

# FiberHome Optical Access Network Infrastructure Solution

FiberHome Telecommunication Technologies CO.,LTD



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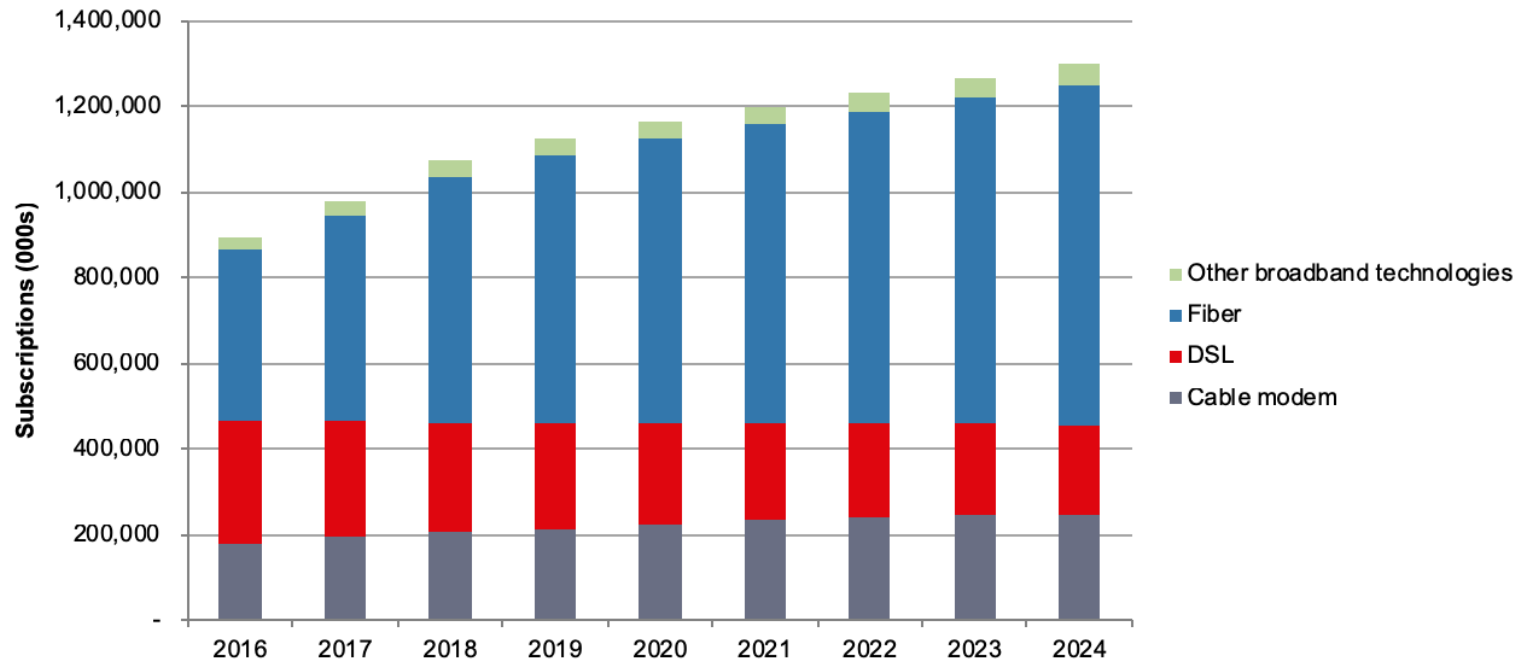
**INTRODUCTION OF FIBERHOME ODN**

**02**

**FIBERHOME PRODUCTS AND APPLICATION CASES**



# Global Fixed Broadband Technology Development Trend



- By 2024, global fixed broadband subscription will be **1.3 billion**
- Technically, the global DSL subscriptions will fall, **FTTH** is the trend. For regional market size, Asian countries leads the way while European and American following behind;
- By 2024, global FTTH subscription is predicted to be around **800 million**.

Subscriptions (000s)

Segment	2016	2017	2018	2019	2020	2021	2022	2023	2024
Cable modem	179,726	196,202	206,164	215,052	224,749	232,823	239,361	244,595	248,097
DSL	284,261	267,041	254,159	244,346	237,437	229,912	221,529	212,769	203,923
Fiber	399,418	478,849	573,463	626,435	661,676	695,062	727,976	760,653	794,467
Other broadband technologies	30,643	33,736	37,200	36,731	38,068	39,672	42,055	46,447	52,976
Fixed broadband total	894,048	975,828	1,070,985	1,122,563	1,161,931	1,197,468	1,230,921	1,264,465	1,299,462



# FiberHome development in FTTx field



## Optical Fiber Cable



## PON Equipment



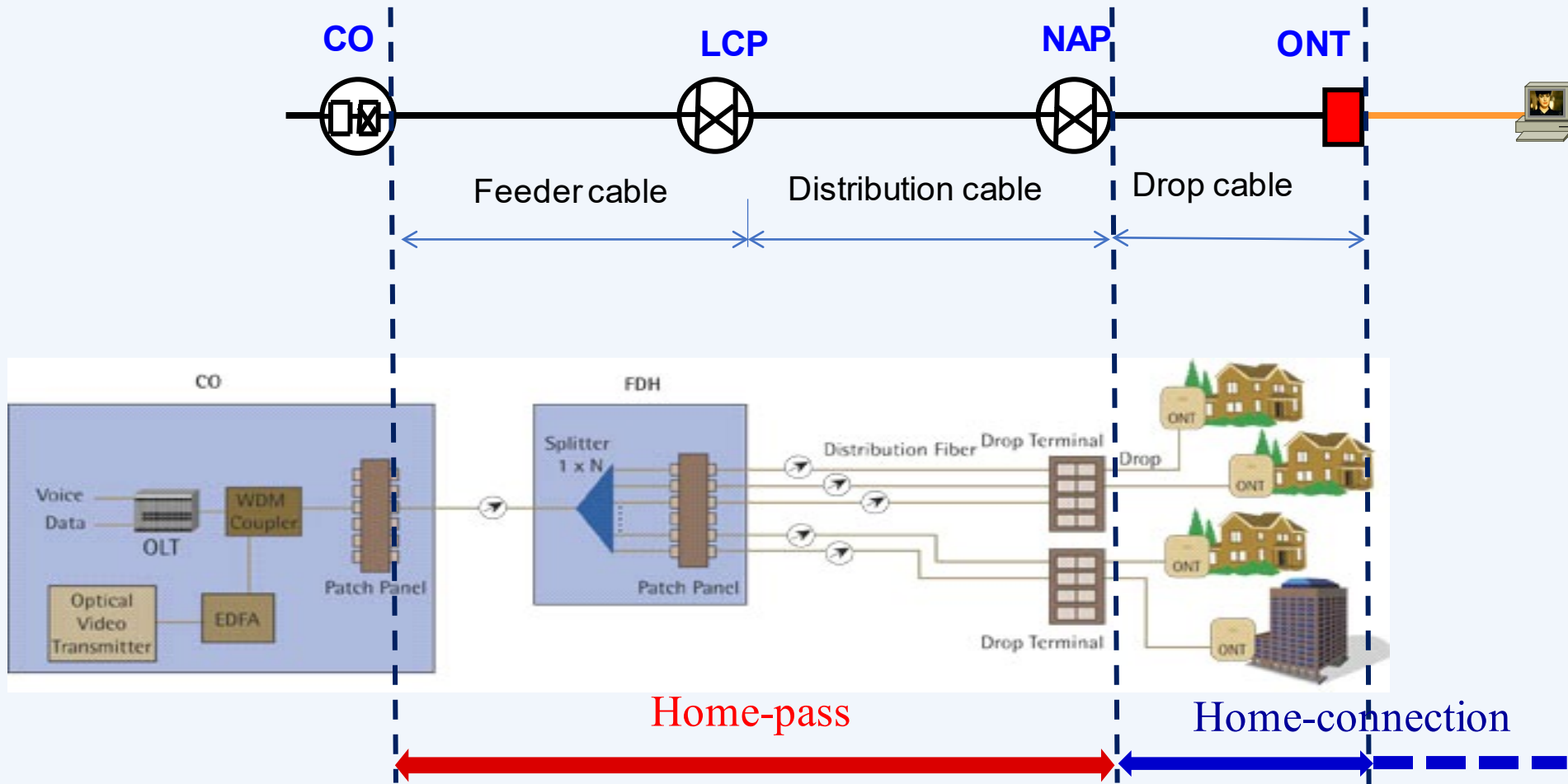
## ODN products







# FTTx Network Architecture





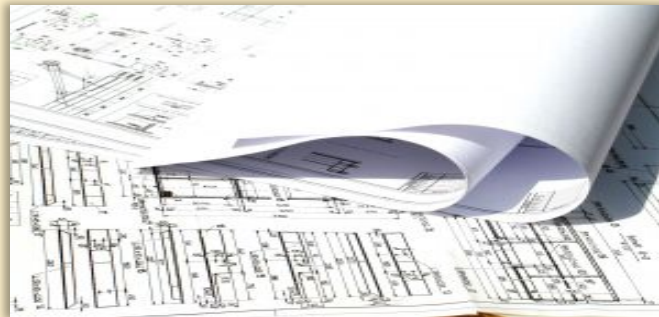
# Overall Capability

## End to End ODN Product Solution Provision



- Full ODN **industrial chain**
- **End-to-End** ODN solution
- Advanced quality control processes
- **Fast delivery** ability
- Market share and brand influence over 42 countries, serve for over **100 million** subscribers globally

