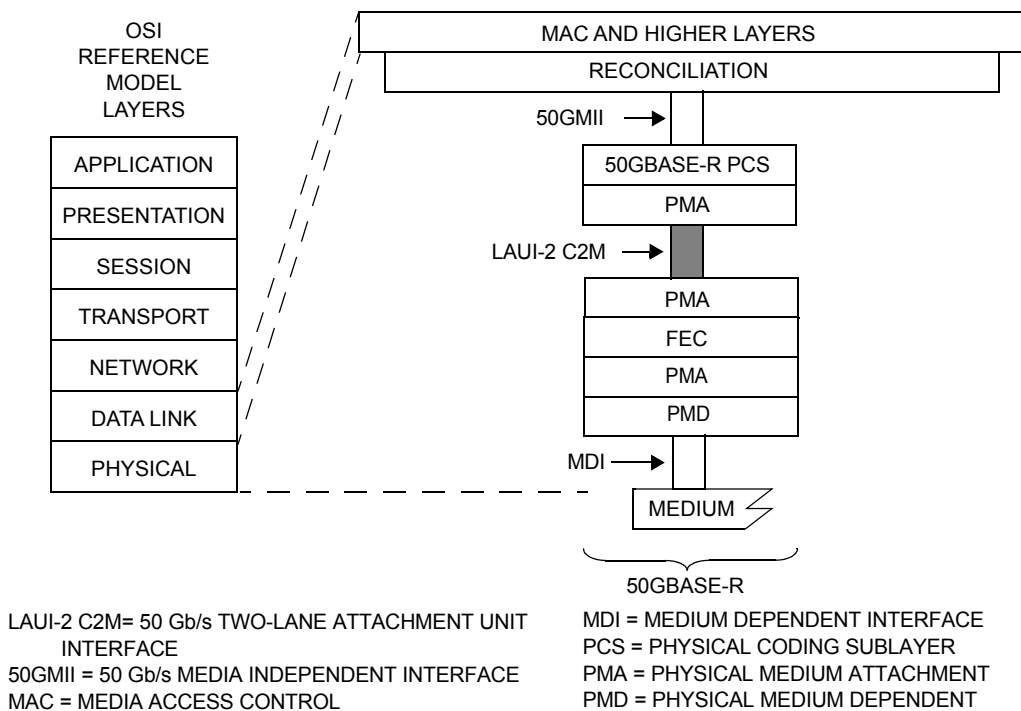# Annex 135C

(normative)

Chip-to-module 50 Gb/s 2-lane Attachment Unit Interface (LAUI-2 C2M)

135C.1 Overview

This annex defines the functional and electrical characteristics for the optional chip-to-module 50 Gb/s two-lane Attachment Unit Interface (LAUI-2 C2M). LAUI-2 C2M is a physical instantiation of the PMA service interface between the PCS and the FEC. Figure 135C–1 shows the relationship of the LAUI-2 C2M interface to the ISO/IEC Open System Interconnection (OSI) reference model. The C2M interface provides electrical characteristics and associated compliance points, which can optionally be used when designing systems with pluggable module interfaces.
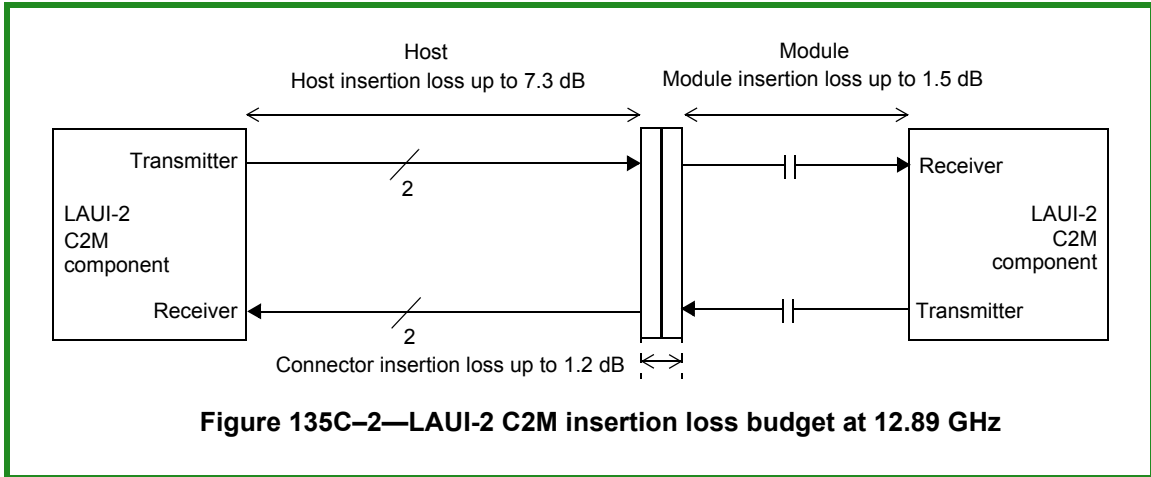
```
OSI
REFERENCE
MODEL
LAYERS

                                    MAC AND HIGHER LAYERS
                                       RECONCILIATION
                                 50GMII
APPLICATION
                                    50GBASE-R PCS
PRESENTATION
                                         PMA
SESSION
                 LAUI-2 C2M
TRANSPORT
                                         PMA
NETWORK
                                         FEC
DATA LINK
                                         PMA
PHYSICAL
                                         PMD

                                 MDI
                                      MEDIUM

                                       50GBASE-R

LAUI-2 C2M= 50 Gb/s TWO-LANE ATTACHMENT UNIT      MDI = MEDIUM DEPENDENT INTERFACE
            INTERFACE                             PCS = PHYSICAL CODING SUBLAYER
50GMII = 50 Gb/s MEDIA INDEPENDENT INTERFACE      PMA = PHYSICAL MEDIUM ATTACHMENT
MAC = MEDIA ACCESS CONTROL                        PMD = PHYSICAL MEDIUM DEPENDENT
```

