

# Fiber Optic Cable Solutions



 **ACENTURY  
RADIOCOMM**

Dear valued customer,

Acentury has had over a decade of experience for interference issue of Cellular indoor/ outdoor systems. With more 5G bands added into Cellular spectrum, we've seen more and more passive intermodulation (PIM) related issues, which are usually caused by either internal components/ cables or external structures, magnetic materials, etc. We knew that the high PIM rejection solution could help a lot for such kind of issues. With the support of Acentury's innovative environment, Acentury Radiocomm developed -165dBc extra low PIM RF components and cables to help this industry known issue.

Our mission statement is to "Accelerate wireless communications innovation globally" and my vision for Acentury Radiocomm is creating a new standard to reduce the increasing PIM issues. I appreciate you taking the time to learn more about Acentury Radiocomm. We would love to hear from you if you have any questions.

Yours truly,

Fan Zhang

Vice President of Engineering  
Acentury Radiocomm

A handwritten signature in black ink, appearing to read 'Fan Zhang', is displayed on a light gray background.



## Acentury Radiocomm – trusted globally

Radiocomm, the network components division of Acentury Inc., was launched in 2013 and developed a reputation for its superior technical performance, reliability, and customization services. We pride ourselves in creating a unique customer experience from product development to on-time product delivery. We help service providers, infrastructure equipment manufacturers, educational institutions, government agency departments, and system integrators meet their complex and dynamic requirements.



Adaptors



Attenuators



Filters



Combiners



Tappers



Coaxial Cable



Fiber Cable



Couplers



Splitters



Terminators

Low PIM everything.

# Radiocomm Fiber Optic Cables

Radiocomm offers a wide range of fiber cable solutions using G.652D, G.654, or G.657 fiber to meet the telecommunications industry requirements. Radiocomm also offers customized solutions with fast quote and delivery lead times that are cost-competitive and tailored to our customer's needs.

## Fiber Cable Categories

- Aerial Fiber Cable
- Airblown Fiber Cable
- In-building/Indoor Fiber Cable
- Toneable Fiber Cable
- Submarine Fiber Cable
- Ribbon Fiber Cable
- Hybrid Cable
- Flat Drop Fiber Cable
- Duct or Direct Bury Fiber Cable



# Why Radiocomm?



## Ultra-low loss and large effective area optical fiber

Comprehensive solutions for submarine, long-haul and Metro Networks



## Fast turnaround and delivery

Fast turnaround times and delivery for samples and production volumes



## A full line of products and solutions

From land to sea, long-haul trunk lines, FTTH and data centers.



## We stand by our products

Durable, high-quality construction with flexible options and competitive pricing.



*"Your team is innovative, customer first and very responsive."*

- Rated by our Tier 1 Carrier Customers

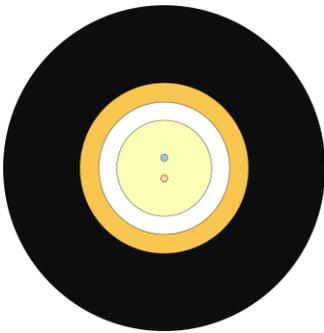
# Fiber Cable Categories



## Aerial Fiber Cable

Aerial fiber optic cables are usually used for installing outside the pole. It is specially designed to protect against natural or man-made damage/theft.

- Aerial Self-Support Fiber Cable
- Total Dry Self-Support Double Jacket Fiber Cable



## Airblown Fiber Cable

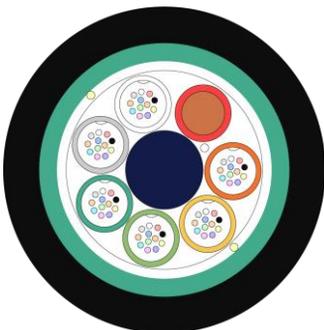
Compressed air is used to blow lightweight optical fiber cables through tubing, eliminating potential damage to fibers during installation.

