</i> on page 132 <i>No Communication - RU and CU</i> <i>ONTU (with backup ONTU</i> <i>cards)</i> on page 134 For LTM cards, refer to one of the following procedures, depending on your system configuration: <i>No Communication - RU and CU</i> <i>E1 Long Haul (LTM card)</i> on page 127 <i>No Communication - RU and CU</i> <i>E1 Short Haul (LTM card)</i> on page 128 For HDSL cards, refer to one of the following procedures, depending on your system configuration: <i>No Communication - RU and CU</i> <i>HDSL - No Doublers</i> on page 131 <i>No Communication - RU and CU</i> <i>HDSL - 1 Doubler</i> on page 130		

# Table 118. Unrecognized Card

# Relevant for the following Alarm IDs: 216, 217, 218, 313, 314, 315

	Check / Action	Result / Indication	Perform
1.	The card causing the alarm is not a card intended for use in	Alarm clears.	Problem solved.
	BroadAccess systems. Remove the card causing the alarm.	Alarm still on.	Contact Customer Support.

#### Table 119. Unsupported Card

# Relevant for the following Alarm IDs: 310, 311, 312

	Check / Action	Result / Indication	Perform
1.	The card causing the alarm is not compatible with the system's	Alarm clears.	Problem solved.
	software version. Remove the card causing the alarm.	Alarm still on.	Contact Customer Support.

#### Table 120. V5 Cycling Problem

#### Relevant for the following Alarm IDs: Not Applicable - see Other Problems on page 94

	Check / Action	Result / Indication	Perform
1.	Check the V5 Interface Status field in ClearAccess+/LCT V5.x Configuration window. Click the Refresh button to ensure that the information displayed is current.	The problem still exists	Go to step 2.
		Status is OK	There is no problem.
2.	Check that the V5.x configuration at the CU and at the local exchange are the same. If they are not configured with the same parameters, fix at the CU or at the local exchange.	Reached Inactive or In Service state	The problem is solved.
		Did not reach Inactive or In Service state	Contact Customer Support.

#### Table 121. V5 Out of Service

	Check / Action	Result / Indication	Perform
1.	Check the primary link.	Alarm on link No alarm on	Go to step 2. Go to step 3.
2.	Solve the primary link problem. Refer to the troubleshooting procedures for No Communication or <i>Link Failure</i> on page 120.	V5 alarm cleared	The problem is solved.
		V5 alarm not cleared	Go to step 3.

	Check / Action	Result / Indication	Perform
3.	In the ClearAccess+/LCT <b>V5.1</b> or <b>V5.2 Configuration</b> window, click <b>Shutdown Interface</b> ; then click <b>Restart Interface</b> .	V5 alarm cleared	The problem is solved.
		V5 alarm not cleared	Go to step 4.
4.	Check that the V5.x configuration is the same at the local exchange and in the CU.	Configuration not the same	Fix configuration at either CU or local exchange.
		Configuration OK	Go to step 5.
5.	Check that the E1 link connections are defined consistently at the CU and at the local exchange.	V5 alarm cleared	The problem is solved.
	-	V5 alarm not cleared	Contact Customer Support.

# Table 122. V5 Variant Error

	Check / Action	Result / Indication	Perform
1.	Check the V5.x configuration and compare it to ETSI standard requirements. Are requirements for V5.x met?	No	Fix the V5.x configuration.
		Yes	Go to step 2.
2.	Is the V5.x configuration the same at the CU and at the local exchange?	No	Fix the configuration either at the CU or at the local exchange.
		Yes	Go to step 3.
3.	Restart the V5.x interface.	The alarm is cleared and the interface enters the In Service state	The problem is solved.
		The alarm is not cleared or the interface does not enter the In Service state	Contact Customer Support.

#### Table 123. VC-12 Alarm

# Relevant for the following Alarm IDs: 61, 64, 67, 76, 79, 80, 81, 116, 117, 118, 120, 123, 124, 125, 126, 179, 300, 301, 302, 303, 304, 305, 306, 307, 308

	Check / Action	Result / Indication	Perform
1.	Check for STM4 alarms in ClearAccess+/LCT at all CUs and RUs on the fiber link/ring.	There is an STM4 alarm	Follow the procedure for <i>STM4 Problem</i> on page 153.
		There is no STM4 alarm	Go to step 2.
2.	Check for STM1 alarms.	There is an STM1 alarm	Follow the procedure for <i>STM1 Problem</i> on page 151.
		There is no STM1 alarm	Go to step 3.
3.	Are alarms indicated on all VCs to a particular CU or RU?	Yes	Follow the procedure for <i>STM1 Problem</i> on page 151.
		No	Go to step 4.
4.	Check VC cross-connect table in ClearAccess+/LCT for the local CU or RU.	Cross-connect configuration is OK	Go to step 6.
		Cross-connect configuration is not OK	Go to step 5.
5.	Correct cross-connect table.	The alarm is cleared	The problem is solved.
		The alarm is not cleared	Go to step 6.
6.	Delete the VC and assign a different VC.	The alarm is cleared	The problem is solved.
		The alarm is not cleared	Go to step 7.
7.	Replace the LI-4E1/LI-16E1 or LI-SHDSL series card for external links. Swap the STM4 series card for internal links if a backup exists. Replace the STM4 card.	The alarm is cleared	The problem is solved.
		The alarm is not cleared	Contact Customer Support.

# Table 124. VC TIM Alarm

# Relevant for the following Alarm IDs: 74

	Check / Action	Result / Indication	Perform
1.	Is the CU or RU operational and is the VC configured properly?	No	Fix the problem.
		Yes	Contact Customer Support.

#### Table 125. VF Failure

# Relevant for the following Alarm IDs: 84, 85, 86, 87

	Check / Action	Result / Indication	Perform
1.	Does ClearAccess+/LCT indicate failure at one card or all cards at the RU?	All	Go to step 2.
		One	Go to step 3.
2.	Reset the CPTE card, using the RST button on the card's front panel. If the problem persists, replace the CPTE card at the RU.	Alarm clears	The problem is solved.
		Alarm does not clear	Go to step 3.
3.	Rerun the test using ClearAccess+/LCT.	Alarm clears	The problem is solved.
		Alarm does not clear	Go to step 4.
4.	Disconnect the lines.		Go to step 5.
5.	Rerun the test using ClearAccess+/LCT.	Alarm clears	Go to step 7.
		Alarm does not clear	Go to step 6.
6.	Replace the service card.		The problem is solved.
7.	Check the lines.	Problem on all lines	Go to step 8.
		Problem on one line	Go to step 9.
8.	Swap the CPT card.		The problem is solved.
9.	Move the failed line to another port on the card.		The problem is solved.

#### Table 126. WDM Problem

	Check / Action	Result / Indication	Perform
1.	Does the problem occur in a system installed on a multi-CU ring?	Yes	Check the numbering of the CUs and if necessary, renumber them with unique numbers, using dipswitches 9-10 on the system backplane, and reset the CPT card. If the problem persists, go to step 2.
2.	Using ClearAccess+/LCT, check whether the problem is in the WDM series card is a near end alarm or a far end alarm. If the	WDM card is reporting near end and far end alarms	Go to step 3.
	the card reporting the alarm is not the card with the problem - it is the card that transmits to the card reporting the problem that is causing the alarm.		
		WDM card is reporting remote alarms only	Go to step 6.
		WDM card is reporting near end alarms only	Go to step 3.
3.	Physically set a fiber loop back to the location where the alarm was generated, by connecting the Tx and the Rx.	The alarm cleared	Go to step 4.
		Alarm still on	Go to step 5.
4.	Fix or replace the fiber optic cables or connections; remove the loop back.	Alarm still on	Go to step 5.
		The alarm cleared	The problem is solved.
5.	Reset the WDM card reporting the problem. If the problem is not solved, replace the card.	Alarm still on	Go to step 6.

# Relevant for the following Alarm IDs: 270, 271, 272, 273

	Check / Action	Result / Indication	Perform
6.	Reset the WDM card which transmits to the WDM card reporting the problem.	The alarm is cleared	The problem is solved. (Remove the loop back).
		Alarm still on	Replace the failed WDM card. If the problem persists, go to step 7.
7.	If there is a backup CPT card in the CU, swap the CPT card. If there is no backup CPT card, reset the CPT card.	The alarm is cleared	Go to step 8.
		Alarm still on	Contact Customer Support.
8.	Remove the loop back. Replace the failed CPT card (now on standby if there is a backup card).		

# Table 127. xDSL LCD at Near End

	Check / Action	Result / Indication	Perform
1.	If the alarm occurs on an LI-ADSL4P card, check that the E1 links between the LI-ADSL4P card and the LI-4E1 card are configured correctly.	Not using an LI- 4ADSL4P card, or configur- ation is OK	Go to step 2.
2.	Using ClearAccess+/LCT, disable and then enable the line.	Problem not solved	Go to step 3.
3.	Replace the LI-ADSL series card.	Problem not solved	Go to step 4.
4.	Replace the CPE.	Problem not solved	Go to step 5.
5.	Check that the cables and cable connections between the RU and the subscriber CPE are OK.	Not OK	Fix the cables. If the problem still exists, go to step 6.
		Cables OK	Go to step 6.
6.	Using the ADSL port's <b>Configuration</b> window in ClearAccess+/LCT, check if the upstream SNR margin is above 6 dB, and if it is not, try to reduce the upstream rate or change the port's configuration profile to <b>Adaptive at Start-Up</b> .	Problem not solved	Go to step 7.
7.	Contact Customer Support.		

# Table 128. xDSL LCD at Near End - SHDSL Line

	Check / Action	Result / Indication	Perform
1.	Using ClearAccess+/LCT, disable and then enable the line.	Problem not solved	Go to step 2.
2.	Replace the LI-SHDSL series card.	Problem not solved	Go to step 3.
3.	Using the port's <b>Configuration</b> window, <b>Endpoint Maintenance</b> tab (in ClearAccess+/LCT, <b>NE</b> <b>Operation</b> window), check the upstream SNR margin. If it's too high, check that the cables and cable connections are OK, and fix if necessary.	Problem not solved	Go to step 4.
4.	Reduce the line rate.	Problem not solved	Go to step 5.
5.	Replace the CPE.	Problem not solved	Go to step 6.
6.	Contact Customer Support.		

# Relevant for the following Alarm IDs: 193

# Table 129. xDSL LCD at Far End - ADSL Line

	Check / Action	Result / Indication	Perform
1.	If the alarm occurs on an LI-ADSL4P card, check that the E1 links between the LI-ADSL4P card and the LI-4E1 card are configured correctly.	Not using an LI- 4ADSL4P card, or configur- ation is OK	Go to step 2.
2.	Using ClearAccess+/LCT, disable and then enable the line.	Problem not solved	Go to step 3.
3.	Replace the LI-ADSL series card.	Problem not solved	Go to step 4.
4.	Replace the CPE.	Problem not solved	Go to step 5.
5.	Check that the cables and cable connections between the RU and the subscriber CPE are OK.	Not OK	Fix the cables. If the problem still exists, go to step 6.

	Check / Action	Result / Indication	Perform
6.	Using the ADSL port's <b>Configuration</b> window in ClearAccess+/LCT, check if the downstream SNR margin is above 6 dB, and if it is not, try to reduce the downstream rate or change the port's configuration profile to <b>Adaptive at Start-Up</b> .	Problem not solved	Go to step 7.
7.	Contact Customer Support.		

#### Table 130. xDSL LCD at Far End - SHDSL Line

	Check / Action	Result / Indication	Perform
1.	Using ClearAccess+/LCT, disable and then enable the line.	Problem not solved	Go to step 2.
2.	Replace the LI-SHDSL series card.	Problem not solved	Go to step 3.
3.	Using the port's <b>Configuration</b> window, <b>Endpoint Maintenance</b> tab (in ClearAccess+/LCT, <b>NE</b> <b>Operation</b> window), check the downstream SNR margin. If it's too high, check that the cables and cable connections are OK, and fix if necessary.	Problem not solved	Go to step 4.
4.	Reduce the line rate.	Problem not solved	Go to step 5.
5.	Replace the CPE.	Problem not solved	Go to step 6.
6.	Contact Customer Support.		

#### **Relevant for the following Alarm IDs: 194**

# 5.17. Line Testing

Line testing is an essential task performed by the BroadAccess system. Comprehensive line tests let you identify line faults quickly from a local or remote location and direct technicians to the fault source.

Subscriber line tests can be performed on a specified range of lines. Test types include AC, DC, Leakage, Capacitance, Voice Frequency and Noise tests. The complete set of tests takes approximately 20 seconds per line. You can modify the thresholds used to determine pass and fail results for the line tests. For more information, see *Setting Line Test Thresholds* on page 172.

While the line tests are being performed, the results are logged. Results of current tests can be viewed in the bottom pane of this window and history results can be viewed in the *History Test Results* window (for more information, see *Viewing Line Test History*) on page 169.

This window displays only the results of the most recently conducted line tests. Previous results of tests conducted on the same lines are overwritten.

▲ Note: You can gain access to line testing for a particular line directly from the phone book (Customer Phones window). Locate the port in the Customer Phones window, click the Go to Port button, and select the Line Test option. For more information about the Customer Phones window, see Finding Subscriber Ports. on page 20

#### To perform line tests and to view line test results:

- 1. Point to a BroadAccess NE and right-click. The Shortcut Menu is displayed.
- 2. Select the *NE Operation* option. The *NE Operation* window is displayed.
- 3. From the Menu Bar select the *Fault* option, then the *Tests* option and then the *Line Tests* option. The *Line Tests* window is displayed.
- 4. Click the *Choose Port* button and select a line or the range of lines to be tested in the *Choose Line Ports* dialog box. For more information, see *Selecting a Line or Lines to Perform Tests On* on page 169.
- 5. Select the test types that you want to perform on the lines.
- 6. If you are testing more than one line, select an option from the *Busy Lines* box.
- 7. Click the *Test* button. (If you are only testing one line, and it is busy, the system will ask you if you want to force the test.) The current test results are displayed in the window. Any results from previously run tests are overwritten.
- 8. To stop the test while testing across a range of lines click the *Stop* button.

Line Test results are displayed in the bottom pane of the *Line Test* window.



Figure 27. Line Tests Window

# Table 131. Line Test Window Settings

Screen Element	Options	Description	Default
Start Test button		Starts testing the lines according to the parameters displayed in this window	
Stop Test button		Stops the line tests currently being performed	
Test Types box			
Metallic Tests			
box			
AC		Tests for a foreign AC voltage	
DC		Tests for a foreign DC voltage	
Noise		Tests for noise on the lines	
Leakage		Tests for Leakage on the Subscriber Line	
Capacitance		Provides a measurement of the capacitance. This feature allows you to identify free lines.	
All tests		The type of test performed can be individually selected, or all tests (except VF) can be performed by checking the All Test option	
Screen Element	Options	Description	Default
------------------	---------------------------------------	-------------------------------------	---------
VF Tests box			
VF (Voice		Performs VF test. This test is	
Frequency)		performed by sending a signal	
		of a known frequency. The	
		reflected signal is then	
		monitored to verify the	
		integrity of the voice path	
Choose Port		Opens a secondary window	
button		which lets you select the ports	
		to be tested. For instructions	
		on how to select lines, see	
	Selecting a Line or Lines		
		Perform Tests On on page 169.	
Busy Lines box	Skip Skip - skips tests on lines that		
	Force Test	Force Test are currently being used	
		Force Test - disconnects lines	
		currently being used and	
		performs tests on them	
Line Test Result			
pane			
Port		Displays the number of the	
		line tested (physical location	
		according to RU number,	
		cage:slot:port).	

Screen Element	Options	Description	Default
Result	line is not properly installed (mismatched)	Displays the result of a line test	
	line is not installed		
	test timeout		
	illegal line ID		
	test equipment is busy		
	test equipment not installed		
	test equipment failed		
	line type not allowed for testing		
	previous test failed		
	pass		
	N/A		
	busy		
	fail at CU		
	fail at RU		
Test Type		Displays the test type. For	
AB		example, AC, DC, VF etc. Displays values measured	
		between wires A and B	
AGround		Displays values measured	
		between wires A to GND	
BGround		Displays values measured between wires B to GND	
Time		Displays the date and time that	
-		the test was performed	

# 5.17.1. Viewing Line Test History

In the *Line Test History* window, you view results of tests which you have performed using the *Line Tests* window.

 $\wedge$ 

**Note:** When LCT is used, only the Line Test results for Line Tests that have been performed during the current LCT session are displayed.

To view line test history results:

- 1. Point to a BroadAccess NE and right-click. The Shortcut Menu is displayed.
- 2. Select the *NE Operation* option. The *NE Operation* window is displayed.
- 3. From the Menu Bar select the *Fault* option, then the *Tests* option, and then the *History Results* option. The *History Test Results* window is displayed.
- 4. Click the *Refresh* button to update test result information.
- 5. To print a report, click the *Report* button.

For a description about information displayed in each of the columns of this window, see the table *Line Test Window Settings* on page 166.

## 5.17.2. Selecting a Line or Lines to Perform Tests On

#### To select a range of lines or a line to perform line tests on:

- 1. Click the *Choose Port* button in the *Line Tests* window (see *Line Testing* on page 164 for more information). The *Choose Line Ports* dialog box is displayed.
- 2. Click on an RU. A list of slots is displayed.
- **3.** Click on a slot. A list of ports is displayed.
- **4.** Do one of the following:
  - Select the *From -> To* option and enter a range of port numbers in the *Start Port* and *End Port* boxes, and click the *Apply* button.
  - Select the *Selected* option and then select checkboxes corresponding to the ports that you want to test, and click the *Apply* button.



Figure 28. Line Tests Window - Choose Line Ports Dialog Box

## 5.17.3. Performing External Line Tests

The external line test feature lets you connect external test equipment to a subscriber line.

- On a system with distribution blocks: connect line testing equipment to PHYS-TIP and PHYS-RING connectors, as shown on the sticker on the inside of the MDF compartment door.
- On a system with open cables: locate the white-brown/white pair of wires from the P17 alarm/clock cable; connect these wires to the line testing equipment.

Λ

**Note:** The line is automatically disconnected by the system after a period of *five minutes.* 

### To perform an external line test:

- 1. Point to a BroadAccess NE and right-click. The Shortcut Menu is displayed.
- 2. Select the *NE Operation* option. The *NE Operation* window is displayed.

- From the Menu Bar select the *Fault* option, then the *Tests* option, and then the *External Line Test* option. The *External Line Tests* dialog box is displayed.
- 4. Click on an RU/CU. A list of slots is displayed.
- 5. Click on a slot. A list of ports is displayed.
- 6. Select a port. The circle icon becomes a hand button.
- 7. Select the *Connect* option to connect the line to the external test port.
- 8. Click the *OK* button.
- 9. To disconnect the line, select the *Disconnect* option and click the *OK* button.

# 5.17.4. Performing Background Line Tests

The purpose of this operation is to run line tests on all the lines independently by the system, without supervision from the ClearAccess+ or BroadAccess LCT application. When a line fails a test, a minor alarm is generated and is displayed in the *Current Alarms* window. If a line is being used by a subscriber during the test, the line is skipped and will not be tested.