Figure 135C–1—Example LAUI-2 C2M relationship to the ISO/IEC Open System Interconnection (OSI) reference model and the IEEE 802.3 Ethernet model

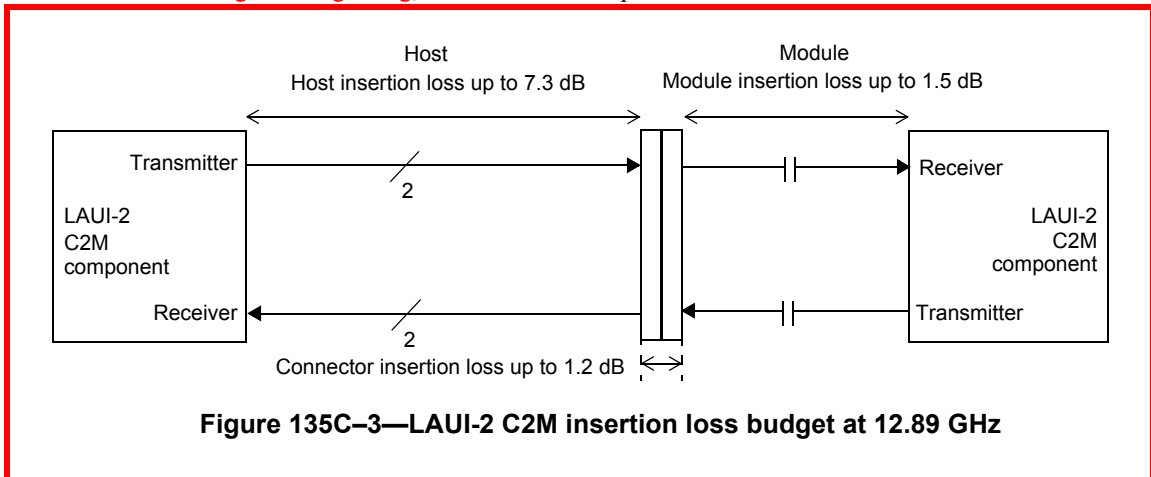LAUI-2 C2M is a physical instantiation of the PMA service interface between the PCS and the FEC.

The LAUI-2 C2M link is described in terms of a host LAUI-2 C2M component, a LAUI-2 C2M channel with associated insertion loss, and a module LAUI-2 C2M component. Figure 135C–3 depicts a typical LAUI-2 C2M application and summarizes the differential insertion loss budget associated with the C2M

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application. The supported insertion loss budget is characterized by Equation (83E–1) and illustrated in Figure 83E–3.

Host
Host insertion loss up to 7.3 dB

Module
Module insertion loss up to 1.5 dB

Transmitter

2

LAUI-2
C2M
component

Receiver

2

Connector insertion loss up to 1.2 dB

Receiver

LAUI-2
C2M
component

Transmitter

Figure 135C–2—LAUI-2 C2M insertion loss budget at 12.89 GHz

The LAUI-2 C2M interface comprises independent data paths in each direction. Each data path contains two differential lanes using NRZ signaling, which are AC-coupled within the module.

Host
Host insertion loss up to 7.3 dB

Module
Module insertion loss up to 1.5 dB

Transmitter

2

LAUI-2
C2M
component

Receiver

2

Connector insertion loss up to 1.2 dB

Receiver

LAUI-2
C2M
component

Transmitter

Figure 135C–3—LAUI-2 C2M insertion loss budget at 12.89 GHz

LAUI-2 C2M uses NRZ signaling. The nominal signaling rate for each lane is 25.78125 GBd.

The LAUI-2 C2M interface is defined using a specification and test methodology that is similar to that used for CEI-28G-VSR defined in OIF-CEI-03.1 [B55].

135C.1.1 Bit error ratio

The bit error ratio (BER) shall be less than 10^{-15} with any errors sufficiently uncorrelated to ensure an acceptably high mean time to false packet acceptance (MTTFPA) assuming 64B/66B coding.

135C.2 LAUI-2 C2M compliance point definitions

The compliance points for the LAUI-2 C2M interfaces are as defined for two CAUI-4 lanes in 83E.2.