## ODN Network Planning and Design



- **Tailor-made** network design
- Professional ODN design teams and creatively provides reliable and stable network design, save the **CAPEX and OPEX**
- Flexible product **customization** capability

## Engineering and Service



- Started to provide **FTTH Turn-key** service since 2005, more than **20 million** lines network deployment globally.



# Full ODN Product Family

## Rack & Cabinet



ODF rack



FDC rack

## Joint Closure



In-line type



Dome type

## Splitter



Rack Mount



Cassette Type



Micro Type

## FDP/FTB

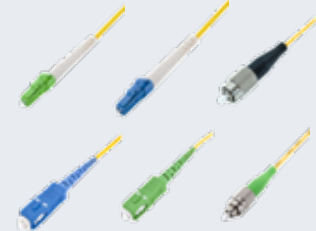


FDP

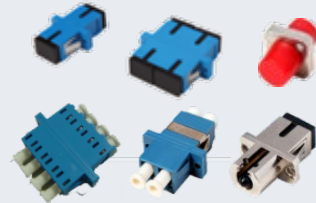


FTB

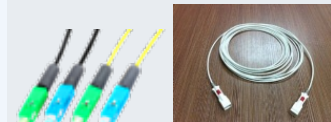
## Accessories



Pigtail & Patch cord














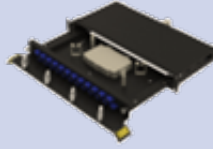




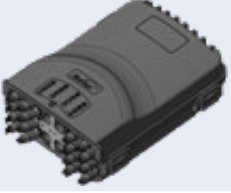




Adapter



FAC & BIPC



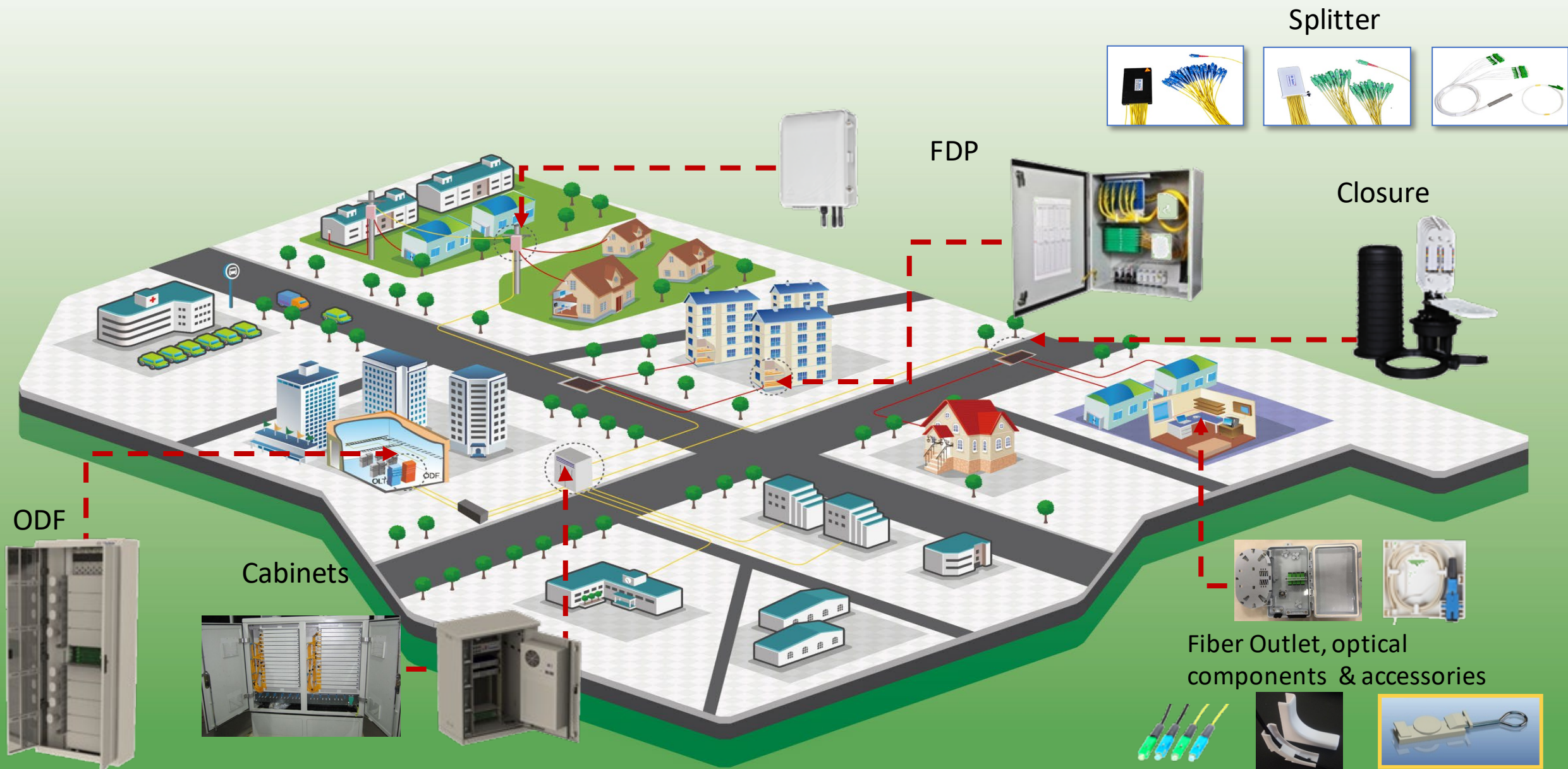
# Customization Experience - Examples

Customer	Time	Customization	Photo
	2011~2015	<ul style="list-style-type: none"> <li>Outdoor Fiber Distribution Cabinet</li> <li>Pedestal Distribution Mini Cabinet</li> <li>Plastic Wall-mount/Underground DP</li> <li>Bending Insensitive Patch Cord</li> </ul>	   
	2013	<ul style="list-style-type: none"> <li>Armored Rat-bite Resistance Patch Cord</li> <li>Smart Intermediate Distribution Frame</li> <li>Direct Splice Frame</li> </ul>	  
	2012	<ul style="list-style-type: none"> <li>Compact ODF chassis</li> <li>Compact Joint Closure</li> </ul>	 
	2013~2016	<ul style="list-style-type: none"> <li>Outdoor Active Network Cabinet</li> <li>Compact riser box</li> <li>Pre-connectorized OTB and OFC</li> </ul>	   
	2016	<ul style="list-style-type: none"> <li>FDT Cabinet</li> <li>FAT</li> </ul>	  





# ODN Network Overview







# Highlight(1)--ODN Platform and Resources

FiberHome

IZONE  
TELECOM

- **Four** Manufacture-Base located in Wuhan, Guangdong, Zhejiang and Xinjiang.



