

## Dense Wave Division Multiplexing (DWDM) Single Fiber OADM

AFL's DWDM OADM provide scalable wavelength management for new deployments and network upgrades, providing add/ drop of a single fiber channel from a common optical fiber. Passive circuit design utilizes proven thin-film filter technology featuring low insertion loss, high isolation, and superior environmental stability. OADM devices are available with 250  $\mu\text{m}$  or 900  $\mu\text{m}$  tails and with multiple connector options.

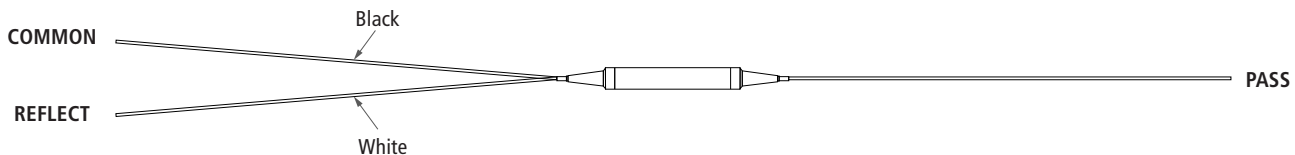
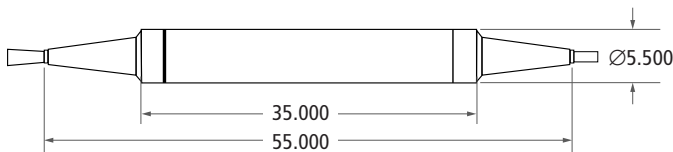
### Features

- 50 GHz and 100 GHz ITU-T channel spacing
- Low insertion loss/high isolation
- Epoxy-free optical path
- Express, upgrade and Tx/Rx test ports

### Applications

- CATV Systems
- Carrier Infrastructure
- Access Networks
- Small Cell

### Diagrams



### Ordering Information

| Model            | Specification    | Package Style  | ITU Channel Plan              | Channel  | Connectors  | Length & UoM   |
|------------------|------------------|--|-------------------------------|--|---|--|
| <b>DF</b>        | <b>A</b>         | <b>250</b>   | <b>100</b>                    | <b>Cxx</b>   | <b>XXX</b>  | <b>1.0</b>   |
| DF = DWDM Filter | A = AFL Standard | 250 = Bare Fiber (250 $\mu\text{m}$ )<br>900 = Light Duty (900 $\mu\text{m}$ ) | 050 = 50 GHz<br>100 = 100 GHz | Replace <b>xx</b> with Channel Number listed in DWDM ITU Channels table on last page of spec sheet.<br><br>C19 = Channel 19 with 191, 900 GHz and 1562.23 nm center wavelength | AFC = FC/APC Connectors<br>ALC = LC/APC Connectors<br>ASC = SC/APC Connectors<br>UFC = FC/UPC Connectors<br>ULC = LC/UPC Connectors<br>USC = SC/UPC Connectors<br>XXX = No Connectors | 0.5 = 0.5 Meter Tails<br>1.0 = 1.0 Meter Tails<br>1.5 = 1.5 Meter Tails<br>2.0 = 2.0 Meter Tails |

continued

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### Optical Specifications\* — DWDM, OADM, C and L Band, 50 GHz and 100 GHz Spacing

