TL1 Performance Monitoring

Performance information is continuously monitored and stored in individual performance monitoring (PM) registers and can be retrieved upon request or when a preset threshold is exceeded. For more detailed information on performance monitoring, refer to the *Cisco ONS 15454 Reference Guide* and the *Cisco ONS 15327 Reference Guide*.

This chapter provides TL1 performance monitoring information for the Cisco ONS 15454 and the Cisco ONS 15327, including:

- Performance monitoring by card
- PM parameters by line type
- Scheduled PM report provisioning

6.1 Performance Monitoring by Card

Table 6-1 TXP_MR_10G (Transponder) and MXP_2.5G_10G (Muxponder) Card PMs

SONET Layer Far-End (FE)[1]	SONET Layer Near-End (NE)[1]	OTN Layer (NE and FE)[2]	Optics (NE)[1]	FEC (NE)[2]
CVL	CVS	ES-PM	OPT-AVG	BIEC
ESL	CVL	ES-SM	OPT-MAX	BYEC
SESL	SESS	ESR-PM	OPT-MIN	ZBED
UASL	SESL	ESR-SM	OPR-AVG	OBED
FCL	SEFS	SES-PM	OPR-MAX	UCW
	UASS	SES-SM	OPR-MIN	
	UASL	UAS-PM	RXT-AVG[2]	
	FCL	UAS-SM	RXT-MAX[2]	
		BBE-PM	RXT-MIN[2]	
		BBE-SM	LBCL-AVG	
		BBER-PM	LBCL-MAX	
		BBER-SM	LBCL-MIN	
		FC-PM	LAT-AVG	
		FC-SM	LAT-MAX	
			LAT-MIN	

1. Applicable to OCH and CLNT facilities
2. Applicable to OCH facility

Table 6-2 EC1 Card PMs

Section (NE)	Line (NE)	STS Path (NE)	Line (FE)	STS Path (FE)
CVS ESS SESS SEFS	CVL ESL SESL UASL FCL	CVP ESP SESP UASP FCP	CVL ESL SESL UASL FCL	CVP ESP SESP UASP FCP

Table 6-3 DS1(N) Card PMs

Line (NE)	Rx Path (NE)	Tx Path (NE)	VT Path (NE)	STS Path (NE)	V (FE)	STS Path (FE)
CVL ESL SESL LOSSL	AISSP CVP ESP SASP SESP UASP	AISSP CVP ESP SASP SESP UASP	CVV ESV SESV UASV	CVP ESP SESP UASP FCP	CVV ESV SESV UASV	CVP ESP SESP UASP FCP

Table 6-4 DS3(N) Card PMs

Line (NE)	STS Path (NE)	STS Path (FE)
CVL ESL SESL LOSSL	CVP ESP SESP UASP FCP	CVP ESP SESP UASP FCP

Table 6-5 DS3(N)-3E Card PMs

Line (NE)	Path (NE)	STS Path (NE)	Path (FE)[1]	STS Path (FE)
CVL ESL SESL LOSSL	AISSP CVP ESP SASP SESP UASP CVCPP ESCPP SESCPP UASCPP	CVP ESP SESP UASP FCP	CVCPP ESCPP SASCPP SESCPP UASCPP	CVP ESP SESP UASP FCP

1. The C-Bit PMs (PMs that end in “CPP”) are applicable only if line format is C-Bit.

Table 6-6 DS3XM-6 Card PMs

DS3 Line (NE)	DS3 Path (NE)[1]	DS1 Path (NE)	VT Path (NE)	STS Path (NE)	DS3 Path (FE)[1]	VT Path (FE)	STS Path (FE)
CVL	AISSP	AISSP	CVV	CVP	CVCPP	CVV	CVP
ESL	CVP	ESP	ES-V	ESP	ESCPP	ESV	ESP
SESL	ESP	SASP	SES-V	SESP	SASCPP	SESV	SESP
LOSSL	SASP	SESP	UAS-V	UASP	SESCPP	UASV	UASP
	SESP	UASP		FCP	UASCPP		FCP
	UASP						
	ESCPP						
	SESCPP						
	UASCPP						

1. The C-Bit PMs (PMs that end in "CPP") are applicable only if line format is C-Bit.

Table 6-7 OC3 Card PMs

Section (NE)	Line (NE)	STS Path (NE)	Line (FE)	STS Path (FE)[1]
CVS	CVL	CVP	CVL	CVP
ESS	ESL	ESP	ESL	ESP
SESS	SESL	SESP	SESL	SESP
SEFS	UASL	UASP	UASL	UASP
	FCL	FCP	FCL	FCP
	PSC (1+1)			
	PSD (1+1)			
	PPJC-PDET			
	NPJC-PDET			
	PPJC-PGEN			
	NPJC-PGEN			