### To initiate background line testing:

- 1. Point to a BroadAccess NE and right-click. The Shortcut Menu is displayed.
- 2. Select the *NE Operation* option. The *NE Operation* window is displayed.
- From the Menu Bar select the *Fault* option, then the *Tests* option, and then the *Background Line Test* option. The *Background Line Test* dialog box is displayed.
- 4. Select the test options required. Available selections are *VF test* and *Metallic Tests*.
- 5. Click the *OK* button. The Background Line Tests are performed.

Background Line Test	×
O VF Test	OK
C Metallic Tests	Cancel

Figure 29. Background Line Tests Dialog Box

# 5.17.5. Setting Line Test Thresholds

The Administrator can define the parameters used to determine a pass or fail result during line testing. Say, for example, the AC voltage parameter is set to 5 Volts. If the voltage measured on a selected line is more than five volts, ClearAccess+/LCT will report that the line failed the AC test.

The BroadAccess system has default values for the test thresholds. If you decide to change the settings, you need to click the **Set** button to override the previously entered settings. You can revert all test thresholds to their default values by clicking the **Default** button.

#### To change the line test thresholds:

- 1. Point to a BroadAccess NE and right-click. The Shortcut Menu is displayed.
- 2. Select the *NE Operation* option. The *NE Configuration* window is displayed.
- From the Menu Bar select the *Fault* option, then the *Tests* option, and then the *Line Test Thresholds* option. The *Line Test Thresholds* dialog box is displayed.
- 4. Set the parameters to the required levels.
- 5. Click the **Set** button to save your changes.

Line Test Thresholds: RU#1 🛛 🔟					
🔁 Refresh	1	<b>√</b>	Set	🔐 Default	
AC	5	ŧ	v		
DC	5	ŧ	V		
Leakage	<b> 4</b> 0 j	ŧ	KOhm		
Capacitance:					
Parameter 1:	200 }	ŧ	nF		
Parameter 2:	100 j	÷	nF		
Parameter 3:	5	¢	nF		
Noise	-60	¢	dBm		

Figure 30. Line Test Thresholds Dialog Box

Screen Element	Options	Description	Default
AC		Lines with foreign AC above	
		this value will fail the AC	
		test	
DC		Lines with foreign DC above	
		this value will fail the DC	
		test	
Leakage		Lines with leakage values	
		below this value will fail the	
		Leakage test	
Capacitance		Three capacitance	
Parameters		parameters are used to	
		determine capacitance	
		conditions. See Capacitance	
		Parameters on page 173 for	
		more details.	
Noise		Lines with noise levels	
		above this value will fail the	
		Noise test	
Set button		Sets test thresholds values	
Default button		Resets the test thresholds to	
		their default values	
Refresh button		Refreshes the information	
		displayed in the window	

 Table 132. Line Test Thresholds Dialog Box Settings

### 5.17.5.1. Capacitance Parameters

There are two capacitance parameters used to produce the capacitance test results. You set these parameters in the *Line Test Thresholds* dialog box. When line tests are performed, one of the following Capacitance test results can be provided by the system:

- **Pass**—a telephone set capacitance was detected
- Fail—capacitance was out of range
- Free—no capacitance was detected at all; no telephone set was detected

The results are calculated by using the following rules:

A

Note:	Parameter 3 is not currently used by the system.
Free	No capacitance is detected whatsoever
Fail	The Capacitance measurement must be higher or lower than the range specified for a Pass result.
	AB > <b>Parameter 1</b> in the <b>Line Test Thresholds</b> dialog box, AND (the lower measurement of AB-AGround and AB-BGround) > <b>Parameter 2</b> .
Pass	The Capacitance measurement must fall within the following range to produce a Pass result:
	BGround = Capacitance between wire b and ground
	AGround = Capacitance between wire a and ground
Where:	AB = Capacitance between wires a and b

# 5.17.6. Performing an Alarm Simulation

The BroadAccess system lets you perform an alarm simulation, in order to check the functionality of the critical and major alarm mechanism. The critical or major alarm mechanism are activated and then listed in the current alarm list and in the *Alarm History* window, under the *System* category, and with the *Description* "Alarm Test". After one minute, the system will automatically clear the alarm activated for this testing purpose.

### To perform an alarm simulation:

- 1. Point to a BroadAccess NE and right-click. The Shortcut Menu is displayed.
- 2. Select the *NE Operation* option. The *NE Operation* window is displayed.
- 3. From the Menu Bar select the *Fault* option, then the *Tests* option, and then the *Alarm Simulation* option. The *Alarm Simulation* window is displayed.
- 4. Select an alarm severity level from the *Alarm Severity* list.
- 5. Click the *Apply* button. The system activates the alarm and closes the window.

Alarm Simulation		
Press 'Apply' to activate an alarm for one minute		
Alarm Severity:	Major	
🗹 Apply		

Figure 31. Alarm Simulation Window

# 5.18. External Alarm Settings

You can assign names to the external alarms connected to your system. When these alarms are activated, the names assigned to the external alarms appear in the *External Alarm* column of the ClearAccess+ or LCT *Active Alarms* or *History Alarms* display. This feature can be used to assign names to external alarms connected to modules such as external SDH equipment.

### To view, add or modify External Alarm settings:

- 1. Point to a BroadAccess NE and right-click. The Shortcut Menu is displayed.
- 2. Select the *NE Operation* option. The *NE Operation* window is displayed.
- **3.** From the Menu Bar select the *Fault* option, then the *External Alarms Settings* option. The *External Alarm Settings* window appears, displaying the names currently assigned to the external alarms for the corresponding unit.
- 4. Select a number/name from the *Alarm List* and click the *Modify* button. The *Enter Name* dialog box appears.
- 5. Enter a name for an external alarm and click the *OK* button.
- **6.** To save the external alarm description to the alarm list click the *Write All* button.
- 7. To edit a name assigned to an external alarm, select the alarm name in the *Alarm List*, click the *Modify* button, edit the text and click the *Write All* button to accept the changes. The new name now appears in the *External Alarm Settings* window.

External Alarm Settings [RU#1]	×
😂 Refresh 🛛 🕅 Write All 🦄 Modify	
Alarm List: 1:PSBC1 2:PSBC2 3:LVLD 4: 5: 6: 7: 8:	li mi
Status:	

Figure 32. External Alarm Settings Window

Table 133.	External A	larm	Settings	Window	Settings
------------	------------	------	----------	--------	----------

Screen Element	Options	Description	Default
Alarm List	Up to 16 characters	Lists the eight external alarms supported by the system. The first three alarms are preset in the system and cannot be modified. These alarms are assigned to: PSBC1\2 (Power Supply Battery Charger), LVLD (Low Voltage Level Detector). When external alarms are generated, these alarm strings are displayed in the ClearAccess+ or LCT alarm display, in the <b>External</b>	
Refresh button		Refreshes the <b>Alarm List</b> display.	
Write All button		Saves changed made to the items in the window	
Modify button		Lets you modify the names assigned to each of the external alarms	
Status box		Displays the current status of the selected external alarm	

# 5.19. Loopback Tests

You can perform loopback tests on various links, network interfaces and services, using ClearAccess+ or LCT. For more information, refer to information regarding configuration of the relevant link, network interface or service in the BroadAccess Configuration Guide.

# 6. Performance Management

The BroadAccess system supplies Performance Monitoring information for ATM and IP network interfaces, SDH, PDH and HDSL transmission, as well as for ADSL, G.SHDSL and Ethernet service interfaces.

The ClearAccess+ operator can access current performance data for each NE, or schedule periodic collection of performance monitoring information to create a database of historical information. The information is collected according to user-selected parameters and ports, stored in the system database, and can be exported to various types of files for further processing by external applications. A summary of the Performance Monitoring counters supported by the system is provided in *Summary of Performance Monitoring Counters* on page 179.

In order to optimize traffic patterns, ClearAccess+ provides statistics on the volume of data conveyed, including the total number of calls, the sum of holding times and the sum of unsuccessful calls due to lack of resources. The results of traffic measurements form the basis for planning network extensions and help detect capacity bottlenecks.

- **Note:** *Performance Monitoring database features are not supported by the LCT application.*
- $\wedge$

Note:

You can right-click an appropriate port in **Configuration Tree** and choose the **Performance Monitoring** option to directly access performance information for that port.

# 6.1. Summary of Performance Monitoring Counters

ClearAccess+ displays detailed Performance Monitoring information according to the parameters listed below.

# 6.1.1. SDH Performance Monitoring

The SDH Performance Monitoring parameters listed below comply with ITU-G.783. For more information about viewing SDH Performance Monitoring statistics, see *Viewing SDH Link Performance* on page 217. At STM1 level, you can view TDM or ATM-UNI statistics.

The information can be viewed for the following time frames:

- Day
- Quarter hour

Parameter	Meaning	Levels Supported
ES (Error Seconds)	Number of seconds in the given time period when at least one error block occurred (displayed in HH:MM:SS format)	STM-4, STM-1 TDM, STM-1 ATM, VC-12
SES (Severely errored seconds)	Number of seconds in the given time period when there were severe bit errors, when BER >10-3 (displayed in HH:MM:SS format)	STM-4, STM-1 TDM, STM-1 ATM, VC-12
CVs (Coding violations)	Number of errors within SDH frame	STM-4, STM-1 TDM, STM-1 ATM, VC-12
UAS (Unavailable seconds)	Number of seconds following 10 consecutive SES	STM-4, STM-1 TDM, STM-1 ATM, VC-12
SEF (Severely Errored Frame Seconds)	Number of seconds in the given time period when there was severe loss of frame	STM-4
PPJC (Positive Pointer Justification Count)	Number of times there was a positive pointer justification	STM-1 TDM, STM-1 ATM, VC-12
NPJC (Negative Pointer Justification Count)	No. of times there was a negative pointer justification	STM-1 TDM, STM-1 ATM, VC-12
Total Cells Rx	Number of received cells	STM-1 ATM
Total Cells Tx	Number of transmitted cells	STM-1 ATM
HEC Errors (Header	Number of cells with HEC	STM-1 ATM
Error Control)	errors	
OCD Events (Out of	Number. of events in which	STM-1 ATM
Cell Delineation)	cell delineation was given.	

 Table 134.
 SDH Performance Monitoring

# 6.1.2. PDH Performance Monitoring

The PDH Performance Monitoring parameters listed below comply with ITU-G.826. For more information about viewing PDH Performance Monitoring statistics, see *Viewing PDH Link Performance* on page 221.

The information can be viewed for the following time frames:

- Day
- Hour
- Quarter hour

### Table 135. PDH Performance Monitoring

Parameter	Meaning	
BEBs (Background Error Blocks)	Number of errored blocks	
ES (Error Seconds)	Number of seconds in the given time period when	
	at least one error block occurred (displayed in	
	HH:MM:SS format)	

Parameter	Meaning
SES (Severely errored seconds)	Number of seconds in the given time period when there were severe bit errors, when BER >10-3 (displayed in HH:MM:SS format)
EFSs (Error Free Seconds)	Number of seconds that were error free (displayed in HH:MM:SS format)
DMs (Degraded Minutes)	Number. of minutes with a $BER > 10-6$
UT (Unavailable Time.)	Number of seconds following 10 consecutive SES

# 6.1.3. HDSL Performance Monitoring

The HDSL parameters listed below comply with ITU-G.826. For more information about viewing HDSL Performance Monitoring statistics, see *Viewing HDSL Link Performance* on page 224.

The HDSL Performance Monitoring information can be viewed for the following time frames:

- Day
- Hour
- Quarter hour

### Table 136. HDSL Performance Monitoring

Parameter	Meaning	
BEBs (Background Error Blocks)	Number of errored blocks	
ES (Error Seconds)	Number of seconds in the given time period	
	when at least one error block occurred	
	(displayed in HH:MM:SS format)	
SES (Severely Errored Seconds)	Number. of seconds in the given time period	
	when there were severe bit errors, when BER	
	>10-3 (displayed in HH:MM:SS format)	
EFSs (Error Free Seconds)	Number of seconds that were error free	
	(displayed in HH:MM:SS format)	
DMs (Degraded Minutes)	Number. of minutes with a BER > 10-6	
UT (Unavailable Time)	Number of seconds following 10 consecutive	
	SES	

## 6.1.4. IP Uplink Performance Monitoring

The IP Uplink parameters listed below (ATM Connection, Uplink and Bridge Port) comply with RFC 1757 and RFC 2674. For more information about viewing IP Uplink Performance Monitoring statistics, see *Viewing ATM, Uplink and Bridge Port Statistics, and Learned MACs for the IP-UL-x Card* on page 203.

# 6.1.4.1. IP Uplink ATM Connection Performance Monitoring

Parameter	Meaning	
Rx Err SLC	Number of Soft Logic Control errors received	
Rx Err Parity	Number of parity errors received	
Rx Err Addr Mismatch	Number of Address Mismatch errors received	
Rx Cells	Number of cells received	
Rx Last Unknown Addr	Number of Last Unknown Address messages received	
Rx CLP1 Cells	Number of Cell Loss Priority 1 cells received	
Rx GFC Cells	Number of Generic Flow Control cells received	
Tx Cells	Number of cells transmitted	
Tx CLP1 Cells	Number of Cell Loss Priority 1 cells transmitted	
Tx EFCI Cells	Number of Explicit Forward Congestion Indication cells	
	transmitted	
Rx OAM Cells	Number of Operation, Administration and Maintenance	
	cells received	
Rx RM Cells	Number of Resource Management cells received	
Tx OAM Cells	Number of Operation, Administration and Maintenance	
	cells transmitted	
Tx RM Cells	Number of Resource Management cells transmitted	
Rx EFCI Cells	Number of Explicit Forward Congestion Indication cells received	
Rx CLP0 Cells	Number of Cell Loss Priority 0 cells received	
Tx CLP0 Cells	Number of Cell Loss Priority 0 cells transmitted	

Table 137. IP Uplink ATM Connection Performance Monitoring

## 6.1.4.2. IP Uplink Performance Monitoring

### Table 138. IP Uplink Performance Monitoring

Parameter	Meaning	
TxRx Frames 64	Number of frames that are 64 octects long	
TxRx Frames 127	Number of frames that are 127 octects long	
TxRx Frames 255	Number of frames that are 255 octects long	
TxRx Frames 511	Number of frames that are 511 octects long	
TxRx Frames 1023	Number of frames that are 1023 octects long	
TxRx Frames 1518	Number of frames that are 1518 octects long	
TxRx Frames 1522	Number of frames that are 1522 octects long	
Rx Bytes	Number of bytes received	
Rx Packets	Number of packets received, including bad packets,	
	broadcast and multicast packets	
Rx Err FCS	Number of Frame Check Sequence errors received	
Rx Multicast	Number of good packets received that were directed to the	
	multicast address	
Rx Broadcast	Number of good packets received that were directed to the	
	broadcast address	
Rx MAC Control	Number of Media Access Control Control packets	
	received	

Parameter	Meaning	
Rx MAC Pause	Number of Media Access Control Pause packets received	
Rx MAC Unknown	Number of Media Access Control Unknown packets	
	received	
Rx Err Alignment	Number of alignment errors received	
Rx Err Length	Number of length errors received	
Rx Err Code	Number of code errors received	
Rx False Carrier	Number of false carrier events received	
Rx Undersize	Number of undersize packets received (less than 64 octets	
	long, but otherwise well-formed)	
Rx Oversize	Number of oversize packets received (longer than 1518	
	octets long, but otherwise well-formed)	
Rx Fragments	Number of packets received that were less than 64 octets in length (excluding framing bits but including FCS octets) and had either a bad Frame Check Sequence (FCS) with an integral number of octets (FCS Error), or a bad FCS with a non-integral number of octets (Alignment Error)	
Rx Jabber	Number of packets received that were longer than 1518 octets (excluding framing bits, but including FCS octets), and had aither a had Frame Chaele Sequence (FCS) with	
	an integral number of octets (FCS Error) or a bad FCS	
	with a non-integral number of octets (Alignment Error).	
Rx Dropped	Number of times that packets were dropped by the	
	statistics probe on the Rx channel	
Tx Bytes	Number of bytes transmitted	
Tx Packets	Number of packets transmitted, including bad packets,	
	broadcast and multicast packets	
Tx Multicast	Number of good packets transmitted that were directed to the multicast address	
Tx Broadcast	Number of good packets transmitted that were directed to	
	the broadcast address	
Tx MAC Pause	transmitted	
Tx Defer	Number of deferred packets transmitted	
Tx Excess Defer	Number of excessive deferred packets transmitted	
Tx Single Collision	Estimated number of single collision packets on this Tx Ethernet segment	
Tx Multi Collision	Estimated number of multi collision packets on this Tx	
	Ethernet segment	
Tx Late Collision	Estimated number of late collision packets on this Tx Ethernet segment	
Tx Excess Collision	Estimated number of excessive collision packets	
	transmitted on this Tx Ethernet segment	
Tx No Collision	Estimated number of no-collision packets transmitted on	
	this Ix Ethernet segment	
Tx MAC Pause Honored	Number of Media Access Control Pause Honored packets transmitted	
Tx Dropped	Number of times that packets were dropped by the	
11	statistics probe on the Tx channel	

Parameter	Meaning		
Tx Jabber	Number of packets transmitted that were longer than 1518		
	octets (excluding framing bits, but including FCS octets),		
	and had either a bad Frame Check Sequence (FCS) with		
	an integral number of octets (FCS Error) or a bad FCS		
	with a non-integral number of octets (Alignment Error).		
Tx Err FCS	Number of Frame Check Sequence errors transmitted		
Tx Control	Number of control packets transmitted		
Tx Undersize	Number of undersize packets transmitted (less than 64		
	octets long, but otherwise well-formed)		
Tx Oversize	Number of oversize packets transmitted (longer than 1518		
	octets long, but otherwise well-formed)		
Tx Fragments	Number of packets transmitted that were less than 64		
	octets in length (excluding framing bits but including FCS		
	octets) and had either a bad Frame Check Sequence (FCS)		
	with an integral number of octets (FCS Error), or a bad		
	FCS with a non-integral number of octets (Alignment		
	Error)		
Rx Host Frames	Number of host frames received		
Rx IW Frames	Number of Inter-Working frames received		
Rx Err Host Full	Number of host full errors received		
Rx Err FBP Underrun	Number of FBP underrun errors received		
Rx Err Nonvalid MAC	Number of non-valid Media Access Control errors		
	received		
Rx Err MRU	Number of Maximum Receive Unit errors received		
Rx Err SDU	Number of Service Data Unit errors received		
Rx Err Underrun	Number of underrun errors received		
Rx Err Overrun	Number of overrun errors received		
Tx Frames	Number of frames transmitted		

# 6.1.4.3. IP Uplink Bridge Port Performance Monitoring

# Table 139. IP Uplink Bridge Port Performance Monitoring

Parameter	Meaning	
In Octets	Number of incoming octets	
In Ucast Pkts	Number of incoming Unicast packets	
In NUcast Pkts	Number of incoming Non-Unicast packets	
In Discards	Number of incoming packets without errors that were	
	discarded	
In Errs	Number of incoming errors	
In Unknown Protos	Number of incoming unknown protocols	
In Multicast Pkts	Number of incoming multicast packets	
In Broadcast Pkts	Number of incoming broadcast packets	
Out Octets	Number of outgoing octets	
Out Ucast Pkts	Number of outgoing Unicast packets	
Out NUcast Pkts	Number of outgoing Non-Unicast packets	
Out Discards	Number of outgoing packets without errors that were	
	discarded	
Out Errors	Number of outgoing errors	

Parameter	Meaning
Out Multicast Pkts	Number of outgoing multicast packets
Out Broadcast Pkts	Number of outgoing broadcast packets

# 6.1.5. ATM Connection Performance Monitoring

The ATM Performance Monitoring parameters below comply with ITU-751. For more information about viewing ATM Performance Monitoring statistics, see *Viewing ATM Performance* on page 209.