- FiberHome HQ, three factories
- Full ODN products manufacture
- **50,000** square meter area



- PLC splitter, optical components, factory
- Innovation Centre



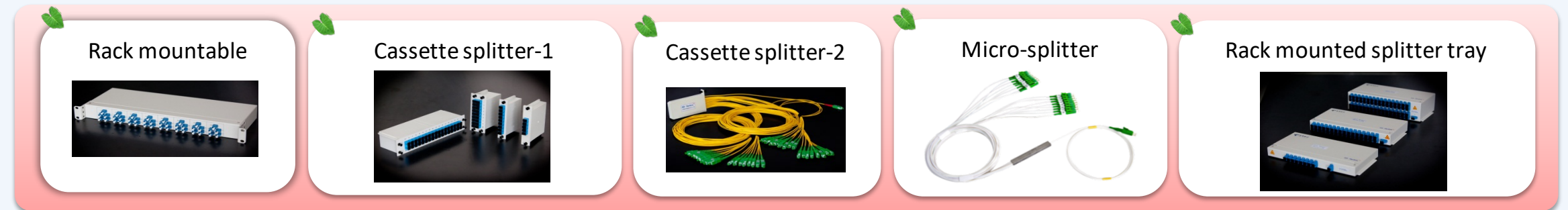
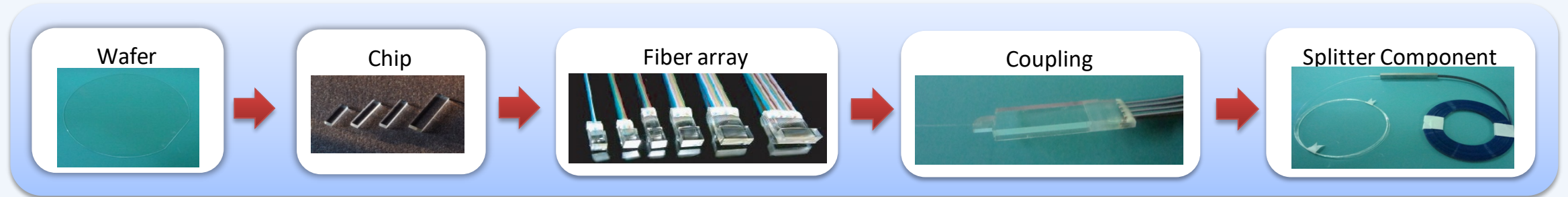
- Plastic ODN Products factory, e.g. Closure, Fiber Terminal Box







# Highlight(2)--Full ODN industrial chain





# Highlight(3)--Quality Assurance

ISO certificate



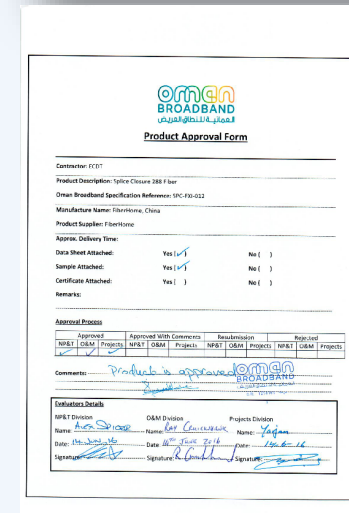
TUV certificate for Cabinet



Telcordia certificate for splitter



Client approval certificates



- ISO quality system certificates
- International authorized organization/lab's certificates
- Type approval certificates awarded by specific operators



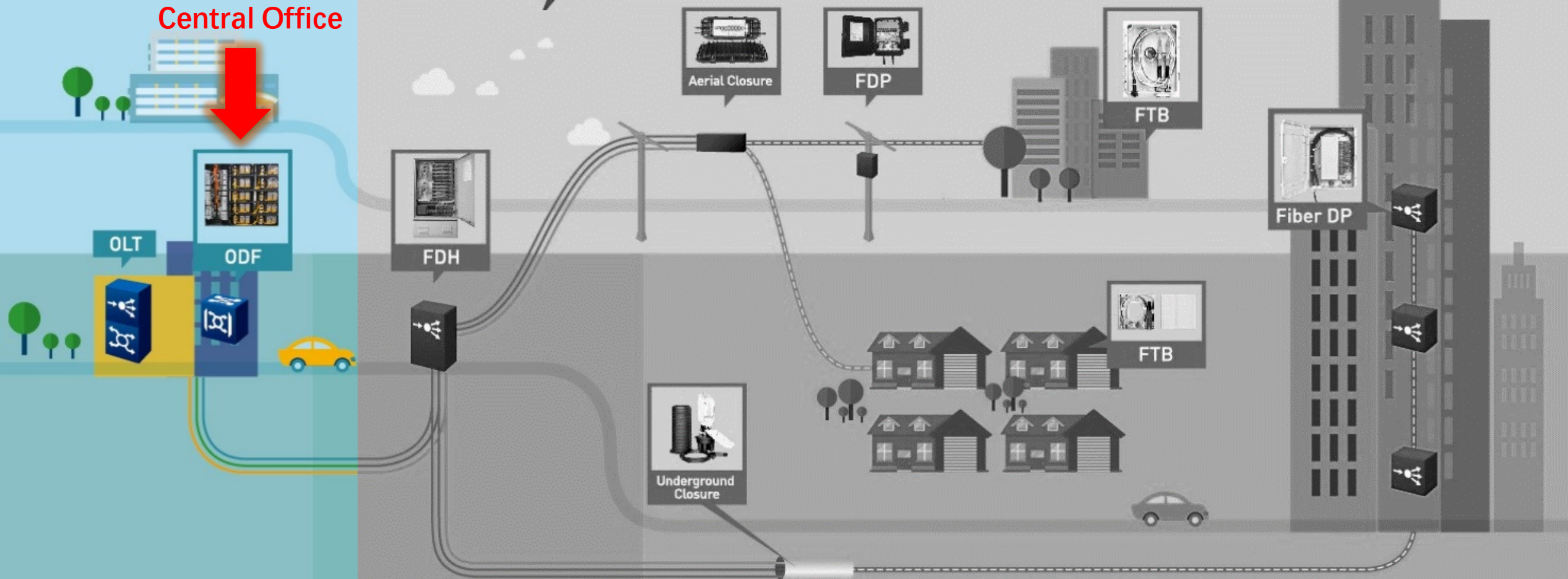
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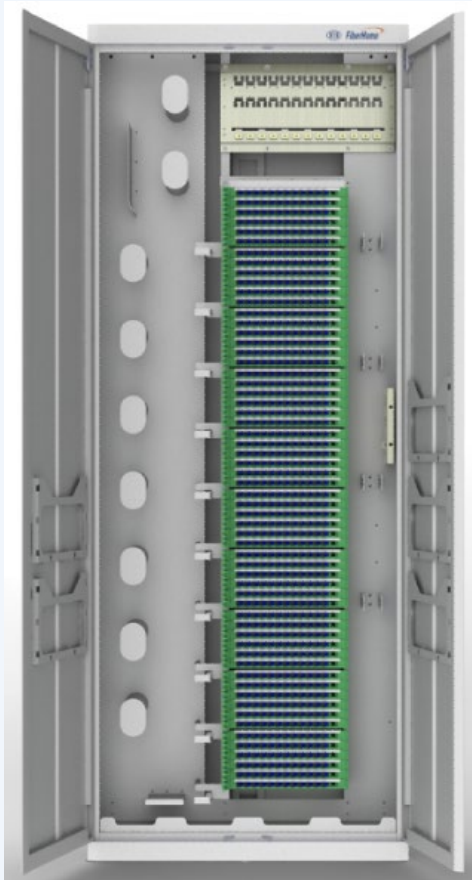
# FiberHome E2E ODN Solution-Telecom Room





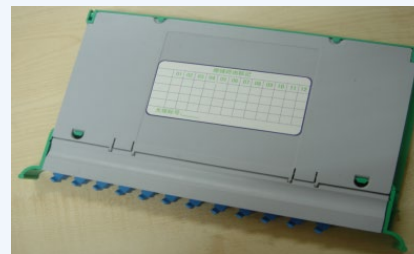


# Optical Distribution Frame – Tray design



**GPX09T**

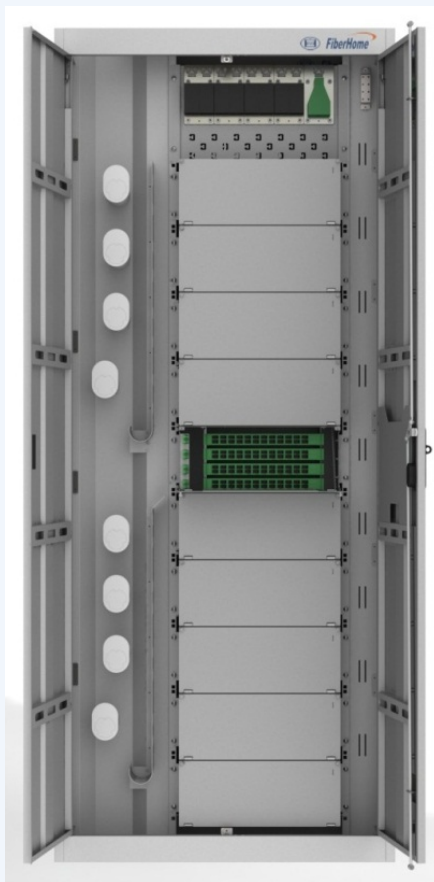
Type	Size (H x W x D, mm)	Configurable Capacity	RP12 tray configuration(pcs)
GPX09T-A1	2600×840×300	864	72
GPX09T-A2	2200×840×300	720	60
GPX09T-A3	2000×840×300	648	54
GPX09T-A4	2600×600×300	576	48
GPX09T-A5	2200×600×300	504	42
GPX09T-A6	2000×600×300	360	30
GPX09T-A7	2000×600×300	288	24