1. The STS Path (FE) PMs are valid only for the OC3-4 card on ONS 15454.

Table 6-8 OC12, OC48, OC192 Card PMs

Section (NE)	Line (NE)	STS Path (NE)	Line (FE)
CVS	CVL	CVP	CVL
ESS	ESL	ESP	ESL
SESS	SESL	SESP	SESL
SEFS	UASL	UASP	UASL
	FCL	FCP	FCL
	PPJC-PDET		
	NPJC-PDET		
	PPJC-PGEN		
	NPJC-PGEN		
	PSC (1+1, 2F BLSR)		
	PSD (1+1, 2F BLSR)		
	PSC-W (4F BLSR)		
	PSD-W (4F BLSR)		
	PSC-S (4F BLSR)		
	PSD-S (4F BLSR)		
	PSC-R (4F BLSR)		
	PSD-R (4F BLSR)		

6.2 PM Parameters by Line Type

Table 6-9 PM Parameters by Line Type

Parameter	OC-N	T1	T3	STS	VT1.5
CVL	Y	Y	Y		
CVP		Y	Y	Y	
CVS	Y				
CVV					Y
ESL	Y	Y	Y		
ESP		Y	Y	Y	
ESS	Y				
ESV					Y
FCP				Y	
FCL	Y				
PJNEG	Y				
PJPOS	Y				
PSC	Y				
PSD	Y				
SASP		Y	Y		
SEFS	Y				
SESL	Y	Y	Y		
SESP		Y	Y	Y	
SESS	Y				
SESV					Y
UASL	Y				
UASP		Y	Y	Y	
UASV					Y
AISSP		Y	Y		
CVCPP			Y		
ESCPP			Y		
LOSSL			Y		
SASCPP			Y		
SESCPP			Y		
UASCPP			Y		

6.3 Scheduled PM Report

Scheduled performance monitoring (PM) report is a feature that extends the capability of PM reporting for the ONS 15454 and the ONS 15327. With scheduled PM report the system automatically and periodically generates the PM report of any specified facility or cross-connection.

Note The current maximum number of schedules allowed to be created for an NE is 1000. If this number of schedules has been created for the NE, an error message "Reach Limits Of MAX Schedules Allowed. Can Not Add More" will be returned if trying to create more schedules on the NE.

Note Identical schedules for an NE is not allowed. Two schedules are considered identical if they have the same AID, MOD2 type, performance monitor type, performance monitor level, location, direction and time period.

Note An error message "Duplicate Schedule" is returned if you create a schedule which is a duplicate of an existing schedule. However, if the existing schedule expires (with the parameter <NUMINVL> equal to zero when retrieved by the RTRV-PMSCHED command which means no more performance monitoring report to be sent), then the new schedule with the identical parameter will replace the existing schedule.

Note When you create a PM schedule, the minimum report interval should not be less than five minutes.

See each command description for command formats and syntax:

- SCHED-PMREPT-<MOD2> on page 3-259
- ALW-PMREPT-ALL on page 3-21
- RTRV-PMSCHED-<MOD2> on page 3-227
- RTRV-PMSCHED-ALL on page 3-228
- INH-PMREPT-ALL on page 3-104
- REPT PM <MOD2> on page 3-142

6.3.1 Create a PM Schedule and Receive an Autonomous PM Report

1. Issue the SCHED-PMREPT-<MOD2> command to create a PM schedule.
2. Issue the ALW-PMREPT-ALL command to allow the current TL1 session to be able to receive the autonomous PM report.

6.3.2 Manage PM Schedules

1. Create a PM schedule by issuing the SCHED-PMREPT-<MOD2> command.
2. Delete a PM schedule by issuing the SCHED-PMREPT-<MOD2> command with the <NUMREPT> parameter equal to zero.

Note The PM schedules created on a facility or a cross-connect will be automatically deleted if the card or the cross-connect are unprovisioned.

3. Retrieve all the PM schedules created on the node by issuing the RTRV-PMSCHED-ALL command. Retrieve a particular MOD2 type of PM schedule by issuing the RTRV-PMSCHED-<MOD2> command.

Note The system will not automatically delete the schedules that are expired (for example, a schedule is created to report PM 10 times. After 10 PM reports are sent, the schedule is expired). The expired schedule can be identified by its <NUMINVL> field (equal to zero) in the response of RTRV-PMSCHED.

6.3.3 Enable or Disable a TL1 Session to Receive Autonomous PM Reports

1. Enable a TL1 session to receive a scheduled PM report by issuing the ALW-PMREPT-ALL command.

Note By default, a TL1 session is disabled to receive PM reports. The ALW-PMREPT-ALL command enables a TL1 user to receive all the scheduled PM reports from the system, regardless of whether or not the schedule is created by this TL1 user or by any other TL1 user.

2. Disable a TL1 session to receive any scheduled PM report by issuing the INH-PMREPT-ALL command.