- Central Tube Airblown Fiber Cable
- Microduct Airblown Fiber Cable



## In-building/Indoor Fiber Cable

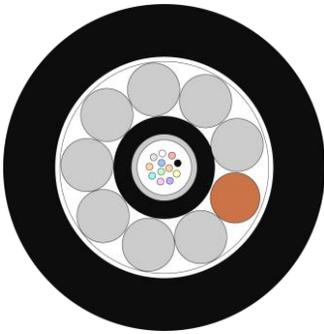
- Single Sheath Dry Core Inter/Intrabuilding Fiber Cable
- Distribution Multi-Fiber Cable
- FT6 Rated Indoor Fiber Cable



## Toneable Fiber Cable

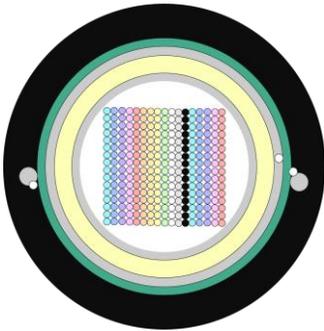
Recommended for duct installation.

- Toneable Armored Fiber Cable
- Toneable Fiber Cable



## Submarine Fiber Cable

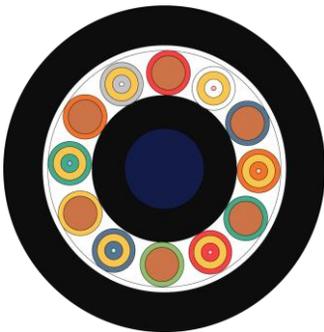
Recommended for use under rivers, seas, and lakes. Different fiber cables would be used for different depths.



## Ribbon Fiber Cable

Constructed as a ribbon of optical fibers formed into a flat strip that helps save space, time, and money.

- Single Jacket Ribbon Fiber Cable with Armor
- Central Tube Totally Dry Ribbon Fiber Cable with Armor
- All Dielectric Single Jacket Ribbon Fiber Cable



## Hybrid Cable

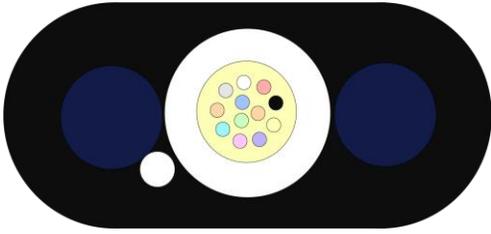
The combination of power and fiber cables for hybrid usage especially for cellular/5G applications.

- 12 AWG Hybrid Cable
- 14 AWG Hybrid Cable
- 16 AWG Hybrid Cable



## Duct or Direct Bury Fiber Cable

- Single Jacket Fiber Cable
- Single Jacket with Armor Fiber Cable
- Double Jacket Dielectric Fiber Cable
- Double Jacket with Armor Fiber Cable
- Triple Jacket Double Armor Fiber Cable



## Flat Drop Fiber Cable

Used for last-mile FTTH applications.

- Non-Toneable Flat Drop Fiber Cable
- Toneable Flat Drop Fiber Cable
- Self-support Flat Drop Non-Toneable Ribbon Fiber Cable

## CUSTOMER SUCCESS STORY

# How We Delivered 192km of Fiber for A Major Telco in Just 3 Weeks During the COVID Holiday Season



## The Customer Challenge

Acentury works hard to help our global partners and clients. Read on to see how we were able to help a major South American telecommunication service provider to expand and improve their broadband internet service by rolling out fiber to the homes (FTTH) in a large swath of the country.

Telecommunication service providers require supplier partners who can deliver an end-to-end customer experience. Procuring high quality products covers only one facet of their needs. Fast and reliable service with timely delivery of product samples and production volumes are just as important. Here are a few real-world examples of how we helped a major telecom provider in South America with their dynamic needs during the 2020 COVID year:

In mid-August 2020, we were asked for a sample of Acentury Radiocomm's GJYXFCH Self-Supporting Bow-Type Drop Fiber Cable. We supplied and delivered a 500-meter fiber cable sample from the United States to South America in just 3 weeks.

