



CHAPTER 6

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 MXP_2.5G_10G, TXP_MR_10G, TXP_MR_2.5G, and TXPP_MR_2.5G Card PMs

SONET Layer Far-End (FE) ¹	SONET Layer Near-End (NE) ¹	OTN Layer (NE and FE) ²	Optics (NE) ^{1..3}	8B10B (NE) ⁴	FEC (NE) ²
CVL	CVS	ES-PM	OPT-AVG	CGV	BIEC
ESL	CVL	ES-SM	OPT-MAX	DCG	UNC-WORDS
SESL	ESS	ESR-PM	OPT-MIN	IOS	
UASL	ESL	ESR-SM	OPR-AVG	IPC	
FCL	SESS	SES-PM	OPR-MAX	NIOS	
	SESL	SES-SM	OPR-MIN	VPC	
	SEFS	SESR-PM	LBCL-AVG		
	UASL	SESR-SM	LBCL-MAX		
	FCL	UAS-PM			
		UAS-SM			
		BBE-PM			
		BBE-SM			
		BBER-PM			
		BBER-SM			
		FC-PM			
		FC-SM			

1. Applicable to OCH and CLNT facilities

2. Applicable to OCH facility

3. TXP-MR-2.5G/TXPP-MR-2.5G ESCON payload does not support Optics PMs on the client port due to SFP imposed restriction.
4. Applicable to TXP_MR_2.5G and TXPP_MR_2.5G cards only

Table 6-2 OSCM/OSC-CSM (OC3) Card PMs

Section (NE) ¹	Line (NE/FE) ¹	Optics (NE) ²
CVS ESS SESS SEFS	CVL ESL SESL UASL FCL	OPWR-AVG OPWR-MAX OPWR-MIN

1. Applicable to OC3
2. Applicable to OTS facilities

Table 6-3 Optical Amplifiers, OADM, MUX/DEMUX Card PMs

Optics (NE) ¹
OPWR-AVG OPWR-MAX OPWR-MIN

1. Applicable to OCH, OMS, OTS Facilities

Table 6-4 EC1 Card PMs

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

Table 6-5 DS1(N) Card PMs

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

Table 6-6 DS3(N) Card PMs

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

Table 6-7 DS3(N)-3E Card PMs

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

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

Table 6-8 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 UASP ESCPP SESCPP UASCPP CVCPP	SESP UASP	UAS-V	UASP FCP	SESCPP UASCPP	UASV	UASP FCP

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

Table 6-9 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 6-10 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 6-11 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

Table 6-11 PM Parameters by Line Type (continued)

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 Cisco ONS 15454 and the Cisco 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 3-324](#)
- ALW-PMREPT-ALL [on page 3-28](#)
- RTRV-PMSCHED-<MOD2> [on page 3-288](#)
- RTRV-PMSCHED-ALL [on page 3-289](#)
- INH-PMREPT-ALL [on page 3-132](#)
- REPT PM <MOD2> [on page 3-175](#)

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.