| PARAMETER                               | REQUIREMENT                 |                     |                          |                     |
|---|-----------------------------|---------------------|--------------------------|---------------------|
|   | 50 GHz                      |                     | 100 GHz                  |                     |
| <b>Input Power and Temperature</b>      |                             |                     |                          |                     |
| Max. Input Power Rating                 | 300 mW                      |                     |                          |                     |
| Operating Temperature/Humidity          | -40°C to 85°C; up to 95% RH |                     |                          |                     |
| Storage Temperature/Humidity            | -40°C to 85°C; up to 95% RH |                     |                          |                     |
| <b>Optical Passband</b>                 |                             |                     |                          |                     |
| Center Wavelength ( $\lambda_c$ ) (nm)  | See ITU Table on Page 3     |                     |                          |                     |
| Passband                                | $\lambda_c \pm 0.06$ nm     |                     | $\lambda_c \pm 0.125$ nm |                     |
| Min. Bandwidth @ -0.5 dB Points         | 0.12 nm                     |                     | 0.25 nm                  |                     |
| Max. Passband Flatness                  | 0.50 dB                     |                     | 0.50 dB                  |                     |
| <b>Insertion Loss</b>                   | <b>w/o Connector</b>        | <b>w/ Connector</b> | <b>w/o Connector</b>     | <b>w/ Connector</b> |
| Max. IL – Common to Pass                | 1.0 dB                      | 1.5 dB              | 1.0 dB                   | 1.5 dB              |
| Max. IL – Common to Reflect             | 0.8 dB                      | 1.3 dB              | 0.8 dB                   | 1.3 dB              |
| <b>Isolation</b>                        |                             |                     |                          |                     |
| Min. Adjacent Channel Isolation         | 25 dB                       |                     | 25 dB                    |                     |
| Min. Non-Adjacent Channel Isolation     | 35 dB                       |                     | 45 dB                    |                     |
| Min. Reflect Channel Isolation          | 10 dB                       |                     | 12 dB                    |                     |
| Max. Polarization Dependent Loss (PDL)  | 0.15 dB                     |                     |                          |                     |
| Max. Polarization Mode Dispersion (PMD) | 0.25 dB                     |                     |                          |                     |
| <b>Directivity</b>                      |                             |                     |                          |                     |
| Min. Directivity                        | 45 dB                       |                     |                          |                     |
| Min. Return Loss                        | 45 dB                       |                     |                          |                     |
| <b>Insertion Loss Thermal Stability</b> |                             |                     |                          |                     |
| Max. IL Thermal Stability               | 0.005 dB/C                  |                     |                          |                     |
| Max. Wavelength Thermal Stability       | 0.001 nm/C                  |                     |                          |                     |

\* Unless otherwise noted, optical specification applies across operating temperature range.

### Qualifications

| GOVERNING BODY | STANDARD CODE | COMPONENT |
|----------------|---------------|-----------|
| RoHS           | Compliant     | Cable     |

### Temperature Specifications

|  | 50 GHZ & 100 GHZ DWDM      |
|--|----------------------------|
| Operation Temperature, Relative Humidity | -40°C to +85°C, up to 95 % |
| Storage Temperature, Relative Humidity   | -40°C to +85°C, up to 95 % |

Contact AFL for further details.

continued  
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### DWDM ITU Channels

