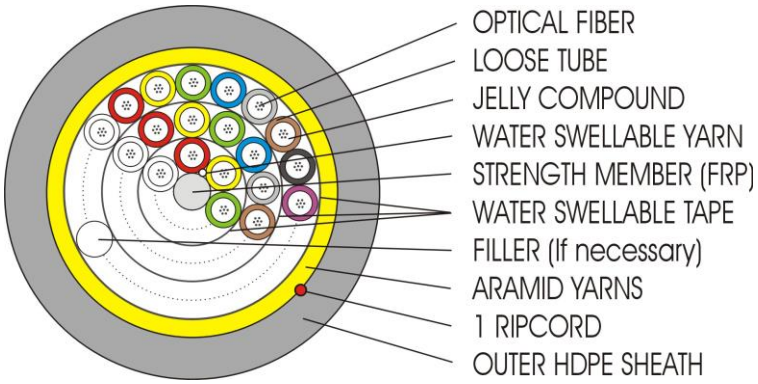
# ■ ADSS TYPE AERIAL INSTALLATION CABLE (288C ~ 432C, Span 80m)




- **SINGLE MODE OPTICAL FIBER (ITU-T G.652D, G.657A1)**
- **LOOSE TUBE (Jelly Filled)**
- **CENTRAL STRENGTH MEMBER (FRP)**
- **DRY CORE TYPE (Water Swellable Yarn & Water Swellable Tape)**
- **SZ STRANDING, 2 LAYER or 3 LAYER STRUCTURE**
- **OUTSIDE STRENGTH MEMBER (Aramid Yarns)**
- **ADSS_APE80M* SHEATH FOR DUCT INSTALLATION (Span 80m, Halogen free PE)**

| Fiber Counts | | 288C | 372C | 384C | 396C | 408C | 420C | 432C |
|---|---|---|---|---|---|---|---|---|
| Nom. cable diameter (mm) | | 17.3 | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 |
| Fibers per tube | | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Nom. loose tube diameter (mm) | | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 |
| Nom. outer sheath thickness (mm) | | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 |
| Min. bend radius (mm) | No load | 173 | 200 | 200 | 200 | 200 | 200 | 200 |
| | Under load | 346 | 400 | 400 | 400 | 400 | 400 | 400 |
| Max. pulling tension (N) | Installation | 8200 | 9000 | 9000 | 9000 | 9000 | 9000 | 9000 |
| | Operation | 4100 | 4500 | 4500 | 4500 | 4500 | 4500 | 4500 |
| Cable break load (kN) | | 19.0 | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 |
| Cable weight (kg/km) | | 220 | 273 | 274 | 275 | 276 | 277 | 278 |
| Recommended Initial Sag | | Span 80m, Sag 1.5% | | | | | | |
| After Installation (Worst case) | Sag (%) | 2.8% | 2.8% | 2.8% | 2.8% | 2.8% | 2.8% | 2.8% |
| | Tension (N) | 3300 | 3800 | 3800 | 3800 | 3800 | 3800 | 3800 |
| Worst case load condition (NESC “Medium” condition) | | Wind Pressure : 190 Pa, , Ice Thickness : 6.5mm<br>Wind Velocity : 65 km/Hr, Operation Temp. : -40℃ ~ + 70℃ | | | | | | |
| Recommended temperature range | | -40℃ ~ +70℃ (Transportation & Storage)<br>-10℃ ~ +50℃ (Installation)<br>-40℃ ~ +70℃ (Operation) | | | | | | |

● **Mechanical and Environmental Properties**

| Item | Test Method | Test Condition | Acceptance Criteria |
|---|---|---|---|
| Tensile strength | IEC 794-1-E1 | - Load: see table | Note 1), 2) |
| Crush | IEC 794-1-E3 | - Load: 2000 N/100mm | Note 1), 2) |
| Impact | IEC 794-1-E4 | - Impact energy : 1kg×1m (10 Nm)<br>- Impact diameter: 25mm | Note 1), 2) |
| Repeated bending | IEC 794-1-E6 | - Bending radius: 20×cable diameter<br>- Bending cycles: 20 | Note 1), 2) |
| Torsion | IEC 794-1-E7 | - Test length: 2m<br>- Twist angle: ±180 degrees<br>- Twist cycles: 10 | Note 1), 2) |
| Temperature cycling | IEC 794-1-F1 | - Temperature change: -40℃→+70℃ | Note 3) |
| Water penetration | IEC 794-1-F5 | - Cable length: 3m, Water height: 1m<br>- Duration time: 24 hrs | No water leak |

