



## 2. Cable Identification

### 2.1 Sheath marking

**2019 GYTS 48C G.652D =XXXXM=**

**XXXXX** : Manufacturer's name  
**2019** : Manufacturing year  
**GYTS 48C G.652D** : Cable type & size  
**=XXXXM=** : Mark of meters

*\*The marking is printed every 1 meter*

### 2.2 Fiber color code

No.	1	2	3	4	5	6
Color	Blue	Orange	Green	Brown	Gray	White
No.	7	8	9	10	11	12
Color	Red	Black	-	-	-	-

### 2.3 Loose tube (LT) & filler rod (FR) color code

Fiber count	Element no.								
	1	2	3	4	5	6	7	8	9
48	LT	LT	LT	LT	LT	LT	--	--	--

### 3. Cable Structure & Parameter

Fiber count	Max. fiber count per tube	Total unit count (LT + FR)	Sheath thickness (nominal*)	Overall diameter (nominal**)	Weight (approx.)
			mm	mm	kg/km
48	12	6 (6LT + 0FR)6LTx8C	1.8	10.8	110

\* The nominal sheath thickness may have a tolerance with  $\pm 0.2\text{mm}$ .

\*\* The nominal overall diameter may have a tolerance with  $\pm 0.4\text{mm}$ .

### 4. Performance of Cabled Optical Fiber

The performance of cabled optical fiber (ITU-T Rec. G.652D)

Item	Specification
Attenuation coefficient @ 1310 nm @ 1383 nm @ 1550 nm @ 1625 nm	$\leq 0.35$ dB/km $\leq 0.32$ dB/km $\leq 0.21$ dB/km $\leq 0.24$ dB/km
Point discontinuity	$\leq 0.05$ dB
Cable cut-off wavelength	$\leq 1260$ nm
Zero-dispersion wavelength	1300 ~ 1324 nm
Zero-dispersion slope	$\leq 0.092$ ps/(nm <sup>2</sup> .km)
Chromatic dispersion @ 1288 ~ 1339 nm @ 1271 ~ 1360 nm @ 1550 nm @ 1625 nm	$\leq 3.5$ ps/(nm. km) $\leq 5.3$ ps/(nm. km) $\leq 18$ ps/(nm. km) $\leq 22$ ps/(nm. km)
PMD	$\leq 0.2$ ps/km <sup>1/2</sup>
Mode field diameter @ 1310 nm	9.2 $\pm$ 0.4 $\mu\text{m}$
Core / Clad concentricity error	$\leq 0.5$ $\mu\text{m}$
Cladding diameter	125.0 $\pm$ 0.7 $\mu\text{m}$
Cladding non-circularity	$\leq 1.0\%$
Primary coating diameter	245 $\pm$ 10 $\mu\text{m}$
Proof test level	100 kpsi (=0.69 Gpa), 1%
Temperature dependence 0°C~ +70°C @ 1310 & 1550nm	$\leq 0.1$ dB/km

## 5. Performance of Optical Fiber Cable

5.1 Cable bending radius: 10 x Cable diameter (static)  
 20 x Cable diameter (dynamic)

5.2 Application temperature range

Operating temperature range : -40°C to +70°C  
 Storage / Transport temperature range : -40°C to +70°C  
 Installation temperature range : -20°C to +60°C

5.3 Mechanical & environmental performance test

S/N	Item	Test Method	Acceptance Condition
1	Tensile Strength IEC 794-1-E1	- Load: 1,500 N - Length of cable under load: 50 m - load time: ≥1min.	- Loss change ≤ 0.1 dB @1550 nm - Fiber strain ≤ 0.33% - No fiber break and no sheath damage.
2	Crush Test IEC 794-1-E3	- Load: 1,000 N/100 mm - Load time: ≥1min.	- Loss change ≤ 0.1 dB @1550 nm - No fiber break and no sheath damage.
3	Impact Resistance IEC 794-1-E4	- Points of impact: 3 - Times of per point: 1 - Impact energy: 4.5 N.m - Radius of hammer head: 12.5mm - Impact rate: 2 sec/cycle	- Loss change ≤ 0.1 dB @1550 nm - No fiber break and no sheath damage.
4	Repeated Bending IEC 794-1-E6	- Bending radius: 20 x cable diameter - Load: 150 N - Flexing rate: 3 sec/cycle - No. of cycle: 30	- Loss change ≤ 0.1 dB @1550 nm - No fiber break and no sheath damage.
5	Torsion IEC 794-1-E7	- Length: 1 m - Load: 150 N - Twist rate: 1 min/cycle - Twist angle: ±180° - No. of cycle: 10	- Loss change ≤ 0.1 dB @1550 nm - No fiber break and no sheath damage.
6	Water Penetration Test IEC 794-1-F5B	- Height of water: 1 m - Sample length: 3 m - Test time: 24 hours	- No water shall have leaked from the opposite end of cable.
7	Temperature Cycling Test IEC 794-1-F1	- Temperature step: +20°C → -40°C → +70°C → +20°C - Time per each step: 12 hrs - Number of cycle: 2	- Loss change ≤ 0.05 dB/km@1550 nm - No fiber break and no sheath damage.
8	Compound Flow IEC 794-1-E14	- Sample length: 30 cm - Temp: 70°C ± 2°C - Time: 24 hours	- No compound flow

## 6. Packing and Marking

### 6.1 Packing

- 6.1.1 Each single cable length been wound on wooden drum.
- 6.1.2 Standard drum length is 3000, 4000 & 5000m  $\pm$ 5%.
- 6.1.3 Covered by plastic buffer sheet.
- 6.1.4 Sealed by strong wooden battens.
- 6.1.5 At least 1m of cable inner end should be reserved for testing.

### 6.2 Marking

#### 6.2.1 Cable drum

- Manufacturer brand;
- Roll-direction arrow;
- Cable outer end position indicating arrow;
- The word "**OPTICAL FIBER CABLE**";
- Origin, The word "**MADE IN CHINA**";
- Caution plate indicating the correct method for loading, unloading and convey the cable;
- *Other customer information such as contract no., project no., and delivery destination. (if needed)*

#### 6.2.2 Marking plate

- Product name;
- Cable type and size;
- Drum length in meters;
- Gross / Net weight in kilograms;
- Drum number;
- Manufacturer's name;
- Manufacturing year and month;
- *Other customer information such as contract no., project no., and delivery destination. (if needed)*

### 6.3 Cable quality certificate documents

- Test report.

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