The ATM Performance Monitoring information can be viewed for the following time frames:

- Day
- Quarter hour

### Table 140. ATM Connection Performance Monitoring

Parameter	Levels Supported	System Component
Total Cells Rx	Number of received cells	ATU-C
Total Cells Tx	Number of transmitted cells	ATU-C
Policing CLP0 Cells	Number of cells marked as CLP0 (Cell	ATU-R
Discard	Loss Priority 0) and dropped as a result of	
	policing	
Policing CLP0 & CLP1	Number of cells marked as CLP0 or CLP1	ATU-R
Cells Discard	(Cell Loss Priority 1) and dropped as a	
	result of policing	
Policing CLP0 Cells	Number of CLP0 cells modified to CLP1	ATU-R
Tagged	as a result of policing	
Buffer Management	Number of cells dropped as a result of	ATU-R
Cells Discard	buffer overflow	

## 6.1.6. ATM UNI Performance Monitoring

The ATM Performance Monitoring parameters below comply with ITU-783. For more information about viewing ATM UNI Performance Monitoring statistics, see *Viewing ATM Performance* on page 209.

The ATM Performance Monitoring information can be viewed for the following time frames:

- Day
- Quarter hour

Parameter	Meaning
ES (Error Seconds)	Number of seconds in the given time period when
	at least one error block occurred (displayed in
	HH:MM:SS format)
SES (Severely errored seconds)	Number of seconds in the given time period when
	there were severe bit errors, when BER >10-3
	(displayed in HH:MM:SS format)
CVs (Coding violations)	Number of errors within SDH frame
UAS (Unavailable seconds)	Number of seconds following 10 consecutive SES
SEF (Severely Errored Frame	Number of seconds in the given time period when
Seconds)	there was severe loss of frame
PPJC (Positive Pointer Justification	Number of times there was a positive pointer
Count)	justification
NPJC (Negative Pointer Justification	Number of times there was a negative pointer
Count)	justification
Total Cells Rx	Number of received cells
Total Cells Tx	Number of transmitted cells
HEC Errors (Header Error Control)	Number of cells with HEC errors
OCD Events (Out of Cell	Number of events in which cell delineation was
Delineation)	given.

Table 141. ATM-UNI Performance Monitoring

# 6.1.7. ADSL Performance Monitoring

The ADSL Performance Monitoring parameters listed below comply with IETF-RFC-2662. For more information about viewing ADSL Performance Monitoring statistics, see *Viewing ADSL Performance* on page 192.

The information can be displayed for the following time frames:

- Day
- Quarter hour

Table 142. ADSL Performance Monitoring

Parameter	Meaning	Levels Supported	System Components
LOF (Loss of Frame)	Number of seconds/events in which loss of frame occurred	Physical layer	ATU-C, ATU-R
LOS (Loss of signal)	Number of seconds/events in which loss of signal occurred	Physical layer	ATU-C, ATU-R
ES (Error seconds)	Number of seconds in the given time period when at least one error block occurred (displayed in HH:MM:SS format)	Physical layer	ATU-C, ATU-R

Parameter	Meaning	Levels Supported	System Components
SES (Severely errored seconds)	Number of seconds in the given time period when there were severe bit errors, when BER >10-3 (displayed in HH:MM:SS format)	Physical layer	ATU-C, ATU-R
UAS (Unavailable seconds)	Number of seconds following 10 consecutive SES	Physical layer	ATU-C, ATU-R
LPR (Loss of Power)	Number of seconds/events in which loss of power occurred	Physical layer	ATU-C, ATU-R
Inits	Count of line attempts since reset	Physical layer	ATU-C
Received Cells	Number of cells which arrived at the destination point	TC layer	ATU-C, ATU-R
Transmitted Cells	Number of cells that left the departure point	TC layer	ATU-C, ATU-R
HEC Errors (Header Error Control)	Number of cells with HEC errors	TC layer	ATU-C
OCD Events (Out of Cell Delineation)	Number of events in which cell delineation was given.	TC layer	ATU-C
Received Blocks	Number of blocks transmitted from ATU-R to ATU-C	Physical layer, Fast Channel, Interleave Channel	ATU-C
Transmitted Blocks	Number of blocks transmitted from ATU-C to ATU-R	Physical layer, Fast Channel, Interleave Channel	ATU-C
Corrected Blocks	Number of blocks received with errors that were corrected	Physical layer, Fast Channel, Interleave Channel	ATU-C, ATU-R
Uncorrected Blocks	Number of blocks received with errors that were not corrected	Physical layer, Fast Channel, Interleave Channel	ATU-C, ATU-R
Valid	Absence of errors in the entire interval	-	-

# 6.1.8. G.SHDSL Performance Monitoring

The G.SHDSL Performance Monitoring parameters listed below comply with ITU-991.2. For more information about viewing G.SHDSL Performance Monitoring statistics, see *Viewing G.SHDSL Performance* on page 200.

The information can be displayed for the following time frames:

- Day
- Quarter hour

### Table 143. G.SHDSL Performance Monitoring

Parameter	Meaning	Levels Supported	System Components	
ES (Error seconds)	Number of seconds in the given time period when at least one CRC anomaly occurred (displayed in HH:MM:SS format)	Physical layer	STU-C	
SES (Severely errored seconds)	Number of seconds in which at least 50 CRC anomalies or one or more LOSW defects are declared.	Physical layer	STU-C	
CRC (Cyclical Redundancy Check)	Occurrence of a Cyclical Redundancy Check anomaly	Physical layer	STU-C	
LOSW (Loss of Sync Word Failure)	Occurrence of a Loss of Sync Defect (when at least three consecutive received frames contain one or more errors in the framing bits)	Physical layer	STU-C	
UAS (Unavailable seconds)	Number of seconds following 10 consecutive SES	Physical layer	STU-C	
HVC (Header error control Violation Count)	Number of cells with HEC errors	ATM TC layer	STU-C	
Rx cells	Number of received cells	ATM TC layer	STU-C	
Tx cells	Number of transmitted cells	ATM TC layer	STU-C	
OCD Events (Out of Cell Delineation)	Number of events in which cell delineation was given.	ATM TC layer	STU-C	

# 6.1.9. Ethernet Service Performance Monitoring

The Ethernet Service Performance Monitoring parameters listed below comply with RFC 1757 (RMON). For more information about viewing Ethernet Service Performance Monitoring statistics, see *Viewing Ethernet Service Performance Monitoring* on page 230.

### Table 144. Ethernet Service Performance Monitoring

Parameter Type		Meaning				
Total Bytes	Received	Total number of bytes received				
Total Frames	Received	Total number of frames received				
Good Frames	Received	Total number of valid frames received				
Bad Frames	Received	Total number of frames received of				
		invalid size				

Parameter	Туре	Meaning
Frames dropped for congestion	Received	Total number of valid received frames dropped due to congestion
Frames dropped for CRC errors	Received	Total number of received frames dropped due to CRC errors
Total Bytes	Transmitted	Total number of bytes transmitted
Total Frames	Transmitted	Total number of frames transmitted
Frame Transmission Errors	Transmitted	Total number of frame transmission failures due to collision or internal problems

# 6.2. Setting Up a Database of Performance Monitoring Statistics

ClearAccess+ allows you to set up a database for storage of performance monitoring statistics collected by the system. This feature is useful if you want to collect statistics over an extended period, because the amount of time that statistics are stored in the BroadAccess system is limited, and old statistics are continually being overwritten by newer ones.

In order to save statistics for a certain port or interface, you have to enable polling, or collection of statistics, for that port or interface in the PM database. Collection of statistics for a particular port or interface is done for each time frame (e.g. quarter hour intervals, daily intervals) or for subsets of certain technologies (for example, for SDH VC levels, statistics can be collected for STM4, STM1 or VC12). Therefore, when configuring statistic collection, you must ensure that you open the corresponding table and tab for which you want to collect statistics, and then enable statistic collection from that window.

If you have configured the system to save statistics for a particular port or interface, you will be able to view them in the corresponding performance monitoring window by choosing the *Data Source Oracle DB* option.

 $\wedge$ 

Note:

*LCT does not support this feature. Only the most recent performance monitoring statistics saved in the Network Element can be viewed.* 

### To configure the database to save PM statistics for ports or interfaces:

- 1. Open the performance statistics window for the port or interface for which you want to save statistics.
- 2. Click on the tab corresponding to the time frame or technology type for which you want to save statistics.
- **3.** Click the *Collection* button. The *PM Collection Settings* dialog box is displayed.
- 4. Click the *Append/Edit Current* button.

- 5. Adjust the start and end times by clicking in the *Start Time* and *End Time* cells in the row you are editing.
- 6. Click the *Apply* button.

### To cancel PM statistics collection for ports or interfaces:

- 1. Open the performance statistics window for the port or interface for which you want to save statistics.
- 2. Click on the tab corresponding to the time frame or technology type for which you want to save statistics.
- **3.** Click the *Collection* button. The *PM Collection Settings* dialog box is displayed.
- 4. Do one of the following:
  - To delete one row, select the row and click the *Delete* button
  - To delete all the rows, click the **Delete All** button
- 5. Click the *Apply* button.

PM Collection Set	tings											X
All Active Pollings	🏭 Ap	pend/Edit Current	🗮 Delete		🖌 Appl	e 🕈	Б	Cancel	🔆 Dele	ete All		
Drag a column he												
PM Group	•	Location	•	Start Time	•	End Time		<ul> <li>Actual First T</li> </ul>	ime 💌	Actual Last Time	-	
* SDH-STM4 Qu	arters	RU#1:1:link1:1		10-Sep-0318:2	28:18	10-0ct-03 18:23:1	8					
,												_
Concert Best /	Interface	The second second										
Current Port 7	interface:	JRO#1:10InK1:1										

### Figure 33. PM Collection Settings Dialog Box

Table 145.	PM Archive	e Settings Dialog	Box Settings
------------	------------	-------------------	--------------

Screen Element	Options	Description	Default
All Active		Displays a list of the ports or	
Pollings table		interfaces (according to port	
-		location) for which statistics	
		are being collected in the	
		database	

Screen Element	Options	Description	Default
Append/Edit		Includes the port or interface	
Current button		you are currently working with	
		in the data collection process,	
		and lets you modify the start	
		and end time for data	
		collection	
Delete button		Deletes the row selected in the	
		table and stops collection of	
		statistics for the corresponding	
		port or interface	
Apply button		Applies the changes you made	
		in this dialog box	
Cancel button		Cancels the changes you made	
		in this dialog box	
Delete All button		Deletes all the rows in the	
		table and stops collection of	
		statistics for the corresponding	
		ports or interfaces	
PM Group		Displays the name of the ports	
		or interfaces for which PM	
		statistics are already being	
		collected	
Location		Displays the location of the	
		ports or interfaces for which	
		PM statistics are already being	
		collected	
Start Time		Lets you set the time that the	
		system should start statistics	
		collection for the	
		corresponding PM group	
End Time		Lets you set the time that the	
		system should stop statistics	
		collection for the	
		corresponding PM group	
Actual Start Time		Displays the time that the	
		system actually started	
		collecting statistics for the	
		corresponding PM group	
Actual End Time		Displays the time that the	
		system actually stopped	
		collecting statistics for the	
		corresponding PM group	
Current		Displays the location of the	
Port/Interface		port or interface for which you	
		can enable or disable	
		collection of statistics	

# 6.3. Viewing Performance Monitoring Statistics

You can view Performance Monitoring statistics for the following:

- ADSL
- G.SHDSL
- IP Uplink
- ATM
- SDH links
- PDH links
- PCM E1 links
- HDSL links
- Ethernet service

# 6.3.1. Viewing ADSL Performance

You can view performance monitoring statistics for each of the LI-ADSL8/ LI-ADSL16 series card ports in the BroadAccess system for the following items:

- Physical
- Fast Channel
- Interleave Channel
- TC Layer

For each item, you can view the statistics that have been collected for the following time intervals:

- Current 15 minutes—statistics collected so far during the current 15 minute interval
- Current day—statistics collected so far today
- Interval—statistics collected during previous 15 minute intervals. Statistics are displayed for the last 32 intervals, which provides statistics in total for the last 8 hours.
- Previous day—statistics collected during the previous day
- Total—a total of the statistics collected since the card was initialized

The ADSL Performance window is accessed using the *Performance* button in the *ADSL Configuration* window.

### 6.3.1.1. Physical

You can view ADSL physical performance statistics for each port, using the *ADSL Performance* window, *Physical* tab.

### To view physical performance statistics:

- 1. Point to a BroadAccess NE and right-click. The Shortcut Menu is displayed.
- 2. Select *NE Operation*. The *NE Operation* window is displayed.

- **3.** In the configuration tree, expand the corresponding RU unit's child nodes. A list of cages is displayed.
- 4. Expand the corresponding cage's child nodes. A list of the cards that are installed in that cage are displayed.
- **5.** Expand the corresponding ADSL card's child nodes. A list of ports is displayed.
- 6. Double-click on the port you require. The *ADSL Configuration* window is displayed.
- 7. Click the *Performance* icon. The *ADSL Performance* window is displayed.
- 8. Click the *Physical* tab.
- **9.** Toggle between the various time intervals for which you want to view statistics by clicking the corresponding buttons on the *Physical* tab.

🔜 LI-ADSL Performance: F	tU#1:1:2:1							_ 🗆 ×
C <u>R</u> efresh	Da	ta-Source: Nel	work-Element	•	🦻 Collection	More F	lows	
Physical Channel Fast Cha	Physical Channel Fast Channel Interleave TC Layer System Date: 01-Jan-00 00:07:08							
Current 15 Min Current Day	Current 15 Min Current Day Previous Day Interval Total							
🙀 Report 🔛 Export ATU-C								
Drag a column header here to				<b>_</b>	. Drag a colum			n 🔺
Date 💌 End Time	▼ LOFs ▼	LOSs 💌	ES 💌	SES	Date	💌 End Time 💌	LOFs 🔻	LOSs 🖸
🕨 01-Jan-00 00:00:0	0 0	0	0	0	▶ 01-Jan-0	0 00:00:00	0	0
31-Dec-99 23:45:0	0 0	0	0	0	31-Dec-9	9 23:45:00	0	0 -
31-Dec-99 23:30:0	0 0	0	0	0	31-Dec-9	9 23:30:00	0	0
31-Dec-99 23:15:0	0 0	0	0	0	31-Dec-9	9 23:15:00	0	0
31-Dec-99 23:00:0	0 0	0	0	0	31-Dec-9	9 23:00:00	0	0
31-Dec-99 22:45:0	0 0	0	0	0	31-Dec-9	9 22:45:00	0	0
31-Dec-99 22:30:0	0 0	0	0	0	31-Dec-9	9 22:30:00	0	0
31-Dec-99 22:15:0	0 0	0	0	0	31-Dec-9	9 22:15:00	0	0
31-Dec-99 22:00:0	0 0	0	0	0	31-Dec-9	9 22:00:00	0	0
121 Doc 00 21.45.0	0 0		0	•	121 Dog €	0 21.45.00	0	

Figure 34. ADSL Performance Dialog Box, Physical Tab, Interval Tab

Table 146. ADSL Performance Window, Physical Tab Settings

Screen Element	Options	Description	Default
Refresh button		Refreshes the data displayed on this tab	
Data-Source	Network- Element	Lets you view statistics live from the BroadAccess system (Network Element),	Network Element
	Element Oracle DB	from the BroadAccess system (Network Element), or from the Oracle database	Elemer

Screen Element	Options	Description	Default
Collection		Opens the <b>PM Archive</b>	
button		Settings dialog box, where	
		you can enable archiving of	
		the statistics collected for	
		this port in the Oracle	
		database. For more	
		information, see Setting Up a	
		Database of Performance	
		Monitoring Statistics on page	
		189.	
More Rows		Displays the next set of rows	
button		of statistics saved in the	
		database	
System Date		Displays the on-board date	
		currently configured in the	
		NE	
Elapsed Time		Displays the amount of time	
		that has passed so far during	
		this interval (appears on	
		Current 15 Minute or	
		Current Day tabs only)	
Monitor Time		Displays the total amount of	
		time when statistics were	
		actually collected (appears	
		only on the <b>Previous Day</b>	
		tab)	
ATU-R		ADSL transceiver unit	
		located at the subscriber's	
		premises (CPE)	
ATU-C		ADSL transceiver unit	
		located on the ADSL card	
Report button		Lets you print a report of the	
		statistics displayed in the	
		window. You can also do a	
		print preview, set up page	
		parameters and use the	
		Report Designer feature to	
		format the report before	
-		printing.	
Export button		Lets you export the statistics	
		to a file. The following file	
		formats are available: TXT,	
		XML, HTML and Excel.	
End Time		Displays the date and the	
		time at which the system	
		tinished collecting statistics	
		tor the corresponding	
		interval (appears on <i>Current</i>	
		<b>15 Minutes</b> and <b>Interval</b> tabs	
		only)	

Screen Element	Options	Description	Default
LOFs		Displays the number seconds when Loss of Frame errors occurred	
LOSs		Displays the number of seconds when Loss of Signal errors occurred	
LPRs		Displays the number of seconds when Loss of Power errors occurred	
ES		Displays the number of seconds in the time period when at least one error block occurred	
SES		Displays the number seconds in the time period when there were severe bit errors	
UAS		Displays the number of Unavailable Seconds that occurred (the number of seconds following 10 consecutive SES)	
Inits		Displays the number of line initialization attempts since reset	
Valid	Yes No	Indicates whether or not the statistics collected for the corresponding interval are reliable: <b>Yes</b> - reliable; <b>No</b> - Invalid	

 $\wedge$ 

**Note:** For more information about the time intervals for which statistics are collected, see Viewing ADSL Performance Statistics on page 192.

# 6.3.1.2. Fast and Interleave Channels

You can view ADSL Fast Channel and Interleave Channel performance statistics for each port, using the **ADSL Performance** window, **Channel Fast** or **Channel Interleave** tabs. The statistics are collected according to the line latency type configured for the line (Fast or Interleaved), and displayed in the corresponding tab of the **ADSL Performance** window. On the tab that is not in use, zero is displayed in all the fields.

## To view Fast Channel or Interleave Channel performance statistics:

- 1. Point to a BroadAccess NE and right-click. The Shortcut Menu is displayed.
- 2. Select **NE Operation**. The **NE Operation** window is displayed.
- **3.** In the configuration tree, expand the corresponding RU unit's child nodes. A list of cages is displayed.

- **4.** Expand the corresponding cage's child nodes. A list of the cards that are installed in that cage are displayed.
- **5.** Expand the corresponding ADSL card's child nodes. A list of ports is displayed.
- 6. Double-click on the port you require. The *ADSL Configuration* window is displayed.
- 7. Click the *Performance* icon. The *ADSL Performance* window is displayed.
- 8. Click either the Channel Fast or Channel Interleave tab, as required.
- **9.** Toggle between the time intervals for which you want to view statistics by clicking the corresponding buttons on the *Channel Fast* or *Channel Interleave* tab.