| CHANNEL NO. | FREQUENCY (GHz) | CENTER WAVELENGTH (nm) | CHANNEL NO. | FREQUENCY (GHz) | CENTER WAVELENGTH (nm) | CHANNEL NO. | FREQUENCY (GHz) | CENTER WAVELENGTH (nm) | CHANNEL NO. | FREQUENCY (GHz) | CENTER WAVELENGTH (nm) |
|-------------|-----------------|------------------------|-------------|-----------------|------------------------|-------------|-----------------|------------------------|-------------|-----------------|------------------------|
| C1          | 190,100         | 1577.03                | C19         | 191,900         | 1562.23                | C37         | 193,700         | 1547.72                | C55         | 195,500         | 1533.47                |
| H1          | 190,150         | 1576.61                | H19         | 191,950         | 1561.83                | H37         | 193,750         | 1547.32                | H55         | 195,550         | 1533.07                |
| C2          | 190,200         | 1576.20                | C20         | 192,000         | 1561.42                | C38         | 193,800         | 1546.92                | C56         | 195,600         | 1532.68                |
| H2          | 190,250         | 1575.78                | H20         | 192,050         | 1561.01                | H38         | 193,850         | 1546.52                | H56         | 195,650         | 1532.29                |
| C3          | 190,300         | 1575.37                | C21         | 192,100         | 1560.61                | C39         | 193,900         | 1546.12                | C57         | 195,700         | 1531.90                |
| H3          | 190,350         | 1574.95                | H21         | 192,150         | 1560.20                | H39         | 193,950         | 1545.72                | H57         | 195,750         | 1531.51                |
| C4          | 190,400         | 1574.54                | C22         | 192,200         | 1559.79                | C40         | 194,000         | 1545.32                | C58         | 195,800         | 1531.12                |
| H4          | 190,450         | 1574.13                | H22         | 192,250         | 1559.39                | H40         | 194,050         | 1544.92                | H58         | 195,850         | 1530.72                |
| C5          | 190,500         | 1573.71                | C23         | 192,300         | 1558.98                | C41         | 194,100         | 1544.53                | C59         | 195,900         | 1530.33                |
| H5          | 190,550         | 1573.30                | H23         | 192,350         | 1558.58                | H41         | 194,150         | 1544.13                | H59         | 195,950         | 1529.94                |
| C6          | 190,600         | 1572.89                | C24         | 192,400         | 1558.17                | C42         | 194,200         | 1543.73                | C60         | 196,000         | 1529.55                |
| H6          | 190,650         | 1572.48                | H24         | 192,450         | 1557.77                | H42         | 194,250         | 1543.33                | H60         | 196,050         | 1529.16                |
| C7          | 190,700         | 1572.06                | C25         | 192,500         | 1557.36                | C43         | 194,300         | 1542.94                | C61         | 196,100         | 1528.77                |
| H7          | 190,750         | 1571.65                | H25         | 192,550         | 1556.96                | H43         | 194,350         | 1542.54                | H61         | 196,150         | 1528.38                |
| C8          | 190,800         | 1571.24                | C26         | 192,600         | 1556.56                | C44         | 194,400         | 1542.14                | C62         | 196,200         | 1527.99                |
| H8          | 190,850         | 1570.83                | H26         | 192,650         | 1556.15                | H44         | 194,450         | 1541.75                | H62         | 196,250         | 1527.60                |
| C9          | 190,900         | 1570.42                | C27         | 192,700         | 1555.75                | C45         | 194,500         | 1541.35                | C63         | 196,300         | 1527.22                |
| H9          | 190,950         | 1570.01                | H27         | 192,750         | 1555.34                | H45         | 194,550         | 1540.95                | H63         | 196,350         | 1526.83                |
| C10         | 191,000         | 1569.59                | C28         | 192,800         | 1554.94                | C46         | 194,600         | 1540.56                | C64         | 196,400         | 1526.44                |
| H10         | 191,050         | 1569.18                | H28         | 192,850         | 1554.54                | H46         | 194,650         | 1540.16                | H64         | 196,450         | 1526.05                |
| C11         | 191,100         | 1568.77                | C29         | 192,900         | 1554.13                | C47         | 194,700         | 1539.77                | C65         | 196,500         | 1525.66                |
| H11         | 191,150         | 1568.36                | H29         | 192,950         | 1553.73                | H47         | 194,750         | 1539.37                | H65         | 196,550         | 1525.27                |
| C12         | 191,200         | 1567.95                | C30         | 193,000         | 1553.33                | C48         | 194,800         | 1538.98                | C66         | 196,600         | 1524.89                |
| H12         | 191,250         | 1567.54                | H30         | 193,050         | 1552.93                | H48         | 194,850         | 1538.58                | H66         | 196,650         | 1524.50                |
| C13         | 191,300         | 1567.13                | C31         | 193,100         | 1552.52                | C49         | 194,900         | 1538.19                | C67         | 196,700         | 1524.11                |
| H13         | 191,350         | 1566.72                | H31         | 193,150         | 1552.12                | H49         | 194,950         | 1537.79                | H67         | 196,750         | 1523.72                |
| C14         | 191,400         | 1566.31                | C32         | 193,200         | 1551.72                | C50         | 195,000         | 1537.40                | C68         | 196,800         | 1523.34                |
| H14         | 191,450         | 1565.90                | H32         | 193,250         | 1551.32                | H50         | 195,050         | 1537.00                | H68         | 196,850         | 1522.95                |
| C15         | 191,500         | 1565.50                | C33         | 193,300         | 1550.92                | C51         | 195,100         | 1536.61                | C69         | 196,900         | 1522.56                |
| H15         | 191,550         | 1565.09                | H33         | 193,350         | 1550.52                | H51         | 195,150         | 1536.22                | H69         | 196,950         | 1522.18                |
| C16         | 191,600         | 1564.68                | C34         | 193,400         | 1550.12                | C52         | 195,200         | 1535.82                | C70         | 197,000         | 1521.79                |
| H16         | 191,650         | 1564.27                | H34         | 193,450         | 1549.72                | H52         | 195,250         | 1535.43                | H70         | 197,050         | 1521.40                |
| C17         | 191,700         | 1563.86                | C35         | 193,500         | 1549.32                | C53         | 195,300         | 1535.04                | C71         | 197,100         | 1521.02                |
| H17         | 191,750         | 1563.45                | H35         | 193,550         | 1548.91                | H53         | 195,350         | 1534.64                | H71         | 197,150         | 1520.63                |
| C18         | 191,800         | 1563.05                | C36         | 193,600         | 1548.52                | C54         | 195,400         | 1534.25                | C72         | 197,200         | 1520.25                |
| H18         | 191,850         | 1562.64                | H36         | 193,650         | 1548.11                | H54         | 195,450         | 1533.86                | H72         | 197,250         | 1519.86                |

**NOTES:**

1. See Channel column to determine frequency and center wavelength values.
2. 100 GHz channels begin Cxx and 50 GHz channels begin with Cxx or Hxx.
3. Channels C16 (1564.68 nm) through C63 (1527.22 nm) reference C-BAND filter passband.