As per the customer's request, we shipped it in the regular-size drum so they could get a feel of how the fiber cable rolled out of the drum.

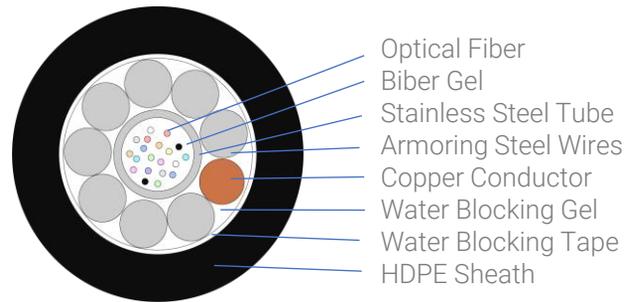
In mid-October 2020, we provided a competitively priced quote for 600km of FTTH fiber cable with a fast lead time of 10-12 weeks, which was fast compared to quotes from other fiber providers.

In late December 2020, while this order was being produced, the same customer sent a separate order for fiber cables to be delivered as soon as possible. Despite the COVID holiday season, we pushed for production in less than 3 weeks and shipped 200km of fiber cable via air. The FTTH fiber cables were delivered in South America on time and as promised.

The FTTH fiber cables were used in the customer's FTTH project, and they are very happy with the product quality.

## CUSTOMER SUCCESS STORY

# Overcoming Brutal and Freezing Arctic Conditions



Acentury is always innovating to help our global partners and clients. Read on to see how we overcame brutal and freezing conditions to help an Alaskan telecommunication service provider expand and improve their broadband internet service in the Arctic Region.

The Alaskan environment presented several challenges. For one, the government would not allow construction for fiber cable deployment in certain areas. As a result, fiber cables were directly dropped into water or placed on the surface without any protection. The cable would be exposed to many different dangers: stretching and bending due to freeze/thaw cycles, crushing risk from rocks, ice or vehicles, and even damage from wildlife.

The region experiences huge swings in temperature -- as low as  $-60^{\circ}\text{C}$  during the winter, but also as high as  $+70^{\circ}\text{C}$  in the summer due to solar heat load.

To address the extreme cold weather challenge, the engineering team devised a special solution that extends the fiber cable's operating temperature range from  $-40^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$  to the required  $-60^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$ .

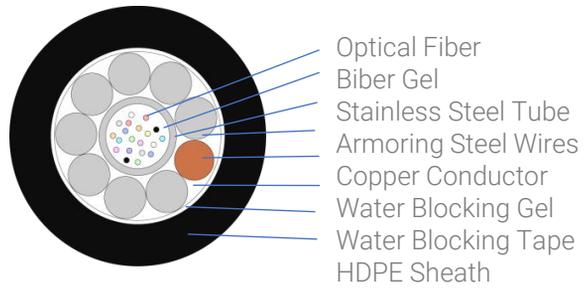
To address the risk from freezing and thawing and damage due to ice, rocks and wildlife, the team designed a rugged fiber cable with strong breaking loads (tensile strength) and crush loads (pressure and squeeze). Steel armor was added for protection.

Considering the cable would be deployed both on land and in water, the team designed the fiber cable to be water resistant.

Although we were competing with another well-known European-based global submarine fiber cable manufacturer, the Alaskan telecom finally chose Acentury Radiocomm's UOC-LW-30kN-48G.652.D (30kN Cable Breaking Load and 5kN Crush Load) Cold-Weather Inshore Fiber Cable Solution.