LI-ADSL Performance: RU#1:1:2:1								
Collection 🖓 More Rows								
Physical Channel Fast (	Physical Channel Fast Channel Interleave TC Layer System Date: 01-Jan-00 00:07:08							
Current 15 Min Current E	ay Previous Day Interval	Total						
👩 Report 🛛 🔛 Export	ATU-C			🕞 Report 🛛 📙	Export ATU	J-R		
Drag a column header here								
Date 💌 End Tin	ne 💌 Received Blocks 💌	Transmitted Blocks 💌 Co		Date 💌	End Time 💌	Received Blocks 💌	Transm	
▶ 01-Jan-00 00:00	:00 0	0		▶ 01-Jan-00	00:00:00	0		
31-Dec-99 23:45	:00 0	0		31-Dec-99	23:45:00	0		
31-Dec-99 23:30	:00 0	0		31-Dec-99	23:30:00	0		
31-Dec-99 23:15	:00 0	0		31-Dec-99	23:15:00	0		
31-Dec-99 23:00	:00 0	0		31-Dec-99	23:00:00	0		
31-Dec-99 22:45	:00 0	0		31-Dec-99	22:45:00	0		
31-Dec-99 22:30	:00 0	0		31-Dec-99	22:30:00	0		
31-Dec-99 22:15	:00 0	0		31-Dec-99	22:15:00	0		
31-Dec-99 22:00	:00 0	0		31-Dec-99	22:00:00	0		
21 Dog 00 21.45	····	• •		21 Dog 00 ◀	21.45.00	n		

Figure 35. ADSL Performance Dialog Box, Channel Fast Tab, Interval Tab

 Table 147. ADSL Performance Window, Channel Fast Tab and Channel

 Interleave Tab Settings

Screen Element	Options	Description	Default
Refresh button		Refreshes the data displayed on this tab	
Data Source	Network- Element Oracle DB	Lets you view statistics live from the BroadAccess system (Network Element), or from the Oracle database	Network Element

Collection       Opens the PM Archive         button       Settings dialog box, where         you can enable archiving of         the statistics collected for         this port in the Oracle         database. For more         information, see Setting Up a         Database of Performance         Monitoring Statistics on page         189.         More Rows         button         of statistics saved in the         database.         System Date         and Time         configured in the NE         Elapsed Time         that has passed so far during         this interval (appears on         Current 15 Minute or         Current 15 Minute or         Current 10 and time collepears         only on the Previous Day         abst         ATU-R         ADSL transceiver unit         located at the subscriber's         premises (CPE)         ATU-C         ADSL transceiver unit         located on the ADSL card         Report button         Lets you print a report of the         statistics displayed in the         window. You can also do a         print preview,	Screen Element	Options	Description	Default
button       Settings dialog box, where you can enable archiving of the statistics collected for this port in the Oracle 	Collection		Opens the <b>PM Archive</b>	
you can enable archiving of the statistics collected for this port in the Oracle database. For more information, see Setting Up a Database of Performance Monitoring Statistics on page 189.         More Rows       Displays the next set of rows of statistics saved in the database         System Date       Displays the next set of rows of statistics saved in the database         System Date       Displays the on-board date and Time         and Time       Displays the amount of time that has passed so far during this interval (appears on Current 15 Minute or Current 15 Minutes and mount of time when statistics were actually collected (appears only on the Previous Day tab)         Monitor Time       Displays the total amount of time when statistics were actually collected (appears only on the Previous Day tab)         ATU-R       ADSL transceiver unit located at the subscriber's premises (CPE)         ATU-C       ADSL transceiver unit located on the ADSL card         Report button       Lets you print a report of the statistics displayed in the window. You can also do a print preview, set up page parameters and use the Report before printing.         Export button       Lets you export the statistics to a file. The following file formats are available: TXT, XML, HTML and Excel.         End Time       Displays th date and the time at which the system finished collecting statistics for the corresponding interval (appears on Current for the corresponding interval (appears on Current for the state and interval tabs only)	button		<b>Settings</b> dialog box, where	
ATU-R       Displays the control of time of the subscriber's premises (CPE)         ATU-R       ADSL transceiver unit located on the ADSL transceiver unit located on the ADSL transceiver solution         ATU-C       ADSL transceiver unit located on the ADSL transceiver unit located to the ADSL transceiver u			you can enable archiving of	
this port in the Oracle database. For more information, see Setting Up a Database of Performance Monitoring Statistics on page 189.More Rows buttonDisplays the next set of rows of statistics saved in the databaseSystem Date and TimeDisplays the on-board date and time currently configured in the NEElapsed TimeDisplays the anount of time that has passed so far during this interval (appears on Current 15 Minute or Current 15 Minute or Current 15 Minute or Current 20 tabs only)Monitor TimeDisplays the total amount of time when statistics were actually collected (appears only on the Previous Day tab)ATU-RADSL transceiver unit located on the ADSL cardATU-CADSL transceiver unit located on the ADSL cardReport buttonLets you print a report of the statistics displayed in the window. You can also do a print preview, set up page parameters and use the Report Designer feature to format the report before printing.Export buttonLets you export the statistics to a file. The following file formats are available: TXT, XML, HTML and Excel.End TimeDisplays the date and the time at which the system finished collecting statistics for the corresponding interval (appears on Current 15 Minutes and Interval tabs only)			the statistics collected for	
database. For more information, see Setting Up a Database of Performance Monitoring Statistics on page 189.More RowsDisplays the next set of rows of statistics saved in the databaseSystem Date and TimeDisplays the on-board date and time currently configured in the NEElapsed TimeDisplays the anount of time that has passed so far during this interval (appears on Current 15 Minute or Current 15 Minute or Current 15 Minute or Current 16 Minute or 			this port in the Oracle	
information, see Setting Up a Database of Performance Monitoring Statistics on page 189.More Rows buttonDisplays the next set of rows of statistics saved in the databaseSystem Date and TimeDisplays the on-board date and time currently configured in the NEElapsed TimeDisplays the amount of time that has passed so far during this interval (appears on Current 15 Minute or Current 16 Minute or Current 15 Minute or Current 16 Minute or Current 15 Minute or Current 16 Minute or Current 16 Minute or Current 16 Minute or Current 18 Minute or Current 19 Displays the total amount of time window. You can also do a print preview, set up page parameters and use the Report Designer feature to format are available: TXT, XML, HTML and Excel.End TimeDisplays the date and the time at which the system finished collecting statistics for the corresponding interval (appears on Current finished collecting statistics for the corresponding interval (appears on Current finished collecting statistics for the corresponding interval (appears on Current finished collecting statistics			database. For more	
Database of Performance Monitoring Statistics on page 189.More Rows buttonDisplays the next set of rows of statistics saved in the databaseSystem Date and TimeDisplays the on-board date and time currently configured in the NEElapsed TimeDisplays the amount of time that has passed so far during this interval (appears on Current 15 Minute or Current 15 Minute)Monitor TimeDisplays the total amount of time when statistics were actually collected (appears only on the Previous Day tab)ATU-RADSL transceiver unit located at the subscriber's premises (CPE)ATU-CADSL transceiver unit located at the subscriber's premises (CPE)ATU-CADSL transceiver unit located at the subscriber's premises (CPE)ATU-CLets you print a report of the statistics displayed in the window. You can also do a print preview, set up page parameters and use the Report buttonExport buttonLets you export the statistics to a file. The following file format he report before printing.Export buttonLets you export the statistics to a file. The following file formats are available: TXT, XML, HTML and Excel.End TimeDisplays the date and the time at which the system finished collecting statistics for the corresponding interval (appears on Current formats and Interval tabs only)			information, see Setting Up a	
More Rows buttonDisplays the next set of rows of statistics saved in the databaseSystem Date and TimeDisplays the on-board date and time currently configured in the NEElapsed TimeDisplays the amount of time that has passed so far during this interval (appears on Current 15 Minute or Current 15 Minute or Current 15 Minute or current 10 parts and the spassed so far during this interval (appears on Current 15 Minute or Current 10 cotted (appears only on the Previous Day tab)Monitor TimeDisplays the total amount of time when statistics were actually collected (appears only on the Previous Day tab)ATU-RADSL transceiver unit located at the subscriber's premises (CPE)ATU-CADSL transceiver unit located on the ADSL cardReport buttonLets you print a report of the statistics displayed in the window. You can also do a print preview, set up page parameters and use the Report Designer feature to format the report before printing.Export buttonLets you export the statistics to a file. The following file formats are available: TXT, XML, HTML and Excel.End TimeDisplays the date and the time at which the system finished collecting statistics for the corresponding interval (appears on Current 15 Minutes and Interval tabs only)			Database of Performance	
More RowsDisplays the next set of rows of statistics saved in the databaseSystem Date and TimeDisplays the on-board date and time currently configured in the NEElapsed TimeDisplays the amount of time that has passed so far during this interval (appears on Current 15 Minute or Current 16 Minute or Current 16 Minute or Current 18 Minute or ATU-RATU-RADSL transceiver unit located at the subscriber's premises (CPE)ATU-CADSL transceiver unit located on the ADSL cardReport buttonLets you print a report of the statistics displayed in the window. You can also do a print preview, set up page parameters and use the Report Designer feature to format the report before printing.Export buttonLets you export the statistics to a file. The following file formats are available: TXT, XML, HTML and Excel.End TimeDisplays the date and the time at which the system finished collecting statistics for the c			Monitoring Statistics on page	
More Rows       Displays the next set of rows of statistics saved in the database         System Date and Time       Displays the on-board date and time currently configured in the NE         Elapsed Time       Displays the amount of time that has passed so far during this interval (appears on Current 15 Minute or Current 15 Minute or Current 16 Minute or Current 16 Minute or Current 17 Minute or Current 18 Minute or Current 19 Monitor Time         Monitor Time       Displays the total amount of time when statistics were actually collected (appears only on the Previous Day tab)         ATU-R       ADSL transceiver unit located at the subscriber's premises (CPE)         ATU-C       ADSL transceiver unit located on the ADSL card         Report button       Lets you print a report of the statistics displayed in the window. You can also do a print preview, set up page parameters and use the Report Designer feature to format the report before printing.         Export button       Lets you export the statistics to a file. The following file formats are available: TXT, XML, HTML and Excel.         End Time       Displays the date and the time at which the system finished collecting statistics for the corresponding interval (appears on Current 15 Minutes and Interval tabs only)			189.	
buttonof statistics saved in the databaseSystem Date and TimeDisplays the on-board date and time currently configured in the NEElapsed TimeDisplays the amount of time that has passed so far during this interval (appears on <b>Current 15 Minute</b> or <b>Current Day</b> tabs only)Monitor TimeDisplays the total amount of time when statistics were actually collected (appears only on the <b>Previous Day</b> tab)ATU-RADSL transceiver unit located at the subscriber's premises (CPE)ATU-CADSL transceiver unit located on the ADSL cardReport buttonLets you print a report of the statistics displayed in the window. You can also do a print preview, set up page parameters and use the Report Designer feature to format the report before printing.Export buttonLets you export the statistics to a file. The following file formats are available: TXT, XML, HTML and Excel.End TimeDisplays the date and the time at which the system finished collecting statistics for the corresponding interval (appears on <b>Current</b> 1 15 Minutes and Interval tabs only)	More Rows		Displays the next set of rows	
System Date and TimeDisplays the on-board date and time currently configured in the NEElapsed TimeDisplays the amount of time that has passed so far during this interval (appears on <b>Current 15 Minute</b> or <b>Current 15 Minute</b> or <b>Current Day</b> tabs only)Monitor TimeDisplays the total amount of time when statistics were actually collected (appears only on the <b>Previous Day</b> tab)ATU-RADSL transceiver unit located at the subscriber's premises (CPE)ATU-CADSL transceiver unit located on the ADSL cardReport buttonLets you print a report of the statistics displayed in the window. You can also do a print preview, set up page parameters and use the Report Designer feature to format the report before printing.Export buttonLets you export the statistics to a file. The following file formats are available: TXT, XML, HTML and Excel.End TimeDisplays the date and the time at which the system finished collecting statistics for the corresponding interval (appears on <b>Current</b> 15 Minutes and Interval tabs only)	button		of statistics saved in the	
System Date and TimeDisplays the on-board date and time currently configured in the NEElapsed TimeDisplays the amount of time that has passed so far during this interval (appears on <b>Current 15 Minute</b> or <b>Current Day</b> tabs only)Monitor TimeDisplays the total amount of time when statistics were actually collected (appears only on the <b>Previous Day</b> tab)ATU-RADSL transceiver unit located at the subscriber's premises (CPE)ATU-CADSL transceiver unit located on the ADSL cardReport buttonLets you print a report of the statistics displayed in the window. You can also do a print preview, set up page parameters and use the Report buttonExport buttonLets you export the statistics to a file. The following file format the report before printing.Export buttonLets you export the statistics format the report before printing.Export buttonLets you export the statistics format the report before printing.Export buttonLets you export the statistics for the statistics for a file. The following file formats are available: TXT, XML, HTML and Excel.End TimeDisplays the date and the time at which the system finished collecting statistics for the corresponding interval (appears on <b>Current</b> 15 Minutes and Interval tabs only)			database	
and time       and time currently         configured in the NE       Elapsed Time         Elapsed Time       Displays the amount of time that has passed so far during this interval (appears on Current 15 Minute or Current 15 Minute or Gurrent 16 Minute or actually collected (appears on only on the Previous Day tab)         Monitor Time       Displays the total amount of time when statistics were actually collected (appears on only on the Previous Day tab)         ATU-R       ADSL transceiver unit located at the subscriber's premises (CPE)         ATU-C       ADSL transceiver unit located on the ADSL card         Report button       Lets you print a report of the statistics displayed in the window. You can also do a print preview, set up page parameters and use the Report Designer feature to format the report before printing.         Export button       Lets you export the statistics to a file. The following file formats are available: TXT, XML, HTML and Excel.         End Time       Displays the date and the time at which the system finished collecting statistics for the corresponding interval (appears on Current 15 Minutes and Interval tabs only)	System Date		Displays the on-board date	
Elapsed TimeDisplays the amount of time that has passed so far during this interval (appears on Current 15 Minute or Current Day tabs only)Monitor TimeDisplays the total amount of time when statistics were actually collected (appears only on the Previous Day tab)ATU-RADSL transceiver unit located at the subscriber's premises (CPE)ATU-CADSL transceiver unit located on the ADSL cardReport buttonLets you print a report of the statistics displayed in the window. You can also do a print preview, set up page parameters and use the Report buttonExport buttonLets you export the statistics to a file. The following file formats are available: TXT, XML, HTML and Excel.End TimeDisplays the date and the time at which the system finished collecting statistics for the corresponding interval (appears on Current 15 Minutes and Interval tabs only)	and Time		and time currently	
Elapsed Time       Displays the amount of time         that has passed so far during       this interval (appears on         Current 15 Minute or       Current Day tabs only)         Monitor Time       Displays the total amount of         time when statistics were       actually collected (appears         only on the Previous Day       tab)         ATU-R       ADSL transceiver unit         located at the subscriber's       premises (CPE)         ATU-C       ADSL transceiver unit         located on the ADSL card       kastistics displayed in the         window. You can also do a       print preview, set up page         parameters and use the       Report Designer feature to         format the report before       printing.         Export button       Lets you export the statistics         to a file. The following file       formats are available: TXT,         XML, HTML and Excel.       Displays the date and the         time       Displays the date and the         time at which the system       finished collecting statistics         for the corresponding       interval (appears on Current         15 Minutes and Interval tabs       only)	Elener 1 Time		Configured in the NE	
Intar has passed so far during this interval (appears on Current 15 Minute or Current Day tabs only)Monitor TimeDisplays the total amount of time when statistics were actually collected (appears only on the Previous Day tab)ATU-RADSL transceiver unit located at the subscriber's premises (CPE)ATU-CADSL transceiver unit located on the ADSL cardReport buttonLets you print a report of the statistics displayed in the window. You can also do a print preview, set up page parameters and use the Report buttonExport buttonLets you export the statistics to a file. The following file formats are available: TXT, XML, HTML and Excel.End TimeDisplays the date and the time at which the system finished collecting statistics for the corresponding interval (appears on Current 15 Minutes and Interval tabs only)	Elapsed Time		Displays the amount of time	
Inits interval (appears on Current 15 Minute or Current Day tabs only)Monitor TimeDisplays the total amount of time when statistics were actually collected (appears only on the Previous Day tab)ATU-RADSL transceiver unit located at the subscriber's premises (CPE)ATU-CADSL transceiver unit located on the ADSL cardReport buttonLets you print a report of the statistics displayed in the window. You can also do a print preview, set up page parameters and use the Report buttonExport buttonLets you export the statistics to a file. The following file formats are available: TXT, XML, HTML and Excel.End TimeDisplays the date and the time at which the system finished collecting statistics for the corresponding interval (appears on Current 15 Minutes and Interval tabs only)			that has passed so far during	
Current Day tabs only)Monitor TimeDisplays the total amount of time when statistics were actually collected (appears only on the <b>Previous Day</b> tab)ATU-RADSL transceiver unit located at the subscriber's premises (CPE)ATU-CADSL transceiver unit located on the ADSL cardReport buttonLets you print a report of the statistics displayed in the window. You can also do a print preview, set up page parameters and use the Report Designer feature to format the report before printing.Export buttonLets you export the statistics to a file. The following file formats are available: TXT, XML, HTML and Excel.End TimeDisplays the date and the time at which the system finished collecting statistics for the corresponding interval (appears on <b>Current</b> 15 Minutes and Interval tabs only)			Current 15 Minute or	
Monitor TimeDisplays the total amount of time when statistics were actually collected (appears only on the <b>Previous Day</b> tab)ATU-RADSL transceiver unit located at the subscriber's premises (CPE)ATU-CADSL transceiver unit located on the ADSL cardReport buttonLets you print a report of the statistics displayed in the window. You can also do a print preview, set up page parameters and use the Report buttonExport buttonLets you export the statistics to a file. The following file formats are available: TXT, XML, HTML and Excel.End TimeDisplays the date and the time at which the system finished collecting statistics for the corresponding interval (appears on <b>Current</b> 15 Minutes and Interval tabs only)			Current Day tabs only)	
ATU-R       ADSL transceiver unit located at the subscriber's premises (CPE)         ATU-C       ADSL transceiver unit located at the subscriber's premises (CPE)         ATU-C       ADSL transceiver unit located on the ADSL card         Report button       Lets you print a report of the statistics displayed in the window. You can also do a print preview, set up page parameters and use the Report Designer feature to format the report before printing.         Export button       Lets you export the statistics to a file. The following file formats are available: TXT, XML, HTML and Excel.         End Time       Displays the date and the time at which the system finished collecting statistics for the corresponding interval (appears on <i>Current</i> 15 <i>Minutes</i> and <i>Interval</i> tabs only)	Monitor Time		Displays the total amount of	
ATU-RADSL transceiver unit located at the subscriber's premises (CPE)ATU-RADSL transceiver unit located at the subscriber's premises (CPE)ATU-CADSL transceiver unit located on the ADSL cardReport buttonLets you print a report of the statistics displayed in the window. You can also do a print preview, set up page parameters and use the Report Designer feature to format the report before printing.Export buttonLets you export the statistics to a file. The following file formats are available: TXT, XML, HTML and Excel.End TimeDisplays the date and the time at which the system finished collecting statistics for the corresponding interval (appears on Current 15 Minutes and Interval tabs only)	Monitor Thire		time when statistics were	
ATU-RADSL transceiver unit located at the subscriber's premises (CPE)ATU-CADSL transceiver unit located at the subscriber's premises (CPE)ATU-CADSL transceiver unit located on the ADSL cardReport buttonLets you print a report of the statistics displayed in the window. You can also do a print preview, set up page parameters and use the Report before printing.Export buttonLets you export the statistics to a file. The following file formats are available: TXT, XML, HTML and Excel.End TimeDisplays the date and the time at which the system finished collecting statistics for the corresponding interval (appears on <b>Current</b> <b>15 Minutes</b> and <b>Interval</b> tabs only)			actually collected (appears	
tab)ATU-RADSL transceiver unit located at the subscriber's premises (CPE)ATU-CADSL transceiver unit located on the ADSL cardReport buttonLets you print a report of the statistics displayed in the window. You can also do a print preview, set up page parameters and use the Report Designer feature to format the report before printing.Export buttonLets you export the statistics to a file. The following file formats are available: TXT, XML, HTML and Excel.End TimeDisplays the date and the time at which the system finished collecting statistics for the corresponding interval (appears on <b>Current</b> <b>15 Minutes</b> and <b>Interval</b> tabs only)			only on the <b>Previous Dav</b>	
ATU-RADSL transceiver unit located at the subscriber's premises (CPE)ATU-CADSL transceiver unit located on the ADSL cardReport buttonLets you print a report of the statistics displayed in the window. You can also do a print preview, set up page parameters and use the Report Designer feature to format the report before printing.Export buttonLets you export the statistics to a file. The following file formats are available: TXT, XML, HTML and Excel.End TimeDisplays the date and the time at which the system finished collecting statistics for the corresponding interval (appears on Current 15 Minutes and Interval tabs only)			tab)	
IntersectionIntersectionATU-CADSL transceiver unitIntersectionIntersectionReport buttonLets you print a report of the statistics displayed in the window. You can also do a print preview, set up page parameters and use the Report Designer feature to format the report before printing.Export buttonLets you export the statistics to a file. The following file formats are available: TXT, XML, HTML and Excel.End TimeDisplays the date and the time at which the system finished collecting statistics for the corresponding interval (appears on Current 15 Minutes and Interval tabs only)	ATU-R		ADSL transceiver unit	
ATU-CADSL transceiver unit located on the ADSL cardReport buttonLets you print a report of the statistics displayed in the window. You can also do a print preview, set up page parameters and use the Report Designer feature to format the report before printing.Export buttonLets you export the statistics to a file. The following file formats are available: TXT, XML, HTML and Excel.End TimeDisplays the date and the time at which the system finished collecting statistics for the corresponding interval (appears on Current 15 Minutes and Interval tabs only)			located at the subscriber's	
ATU-CADSL transceiver unit located on the ADSL cardReport buttonLets you print a report of the statistics displayed in the window. You can also do a print preview, set up page parameters and use the Report Designer feature to format the report before printing.Export buttonLets you export the statistics to a file. The following file formats are available: TXT, XML, HTML and Excel.End TimeDisplays the date and the time at which the system finished collecting statistics for the corresponding interval (appears on <b>Current</b> <b>15 Minutes</b> and <b>Interval</b> tabs only)			premises (CPE)	
Image: constraint of the statisticsImage: constraint of the statisticsReport buttonLets you print a report of the statistics displayed in the window. You can also do a print preview, set up page parameters and use the Report Designer feature to format the report before printing.Export buttonLets you export the statistics to a file. The following file formats are available: TXT, XML, HTML and Excel.End TimeDisplays the date and the time at which the system finished collecting statistics for the corresponding interval (appears on Current 15 Minutes and Interval tabs only)	ATU-C		ADSL transceiver unit	
Report buttonLets you print a report of the statistics displayed in the window. You can also do a print preview, set up page parameters and use the Report Designer feature to format the report before printing.Export buttonLets you export the statistics to a file. The following file formats are available: TXT, XML, HTML and Excel.End TimeDisplays the date and the time at which the system finished collecting statistics for the corresponding interval (appears on Current 15 Minutes and Interval tabs only)			located on the ADSL card	
statistics displayed in the window. You can also do a print preview, set up page parameters and use the Report Designer feature to format the report before printing.Export buttonLets you export the statistics to a file. The following file formats are available: TXT, XML, HTML and Excel.End TimeDisplays the date and the time at which the system finished collecting statistics for the corresponding interval (appears on Current 15 Minutes and Interval tabs only)	Report button		Lets you print a report of the	
window. You can also do a print preview, set up page parameters and use the Report Designer feature to format the report before printing.Export buttonLets you export the statistics to a file. The following file formats are available: TXT, XML, HTML and Excel.End TimeDisplays the date and the time at which the system finished collecting statistics for the corresponding interval (appears on Current 15 Minutes and Interval tabs only)			statistics displayed in the	
print preview, set up page parameters and use the Report Designer feature to format the report before printing.Export buttonLets you export the statistics to a file. The following file formats are available: TXT, XML, HTML and Excel.End TimeDisplays the date and the time at which the system finished collecting statistics for the corresponding interval (appears on Current 15 Minutes and Interval tabs only)			window. You can also do a	
parameters and use the Report Designer feature to format the report before printing.Export buttonLets you export the statistics to a file. The following file formats are available: TXT, XML, HTML and Excel.End TimeDisplays the date and the time at which the system finished collecting statistics for the corresponding interval (appears on <b>Current</b> <b>15 Minutes</b> and <b>Interval</b> tabs only)			print preview, set up page	
Report Designer feature to format the report before printing.Export buttonLets you export the statistics to a file. The following file formats are available: TXT, XML, HTML and Excel.End TimeDisplays the date and the time at which the system finished collecting statistics for the corresponding interval (appears on <b>Current</b> <b>15 Minutes</b> and <b>Interval</b> tabs only)			parameters and use the	
format the report before printing.Export buttonLets you export the statistics to a file. The following file formats are available: TXT, XML, HTML and Excel.End TimeDisplays the date and the time at which the system finished collecting statistics for the corresponding interval (appears on <b>Current</b> <b>15 Minutes</b> and <b>Interval</b> tabs only)			Report Designer feature to	
Export buttonLets you export the statistics to a file. The following file formats are available: TXT, XML, HTML and Excel.End TimeDisplays the date and the time at which the system finished collecting statistics for the corresponding interval (appears on <b>Current</b> <b>15 Minutes</b> and <b>Interval</b> tabs only)			format the report before	
Export button       Lets you export the statistics         to a file. The following file         formats are available: TXT,         XML, HTML and Excel.         End Time         Displays the date and the         time at which the system         finished collecting statistics         for the corresponding         interval (appears on Current         15 Minutes and Interval tabs         only)	<b>D</b> (1)()		printing.	
to a file. The following file         formats are available: TXT,         XML, HTML and Excel.         End Time       Displays the date and the         time at which the system         finished collecting statistics         for the corresponding         interval (appears on Current         15 Minutes and Interval tabs         only)	Export button		Lets you export the statistics	
Image: Informatis are available: TXT,         XML, HTML and Excel.         End Time         Displays the date and the         time at which the system         finished collecting statistics         for the corresponding         interval (appears on Current         15 Minutes and Interval tabs         only)			to a file. The following file	
End Time       Displays the date and the time at which the system finished collecting statistics for the corresponding interval (appears on <i>Current</i> 15 <i>Minutes</i> and <i>Interval</i> tabs only)			VMI HTMI and Excel	
time at which the system finished collecting statistics for the corresponding interval (appears on <i>Current</i> <i>15 Minutes</i> and <i>Interval</i> tabs only)	End Time		Displays the data and the	
finished collecting statistics for the corresponding interval (appears on <i>Current</i> <i>15 Minutes</i> and <i>Interval</i> tabs only)			time at which the system	
for the corresponding interval (appears on <i>Current</i> <i>15 Minutes</i> and <i>Interval</i> tabs only)			finished collecting statistics	
interval (appears on <i>Current</i> 15 <i>Minutes</i> and <i>Interval</i> tabs only)			for the corresponding	
<b>15 Minutes</b> and <b>Interval</b> tabs only)			interval (appears on <i>Current</i>	
only)			<b>15 Minutes</b> and <b>Interval</b> tabs	
			only)	