Note 1) Attenuation : ≤ 0.1dB 2) No mechanical damage
3) Attenuation : ≤ 0.2dB/km (each procedure), ≤ 0.1dB/km (after test)

**Annex 1. Color Code of Optical Fiber and Loose Tube**

| No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13~18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Color | White | Red | Yellow | Green | Blue | Grey | Brown | Black | Violet | Turquoise | Orange | Pink | Natural |

**Annex 2. Optical Fiber Cable Unit Composition**

| Cable Core | | The count of optical fiber per loose tube and unit composition | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | U1 | U2 | U3 | U4 | U5 | U6 | U7 | U8 | U9 | U10 | U11 | U12 | U13 | U14 | U15 | U16 | U17 | U18 |
| 288C | 1 layer | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | | | | | | | | | |
| | 2 layer | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | | | |
| 372C | 1 layer | 12 | 12 | 12 | 12 | 12 | 12 | | | | | | | | | | | | |
| | 2 layer | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | | | | | | |
| | 3 layer | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | F | F | F | F | F |
| 384C | 1 layer | 12 | 12 | 12 | 12 | 12 | 12 | | | | | | | | | | | | |
| | 2 layer | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | | | | | | |
| | 3 layer | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | F | F | F | F |
| 396C | 1 layer | 12 | 12 | 12 | 12 | 12 | 12 | | | | | | | | | | | | |
| | 2 layer | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | | | | | | |
| | 3 layer | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | F | F | F |
| 408C | 1 layer | 12 | 12 | 12 | 12 | 12 | 12 | | | | | | | | | | | | |
| | 2 layer | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | | | | | | |
| | 3 layer | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | F | F |
| 420C | 1 layer | 12 | 12 | 12 | 12 | 12 | 12 | | | | | | | | | | | | |
| | 2 layer | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | | | | | | |
| | 3 layer | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | F |
| 432C | 1 layer | 12 | 12 | 12 | 12 | 12 | 12 | | | | | | | | | | | | |
| | 2 layer | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | | | | | | |
| | 3 layer | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |

Note) F: Filler (Natural color)

## Annex 3. Optical Properties of Cable

1. Optical Properties of ITU-T G.652D (LWPF : Low Water Peak Fiber)

| Items of Properties | | Value |
|---|---|---|
| Geometrical Characteristics | Effective group index (step index)<br>@1310nm<br>@1550nm & 1625nm | <br>1.467<br>1.468 |
| | Mode field diameter @1310nm | 9.2 ± 0.4 ㎛ |
| | Core/Clad concentricity error | ≤ 0.5 ㎛ |
| | Cladding diameter | 125 ± 0.7 ㎛ |
| | Cladding non-circularity | ≤ 1.0 % |
| | Coating diameter (Uncolored) | 245 ± 5 ㎛ |
| Optical Characteristics | Cutoff wavelength (λ cc) | ≤ 1260nm |
| | Attenuation coefficient<br>@1310nm Maximum (Typical)<br>@1383nm Maximum<br>@1550nm Maximum (Typical)<br>@1625nm Maximum | <br>≤ 0.35 dB/km (≤ 0.34 dB/km)<br>≤ 0.31 dB/km<br>≤ 0.22 dB/km (≤ 0.20 dB/km)<br>≤ 0.24 dB/km |
| | Bending loss @1625nm<br>30mm mandrel radius, 100 turns | <br>≤ 0.05 dB |
| | Attenuation uniformity | ≤ 0.05 dB |
| | Chromatic dispersion coefficient<br>@1285~1330nm<br>@1290~1330nm<br>@1550nm | <br>≤ 3.2 ps/nm.km<br>≤ 2.8 ps/nm.km<br>≤ 18 ps/nm.km |
| | Zero dispersion wavelength | 1300~1322nm |
| | Zero dispersion slope | ≤ 0.092 ps/nm$^2$.km |
| | PMD Link design value | ≤ 0.08 ps/√ km |
| | PMD (maximum individual fiber) | ≤ 0.2 ps/√ km |
| Mechanical Characteristics | Proof test level | 100 kpsi (0.69Gpa). |
| | Coating strip (Nominal) | 3.0 N/3cm |
| Environmental Characteristics (Uncabled fiber) | Temperature dependence<br>(-60℃~+85℃) | ≤ 0.05dB/km (@1310nm/@1550nm) |
| | Temperature-Humidity Cycling<br>(-10℃~+85℃/98% relative humidity) | ≤ 0.05dB/km (@1310nm/@1550nm) |

