



## Installing ONS 15454 SDH FMEC-E1 Cards

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Product Name: 15454E-75E1-FMEC=

This document contains a description of FMEC-E1 card features, installation procedures, removal instructions, and technical specifications. Use this document in conjunction with the *Cisco ONS 15454 SDH Installation and Operations Guide* and the *Cisco ONS 15454 SDH Troubleshooting and Reference Guide* when working with FMEC-E1 cards.

This document contains the following sections:

- “FMEC-E1 Front Mount Electrical Connection Card Description” section on page 1
- “FMEC-E1 Card Specifications” section on page 2
- “Installation Procedures” section on page 3
- “Removal Procedures” section on page 5
- “Related Documentation” section on page 5
- “Obtaining Documentation and Submitting a Service Request” section on page 7

This document contains the following procedures:

“Installation Procedures” procedure on page 3

“Card Turn Up” procedure on page 4

“Verify Successful Turn Up of the FMEC-E1 Card” procedure on page 5

“Removal Procedures” procedure on page 5



**Note**

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For information about circuits and card capacities, see the *Cisco ONS 15454 SDH Installation and Operations Guide*.

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## FMEC-E1 Front Mount Electrical Connection Card Description

The ONS15454 SDH FMEC-E1 Front Mount Electrical Connection card ([Figure 1](#)) provides front mount electrical connection for the fourteen ITU-compliant G.703 E-1 ports of the E1-N-14 card. With FMEC-E1, each E1-N-14 port operates at 2.048 Mbits/s (Mbps) over a 75 ohms unbalanced 1.0/2.3 miniature coax connector.



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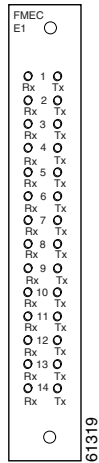
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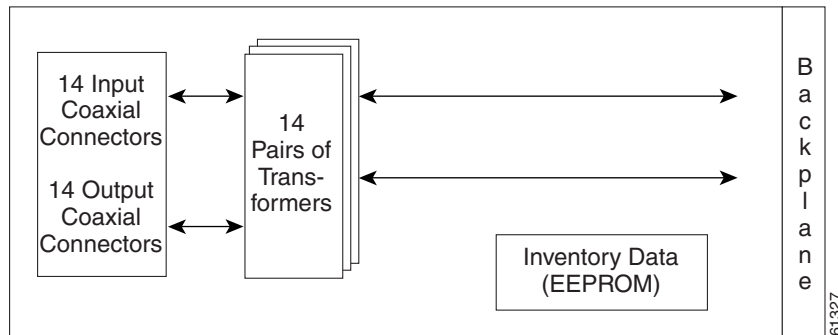
Figure 1 shows the FMEC-E1 faceplate. Figure 2 shows the block diagram.

**Figure 1** FMEC-E1 faceplate



You can install the FMEC-E1 card in any EFCA (Electrical Facility Connector Assy) slot from slot 18 to 22 or slot 25 to 29 on the ONS 15454 SDH. Each FMEC-E1 card port features E1-level inputs and outputs supporting cable losses of up to 6 dB @ 1024 kHz.

**Figure 2** FMEC-E1 block diagram



## FMEC-E1 Card-Level Indicators

The FMEC-E1 faceplate has no card-level LEDs.

## FMEC-E1 Card Specifications

- FMEC-E1 Input
  - Bit Rate: 2.048 MBits/s (Mbps) ± 50 ppm
  - Line Code: HDB-3

- Termination: Unbalanced coaxial cable
  - Input Impedance: 75 ohms  $\pm$  5%
  - Cable Loss: up to 6 dB @ 1024 kHz
  - FMEC-E1 Output
    - Bit Rate: 2.048 Mbits/s (Mbps)  $\pm$  50 ppm
    - Line Code: HDB-3
    - Termination: Unbalanced coaxial cable
    - Output Impedance: 75 ohms  $\pm$  5%
    - Pulse Shape: ITU-T G.703 Figure 15 / Table 7
    - Pulse Amplitude: ITU-T G.703 Figure 15 / Table 7
  - FMEC-E1 Electrical Interface
    - Connectors: 1.0/2.3 miniature coax connectors
  - Environmental
    - Operating Temperature: -5 to +45 degrees Celsius
    - Operating Humidity: 5 - 95%, non-condensing
    - Power Consumption: 0.00 W, 0.00 A (AMPS) @ -48V, 0.0 BTU/Hr.
  - Dimensions
    - Height: 182 mm, (7.165 in.)
    - Width: 32 mm, (1.25 in.)
    - Depth: 92 mm, (3.62 in.)
    - Depth with backplane connector: 98 mm, (3.87 in.)
    - Weight not including clam shell: 0.3 kg (0.7 lbs.)
  - Compliance
- ONS 15454 SDH cards, when installed in a system, comply with these standards:
- Safety: IEC 60950, EN 60950, UL 60950, CSA C22.2 No. 60950, TS 001, AS/NZS 3260

## Installation Procedures

Use this section if you are installing or removing the FMEC-E1 card for the first time. After you become familiar with ONS 15454 SDH card installation and boot up, use this section as a reference.