Screen Element	Options	Description	Default
Received Blocks		Displays the number of blocks received by the ATU-C from the ATU-R	
Transmitted Blocks		Displays the number of blocks transmitted by the ATU-C to the ATU-R	
Corrected Blocks		Displays the number of blocks received with errors which were corrected	
Uncorrected Blocks		Displays the number of blocks received which were not corrected	
Valid	Yes No	Indicates whether or not the statistics collected for the corresponding interval are reliable: <b>Yes</b> - reliable; <b>No</b> - Invalid	

▲ Note:

For more information about the time intervals for which statistics are collected, see Viewing ADSL Performance Statistics on page 192.

# 6.3.1.3. TC Layer

You can view ADSL TC Layer performance statistics for each port, using the *ADSL Performance* window, *TC Layer* tab.

### To view physical performance statistics:

- 1. Point to a BroadAccess NE and right-click. The Shortcut Menu is displayed.
- 2. Select *NE Operation*. The *NE Operation* window is displayed.
- **3.** In the configuration tree, expand the corresponding RU unit's child nodes. A list of cages is displayed.
- **4.** Expand the corresponding cage's child nodes. A list of the cards that are installed in that cage are displayed.
- **5.** Expand the corresponding ADSL card's child nodes. A list of ports is displayed.
- 6. Double-click on the port you require. The *ADSL Configuration* window is displayed.
- 7. Click the *Performance* icon. The *ADSL Performance* window is displayed.
- 8. Click the *TC Layer* tab.
- **9.** Toggle between the time intervals for which you want to view statistics by clicking the corresponding buttons on the *TC Layer* tab.

Page 198

🔜 LI-ADSL Performance	LI-ADSL Performance: RU#1:1:2:1						
🔁 <u>R</u> efresh	Collection Variant Data-Source: Network-Element 🔽 🐺 Collection Variant Rows						
Physical Channel Fast C	hannel Interleave TC Layer		S	ystem Date: 01-	Jan-00 00:07:0	8	
Current 15 Min Current D	ay Previous Day Interval	Total					
👩 Report 🛛 🔡 Export	INTERLEAVE			👩 Report 🛛 📔	Export FAS	T	
Drag a column header here			<b></b>	Drag a column he			<b>_</b>
Date 💌 End Tim	e 💌 Received Cells 💌	Transmitted Cells 💌	HEC	Date 💌	End Time 💌	Received Cells	Transr     T
▶ 01-Jan-00 00:00:	00 0	0		▶ 01-Jan-00	00:00:00	0	
31-Dec-99 23:45:	00 0	0		31-Dec-99	23:45:00	0	
31-Dec-99 23:30:	00 0	0		31-Dec-99	23:30:00	0	
31-Dec-99 23:15:	00 0	0		31-Dec-99	23:15:00	0	
31-Dec-99 23:00:	00 0	0		31-Dec-99	23:00:00	0	
31-Dec-99 22:45:	00 0	0		31-Dec-99	22:45:00	0	
31-Dec-99 22:30:	00 0	0		31-Dec-99	22:30:00	0	
31-Dec-99 22:15:	00 0	0		31-Dec-99	22:15:00	0	
31-Dec-99 22:00:	00 0	0		31-Dec-99	22:00:00	0	
21 Dog 00 21.45	nn n	0		21 Dog 00	21.45.00	n	

Figure 36. ADSL Performance Dialog Box, TC Layer Tab, Interval Tab

Table 148.	ADSL	Performance	Window,	тс	Layer	Tab	Settings
------------	------	-------------	---------	----	-------	-----	----------

Screen Element	Options	Description	Default
Refresh button		Refreshes the data displayed on this tab	
Data-Source	Network-	Lets you view statistics live	Network
	Element	from the BroadAccess	Element
	0 1 55	system (Network Element),	
G 11	Oracle DB	or from the Oracle database	
Collection		Opens the <b>PM Archive</b>	
button		Settings dialog box, where	
		you can enable archiving of	
		the statistics collected for	
		this link in the Oracle	
		database. For more	
		Information, see Setting Up a	
		Database of Performance	
		189	
More Rows		Displays the next set of rows	
button		of statistics saved in the	
		database	
System Date		Displays the on-board date	
and Time		and time currently	
		configured in the NE	
Elapsed Time		Displays the amount of time	
		that has passed so far during	
		this interval (appears on	
		Current 15 Minute or	
		Current Day tabs only)	

Screen Element	Options	Description	Default
Monitor Time		Displays the total amount of	
		time when statistics were	
		actually collected (appears	
		only on the <b>Previous Day</b>	
		tab)	
Interleave		Displays Interleave channel	
		statistics for the port	
Fast		Displays Fast channel	
		statistics for the port	
Report button		Lets you print a report of the	
		statistics displayed in the	
		window. You can also do a	
		print preview, set up page	
		parameters and use the	
		Report Designer feature to	
		format the report before	
		printing.	
Export button		Lets you export the statistics	
		to a file. The following file	
		formats are available: TXT,	
		XML, HTML and Excel.	
Start Time		Displays the date and the	
		time at which the system	
		started collecting statistics	
		for the corresponding	
		interval (appears on 15	
		<i>Minutes</i> and <i>Interval</i> tabs	
		only)	
Received Cells		Displays the number of cells	
		received from the network	
Transmitted		Displays the number of cells	
Cells		transmitted towards the	
		network	
OCD Events		Displays the number of Out	
		of Cell Delineation Events	
		detected during the interval	
HEC Errors		Displays the number of	
		Header Error Control errors	
		detected during the interval	

▲ Note:

For more information about the time intervals for which statistics are collected, see Viewing ADSL Performance Statistics on page 192.

# 6.3.2. Viewing G.SHDSL Performance

You can view performance monitoring statistics for LI-SHDSL series card ports for the XTU-C physical layer for 15 minute intervals and 24 hour intervals. A total count of performance monitoring statistics for each port can also be viewed.

For each item, you can view the statistics that have been collected for the following time intervals:

- Hour Quarters—statistics collected so far during the current 15 minute interval
- Days—statistics collected so far today
- Total—a total of the statistics collected since the card was initialized

### To view performance monitoring statistics for LI-SHDSL series cards ports:

- 1. Point to a BroadAccess NE and right-click. The Shortcut Menu is displayed.
- 2. Select *NE Operation*. The *NE Operation* window is displayed.
- **3.** In the configuration tree, expand the corresponding RU unit's child nodes. A list of cages is displayed.
- 4. Expand the corresponding cage's child nodes. A list of the cards that are installed in that cage are displayed.
- 5. Expand the corresponding *LI-SHDSL* card's child nodes. A list of ports is displayed.
- 6. Double-click on the port you require. The *SHDSL Configuration* window is displayed.
- 7. Click the **Performance** icon. The **SHDSL Performance** window is displayed.
- 8. Toggle between the various time intervals for which you want to view statistics by clicking the corresponding tabs on the *Physical* tab.



Figure 37. SHDSL Performance Monitoring Window

Screen Element	Option	Description	Default
Refresh button		Refreshes the data displayed in this window	
Abbreviations button		Displays a glossary of performance monitoring acronyms and terms	
Elapsed Time		Displays the amount of time that has passed so far during this interval (relevant for <b>Quarter Hours</b> and <b>Days</b> tabs)	
System Time		Displays the on-board date and time currently configured in the NE	
Date		Displays the date that the statistics were collected	
End Time		Displays the time at which the system finished collecting statistics for the corresponding interval	

Table 149.	SHDSL	Performance	Window	Settings
------------	-------	-------------	--------	----------
Screen Element	Option	Description	Default	
----------------	--------	-------------------------------	---------	
ES		Displays the number of		
		seconds in the time period		
		when at least one error block		
		occurred		
SES		Displays the number seconds		
		in the time period when there		
		were severe bit errors		
CRC Anomalies		Displays the number of times		
		a Cyclical Redundancy		
		Check anomaly occurred		
UAS		Displays the number of		
		Unavailable Seconds that		
		occurred (the number of		
		seconds following 10		
		consecutive SES)		
LOSWS		Displays the number of		
		seconds when a Loss of Sync		
		Defect (when at least three		
		consecutive received frames		
		contain one or more errors in		
		the framing bits) occurred		
Inits		Displays the number of line		
		initialization attempts since		
		reset		
Valid	Yes	Indicates whether or not the		
	No	statistics collected for the		
		corresponding interval are		
		reliable:		
	1	Yes - reliable; No - Invalid		

# 6.3.3. Viewing ATM, Uplink and Bridge Port Statistics, and Learned MACs for the IP-UL-x Card

You can view ATM, uplink and bridge port statistics, and learned MACs, using the *IP Uplink* window.

#### To access the IP Uplink window:

- 1. Point to a BroadAccess NE and right-click. The Shortcut Menu is displayed.
- 2. Select the *NE Operation* option. The *NE Operation* window is displayed.
- **3.** In the configuration tree, right-click the IP-UL-x card and select the *Launch Card Manager* option. A login dialog box is displayed.
- **4.** Type the following password (case sensitive): **Teledata**. Click the *OK* button. The window that is displayed displays configuration information in the upper part, and active alarms for the card in the lower part.

#### To view ATM statistics from the IP uplink:

- 1. Open the *IP Uplink* window, as explained in "To access the *IP Uplink* window", above.
- 2. On the *IP Uplink* window's menu bar, select the *Statistics* option, and then the *ATM* option.

#### To view Uplink statistics from the IP uplink:

- 1. Open the *IP Uplink* window, as explained in "To access the *IP Uplink* window", above.
- 2. On the *IP Uplink* window's menu bar, select the *Statistics* option, and then the *Uplink* option.

#### To view ATM or Ethernet bridge port statistics:

- 1. Open the *IP Uplink* window, as explained in "To access the *IP Uplink* window", above.
- In the ATM VCL Bridge Port table, or Ethernet Bridge Port table, right click on the row corresponding to the required Bridge Port, and select the Port Statistics option.

#### To view Learned MACs for a bridge port:

- 1. Open the *IP Uplink* window, as explained in "To access the *IP Uplink* window", above.
- In the ATM VCL Bridge Port table, or Ethernet Bridge Port table, right click on the row corresponding to the required Bridge Port, and select the Learned MACs option.