## 2. Optical Properties of ITU-T G.657A1 (LBRF : Low Bending Radius Fiber)

| Items of Properties | | Value |
|---|---|---|
| Geometrical Characteristics | Effective group index (step index)<br>@1310nm<br>@1550nm & 1625nm | <br>1.468<br>1.469 |
| | Mode field diameter @1310nm | 8.8 ± 0.4 ㎛ |
| | Core/Clad concentricity error | ≤ 0.7 ㎛ |
| | Cladding diameter | 125 ± 0.7 ㎛ |
| | Cladding non-circularity | ≤ 0.7 % |
| | Coating diameter (Uncolored) | 245 ± 5 ㎛ |
| Optical Characteristics | Cutoff wavelength (λ cc) | ≤ 1260nm |
| | Attenuation coefficient<br>@1310nm Maximum (Average)<br>@1383nm Maximum<br>@1550nm Maximum (Average)<br>@1625nm Maximum | <br>≤ 0.35 dB/km (≤ 0.34 dB/km)<br>≤ 0.31 dB/km<br>≤ 0.22 dB/km (≤ 0.20 dB/km)<br>≤ 0.24 dB/km |
| | Bending loss (@1550nm/@1625nm)<br>Φ 30mm mandrel, 10 turns<br>Φ 20mm mandrel, 1 turn | <br>≤ 0.25 dB / ≤ 1.00 dB<br>≤ 0.75 dB / ≤ 1.50 dB |
| | Attenuation uniformity | ≤ 0.05 dB |
| | Chromatic dispersion coefficient<br>@1285~1330nm<br>@1290~1330nm<br>@1550nm | <br>≤ 3.2 ps/nm.km<br>≤ 2.8 ps/nm.km<br>≤ 18 ps/nm.km |
| | Zero dispersion wavelength | 1300~1322nm |
| | Zero dispersion slope | ≤ 0.092 ps/nm$^2$.km |
| | PMD Link design value | ≤ 0.08 ps/√ km |
| | PMD (maximum individual fiber) | ≤ 0.2 ps/√ km |
| Mechanical Characteristics | Proof test level | 100 kpsi (0.69Gpa) |
| | Coating strip (Nominal) | 3.0 N/3cm |
| Environmental Characteristics (Uncabled fiber) | Temperature dependence<br>(-60℃~+85℃) | ≤ 0.05dB/km (@1310nm/@1550nm) |
| | Temperature-Humidity Cycling<br>(-10℃~+85℃/98% relative humidity) | ≤ 0.05dB/km (@1310nm/@1550nm) |

**Revision Table**

| Rev. No | Date | Page | Description |
|---|---|---|---|
| R0 | Apr.23.2018 | 1~3 | ● Initial release<br>Spec No : MC-2018-DUCATEL-ADSS_80M(288~432C)-R0<br>- G.652D 288, 372, 384, 396, 408, 420, 432C |
| R0 | Aug.31.2020 | 1~5 | ● Add the Annex 3. Optical Properties (ITU-T G.652D, G.657A1)<br>Spec No : MC-2018-DUCATEL-ADSS_80M(288~432C)-R0<br>- G.652D 288, 372, 384, 396, 408, 420, 432C<br>- G.657A1 288, 372, 384, 396, 408, 420, 432C<br><br>● Add the Revision Table |
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