**Splice and termination tray RP12**



# Optical Distribution Frame – 19 inch design

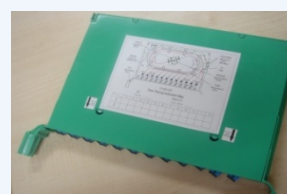


**GPX260**

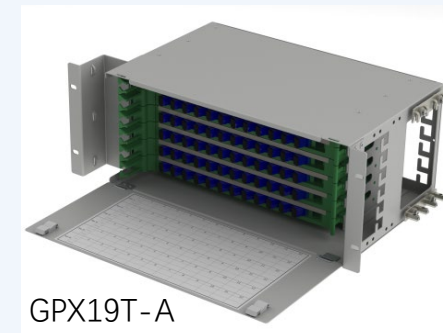
Type	Size (H x W x D, mm)	Configurable Capacity	Sub-rack configuration
GPX260-A1	2600×900×300	864	12 sets GPX19T-A72
			9 sets GPX19T-B96
GPX260-A2	2200×900×300	720	10 sets GPX19T-A72
		768	8 sets GPX19T-B96
GPX260-A3	2000×900×300	576	8 sets GPX19T-A72
		672	7 sets GPX19T-A96
GPX260-A4	2600×900×350	1152	12 sets GPX19T-B96
GPX260-A5	2200×900×350	960	10 sets GPX19T-B96
GPX260-A6	2000×900×350	768	8 sets GPX19T-B96