🛃 IP_UPLINK 192.168.1.150: ATM	Statistics 📃 🗆 🗙
Statistics	
Counter	Value
rx err slc	0
rx err parity	0
rx err addr mismatch	0
rx cells	0
rx last unknown addr	0
rx clp1 cells	0
rx gfc cells	0
tx cells	0
tx clp1 cells	0
tx efci cells	0
rx oam cells	0
rx rm cells	0
tx oam cells	0
tx rm cells	0
rx efci cells	0
rx clp0 cells	0
tx clp0 cells	0
[ <b>1</b> ]	
Start Stop	Reset Close

Figure 38. IP Uplink Window - ATM Statistics

Table 150. IP Uplink Window - ATM Statistics

Screen Element	Options	Description	Default
Counter	See Summary of Performance Monitoring Counters on page 179, IP Uplink ATM Connection Performance Monitoring for a list of the counters	Displays the counters for which ATM statistics are collected	
Value		Displays the statistics collected for each of the counters	
Start button		Starts counting ATM statistics	
Stop button		Stops counting ATM statistics. You may want to stop counting while the window is open, to conserve system resources.	
Reset button		Resets the counters in this window	

Screen Element	Options	Description	Default
Close button		Closes the window	

Counter	Value
txrx frames 64	1
txrx frames 127	12
txrx frames 255	11
txrx frames 511	0
txrx frames 1023	0
txrx frames 1518	2
txrx frames 1522	2
rx bytes	712
rx packets	9
rx err fcs	0
rx multicast	0
rx broadcast	0
rx mac control	0
rx mac pause	0
rx mac unknown	0
rx err alignment	0
rx err length	0
rx err code	0
rx false carrier	0
ry undersize	
4	

Figure 39. IP Uplink Window - Uplink Statistics

Table 151.	IP Uplink	Window -	Uplink	<b>Statistics</b>
------------	-----------	----------	--------	-------------------

Screen Element	Options	Description	Default
Counter	See Summary of Performance Monitoring Counters on page 179, IP Uplink Performance Monitoring for a list of the counters	Displays the counters for which Ethernet statistics are collected	
Value		Displays the statistics collected for each of the counters	
Start button		Starts counting Ethernet statistics	

Screen Element	Options	Description	Default
Stop button		Stops counting Ethernet statistics. You may want to stop counting while the window is open, to conserve system resources	
Reset button		Resets the counters in this window	
Close button		Closes the window	

🔜 IP_UPLINK 192.168.1.150: Brid	ge Port Statistics Ind 💶 🗖 🗙
Statistics	
Counter	Value
In octets	0
In Ucast pkts	0
In NUcast pkts	0
In discards	0
In errors	0
In unknown protos	0
In multicast pkts	0
In broadcast pkts	0
Out octets	0
Out Ucast_pkts	0
Out NUcast_pkts	0
Out discards	0
Out errors	0
Out multicast pkts	0
Out broadcast pkts	0
Start Stop	Reset Close

Figure 40. IP Uplink Window - Bridge Port Statistics Index

Screen Element	Options	Description	Default
Counter	See Summary of Performance Monitoring Counters on page 179, IP Uplink Bridge Port Performance Monitoring for a list of the counters	Displays the counters for which statistics are collected for the Index 1536 bridge port. This is the Fast Ethernet bridge port.	
Value		Displays the statistics collected for each of the counters	
Start button		Starts the counting Bridge Port Statistics	
Stop button		Stops counting Bridge Port statistics. You may want to stop counting while the window is open, to conserve system resources.	
Reset button		Resets the counters in this window	
Close button		Closes the window	

 Table 152. IP Uplink Window - Bridge Port Statistics Index

IP_UPLINK 192.168.1.150: MACs				
VLAN	MAC	Index		
2000 2000	00:90:27:1D:99:AE 00:FF:A9:12:4D:1E	0 4101		
Start	Stop	Close		

Figure 41. IP Uplink Window - MACs Learned

Screen Element	Options	Description	Default
VLAN		Displays the VLAN (Virtual	
		Local Area Network) number	
MAC		Displays the MAC (Media-	
		specific Access Control)	
		address corresponding to the	
		VLAN	
Index		Displays the Index number of	
		the Bridge Port corresponding	
		to the learned MAC	
Start button		Starts learning MACs	
Stop button		Stops learning MACs. You	
		may want to stop learning	
		MACs while the window is	
		open, to conserve system	
		resources.	
Close button		Closes the window	

Table 153. IP Uplink Window - MACs Learned

# 6.3.4. Viewing ATM Performance

The system provides ATM performance monitoring statistics for the following:

- Performance of individual ATM cross-connections—the performance statistics for ATM cross-connections allow you to monitor the operation of specific cross-connections in the system. For more information about viewing these statistics, see *Viewing ATM Cross-Connect Performance* on page 210.
- ATM performance at xDSL port level—performance statistics are measured on the xDSL ports connected to the subscribers. For more information, see Viewing ADSL Performance on page 192, or Viewing G.SHDSL Performance on page 200.
- ATM performance at STM1 level, per CU/RU unit—performance statistics are measured on the STM4 cards in each of the units on the SDH ring. This provides a diagnostic tool for detecting problems in a particular segment of the SDH ring. For more information about viewing these statistics, see *Viewing SDH Link Performance* on page 217.
- ATM performance on the link between the ATM card and the ATM network—performance statistics are collected from the ATM uplink, which provide a diagnostic tool for detecting problems on the uplink between the system and the network. For more information, see *Viewing STM1-ATM Performance on the ATM Uplink to the Network* on page 214.

#### 6.3.4.1. Viewing ATM Cross-Connect Performance

You can view performance monitoring statistics for ATM individual crossconnections using the **ATM Cross-Connect Performance Monitoring** window. Statistics are collected for the following time frames:

- Current Quarter—statistics collected so far in the current 15 minute interval
- Current Day—statistics collected so far today
- Interval Quarter—statistics collected for previous 15 minute intervals. Statistics are displayed for the last two intervals.
- Interval Day—statistics collected for previous day (24 hour interval)

The statistics that are collected provide you with information about the number of cells received and transmitted at the Network End and the User End, and traffic policing, for a specific cross-connection.

#### To view ATM Cross-Connect performance monitoring statistics:

- 1. Point to a BroadAccess NE and right-click. The Shortcut Menu is displayed.
- 2. Select the *NE Operation* option. The *NE Operation* window is displayed.
- **3.** Click the *Broadband Cross-Connect* button. The *Broadband Cross-Connect* window is displayed.
- 4. Select a cross-connection (a row) in the table.
- 5. Click the *Performance* button. The *ATM Cross-Connect Performance Monitoring* window is displayed, displaying statistics for the current 15 minute interval (*Current Quarter*).
- 6. To view statistics for different time frames, click the *Current Day*, *Interval Quarter* or *Interval Day* buttons.

ATM Cross-Connect Performance Monitoring							
🔁 <u>R</u> efresh 👘 Repo	ort 🔚 Export D-	ata-Source: Network-Element	More Rows	脖 Collection			
System Date: 10-Sep-03 18:51:47							
Current Quarter Current Day	Current Quarter Current Day Interval Quarter Interval Day Network Elapsed Time: 06:43 User Elapsed Time: 12:40						
Network-VPI	Network-VCI	Port	User-VPI	User-VCI			
5	136	5:1:13:8	0	32			
Drag a column header here to grou Network End Total Cells RX	p by that column	Us Policing CLP0 Cells Discard  CLF	er End Policing OHCLP1 Cells  Policing CLP( Cells Tagged Discard	0 ▼ Buffer Management Cells Discard ▼			
0 403	4294967295 4294967295	4294967295 4294	4967295 4294967295	4294967295			

Figure 42. ATM Cross-Connect Performance Monitoring Window

Screen Element	Options	Description	Default
Refresh button		Refreshes the data displayed	
		in the window	
Report button		Lets you print a report of the	
		statistics displayed in the	
		window. You can also do a	
		print preview, set up page	
		parameters and use the	
		Report Designer feature to	
		format the report before	
		printing.	
Export button		Lets you export the statistics	
		to a file. The following file	
		formats are available: TXT,	
		XML, HTML and Excel.	
Data Source box	Network	Lets you view statistics live	Network
	Element	from the BroadAccess	Element
		system (Network Element	
	Oracle DB	option) or statistics saved in	
		the Oracle database (Oracle	
		DB)	
More Rows		Displays the next set of rows	
button		of statistics saved in the	
		database	

Table 154.	ATM Cross-Conne	ct Performance	Monitorina	Window Settings

Screen Element	Options	Description	Default
Collection button		Displays the <b>PM Archive</b>	
		<b>Settings</b> dialog box, where	
		you can enable archiving of	
		the statistics collected for	
		cross-connections in the	
		Oracle database. For more	
		information, see Setting Up a	
		Database of Performance	
		Monitoring Statistics on page	
		189.	
Current Quarter		Displays statistics collected	
button		so far during the current 15	
		minute interval	
Current Day		Displays statistics collected	
button		so far today	
Interval Ouarter		Displays statistics collected	
button		for previous 15 minute	
		intervals	
Interval Dav		Displays statistics collected	
button		for previous days	
System Date		Displays the current date and	
<b>J</b>		time at the BroadAccess	
		system	
Network Flansed		Displays the amount of time	
Time: User		that has elapsed during the	
Elansed Time		current 15 minute or 24 hour	
Liupseu Time		interval at both Network and	
		User End sides (visible only	
		for Current Quarter and	
		Current Day statistics)	
Network VDI		Displays the VPI number for	
		the cross connection at the	
		network side	
Notwork VCI		Displays the VCI number for	
Network VCI		the areas connection at the	
		network side	
Dout		Displays the leasting of the	
Pon		Displays the location of the	
		RU port to which the cross-	
		Displayed the VDI second and for	
User VPI		Displays the VPI number for	
		the cross-connection at the	
		D: 1 (1 VCL 1 C	
User VCI		Displays the VCI number for	
		user side	
E. I. There		Displaces the time of schick	
End 11me		Displays the time at which	
		the system stopped collecting	
		statistics for the interval	
		(visible only for interval	
		Quarter and Interval Day	
		statistics)	

Screen Element	Options	Description	Default
Network End			
Total Cells Rx		Displays the total number of cells that have been received at the network end for the given time frame	
Total Cells Tx		Displays the total number of cells that have been transmitted by the network end for the given time frame	
Valid	Yes No	Indicates whether or not the statistics collected for the corresponding interval are reliable: <b>Yes</b> - reliable; <b>No</b> - Invalid (visible only for Interval Quarter and Interval Day statistics)	
User End			
Total Cells Rx		Displays the total number of cells received at the user end	
Total Cells Tx		Displays the total number of cells transmitted by the user end	
Policing CLP0 Cells Discard		Displays the number of CLP0 (Cell Loss Priority 0) cells that were discarded due to policing	
Policing CLP0+CLP1 Cells Discard		Displays the number of CLP0 (Cell Loss Priority 0) and CLP1 (Cell Loss Priority 1) cells that were discarded due to policing	
Policing CLP0 Cells Tagged		Displays the number of CLP0 cells that were modified to CLP1 due to policing	
Buffer Management Cells Discard		Displays the number of cells that were discarded when the buffer threshold was exceeded	
Valid	Yes No	Indicates whether or not the statistics collected for the corresponding interval are reliable: <b>Yes</b> - reliable; <b>No</b> - Invalid (visible only for Interval Quarter and Interval Day statistics)	

# 6.3.4.2. Viewing STM1-ATM Performance in the SDH Ring

ATM performance statistics at STM-1 level are measured on the STM4 cards in each of the units on the SDH ring. This provides a diagnostic tool for detecting problems in a particular segment of the SDH ring. For more information about viewing these statistics, see *Viewing SDH Link Performance* on page 217.

#### 6.3.4.3. Viewing STM1-ATM Performance on the ATM Uplink to the Network

ATM performance statistics on the link between the ATM card and the ATM network are collected from the ATM uplink, which provide a diagnostic tool for detecting problems on the uplink between the system and the network.

You can view the statistics that have been collected for the following time intervals:

- Hour Quarters—statistics collected so far during the current 15 minute interval
- Days—statistics collected so far today

#### To view STM1-ATM uplink performance statistics:

- 1. Point to a BroadAccess NE and right-click. The Shortcut Menu is displayed.
- 2. Select the *NE Operation* option. The *NE Operation* window is displayed.
- **3.** In the configuration tree, expand the corresponding unit's child nodes to locate the ATM uplink card (CU for ATM-UNI series or SSU\RU for ATM-UL series cards). A list of cages is displayed.
- 4. Expand the corresponding cage's child nodes. A list of the cards that are installed in that cage is displayed.
- 5. Expand the ATM uplink card's child nodes. A port node is displayed.

6. Double-click on the port. The *ATM UNI Properties* window appears. Click the *Performance Monitoring* button on this window. The *STM1-ATM Performance Monitoring* window is displayed.

STM1-ATM Perfo	rmance Monitori	ng									_ 🗆 🗡
🔁 <u>R</u> efresh	😰 Report	🔛 Export	Data-Source:	Network-Elem	ient 💌	Nore R	ows	🦻 Collection	🗵 Reset (	Counters	👌 Abbreviations
Hour-Quarters Days											
Drag a column header	here to group by the	at column									
Date 💌 Mo	onitor Time 💌 E	Ss 💌 !	SESs 💌 (	CVs 💌	UASs 🔺 💌	PPJCs 💽	<ul> <li>NPJCs</li> </ul>	SEFs	💌 RX Cells 🔍	TX Cells 💽	OCD Events
▶ 20-Dec-05 02	:13:59	0	0	0	0	0	0	0	2460	2460	0
•											F

Figure 43. STM1-ATM Performance Monitoring Window

Screen Element	Options	Description	Default
Refresh button	[]	Refreshes the information displayed in the window	
Report button		Lets you print a report of the statistics displayed in the window. You can also do a print preview, set up page parameters and use the Report Designer feature to format the report before printing.	
Export button		Lets you export the statistics to a file. The following file formats are available: TXT, XML, HTML and Excel.	
Data-Source	Network Element Oracle DB	Lets you view statistics live from the BroadAccess system (Network Element), or from the Oracle database	Network Element

### Table 155. STM1-ATM Performance Monitoring Statistics

Screen Element	Options	Description	Default
Collection button		Opens the PM Archive Settings	
		dialog box, where you can enable	
		archiving of the statistics	
		collected for the ATM-UNI port	
		in the Oracle database. For more	
		information, see Setting Up a	
		Database of Performance	
		Monitoring Statistics on page	
		189.	
Reset Counters		Resets the counters in the	
button		window	
Abbreviation		Opens a glossary of terms for the	
button		abbreviations used in this	
		window	
Hour-Quarters		Displays the statistics collected	
tab		for 15 minute intervals	
Days tab		Displays the statistics collected	
		for 24 hour intervals	
Date		Displays the date on which the	
		statistics were collected	
Monitor Time		Displays the total amount of time	
		when statistics were actually	
		collected (appears only on the	
		Days tab)	
End Time		Displays the time at which the	
		system finished collecting	
		statistics for the corresponding	
		interval (appears on Hour-	
		Quarters tab only)	
ESs		Displays the number of seconds	
		in the time period when at least	
		one error block occurred	
SESs		Displays the number seconds in	
		the time period when there were	
		severe bit errors	
CVs		Displays the number of code	
		violations that were detected	
		during the interval within the	
		STM1 frame	
UASs		Displays the number of seconds	
		following 10 consecutive SES.	
PPJCs		Displays the number of times	
		there was a positive pointer	
		justification (STM-1 and VC-12	
		only)	
NPJCs		Displays the number of time there	
		was a negative pointer	
		justification (STM-1 and VC-12	
		only)	

Screen Element	Options	Description	Default
SEFs		Displays the number of seconds in the given time period when there was severe loss of frame	
RX Cells		Displays the number of cells received from the network	
TX Cells		Displays the number of cells transmitted towards the network	
OCD Events		Displays the number of Out of Cell Delineation Events detected during the interval	
HEC Errors		Displays the number of Header Error Control errors detected during the interval	
Valid	Yes No	Indicates whether or not the statistics collected for the corresponding interval are reliable: <b>Yes</b> - reliable; <b>No</b> - Invalid	

# 6.3.5. Viewing SDH Link Performance

The *SDH Performance* tab of the *Link Configuration* window displays detailed information about STM-4, STM-1 and VC-12s levels' performance for a transmission card installed in the system. At STM-1 level, you can view performance monitoring statistics for either TDM or ATM traffic being transmitted over the SDH ring.

You can set the system to archive PM reports for particular interfaces in the Oracle database for future reference, and you can view statistics live from the BroadAccess system, or from the database. You can also export the statistics to a file or print a report.

#### To view link and card current performance:

- 1. Point to a BroadAccess NE and right-click. The Shortcut Menu is displayed.
- 2. Select **NE Operation**. The **NE Operation** window is displayed.
- **3.** Click the *Links* button on the toolbar. The *Link Configuration* window is displayed.
- 4. Click the *More Details* button. The *SDH Performance* tab is displayed.
- 5. Select the source from which you want to view statistics from the *Data*-*Source* box.
- 6. Click the *STM-4*, *STM-1* and *VC-12* tabs to view performance of a link card at each of the levels. When viewing STM-1 performance, you can toggle between TDM and ATM statistics by selecting the corresponding radio button on the *STM-1* tab.

- 7. You can do one or more of the following:
  - To print a report of the statistics displayed in the window, click the *Report* button.
  - To export the statistics to file, click the *Export* button.
  - To enable archiving of the statistics for the link, click the Collection button. In the PM Archive Settings dialog box, select the Polling on Current Port/Interface is Active checkbox.

SDH Topology Loopback Test SDH Performance [[1]:CU:A]
Data-Source: Network-Element 🔽 💛 More Rows 🤹 Report 🔛 Export 🕅 Collection 🎄 Abbreviations
Hour-Quarters Daily
STM-4 STM-1 VC-12
STM1 VC3 VC2 VC12
Drag a column header here to group by that column
Date 🗨 End Time 💌 ESs 🔍 SESs 🔍 CVs 🔍 UASs 💌
10-Sep-03 18:55:54 0 0 0 0

# Figure 44. SDH Link Configuration Window - SDH Performance Tab, VC-12 Statistics

SDH Topology Loopback Test SDH Performance [[1]:CU:A]									
Data-Source: Network-Element	😔 More Rows	🗐 Rep	ort 🔡 E	xport 👳	Collection	👌 Abbreviat	ions		
STM-4 STM-1 VC-12									
C TDM • ATM Hour-Quarters Days									
Drag a column header here to group by	Drag a column header here to group by that column								
Date 💌 Monitor Time 💌	ESs 💌	SESs 💌	CVs 💌	UASs 💌 🔻	PPJCs 💌	NPJCs 💌	RX Cells 🛛 💌	TX Cells 🔍	OCD I
▶ 05-Jan-00 00:25:28	0	0	0	0	0	0	9900	9900	
04-Jan-00 23:59:46	0	0	0	0	0	0	950444	950444	
03-Jan-00 23:59:45	0	0	0	0	0	0	950428	950423	
02-Jan-00 23:59:46	0	0	0	0	0	0	950362	950444	
01-Jan-00 23:57:37	1	0	25341	46	0	0	947298	947389	

Figure 45. SDH Link Configuration Window - SDH Performance Tab, STM-1 ATM Statistics

Table 156.	SDH	Performance	Tabs	Settings
	00	1 01101111a1100	1000	ooungo

Screen Element	Options	Description	Default
Data-Source	Network-Element	Lets you view statistics live	Network Element
		from the BroadAccess system	
	Oracle DB	(Network Element), or from	
		the Oracle database.	