**Caution**

Always use the supplied electrostatic discharge (ESD) wristband when working with an ONS 15454 SDH. Plug the wristband cable into the ESD jack located on the lower right outside edge of the shelf assembly and ensure the shelf assembly is properly grounded.



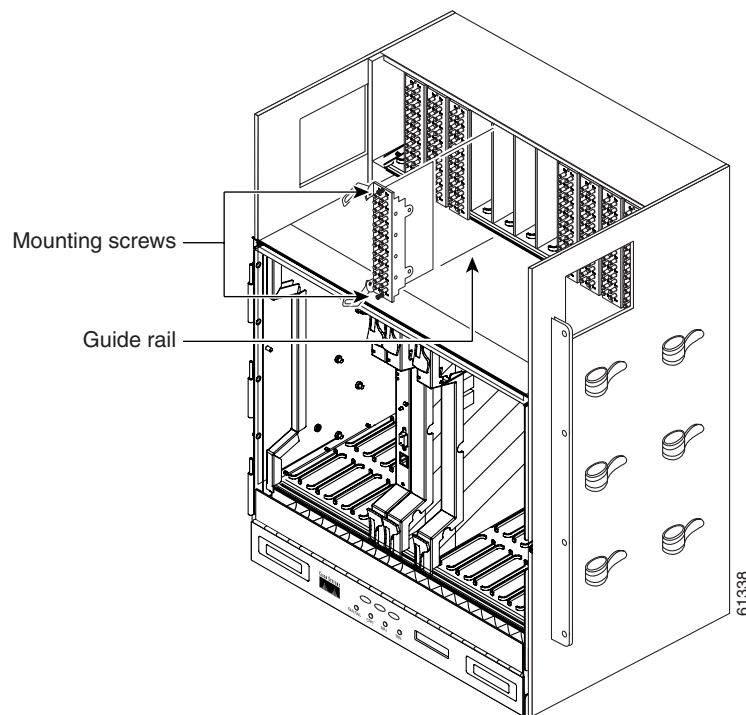
**Caution**

Hazardous voltage or energy may be present on the backplane when the system is operating. Use caution when servicing.

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- Step 1** Carefully insert the card into the rails of the desired slot ([Figure 3 on page 4](#)).
  - Step 2** Move the upper ejector down and the lower ejector up to enable the card being inserted into the backplane connectors.
  - Step 3** Gently push the card into the connector on the back plane.
  - Step 4** Tighten the front mounting screws with a Phillips or slot screwdriver.
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FMEC-E1 cards have electrical plugs that plug into electrical connectors on the shelf assembly backplane. When the ejectors are fully closed and the mounting screws are tightened, the card plugs into the shelf assembly backplane. [Figure 3 on page 4](#) shows general card installation.

**Figure 3** *Installing an FMEC card in an ONS 15454 SDH*



## Card Turn Up

Follow the steps in this section to verify card turn up. If one or more of the Cisco Transport Controller (CTC) software screen conditions according to [“Verify Successful Turn Up of the FMEC-E1 Card” section on page 5](#) are not met, re-install the card. Replace the unit if the faulty state persists.

## Verify Successful Turn Up of the FMEC-E1 Card

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- Step 1** Verify that power is applied to the shelf assembly.
  - Step 2** Verify that the FMEC-E1 card has been installed in the correct slot (Slot 18 to 22 or 25 to 29, for the E1-N-14 card in slot 1 to 5 or 13 to 17, respectively).
  - Step 3** Verify that the card appears in the correct slot on the CTC software screen.
  - Step 4** Verify that the card is white on the CTC software screen.
  - Step 5** Verify that the card is shown in Inventory on the CTC software screen.
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## Removal Procedures

Use this section if you are installing or removing the FMEC-E1 card for the first time. After you become familiar with ONS 15454 SDH card installation and boot up, use this section as a reference.



### Caution

Always use the supplied electrostatic discharge (ESD) wristband when working with an ONS 15454 SDH. Plug the wristband cable into the ESD jack located on the lower right outside edge of the shelf assembly and ensure the shelf assembly is properly grounded.



### Caution

Hazardous voltage or energy may be present on the backplane when the system is operating. Use caution when servicing.

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- Step 1** If there is traffic on the card, route this traffic to other interfaces.
  - Step 2** Disconnect all the coaxial cables with 1.0/2.3 miniature coax connectors from the FMEC card to be removed. Do not forget to mark all the connectors or cables for correct reinstallation afterwards.



### Note

To disconnect the coaxial cable from the FMEC, first pull the outer ring of the connector, then pull the connector. Pulling the cable without first having pulled the outer ring of the connector to release its locking can result in damage to the cable or the connector or both.

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- Step 3** Loosen the front mounting screws ([Figure 3 on page 4](#)).
  - Step 4** Move the upper ejector up and the lower ejector down to extract the card from the backplane connectors.
  - Step 5** Carefully remove the card from the shelf.
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## Related Documentation

- DOC-7813038= *Cisco ONS 15454 SDH Installation and Operations Guide*
- DOC-7813037= *Cisco ONS 15454 SDH Troubleshooting and Reference Guide*



# Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>

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