**RP12**



**RP24**

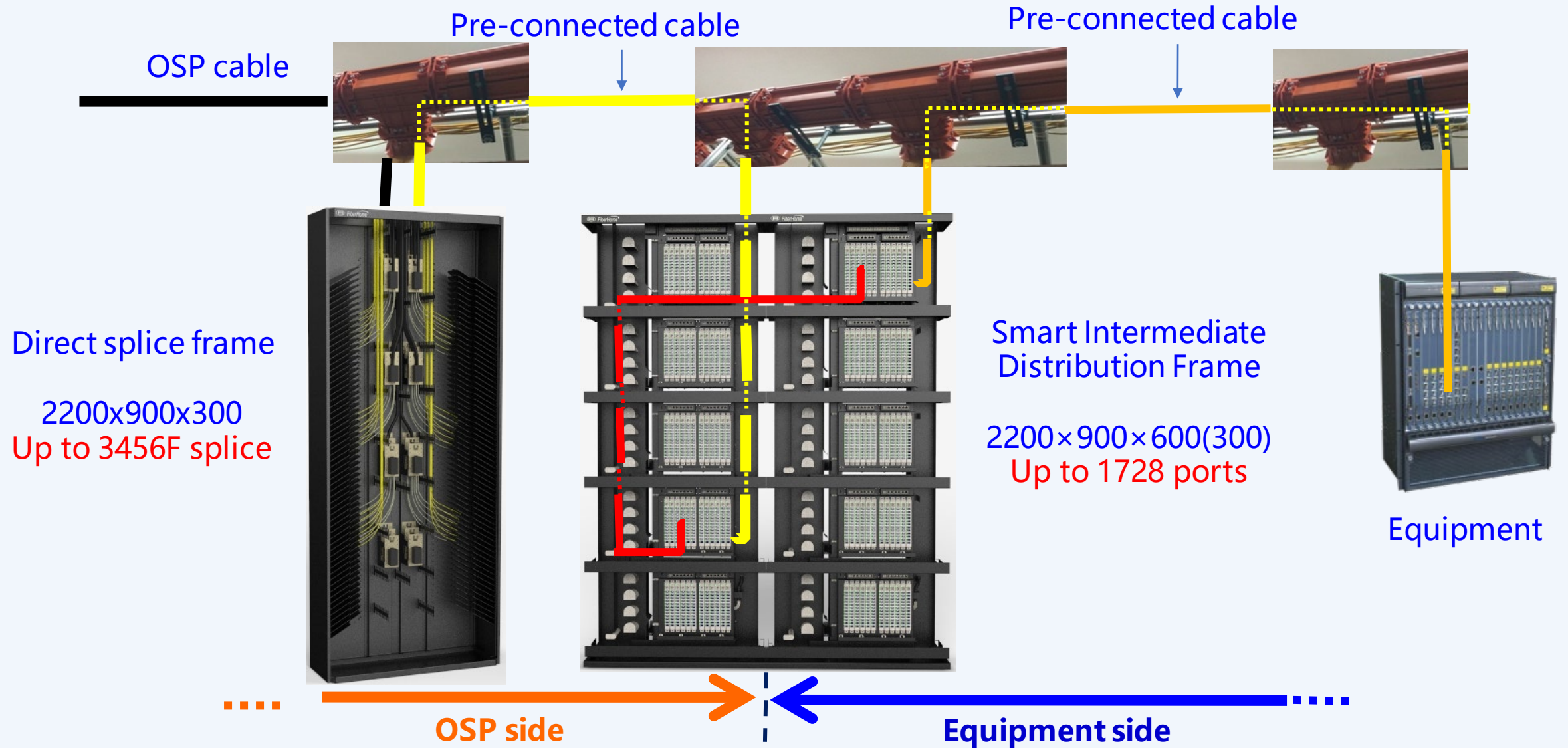


**GPX19T-A**





# High density solution for CO







# High density solution for CO

**iZONE**  
TELECOM

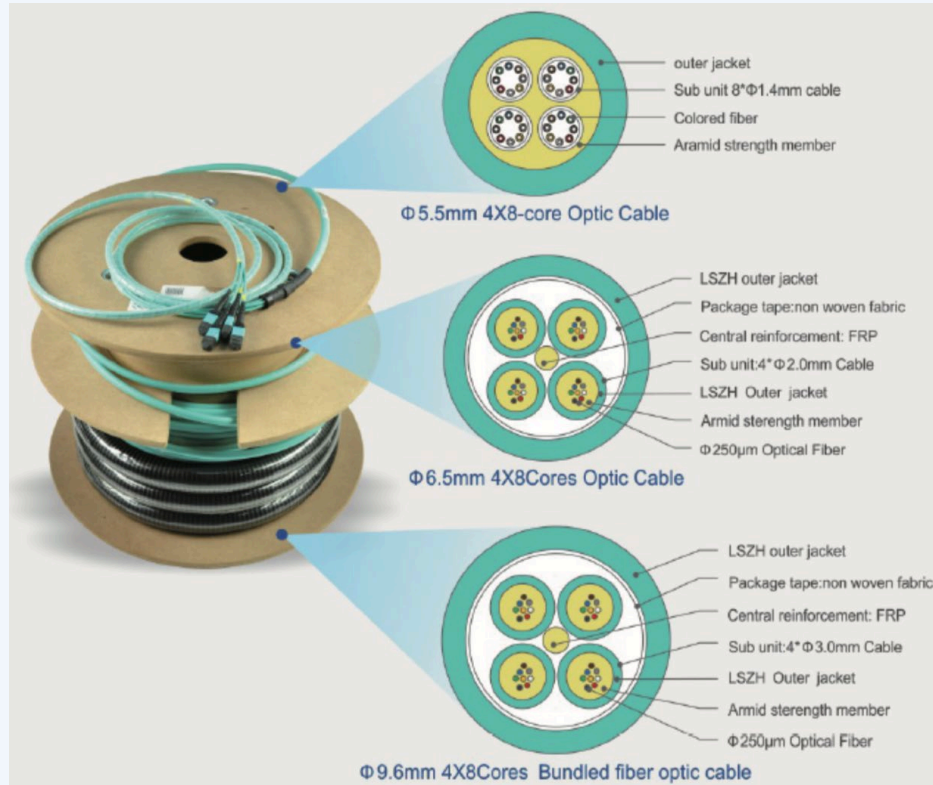
**FiberHome**



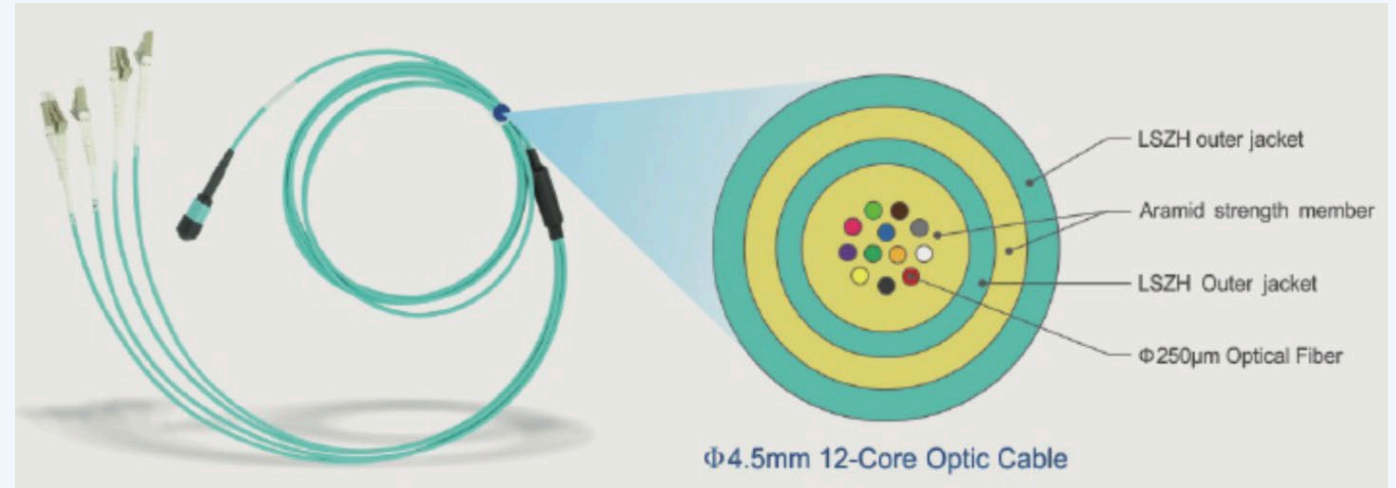




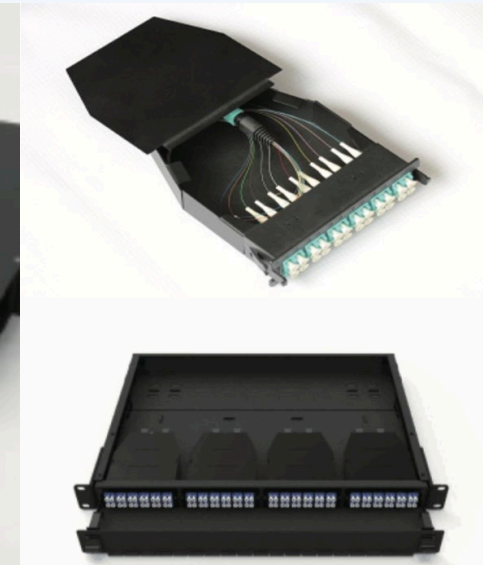
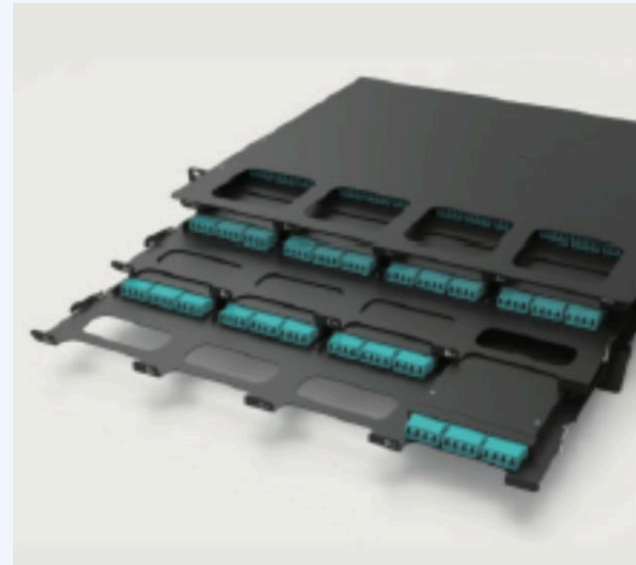
# Data Center Passive Products