Screen Element	Options	Description	Default
More Rows		Displays the next set of rows	
button		of statistics saved in the	
		database	
Report button		Lets you print a report of the	
		statistics displayed in the	
		window. You can also do a	
		print preview, set up page	
		parameters and use the Report	
		Designer feature to format the	
		report before printing.	
Export button		Lets you export the statistics	
		to a file. The following file	
		formats are available: TXT,	
		XML, HTML and Excel.	
Collection button		Opens the <b>PM Archive</b>	
		Settings dialog box, where	
		you can enable archiving of	
		the statistics collected for this	
		link in the Oracle database.	
		For more information, see	
		Setting Up a Database of	
		Performance Monitoring	
		Statistics on page 189.	
Abbreviations		Opens a glossary of terms for	
button		the abbreviations used in this	
		window	
Hour-Quarters		Displays the statistics	
tab		collected for 15 minute	
		intervals.	
Daily tab		Displays the statistics	
		collected for 24 hour intervals	
STM4 tab		Displays statistics collected	
		for all transmission supported	
		by the card	
STM1 tab		Displays statistics for each	
		STM1 supported by the card.	
		You can view STM1 TDM or	
		ATM-UNI statistics for traffic	
		being transmitted on the SDH	
		ring. Select the IDM of AIM	
		information for the	
		annormation for the	
		The ATM statistics displayed	
		here refer to the ATM treffic	
		noise refer to the ATM traffic	
		in the unit for which you are	
		currently viewing statistics	
		currently viewing statistics.	

Screen Element	Options	Description	Default
VC-12 tab		Displays a breakdown of the	
1012000		VC3s. VC2s and VC12s	
		assigned to each STM1 link.	
		and displays the statistics	
		collected for the VC-12 level.	
Select Link box		Lets you select the link	
(VC-12 tab only)		(active or backup) for which	
( )		you want to view breakdown	
		of VC3s, VC2s and VC12s.	
Date		Displays the date on which	
		the statistics were collected	
End Time		Displays the time at the end	
		of the interval for which the	
		statistics were collected. If the	
		time interval is incomplete	
		(the top row of the table), the	
		current time will be	
		displayed.	
ESs		Errored Seconds—the	
		number of seconds in the	
		given time period when at	
		least one error block occurred	
		(displayed in HH:MM:SS	
		format)	
SESs		Severely Errored Seconds—	
		the number of seconds in the	
		given time period when there	
		were severe bit errors: in	
		which the BER $> 10^{-10}$	
		<sup>3</sup> (displayed in HH:MM:SS	
		format) or a major alarm on	
		link	
CV		Code Violation—the number	
		of code violations that were	
		detected during the interval	
		within the SDH frame	
UASs		Unavailable Seconds—the	
		number of seconds following	
		10 consecutive SES.	
PPJCs		Positive Pointer Justification	
		Count—the number of times	
		there was a positive pointer	
		justification (STM-1 and VC-	
		12 only)	
NPJCs		Negative Pointer Justification	
		Count—the number of time	
		there was a negative pointer	
		justification (STM-1 and VC-	
		12 only)	
Rx Cells		Displays the number of cells	
		received from the network	

Screen Element	Options	Description	Default
Tx Cells		Displays the number of cells transmitted towards the network	
OCD Events		Displays the number of Out of Cell Delineation Events detected during the interval	
HEC Errors		Displays the number of Header Error Control errors detected during the interval	

# 6.3.6. Viewing PDH Link Performance

You can select a link from the *Links* window and view detailed information about its performance. You can view information in three time ranges: for statistics collected for 15 minute intervals, for statistics collected per hours, or data collected on a daily basis. You can also view a current BER (Bit Error Rate) reading. You can set the system to archive PM reports for particular interfaces in the Oracle database for future reference, and you can view statistics live from the BroadAccess system, or from the database. You can also export the statistics to a file or print a report.

#### To view PDH link performance:

- 1. Point to a BroadAccess NE and right-click. The Shortcut Menu is displayed.
- 2. Select the *NE Operation* option. The *NE Operation* window is displayed.
- **3.** In the configuration tree, select an RU or CU unit. A list of cages is displayed.
- 4. Select a cage (if there are two cages, select the first one). A list of cards that are installed in the cage is displayed.
- 5. Click on a *PDH (ONTU)* card. A list of links that are supported by the card is displayed.
- 6. Select a link.
- 7. Click the *More Details* button. The *Optical Properties* pane is displayed.
- **8.** Click the *Performance* tab. Click the various tabs to view the time period you require.
- **9.** To view statistics from the Oracle database, select the *Oracle DB* option from the *Data Source* box.
- **10.** You can do one or more of the following:
  - To print a report of the statistics displayed in the window, click the *Report* button.
  - To export the statistics to file, click the *Export* button.

 To enable archiving of the statistics for the link, click the Collection button. In the PM Archive Settings dialog box, select the Polling on Current Port/Interface is Active checkbox.

HDSL Properties Pe	erformance							
Data-Source: Netwo	ork-Element 💌	💛 More R	ows 😰 F	eport 📔	Export	🦻 Collection	🖧 Abbreviations	
BER: < 7.1	I1E-10							
Hour-Quarters Hou	rs Days HDS	L Hour-Quarters	HDSL Daily					
Drag a column head	er here to aroun hu	that column	, .,					
			F0	050	550			
Date 💌	Time 💌	BEBS	ESS 💌	SESS 💌	EFSs 💌	UMS 💌	UI 💌	
▶ 10-Sep-03	18:45:00	0	0	0	900	0	0	
10-Sep-03	18:30:00	0	0	0	900	0	0	
10-Sep-03	18:15:00	0	0	0	900	0	0	
10-Sep-03	18:00:00	0	0	0	900	0	0	

#### Figure 46. PDH, PCM E1 and HDSL Link Configuration Window -Performance Tab

#### Table 157. PDH, PCM E1 and HDSL link Performance Tab Settings

Screen Element	Options	Description	Default
Data Source box	Network Element	Lets you display statistics live from the BroadAccess system ( <b>Network Element</b> )	Network Element
	Oracle DB	or from the Oracle database ( <b>Oracle DB</b> )	
More Rows button		Displays the next set of rows of statistics saved in the database	
Report button		Lets you print a report of the statistics displayed in the window. You can also do a print preview, set up page parameters and use the Report Designer feature to format the report before printing.	
Export button		Lets you export the statistics to a file. The following file formats are available: TXT, XML, HTML and Excel.	
Collection button		Opens the <i>PM Archive</i> <i>Settings</i> dialog box, where you can enable archiving of the statistics collected for this link in the Oracle database. For more information, see <i>Setting Up a</i> <i>Database of Performance</i> <i>Monitoring Statistics</i> on page 189.	

Screen Element	Options	Description	Default
BER		Displays a current reading of BER (Bit Error Rate)	
Hour - Quarters		Displays information collected in 15 minute intervals during the last hour	
Hours		Displays information collected over the last 24 hours at hourly intervals	
Days		Displays information collected daily over the last 7 days	
BEB		Background Error Blocks— the number of errored blocks that occurred	
ES		Errored Seconds—the number of seconds in the given time period when at least one error block occurred (displayed in HH:MM:SS format).	
SES		Severely Errored Seconds— the number of seconds in the given time period when there were severe bit errors: BER > $10^{-3}$ (displayed in HH:MM:SS format).	
EFS		Error Free Seconds—the number of seconds in the given time period that were error free (displayed in HH:MM:SS format).	
DM		Degraded Minutes—the total number of minute intervals with a BER worse than $1 \cdot 10^{-6}$ .	
UT		Unavailable Time—number of seconds with more than 10 consecutive SES.	

# 6.3.7. Viewing PCM E1 Link Performance

You can select a link from the Links window and view detailed information about its performance. You can view information in three time ranges: for statistics collected for 15 minute intervals, for statistics collected per hours, or data collected on a daily basis. You can also view a current BER (Bit Error Rate) reading. You can set the system to archive PM reports for particular interfaces in the Oracle database for future reference, and you can view statistics live from the BroadAccess system, or from the database. You can also export the statistics to a file or print a report.

#### To view PCM link performance:

- 1. Point to a BroadAccess NE and right-click. The Shortcut Menu is displayed.
- 2. Select the *NE Operation* option. The *NE Operation* window is displayed.
- **3.** In the configuration tree, select an RU or CU unit. A list of cages is displayed.
- 4. Select a cage. A list of cards that are installed in the cage is displayed.
- 5. Click on an *PCM E1 (LTM)* card. A list of links that belong to that particular card is displayed.
- 6. Select a link.
- **7.** Click the *More Details* button. Click the various tabs to view the time period you require.
- 8. To view statistics from the Oracle database, select the *Oracle DB* option from the *Data Source* box.
- 9. You can do one or more of the following:
  - To print a report of the statistics displayed in the window, click the *Report* button.
  - To export the statistics to file, click the *Export* button.
  - To enable archiving of the statistics for the link, click the Collection button. In the PM Archive Settings dialog box, select the Polling on Current Port/Interface is Active checkbox.

For more information about the performance monitoring statistics displayed in the window, see the table *PDH*, *PCM E1 and HDSL links Performance Tab Settings* on page 222.

# 6.3.8. Viewing HDSL Link Performance

You can select an HDSL link from the Links window and view detailed information about its performance. You can view information in five time ranges:

- Data collected during the last hour in 15 minute intervals
- Data collected over the last 24 hours at hourly intervals
- Data collected daily over the last 7 days
- Data collected in 15 minute intervals about HDSL spans
- Data collected once daily over the last 7 days about HDSL spans

You can set the system to archive PM reports for particular interfaces in the Oracle database for future reference, and you can view statistics live from the BroadAccess system, or from the database. You can also export the statistics to a file or print a report. In addition, you can also view a current BER (Bit Error Rate) reading.

#### To view HDSL link performance:

- 1. Point to a BroadAccess NE and right-click. The Shortcut Menu is displayed.
- 2. Select the *NE Operation* option. The *NE Operation* window is displayed.
- **3.** In the configuration tree, select an RU or CU unit. A list of cages is displayed.
- 4. Select a cage. A list of cards that are installed in the cage is displayed.
- 5. Click on an *HDSL* card. A list of links that are supported by the card is displayed.
- 6. Select a link.
- 7. Click the *More Details* button and then the *Performance* tab. Click the various tabs to view the time period you require.
- 8. To view statistics from the Oracle database, select the *Oracle DB* option from the *Data Source* box.
- 9. You can do one or more of the following:
  - To print a report of the statistics displayed in the window, click the *Report* button.
  - To export the statistics to file, click the *Export* button.
  - To enable archiving of the statistics for the link, click the Collection button. In the PM Archive Settings dialog box, select the Polling on Current Port/Interface is Active checkbox.

For more information about the performance monitoring statistics displayed in the window, see the table *PDH*, *PCM E1 and HDSL links Performance Tab Settings* on page 222.

#### 6.3.8.1. Viewing HDSL Span Performance

You can view performance information about HDSL spans. You can view information in two time ranges:

- Quarter Hours—displays information about HDSL spans, collected in 15 minute intervals
- Days—displays information about HDSL spans, collected once daily

#### To view HDSL span performance:

- 1. Point to a BroadAccess NE and right-click. The Shortcut Menu is displayed.
- 2. Select the *NE Operation* option. The *NE Operation* window is displayed.
- **3.** In the configuration tree, select an RU or CU unit. A list of cages is displayed.
- 4. Select a cage. A list of cards that are installed in the cage is displayed.
- 5. Click on an *HDSL* card. A list of links that belong to that card is displayed.
- 6. Select the link for which you want to view performance monitoring statistics.
- 7. Click the *More Details* button, and then the *Performance* tab.
- 8. Click the *HDSL hour quarters* tab to view data collected in 15 minute intervals or the *HDSL Daily* tab to view data collected once daily.
- 9. You can do one or more of the following:
  - To print a report of the statistics displayed in the window, click the *Report* button.
  - To export the statistics to file, click the *Export* button.
  - To enable archiving of the statistics for the link, click the Collection button. In the PM Archive Settings dialog box, select the Polling on Current Port/Interface is Active checkbox.

HDSL Properties Performan	nce				
BER: < 7.97E-10 Data	a-Source: Network-Element	💌 👩 Report	🔛 Export	🗐 Collection 🛛 🙆 Abbreviations	
Hour-Quarters Hours Days HDSL Hour-Quarters HDSL Daily					
Image: Image					
	LOOP A	X		LOOP B	
	ES	UAS	ES	UAS	
Master>	0	0	0	0	
Doubler 1 <	0	0	0	0	
Doubler 2 <	0	0	0	0	
Slave <	0	0	0	0	
Doubler 1>	0	0	0	0	
Doubler 2>	0	0	0	0	

#### Figure 47. HDSL Link Configuration Window - HDSL Quarter Hour Span Performance Tab

Screen Element	Options	Description	Default
BER		Displays current bit error	
		rate reading	
Data Source	Network	Lets you display statistics	Network
	Element	live from the BroadAccess	Element
		system (Network Element)	
	Oracle DB	or from the Oracle database	
		(Oracle DB)	
Report button		Lets you print a report of the	
		statistics displayed in the	
		window. You can also do a	
		print preview, set up page	
		parameters and use the	
		Report Designer feature to	
		format the report before	
<b>D</b>		printing.	
Export button		Lets you export the statistics	
		to a file. The following file	
		formats are available: TXT,	
		XML, HTML and Excel.	
Collection button		Opens the <b>PM Archive</b>	
		Settings dialog box, where	
		you can enable archiving of	
		this link in the Oracle	
		databasa. For more	
		information soo Setting Un a	
		Database of Performance	
		Monitoring Statistics on page	
		189.	
Abbreviations		Lists abbreviations used in	
Button		this view	
•		Displays data collected for	
		the next 15 minute interval	
►I		Displays data collected for	
		all intervals over 24 hours	
•		Displays data collected for	
		the previous 15 minute	
		interval.	
		Displays data collected for	
		all previous intervals over 24	
		hours	
Time		The data are collected in	
		time frames of 15 minutes.	
		The time displayed in this	
		field is the start of the 15	
		minute time frame when the	
		data displayed was collected.	

Screen Element	Options	Description	Default
Loop A/Loop B		Each HDSL E1 link is	
		divided into 2 channels:	
		Loop A and Loop B. Check	
		this window to see the	
		performance of each loop.	
ES		Errored Seconds - the	
		number of seconds in the	
		time frame when at least one	
		error block occurred.	
UAS		Unavailable Seconds - the	
		number of seconds in the	
		time frame when no service	
		was available on this span.	
Master		Card installed in a CU on an	
		HDSL span	
Doubler 1		Doubler 1 on an HDSL span	
Doubler 2		Doubler 2 on an HDSL span	
Slave		Card installed in a RU on an	
		HDSL span	

HDSL Properties Performance							
BER: < 7.97E-10 Data-Source: Network-Element 💌 🎼 Report 🔛 Export 🗐 Collection 🍰 Abbreviations							
Hour-Quarters Hours Days HDSL Hour-Quarters HDSL Daily							
Image:							
LOOP A LOOP B							
	ES	UAS	ES	UAS			
Master>	2	71	4	65			
Doubler 1 <	0	0	0	0			
Doubler 2 <	0	0	0	0			
Slave <	6	6	8	0			
Doubler 1>	0	0	0	0			
Doubler 2>	0	0	0	0			

#### Figure 48. HDSL Link Configuration Window - HDSL Daily Span Performance Tab

# Table 159. HDSL Daily Span Performance Tab Settings

Screen Element	Options	Description	Default
BER		Displays current bit error rate reading	
Data Source	Network Element	Lets you display statistics live from the BroadAccess system	
	Oracle DB	(Network Element) or from the Oracle database (Oracle DB)	

Screen Element	Options	Description	Default
Report button		Lets you print a report of the	
		statistics displayed in the	
		window. You can also do a	
		print preview, set up page	
		parameters and use the Report	
		Designer feature to format the	
		report before printing.	
Export button		Lets you export the statistics	
		to a file. The following file	
		formats are available: TXT,	
		XML, HTML and Excel.	
Collection button		Opens the <b>PM Archive</b>	
		Settings dialog box, where	
		you can enable archiving of	
		the statistics collected for this	
		link in the Oracle database.	
		For more information, see	
		Setting Up a Database of	
		Performance Monitoring	
		Statistics on page 189.	
Abbreviations		Lists abbreviations used in	
button		this window	
Date		Displays the date on which the	
		data was collected.	
		To select a date, click the	
		Select Day button, and	
		choose a date from the	
		calendar.	
Loop A/Loop B		Each HDSL E1 link is divided	
		into 2 channels: Loop A and	
		Loop B. Check this window to	
		see the performance of each	
		loop.	
ES		Errored Seconds - the number	
		of seconds in the time frame	
		when at least one error block	
		occurred.	
UAS		Unavailable Seconds - the	
		number of seconds in the time	
		frame when no service was	
		available on this span.	
Master		Card installed in a CU on an	
		HDSL span	
Doubler 1		Doubler 1 on an HDSL span	
Doubler 2		Doubler 2 on an HDSL span	
Slave		Card installed in an RU on an	
		HDSL span	

# 6.3.9. Viewing Ethernet Service Performance Monitoring

You can view performance monitoring statistics for each Ethernet Service port in the system, using the *Ethernet Card Performance Monitoring* window.

#### To view Ethernet Service performance statistics:

- 1. Point to a BroadAccess NE and right-click. The Shortcut Menu is displayed.
- 2. Select *NE Operation*. The *NE Operation* window is displayed.
- **3.** In the configuration tree, expand the corresponding RU unit's child nodes. A list of cages is displayed.
- 4. Expand the corresponding cage's child nodes. A list of the cards that are installed in that cage are displayed.
- **5.** Expand the corresponding LI-ETH-x card's child nodes. A list of ports is displayed.
- 6. Right-click on the port you require, and select the *Configure Port* option. The *Ethernet Card Configuration: Port* window is displayed.
- **7.** Click the *Performance* icon. The *Ethernet Card Performance Monitoring* window is displayed.

<mark>見</mark> Ethernet Card P	erformance Monitoring: P	ort CU:1:1:2
🔁 <u>R</u> efresh	🙁 Reset Counters	
Total		
Received	France Drepped	Transmitted
Frames	for Congestions	Frames
331232768	0	0
	Frames Dropped for	
Good Frames		Frames Failures
1331232700		Jo
Bad Frames	Butes Beceived	Bytes
0	2927912960	0
	,	

Figure 49. Ethernet Card Performance Monitoring: Port Window

Screen Element	Options	Description	Default
Refresh button		Refreshes the information	
		displayed in the window	
Reset Counters		Resets the counters in the	
button		window to zero	
Received			
Frames		Displays the total number of frames received	
Frames dropped		Displays the total number of	
for congestions		received frames dropped due to congestion	
Good Frames		Displays the total number of valid	
		frames received	
Frames Dropped		Displays the total number of	
for CRC Errors		frames dropped due to CRC	
		errors	
Bad Frames		Displays the total number of	
		frames received of invalid size	
Bytes Received		Displays the total number of	
		bytes received	
Transmitted			
Frames		Displays the total number of	
		frames transmitted	
Frames Failures		Displays the total number of	
		frame transmission failures due to	
		collision or internal problems	
Bytes		Displays the total number of	
		bytes transmitted	

Table 160. Ethernet Service Performance Monitoring Settings

# 6.4. Setting up Threshold Crossing Alerts

You can set up a log of Threshold Crossing Alerts, which lists all the occurrences where performance statistic thresholds configured for the system were crossed. You can configure threshold crossing alerts for one or more ADSL and SHDSL ports in an NE. These thresholds are configured at an NE level, from the **NE Operation** window. You can access configuration parameters for Threshold Crossing Alerts from the port configuration window of a particular port, or by using the **Performance/Threshold Crossing Alert** menu option in the **NE Operation** window.

