

Preface

Circuit Emulation (CEM) is a technology that provides a protocol-independent transport over IP/MPLS networks. It enables proprietary or legacy applications to be carried transparently to the destination, similar to a leased line.

This guide covers CEM features, configuration, and verfication that are common for the following CEM interface modules.

- 48-Port T1 or E1 CEM interface module
- 48-Port T3 or E3 CEM interface module
- 1-port OC-48/STM-16 or 4-port OC-12/OC-3 / STM-1/STM-4 + 12 port T1/E1 + 4-port T3/E3 CEM interface module
- 1-port OC-192 or 8-port Low rate CEM interface module
- ASR 900 Combo 8-port SFP GE and 1-port 10 GE 20G interface module

- Document Organization, on page 1
- Supported Configurations, on page 2
- Related Documentation, on page 3

Document Organization

Chapter	Description
Feature History	Lists features supported with the Cisco IOS XE release versions.
Circuit Emulation	Provides the information about CEM classes and parameters, and how to configure them.
CEM pseudowire	Provides information about CEM pseudowire modes and how to configure pseudowires on the interface module of the chassis.
Clock Recovery	Provides information about ACR and DCR for SONET and SDH on SAToP and CESoP, and describes configuration with verification steps.

Chapter	Description
BERT	Provides information about BERT modes and BERT patterns that are supported on IMs and describes how to configure BERT on SONET and SDH-supported modes.
CEM over MPLS QoS	Provides information about QoS experimental bits (EXP) matching feature and how to classify and mark network traffic using QoS EXP matching feature.

Supported Configurations

Table 1: Supported Configurations

	T1/E1	T3/E3	SONET	SDH
			STS-1 - T3 and CT3 VT-15 – T1 and VT	AU-3 - CE3, CT3, E3, T3, and VC1X AU4 - VC3, Tug-3 E3, Tug-3 VC1x, and Tug-3 T3
Required Circuit Emulation Configurations				
CEM Class	Yes	Yes	NA	NA
Payload Size	Yes	Yes	NA	NA
Dejitter Buffer	Yes	Yes	NA	NA
CEM Pseudowire				
Structure- Agnostic TDM over Packet (SATOP) (Framed/Unframed)	Yes	Yes	Yes	Yes
Circuit Emulation over Packet-Switched Network (CESoPSN)	NA	Yes	Yes	Yes
Circuit Emulation over Packet (CEP)	Yes	Yes	Yes	Yes
Clock Recovery Features				
Adaptive Clock Recovery	Yes	Yes	Yes	Yes
Differential Clock Recovery	Yes	Yes	Yes	Yes

	T1/E1	T3/E3	SONET	SDH
			STS-1 - T3 and CT3 **VT-15 – T1 and VT**	**AU-3 - CE3, CT3, E3, T3, and VC1X** **AU4 - VC3, Tug-3 E3, Tug-3 VC1x, and Tug-3 T3**
Network Clock	NA	NA	NA	NA
BERT Features				
BERT	Yes	Yes	Yes (only on T3 mode)	NA
BERT Error Injection	Yes	Yes	Yes	NA
CEM over MPLS QoS Support				
Classify MPLS Encapsulated Packets	Yes	Yes	Yes	Yes
Mark MPLS EXP on Imposed Labels	Yes	Yes	Yes	Yes

Related Documentation

- Alarm Configuring and Monitoring Guide
- 48-Port T1 or E1 CEM Interface Module Configuration Guide
- 48-Port T3 or E3 CEM Interface Module Configuration Guide