MPO-MPO pre-terminated trunk cable

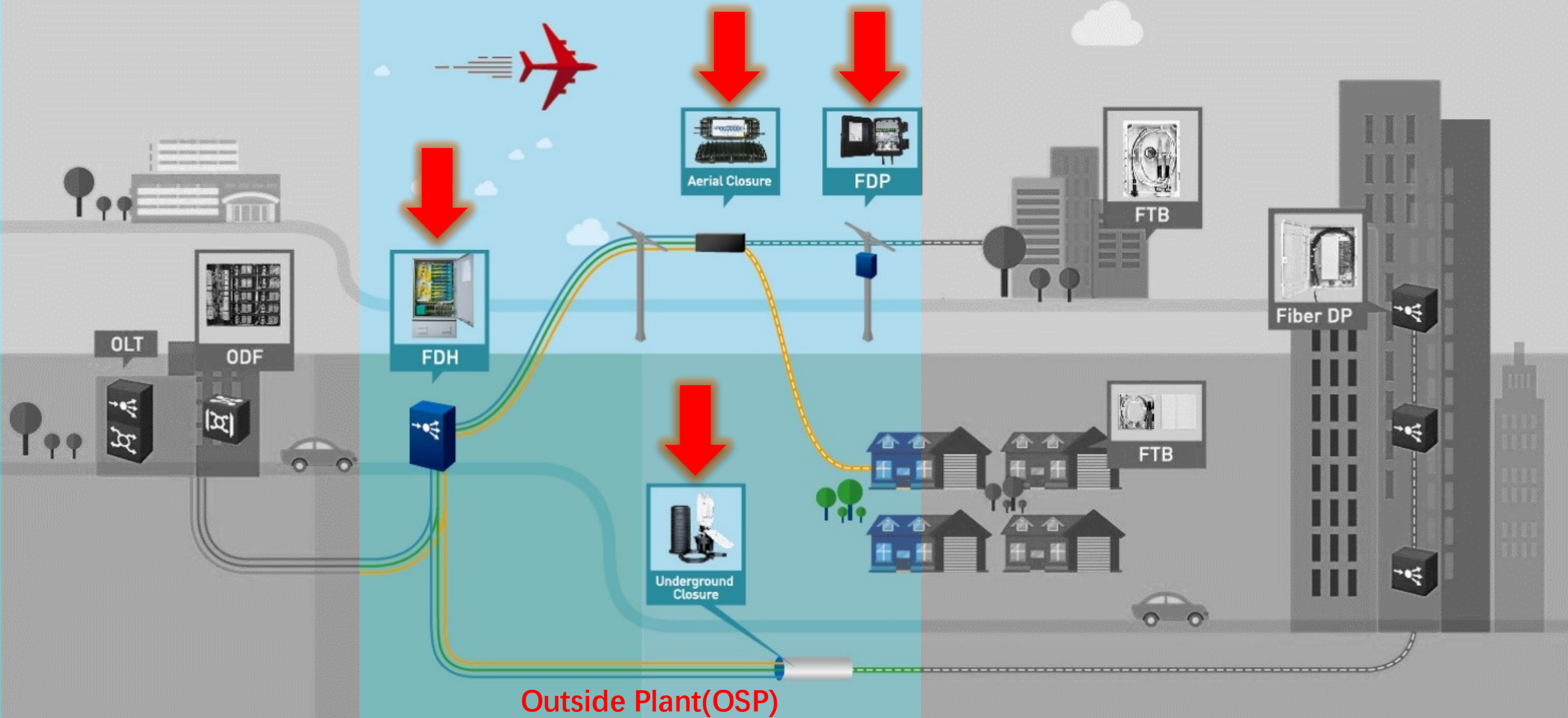


MPO-LC pre-terminated patch cord



MPO Cassette

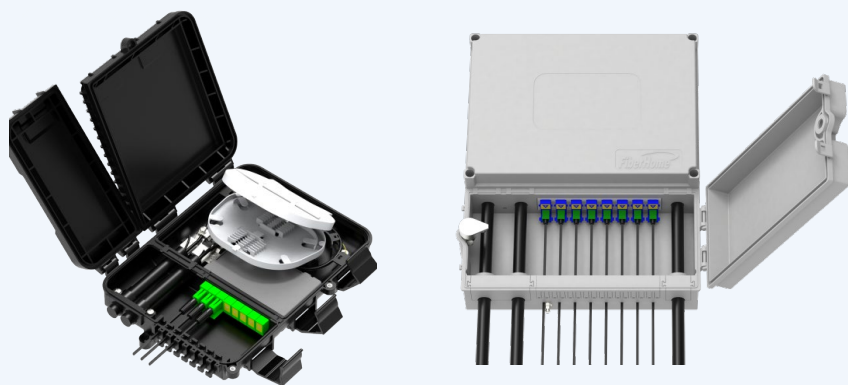
# FiberHome E2E ODN Solution-OSP



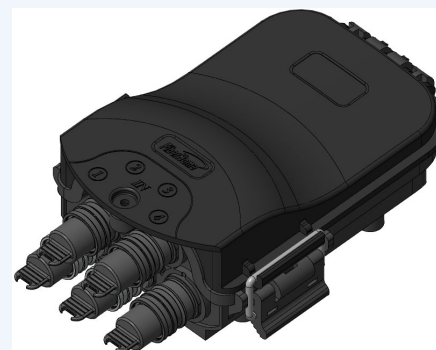


# Pre-connectorized product family

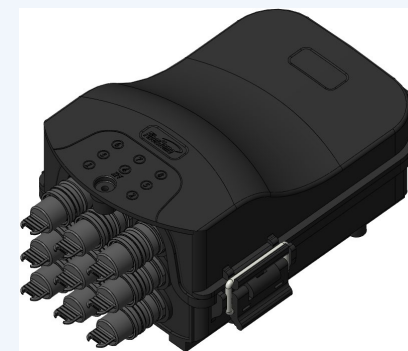
Traditional Pre-Con Product



Extension box



5 Core



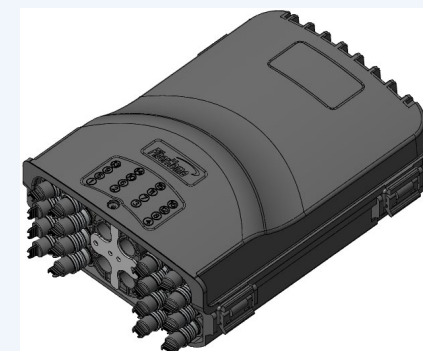
9 Core



9 Core



12 Core



16 Core

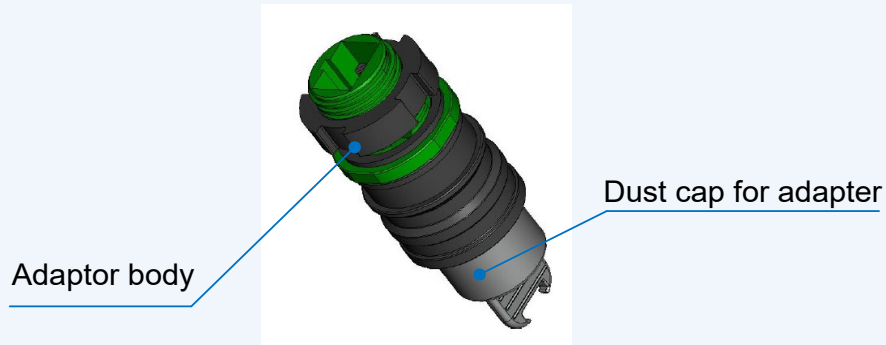
New series Pre-con product





# Connection of Pre-connectorized Product

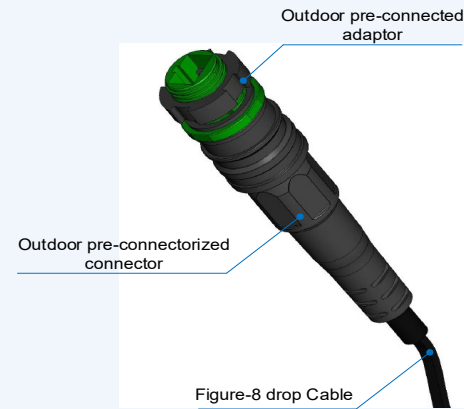
## Outdoor pre-connectorized adaptor



### Feature

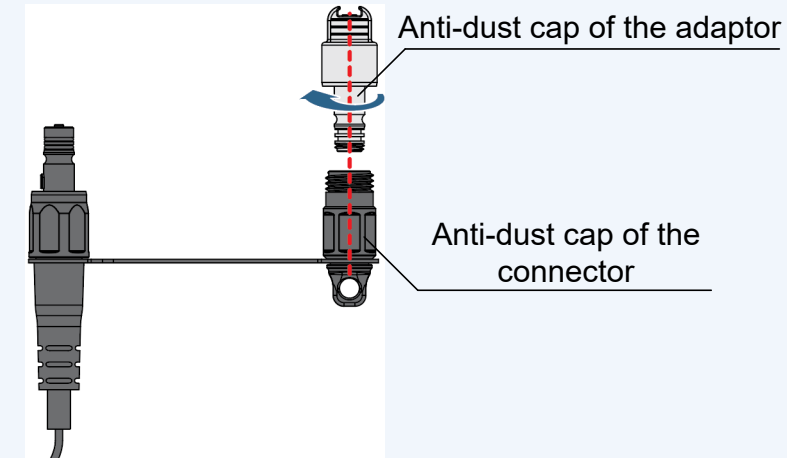
- Outdoor use
- Impact resistant, sunlight and weathering

## Assembly of outdoor pre-connectorized connector and adaptor



### Feature

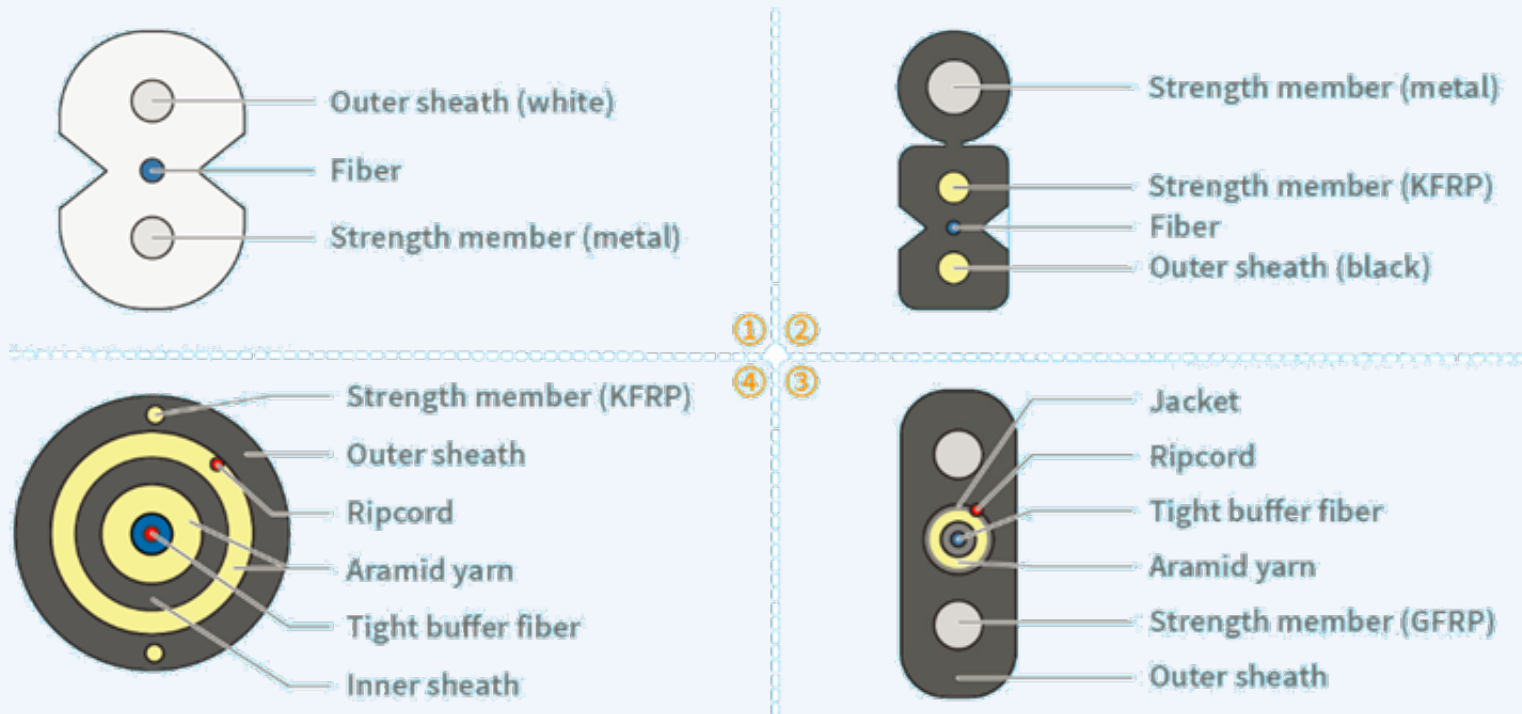
- Outdoor use
- Snap-on type, easy plug-in