FEATURED PRODUCT

# Cold-Weather Optical Fiber Cable (UOC-LW-30kN-48G.652.D)



## Optical Fiber Specs

Category	Description	Specification
Application	Operation temperature	-60 °C~+70 °C
	Installation temperature	-60 °C~+45 °C
	Storage temperature	60 °C~+70 °C
	Water depth (max.)	1000m
Geometric Characteristics	Cladding diameter	125.0 ± 0.7 μm
	Cladding non-circularity	≤ 1%
	Core-cladding concentricity error	≤ 0.6 μm
	Coating diameter (uncoloured)	235 to 255 μm
	Coating diameter (coloured)	235 to 265 μm
	Coating-cladding concentricity error	≤ 12 μm
Transmission Characteristics	Attenuation coefficient at 1310 nm	≤ 0.350 dB/km (Avg ≤0.340dB/km)
	Attenuation coefficient at 1550 nm	≤ 0.220 dB/km (Avg ≤0.210dB/km)
	Mode-filled diameter @1310nm	9.0 ±0.4 μm
	Cable cutoff wavelength (λ <sub>cc</sub> )	≤ 1260 nm
	MAC @1310nm	≤ 7.3
	Zero Dispersion Wavelength (λ <sub>0</sub> )	1300 ≤ λ <sub>0</sub> ≤ 1324 nm
	Zero Dispersion Slope (S <sub>0</sub> ) at λ <sub>0</sub>	0.073 to 0.092 ps/(nm <sup>2</sup> .km)
	Dispersion coefficient at 1550 nm	13.3 to 18.6 ps/(nm.km)
	Dispersion coefficient at 1625 nm	17.2 to 23.7 ps/(nm.km)
	Maximum individual fiber PMD	≤ 0.1 ps/√km
	Link design value, PMDQ (Q=0.01%, N=20)	≤ 0.08 ps/√km
	Macrobending loss (100 turns, 30mm radius)	≤ 0.1dB at 1625 nm

Category	Description	Specification
Environment Characteristics	Damp heat	$\leq 0.05$ dB/km @1550 and 1625nm
	Dry heat	$\leq 0.05$ dB/km @1550 and 1625nm
	Change of temperature	$\leq 0.05$ dB/km @1550 and 1625nm
	Water immersion	$\leq 0.05$ dB/km @1550 and 1625nm
Mechanical Characteristics	Proof stress level	$\geq 200$ kpsi (1.38Gpa)
	Coating strip force	$1.0N \leq F_{ave} \leq 5.0N$ and $1.0N \leq F_{peak} \leq 8.9N$
	Tensile strength (median) for 0,5 m specimen length	$F_{50\%} \geq 3.8Gpa$
	Stress corrosion susceptibility parameter(nd)	$\geq 20$
	Fiber curl radius	$\geq 2$ m

## Dimensions and Descriptions

Item	Unit	Nominal Value
Fiber core number	/	48
Thickness of stainless steel loose tube	mm	$0.25 \pm 0.05$
Outer diameter of stainless steel loose tube	mm	$4.25 \pm 0.1$
Armor - Galvanized steel wire structure	mm x No.	$\Phi (1.78 \pm 0.05) \times 9$
Copper conductor structure	mm x No.	$\Phi (1.78 \pm 0.05) \times 1$
Thickness of HDPE sheath	mm	2.6
Outer diameter of finished optical cable	mm	$13.6 \pm 1.5$
Approximate weight of optical cable in air	kg/km	333
Approximate weight of optical cable in seawater	kg/km	187

## Main Mechanical And Electrical Performance

Item	Unit	Nominal Value
The cable breaking load (CBL)	kN	30
The nominal transient tensile strength (NTTS)	kN	20
The nominal operating tensile strength (NOTS)	kN	10
Impact	J	100
Crush	kN/100mm	5
Conductor DC resistance (20°C)	$\Omega$ /km	$\leq 7$
Insulation resistance	G $\Omega$ ·km	$\geq 10$
Approximate weight of optical cable in air	kg/km	333
Minimum bending radius (Tension-free)	mm	500

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