

91.2 PMD Types

Similarly to power budget classes, asymmetric and symmetric PMDs are identified by PRX and PR designations, respectively.

The characteristics of the P2MP topology result in significantly different ONU and OLT PMDs. For example, the OLT PMD operates in a continuous mode in the transmit direction (downstream), but uses a burst mode in the receive direction (upstream). On the other hand, the ONU PMD receives data in a continuous mode, but transmits in a burst mode. To differentiate OLT PMDs from ONU PMDs, the OLT PMD name has a suffix “D” appended to it, where D stands for downstream-facing PMD, e.g., 10GBASE-PR-D1. ONU PMDs receive suffix “U” for upstream-facing PMD, e.g., 10GBASE-PR-U1.

In the downstream direction, the signal transmitted by the D-type PMD is received by all U-type PMDs. In the upstream direction, the D-type PMD receives data bursts from each of U-type PMDs.

Clause 91.2 defines several D-type and several U-type PMDs, that differ in their receive and/or transmit characteristics. Such PMDs are further distinguished by appending a digit after the suffix D or U, e.g., 10GBASE-PR-D1 or 10GBASE-PR-D2.

The following OLT PMDs (D-type) are defined in this section:

- 1) asymmetric D-type PMDs, transmitting at 10.3125 GBd continuous mode and receiving at 1.25 GBd burst mode:
 - i) 10/1GBASE-PRX-D1
 - ii) 10/1GBASE-PRX-D2
 - iii) 10/1GBASE-PRX-D3
- 2) asymmetric D-type PMDs, transmitting at 10.3125 GBd continuous mode and receiving at 10.3125 GBd burst mode:
 - i) 10GBASE-PR-D1
 - ii) 10GBASE-PR-D2
 - iii) 10GBASE-PR-D3

The following ONU PMDs (U-type) are defined in this section:

- 1) asymmetric U-type PMDs, transmitting at 1.25 GBd burst mode and receiving at 10.3125 GBd continuous mode:
 - i) 10/1GBASE-PRX-U1
 - ii) 10/1GBASE-PRX-U2
 - iii) 10/1GBASE-PRX-U3
- 2) symmetric U-type PMDs, transmitting at 10.3125 GBd continuous mode and receiving at 10.3125 GBd burst mode:
 - i) 10GBASE-PR-U1
 - ii) 10GBASE-PR-U3

A specific power budget is achieved by combining an OLT PMD (D-type) with an ONU PMD (U-type) as shown in Clause 91.2.1 below. Detailed PMD receive and transmit characteristics for D-type PMDs are given in Clause 91.4 and characteristics for U-type PMDs are presented in Clause 91.5. Every PMD has non-overlapping transmit and receive wavelength bands and operates over a single SMF.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54