# Classification and structure





# Advantages of Pre-connectorized product

## Strong stability

Splicing part and access part are separate or don't need splicing. Avoid fiber damage caused by opening the case

2

## Low technical requirements

Easy to installation. Don't need technical training

4

1

## High Protection level

IP 68 protection level,  
Waterproof and dustproof

3

## Fast construction

Easy to plug in and plug out. High efficiency construction



# FDH - Connectorized Type

- Free combination for different split ratio of 1x2~1x32
- Easy installation and removal
- Parking area for free port
- Capacity:
  - 144 cores
  - 288 cores
  - 576 cores



1130×570×310  
144 cores  
Max. 10 pcs splitter modules



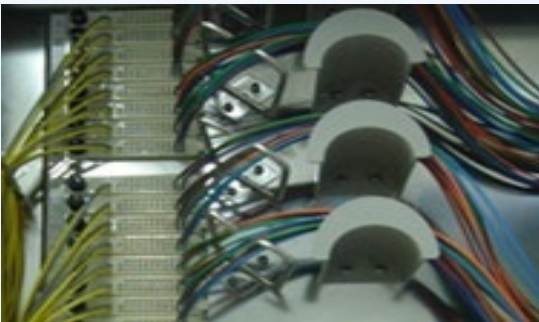
1460×760×320  
288 cores  
Max. 32 pcs splitter modules





# FDH- Direct spliced type

- Direct spliced, eliminate loss of the active connector
- Free combination for different split ratio of 1x2~1x64
- Easy installation and removal
- Capacity:
  - 288 cores
  - 576 cores



576 cores

Max. 32 pcs splitter modules



# Aerial FDP

## (Pole/wall-mounted installation)



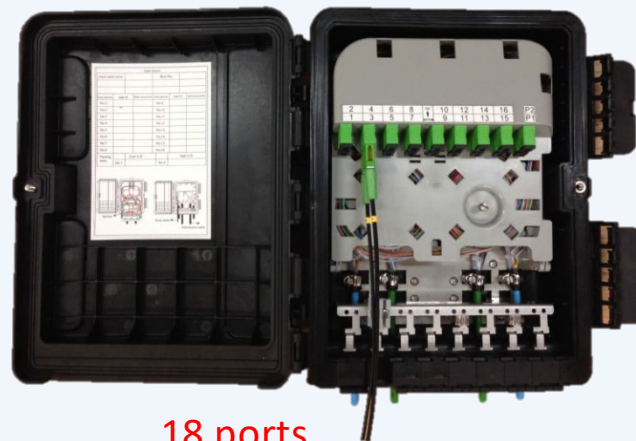
- Splitter pre-installed in the factory, or extended in the future
- Drop cable pre-connectorized, or terminated with field assembly connector, or direct spliced to distribution fiber
- Indoor or outdoor
- Protection: IP 65



