_Description: Double-Clad Fiber Coupler, 1300 nm_

Item #: DC1300LEB  
SN: T002957

Operating Wavelength Range: 1250 - 1550 nm  
Maximum Single Mode Core Insertion Loss: 0.5 dB  
Minimum Multimode Inner Cladding Transfer: 60%

Fiber Type:  
- Double-Clad Fiber (Ports A and S): 9/105/125 µm  
- Multimode Fiber (Ports B and R): 200/220 µm

_Coupler Test Data_

<table>
<thead>
<tr>
<th>Input-Output Path</th>
<th>Port S to Port B (Multimode Inner Cladding)</th>
<th>Port A to Port S (Single Mode Core)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wavelength</strong></td>
<td>635 nm</td>
<td>1250 nm 1350 nm 1550 nm</td>
</tr>
<tr>
<td><strong>Transfer</strong></td>
<td>70%</td>
<td>1350 nm 1550 nm</td>
</tr>
<tr>
<td><strong>Insertion Loss</strong></td>
<td>0.10 dB 0.22 dB 0.41 dB</td>
<td>0.22 dB 0.41 dB</td>
</tr>
<tr>
<td><strong>Transmission</strong></td>
<td>97.6% 95.1% 91.0%</td>
<td>95.1% 91.0%</td>
</tr>
</tbody>
</table>

*a. All values are measured at room temperature without connectors. See Verification Test Setup for details.  
b. Multimode Transfer is flat over a wide wavelength range. Test Data at 635 nm is indicative of the performance over the 1250 - 1550 nm wavelength range.  
c. Multimode Transfer is defined as the ratio of the output power from Port B over the input power at Port S, as indicated in the coupler drawing above.  
d. The guaranteed operating range of the device is from 1250 to 1550 nm. It is shown by the gray shaded area on the accompanying graph.  
e. Insertion Loss (dB) is the ratio of the input power at Port A to the output power from the core of Port S as a function of wavelength.  
f. Calculated from Insertion Loss data above.*

_Coupler Test Data_

![Single Mode Transmission](image)

While this coupler is specified between 1250 and 1550 nm, Thorlabs provides data up to 1600 nm to provide insight into how this particular device would perform if used outside its guaranteed operating range. The out-of-band performance can vary from device to device.

Verified by: __________  Date: __________
Principle of Operation

Verification Test Setup

(1) Single Mode Insertion Loss/Transmission Measurement

The single mode input of the coupler is connected to a Broadband Light Source (BBS) through an SMF-28 fiber and a spool of double-clad fiber (DCF). The single mode coupler output is spliced to a coiled SMF-28 patchcord (to ensure cladding modes are stripped) that leads to an Optical Spectrum Analyzer (OSA). A spectrum is recorded before and after the fibers are fused to create the coupler. The difference between the two spectra can be defined as either Insertion Loss (dB) or Transmission (%).

(2) Multimode Transfer

The multimode input of the coupler is connected to a diffused 635 nm laser source through a Ø105 µm core / Ø125 µm cladding multimode fiber and a spool of DCF. Doing so ensures that the inner cladding modes are filled. The Ø200 µm core / Ø220 µm cladding fiber output of the coupler is connected to a silicon photodiode optical power meter. A first optical power is recorded. The coupler is then removed from the measurement setup and the DCF spool is connected directly to the same power meter. A second optical power is recorded. The Multimode Inner Cladding Transfer is defined as the ratio of the first to second power measurements (%).