

Optical fiber / Loose tube / Gel free / Corrugated steel tape / PE outer jacket

Standards

ITU-T G.652, 657, IEC 60793, 60794-1-2
 ISO 9001:2015, 14001:2015, TIA 598-C, 598-D
ANSI/ICEA S-87-640-2016
RUS 7 CFR 1755
 GR 20 Core compliant glass



Application

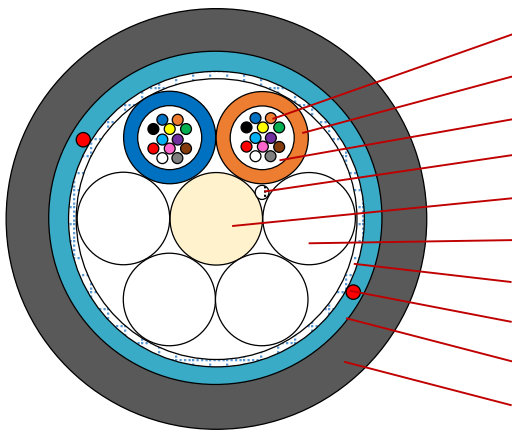
Fiber to the home
 Fiber to the cell tower
 Small cell and DAS network
 Local area network
 Long haul communication system

Features

All-dry construction with water blocking yarn in core
 UV-resistant outer jacket
 Contains corrugated steel tape for additional durability

Cable Cross Section

In case of 24C fiber cable



- Optical fiber**
- Loose tube:** PBT or PP
- Dry block(s):** Water blocking yarn in tube
- Dry block(s):** Water blocking yarn in core
- Central strength member:** FRP (PE coated, if necessary)
- Filler:** Natural color
- Water blocking tape**
- Ripcord(s)**
- Armor:** Corrugated steel tape
- Outer jacket:** Black color MDPE or HDPE

Cable Construction

Fiber count	Unit position	Active tube	Fibers per tube	Nominal cable outer diameter		Nominal cable weight	
				inch	mm	lbs/kft	kg/km
12 ~ 72	6	1 ~ 6	12	0.480	12.2	91	135
96	8	8	12	0.539	13.7	114	170
144	12	12	12	0.669	17.0	161	240
192 ~ 216	18 (6+12)	16 ~ 18	12	0.689	17.5	161	240
288	24 (9+15)	24	12	0.787	20.0	208	310
432	18 (6+12)	18	24	0.846	21.5	229	340
576	24 (9+15)	24	24	0.965	24.5	292	435

Fiber Characteristics for Single Mode Fiber

Fiber type		ITU-T G.652D	ITU-T G.657A1
Mode field diameter (MFD)		9.2 μm ± 0.4 μm @1310 nm	8.9μm ± 0.4 μm @1310 nm
Mode field concentricity error		≤ 0.8 μm	
Cladding diameter		125 μm ± 1 μm	
Cladding non-circularity		≤ 1.0 %	
Coating diameter		245 μm ± 15 μm	
Attenuation	Up to 288 F	≤ 0.35 dB/km @ 1310 nm ≤ 0.25 dB/km @ 1550 nm	
	Up to 576 F	≤ 0.40 dB/km @ 1310 nm ≤ 0.30 dB/km @ 1550 nm	
Chromatic dispersion		≤ 3.5 dB/km @ 1285 ~ 1330 nm ≤ 18 dB/km @ 1550 nm	
Cable cut-off wavelength		≤ 1260 nm	
Zero dispersion wavelength		1300 nm ~ 1324 nm	
Zero dispersion slope		≤ 0.092 ps/nm ² .km	
Proof test		Nom. 100 kpsi	

Fiber & Tube Identification

Color code	#1 ~ #12	Blue	Orange	Green	Brown	Grey	White	Red	Black	Yellow	Violet	Pink	Aqua
	#13 ~ #24	Blue *	Orange *	Green *	Brown *	Grey *	White *	Red *	#20	Yellow *	Violet *	Pink *	Aqua *

*: Fiber with black color dots, Tube with a black color stripe

#20: Natural color fiber with black color dots, Black color tube with a white or yellow color stripe

Temperature Range

Installation	- 22 °F ~ 140 °F (- 30 °C ~ + 60 °C)
Operation, Storage, Transport	- 40 °F ~ 158 °F (- 40 °C ~ + 70 °C)

Cable Bend radius & Marking & Packing

With load	20 X Cable diameter
Without load	10 X Cable diameter

Jacket Marking & Packing

Marking	Sequence	Customer (Upon request), Part number , Serial number (4~5 digits), Fiber type, Fiber count, Manufacturer, Manufacture year (YYYY), Length marking (Every 2 feet or 1mtrs),
	Example	BU-9E-24-P-A-SS-MD-F-0 00001 G652D 24F GAON CABLE 2021 00002FT
	Method	Hot foil indent (White color)
Packing	Length	Standard 15,000 ft

Mechanical & Environmental Tests (Based on GR-20 core & ICEA S-87-640)

Test items	Test method	Description	Acceptance criteria ¹⁾
Tensile strength	IEC 794-1-2 E1	≥ 90 m, 40 D ²⁾ , 2,700 N, 60 min	Δ ≤ 0.15 dB, after test
Crush resistance	IEC 794-1-2 E3	2,200 N / 100 mm plate, 10 min	Δ ≤ 0.15 dB, after test
Impact resistance	IEC 794-1-2 E4	9.8 N.m, 3 different points	Δ ≤ 0.15 dB, after test
Cable bend	IEC 794-1-2 E11	20 D, 4 turns	Δ ≤ 0.15 dB, after test
Torsion	IEC 794-1-2 E7	2m sample, 50N, 10 cycles, ± 180°	Δ ≤ 0.15 dB, after test
Water penetration	IEC 794-1-2 F5	3m sample, 1m height, 24 h	No leakage
Temperature cycling	IEC 794-1-2 F1	≥ 500 m sample, soak: 12 h, 2 cycles, + 23 °C, - 40 °C, + 70 °C, + 23 °C	Δ ≤ 0.15 dB/km, after test

¹⁾ It shall be measured at 1550nm for single mode fiber. The acceptance measurement equipment error is 0.02dB.

²⁾ Cable diameter

Part number

Description		BU – <u>P1</u> – <u>P2</u> – <u>P3</u> – <u>P4</u> – <u>P5</u> – <u>P6</u> – <u>P7</u> – <u>P8</u>	
Fiber type	<u>P1</u>	9E: G.652D	A1: G.657A1
Fiber count	<u>P2</u>	12 ~ 576	
Tube material	<u>P3</u>	P: PBT	Y: PP
Fibers per tube	<u>P4</u>	A: 12	B: 24
Construction	<u>P5</u>	SS: Single jacket single armor	
Jacket material	<u>P6</u>	MD: MDPE	HD: HDPE
Length unit	<u>P7</u>	F: Feet	M: Meter
Special requirements	<u>P8</u>	0: No special requirement	

Example (SJSA, 652D, 24F cable, PBT tube, MDPE jacket, FT unit): **BU-9E-24-P-A-SS-MD-F-0**

Revised Record

Revised number	Date	Description
5	Oct, 15, 2020	Modify Mechanical & Environmental Performance & Tests
6	Feb, 19, 2021	Remove characteristics of multi-mode fiber, G.657A2
7	Sep, 14, 2021	Add standards (ICEA, RUS), Application, zero dispersion wavelength, marking method, part number