For more information about configuring ADSL Threshold Crossing Alerts, see Threshold Crossing Alert Profiles (ADSL) in the BroadAccess Configuration Guide. For more information about configuring SHDSL Threshold Crossing Alerts, see Threshold Crossing Alert Profiles (SHDSL) in the BroadAccess Configuration Guide. You view the Threshold Crossing Alert log by clicking the *Threshold Crossing Alert* button on the ClearAccess+/LCT main window's toolbar. For more information about viewing the Threshold Crossing Alert log, see the ClearAccess+ or LCT Installation and Administration Guide.

# 6.5. Viewing Traffic Reports

The following types of traffic reports can be generated for all or for a range of installed lines:

- Currently Active Lines
- Daily Usage
- Current Traffic
- Peak Hour
- Hour of Interest

# 6.5.1. Current Active Lines

The *Current Active Lines* window lets you view all the currently non-idle lines in the system. Each line which is listed is presented along with the time slot, card type, line type and duration of the current allocation.

#### To view the lines that are currently active:

- 1. Point to a BroadAccess NE and right-click. The Shortcut Menu is displayed.
- 2. Select the *NE Operation* option. The *NE Operation* window is displayed.
- **3.** From the Menu Bar select the *Performance* option, then the *Traffic* option, then the *NE Current Active Lines* option. The *Currently Active Lines* window is displayed.
- 4. To print a report of the lines that are currently active, click the *Report* button.

🙀 Currently Active Lines				
C Refresh	- L	Report		
Time-Slot	Card Type	Line Type	Duration	
		Total: 0		

Figure 50. Currently Active Lines Window

Table 161.	Currently	Active Lines	Window Settings
------------	-----------	--------------	-----------------

Screen Element	Options	Description	Default
Time Slot		The ID of the line that is	
		active. The ID consists of the	
		following components: RU #,	
		cage:card:port	
Card Type		Displays the line type (for	
		example, POTS, ISDN, etc.)	
Line Type		Displays the type of the card	
Duration		The duration of the current	
		allocation (using a 10 second	
		resolution)	
Refresh button		Refreshes current information	
		displayed in the window	
Report button		Lets you print a report about	
~		the lines that are currently	
		active	

# 6.5.2. Daily Usage

You can view the accumulative daily usage of a unit per hour, using the *Unit Daily Usage* window. The hours are presented according to a 24 Hour clock.

#### To view daily usage:

- 1. Point to a BroadAccess NE and right-click. The Shortcut Menu is displayed.
- 2. Select the *NE Operation* option. The *NE Operation* window is displayed.
- **3.** On the Configuration Tree select an RU or CU. The unit icon becomes a hand icon.
- 4. From the Menu Bar select the *Performance* option, then the *Traffic* option, then the *Unit Daily Usage* option. The *Unit Daily Usage* window of the unit you selected is displayed.
- 5. From the drop down list box in the *Unit Daily Usage* window, select the day for which you require usage information. The day you select is relative to the date that appears in the *Date* box.

#1 Daily U	sage h			]
Date:	[	15-Sep-03 Today	<b>-</b>	ſ
Hour	Usage	Hour	Usage	
00-01	1.00	12-13	1.00	
01-02	1.00	13-14	1.00	
02-03	1.00	14-15	1.00	
03-04	1.00	15-16	1.00	
04-05	1.00	16-17	1.00	
05-06	1.00	17-18	1.00	
06-07	1.00			
07-08	1.00			
08-09	1.00			
09-10	1.00			
10-11	1.00			
11-12	1.00			

Figure 51. Unit Daily Usage Dialog Box

Screen Element	Options	Description	Default
Date		The date for which usage information is presented	
Hour		The hour for which usage information is presented	
Usage		The accumulated amount of hours all subscribers at the selected unit were active	
Refresh button		Refreshes current information displayed in the window	

Table 162. Unit Daily Usage Dialog Box Settings

# 6.5.3. Current Traffic

This management system enables you to view the current traffic in the CU or RUs. The required CU or RU can be selected from the Configuration Tree.

#### To view the current traffic report:

- 1. Point to a BroadAccess NE and right-click. The Shortcut Menu is displayed.
- 2. Select the *NE Operation* option. The *NE Operation* window is displayed.
- **3.** On the Configuration Tree select a RU or CU. The unit icon becomes a hand icon.
- 4. From the Menu Bar select the *Performance* option, then the *Traffic* option, then the *Unit Current Traffic* option. The *Current Traffic* window of the unit you selected is displayed.

Refresh   15-Sep-03 18:27:07   Number of Time Slots in use:   1   Outgoing:   1   Incoming:   0   Internal Calls:   0   Service State:   0K     Report for last 57 minutes:   1   Max. TS used:	×
15-Sep-03 18:27:07         Number of Time Slots in use:       1         Outgoing:       1         Incoming:       0         Internal Calls:       0         Service State:       0K         Report for last 57 minutes:       1         Max. TS used:       1	
Number of Time Slots in use:       1         Outgoing:       1         Incoming:       0         Internal Calls:       0         Service State:       0K         Report for last 57 minutes:       1         Max. TS used:       1	
Outgoing:     1       Incoming:     0       Internal Calls:     0       Service State:     0K       Report for last 57 minutes:     1       Max. TS used:     1	ts in use: 1
Incoming:     0       Internal Calls:     0       Service State:     0K       Report for last 57 minutes:     1       Max. TS used:     1	1
Internal Calls: 0 Service State: 0K Report for last 57 minutes: 1 Max. TS used: 1	0
Service State: OK Report for last 57 minutes: 1 Max. TS used:	0
Report for last 57 minutes: Max. TS used:	ОК
Max. TS used:	nutes:
	μ
Outgoing Incoming Internal	oing Incoming Internal
Usage 0.95 0.00 0.00	0.00 0.00
Peg Count 0 0	0 0
Blocked 0 0	0

# Figure 52. Unit Current Traffic

Screen Element	Options	Description	Default
Number of Time		Displays the number of time	
Slots in use		slots in use	
Outgoing		The number of time slots	
		used to service outgoing	
		allocations	
Incoming		The number of time slots	
		used to service incoming calls	
Internal Calls		The number of time slots	
		saved by internal calls (twice	
		the number of internal calls).	
		To display information about	
		internal calls you must first	
		select the Intra-call check box	
		in the System Settings	
		window. For more	
		information, see Setting	
		System Settings in the	
		BroadAccess Configuration	
		Guide.	

Screen Element	Options	Description	Default
Service State	OK	Displays the state of the	
		service	
	ATB (All		
	Trunks Busy)		
Report for Last N		Presents traffic information	
Minutes		for the last N minutes, where	
		N is typically between 45 and	
		59 minutes	
Max. TS Used		The maximum number of	
		time slots used	
		simultaneously in this period	
Usage		Accumulative time usage (in	
-		hours) in the unit, grouped	
		according to outgoing	
		allocations, incoming calls,	
		and internal calls	
Peg Count		Number of outgoing	
		allocations, incoming	
		allocations, and internal call	
		allocations	
Blocked		Number of calls that did not	
		go through (were blocked)	
		due to ATB state	
Refresh button		Refreshes current information	
		displayed in the window	

# 6.5.4. Peak Hour Report

You can display traffic information for the daily peak hour, in the *Peak Hour Report* window.

#### To view the peak hour report:

- 1. Point to a BroadAccess NE and right-click. The Shortcut Menu is displayed.
- 2. Select the *NE Operation* option. The *NE Operation* window is displayed.
- **3.** On the Configuration Tree select a RU or CU. The unit icon becomes a hand icon.
- 4. From the Menu Bar select the *Performance* option, then the *Traffic* option, then the *Unit Peak Hour Traffic* option. The *Peak Hour Report* window of the unit you selected is displayed.
- 5. From the drop down list box in the *Peak Hour Report* window select the day for which the peak hour report you require. The day you select is relative to the date that appears in the *Start Hour* box.

ak Hour Rej	port (RU#:	1)		
reliesr				
				_
Start Hour:		15-Sep-03 00	:00:00	
		Today		•
Max. TS Us	ed:	1		_
	· · · ·			
	Outgoing	Incoming	Internal	
Usage	1.00	0.00	0.00	-
Peg Count	0	0	0	
Blocked	0	0		
	,			

Figure 53. Unit Peak Hour Report

Table 164.	Peak Hour	Report	Window	Settings
------------	-----------	--------	--------	----------

Screen Element	Options	Description	Default
Start Hour		The time at which the peak	
	l	hour starts	
Max. TS used	1	The maximum number of time	
	1	slots used in this period	
Usage		Accumulative time usage (in	
-	1	hours) of time slots in the unit,	
	1	grouped according to outgoing	
	1	allocations, incoming calls,	
	l	and internal calls	
Peg Count		Number of outgoing	0
	1	allocations, incoming	
	1	allocations, and internal call	
	l	allocations	
Blocked		Number of calls that did not go	0
	1	through (were blocked) due to	
	1	ATB state	
Refresh button	1	Refreshes current information	
	1	displayed in the window	

# 6.5.5. Hour of Interest Report

You can determine a specific 60 minute period during which you would like to collect traffic data. This is useful when you want to sample a specific time period. The unit to which the report applies may be selected from the Configuration Tree.
In order to view the specific hour, the Hour of Interest must be predefined from the **Set Hour of Interest** dialog box (see *Setting Hour of Interest* on page 240for more information).

#### To view the hour of interest report dialog box:

- 1. Point to a BroadAccess NE and right-click. The Shortcut Menu is displayed.
- 2. Select the *NE Operation* option. The *NE Operation* window is displayed.
- **3.** On the Configuration Tree, select a RU or CU. The unit icon becomes a hand icon.
- 4. From the Menu Bar select the *Performance* option, then the *Traffic* option, then the *Unit Hour of Interest Traffic* option and then the *Unit Hour of Interest Report* option. The *Hour of Interest Report* window for the unit you selected is displayed.
- 5. From the drop down list box in the *Hour of Interest Report* window select the day for which the hour of interest report you require. The day you select is relative to the date that appears in the *Hour of Interest* box.

lour of Int	eres	t Report (	(RU#1)		j	×	
🔁 Ref	resh						
Hour of	Intere	est: 1	5-Sep-03 - 0	0:00:00			
	Today						
Max. TS	Max. TS used: 1						
		Uutgoing	Incoming	Internal			
Usage		1.00	0.00	0.00			
Peg Co	ount	0	0	0			
Blocke	ed	0	0				

Figure 54. Hour of Interest Report Dialog Box

Table 165	Hour of Inter	est Renort Di	alog Box	Settings
Table 105.		σοι περυπ μι	alog Dox	Settings

Screen Element	Options	Description	Default
Hour of Interest		The time at which the hour of interest begins.	
Max. TS used		The maximum number of time slots used in this period	

Screen Element	Options	Description	Default
Usage		Accumulative time usage (in hours) of time slots in the unit, grouped according to outgoing allocations, incoming calls, and internal calls	
Peg Count		Number of outgoing allocations, incoming allocations, and internal call allocations.	
Blocked		Number of calls that did not go through (were blocked) due to ATB state	
Refresh button		Refreshes current information displayed in the window	

## 6.5.5.1. Setting Hour of Interest

#### To set hour of interest:

- 1. Point to a BroadAccess NE and right-click. The Shortcut Menu is displayed.
- 2. Select the *NE Operation* option. The *NE Operation* window is displayed.
- **3.** From the Menu Bar select the *Performance* option, then the *Traffic* option, then the *Unit Hour of Interest Traffic* option. The *Set Hour of Interest* dialog box is displayed.
- 4. Enter the hour at which the hour of interest begins (a number between 0 and 23) and the minute at which the hour of interest begins.
- 5. Click the *Apply* button. The new hour of interest is set.

Set Hour of Interest			
🔁 Refresh	🗹 Apply		
Hour: 🚺 👲	Minute: 0		

Figure 55. Set Hour of Interest Dialog Box

Table 166.	Set Hour o	f Interest	Dialog	<b>Box Settings</b>
------------	------------	------------	--------	---------------------

Screen Element	Options	Description	Default
Hour		The hour at which the hour of interest begins. Enter a number between 0 and 23	
Minute		The minute at which the hour of interest begins	

Screen Element	Options	Description	Default
Refresh button		Refreshes current information displayed in the window	
Apply button		Sets the new hour of interest	

# 7. Glossary of Terms

## ADSL

Asymmetrical Digital Subscriber Line

#### АТМ

Asynchronous Transfer Mode

## ATU-C

ADSL Transceiver Unit located on the ADSL card installed in the BroadAccess system

## ATU-R

ADSL Transceiver Unit in the ADSL modem located at the subscriber's premises

#### BER

Bit Error Rate

#### BRI

**Basic Rate Interface** 

#### CAC

**Connection Admission Control** 

#### CDVT

Cell Delay Variation Tolerance

## CPE

Customer Premises Equipment - the equipment which connects between the xDSL line and the subscriber's computer at the subscriber's premises

#### CU

Central Unit

#### EMS

Element Management System

#### GUI

Graphical User Interface

#### HEC

Header Error Control

#### Invalid

The Performance Monitoring results collected are not reliable for the given period. Results might be invalid, for example, if there was an interruption to the collection of statistics during that time period.

## IP

Internet Protocol

#### ISDN

Integrated Services Digital Network

#### LAN

Local Area Network

## LCT

Local Craft Terminal

## LE

Local Exchange

#### NE

Network Element

#### NGN

Next Generation Networks

#### OAM

Operations, Administration and Maintenance

#### PC

Personal Computer

#### PCR

Peak Cell Rate in cells/sec

## RU

Remote Unit

#### Rx

Receive

## SCR

Sustainable Cell Rate

#### SDH

Synchronous Digital Hierarchy

#### SHDSL

Symmetric High-bit rate Digital Subscriber Line

## SNR

Signal-to-Noise Ratio

#### TC Layer

Transmission Convergence Layer, a sub-layer of the ATM Physical Layer

## TD

Traffic Descriptor

## Тх

Transmit

## UBR

Undefined Bit Rate

#### UNI

User Network Interface

#### Valid

The Performance Monitoring results collected are reliable for the given period. Results might be invalid, for example, if there was an interruption to the collection of statistics during that time period.

## VC12

Virtual Container Level 12

## VCC

Virtual Channel Connection

## VCI

Virtual Channel Identifier

## VCL

Virtual Channel Link

## VF

Voice Frequency

**VPC** Virtual Path Connection

## VPI

Virtual Path Identifier

# 8. Index

Α

Acknowledging Alarms • 47 Alarm Acknowledging and Deacknowledging • 47 Active Alarms • 40 Alarm Color Codes and Symbols • 39 Alarm History • 48 Archive • 48 Audible Notification • 37 Audible Notification Sound, Modifying • 38 Filtering and Sorting the Alarm Display • 43 Hiding Columns in Tables • 27 List of Alarms • 66 Printing Alarm Reports • 51 Saving Alarm Reports • 51 Searching for Text in Alarm Display • 45 Severity Levels, Editing • 52 Simulation • 174 Troubleshooting Procedures • 96 Unhiding Columns in Tables • 27 ATM Performance, Cross-Connections • 210 Performance, STM1-ATM on ATM Uplink • 214 Performance, STM1-ATM over SDH • 214

# В

Bridge Port Statistics • 203

## С

Capacitance Parameters • 173 Tests • 164 Commands • 15 Configuration Log • 58 Printing Reports • 63 Saving to File • 63 Searching for Text • 62 Configuration Tree • 12 Conventions and Terminology • 2 D Deacknowledging Alarms • 47 Ε Entering Free Text for Alarms • 47 **Ethernet Service** Ethernet Service Performance • 230 Event Log • 56 External Alarm Settings • 175

## F

Fault Management • 37
Acknowledging Alarms • 47
Active Alarms • 40
Alarm Archive • 48
Alarm Color Codes and Symbols • 39
Alarm History • 48
Alarm Messages • 66
Alarm Simulation • 174

Alarms and Indicators • 64 Audible Notification • 37 Audible Notification Sound, Modifying • 38 Background Line Tests • 171 Deacknowledging Alarms • 47 Entering Free Text for Alarms • 47 Event Log • 56 External Alarm Settings • 175 External Line Tests • 170 Filtering and Sorting the Alarm Display • 43 Hiding Columns in Tables • 27 LEDs  $\bullet$  64 Line Test History • 169 Line Test Thresholds • 172 Line Testing • 164 Printing Alarm Reports • 51 Problems not Reported by Alarms • 94 Saving Alarm Reports • 51 Searching for Text in Alarm Display • 45 Severity Levels, Editing • 52 Troubleshooting Methodology • 65 Troubleshooting Procedures • 96 Unhiding Columns in Tables • 27

# Н

HDSL Link

HDSL Link Performance • 224 Hiding Columns in Tables • 27 I IP Uplink Performance • 203 L Learned MACs • 203 LEDs • 64 Line Tests Background Line Tests • 171 Capacitance Parameters • 173 Capacitance Tests • 164 External Line Tests • 170 Line Test History • 169 Line Test Thresholds • 172 Metallic Tests • 164 Voice Frequency Tests • 164 Loopbacks • 177 Μ Metallic Tests • 164 Ρ PCM E1 Link Link Performance • 223 PDH Link Link Performance • 221 Performance ADSL • 192 ATM Cross-Connect • 209

ATM-UNI Performance (ATM Uplink) • 214

ATM-UNI Performance (SDH Ring) • 217

Database • 189

Ethernet Service Performance • 230

HDSL Link • 224

HDSL Span • 225

IP Uplink • 203

PCM E1 • 223

PDH • 221

SDH • 217

STM1-ATM on ATM Uplink • 214

STM1-ATM over SDH • 214

Summary of Available Counters • 179

#### Phone Book

Finding Ports • 20

## Ports

Locating Using Phone Book • 20

## R

## Reports • 26

ADSL Performance, Fast/Interleave • 196 ADSL Performance, Physical • 193 ADSL Performance, TC layer • 199 Alarms, Printing • 51 Alarms, Saving • 51 ATM Performance • 210 Configuration Log • 63 Creating • 26 Current Traffic • 235 Events • 56 Hour of Interest • 238 Line Tests • 164 Peak Hour • 237 Phone Book • 20 SDH • 217 Restoring Columns in Tables • 27

## S

#### SDH Link

SDH Link and Card Performance • 217 Severity Levels, Editing • 52 Shortcut Menus • 20 Simulation, Alarm • 174 Statistics • 179 System Overview • 7

## Т

Telephone Number • 20 Terminology and Conventions • 2 Threshold Crossing Alerts • 231 Troubleshooting Methodology • 65 Procedures • 96

## U

Unhiding Columns in Tables • 27 User Interface • 11 Configuration Tree • 12 Creating Reports • 26 Finding Ports using the Phone Book • 20 Hiding Columns in Tables • 27 Restoring Columns in Tables • 27 Shortcut Menus • 20 Work Area • 13

## V

Voice Frequency Tests • 164

# W

Work Area • 13