6 cores



12 cores



18 ports



24 cores



48 cores

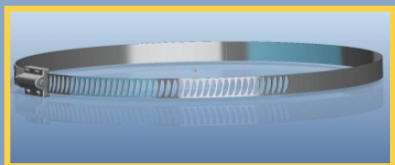




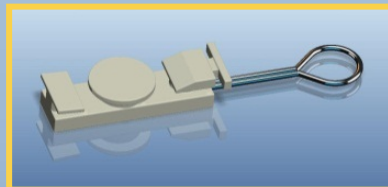
2.Hoop-fastening retractor



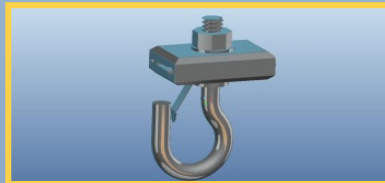
3.Coiling ring



6.Hoop-fastening steelband



4.S-type fixing part

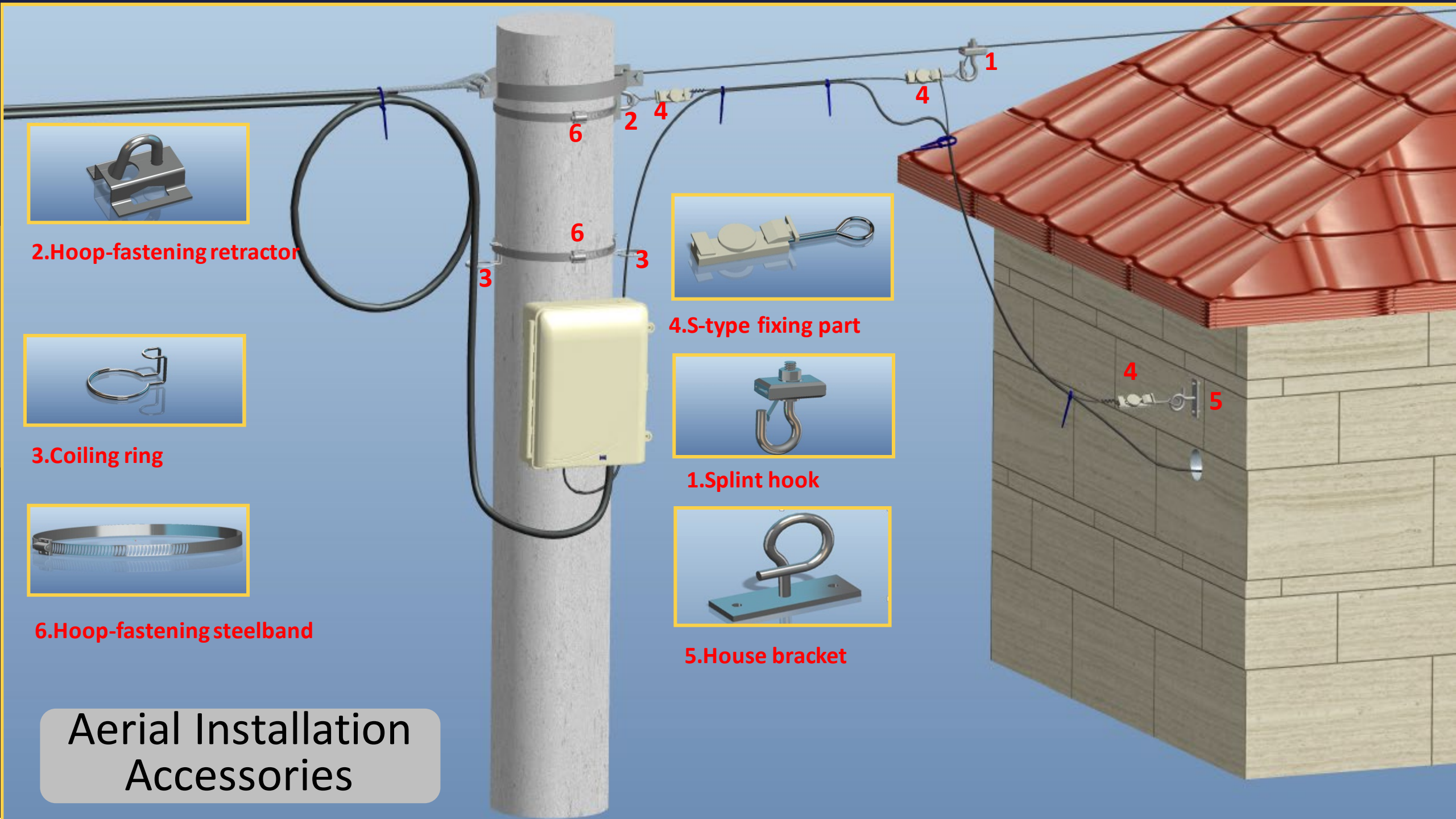


1.Splint hook



5.House bracket

## Aerial Installation Accessories



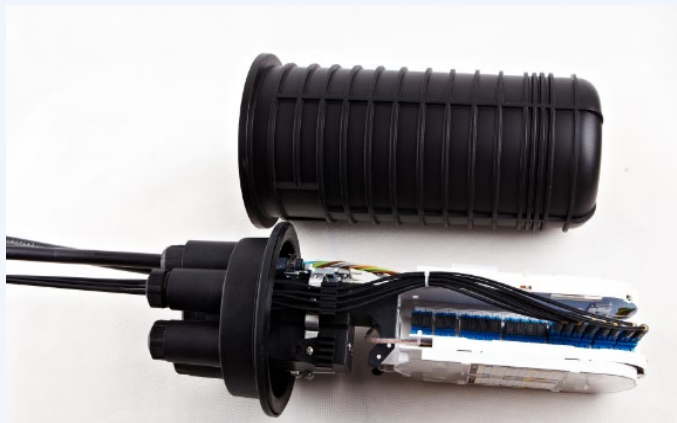
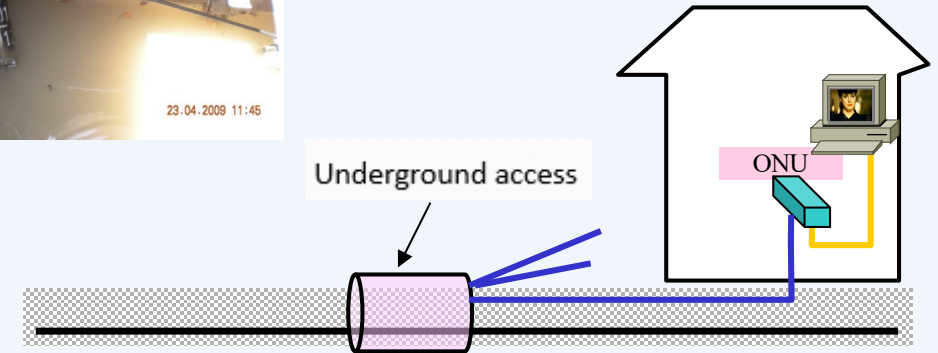




# Underground LCP & NAP

## (Man-hole/hand-hole installation)

- High-strength modified polypropylene material
- Easy for re-entry and re-open
- Kinds of sealing plug which suitable for different drop cable size
- Protection grade: IP68





# Aboveground LCP & NAP

## (Pedestal installation)

- High-strength modified polypropylene material
- Above ground construction, easy for re-entry and re-open
- Protection grade: IP65





# Aboveground LCP & NAP

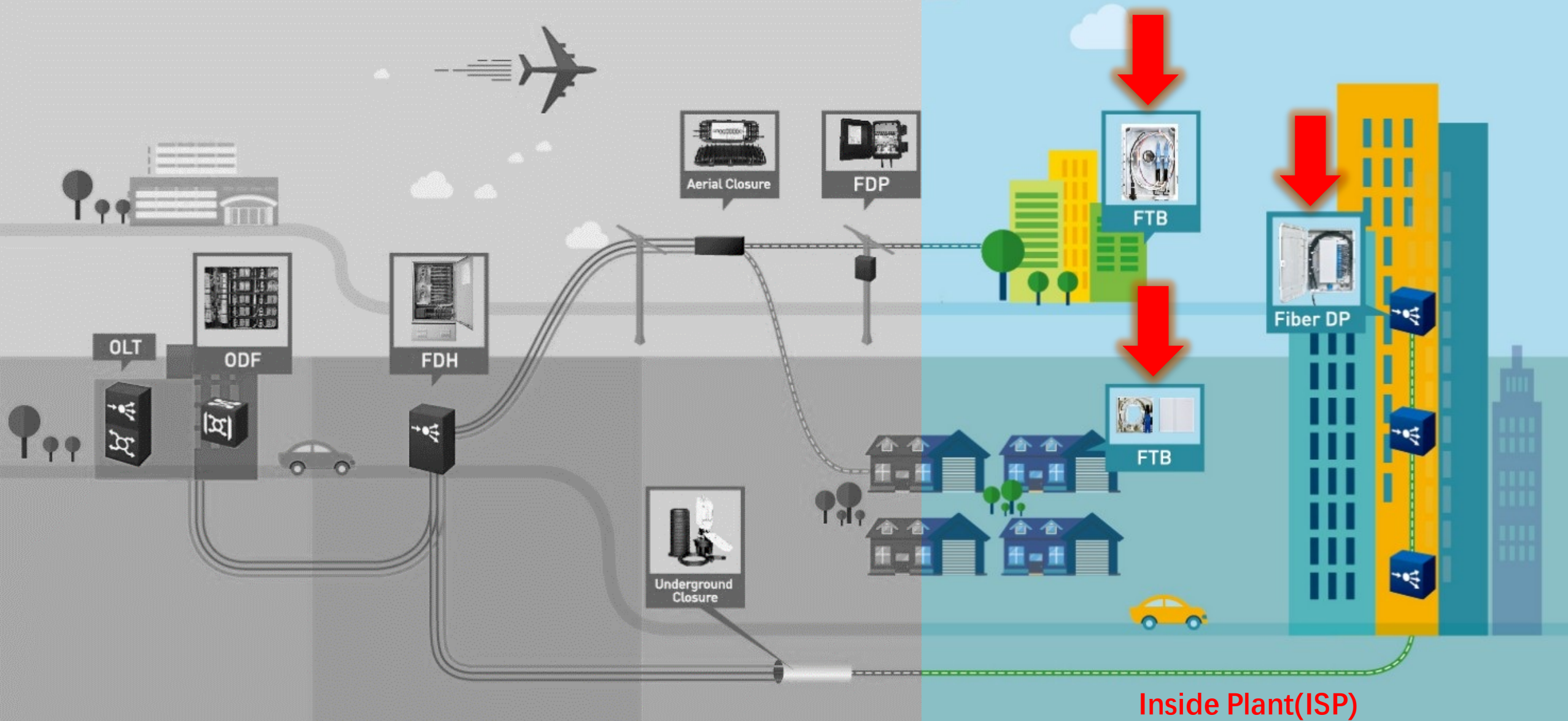
## (Pedestal installation)

- The box adopts stainless steel material, flame resistant, UV resistant
- Small and good looking, be harmony with the environment
- Strong anti-thief and anti-destructive
- Convenience operation
- Protection grade: IP65





# FiberHome E2E ODN Solution-ISP

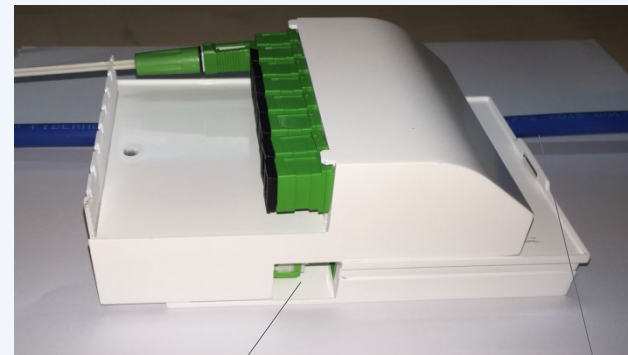
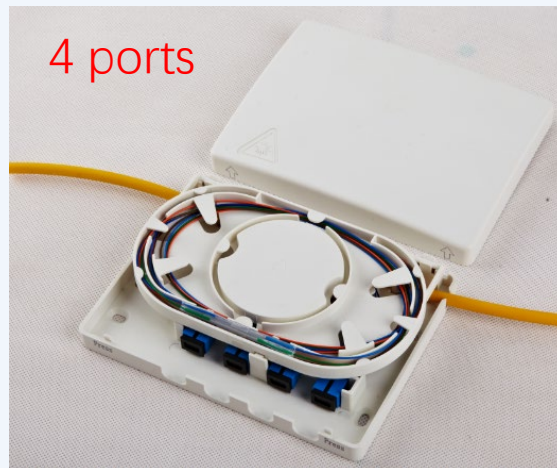




# Wall mount FDP – compact type

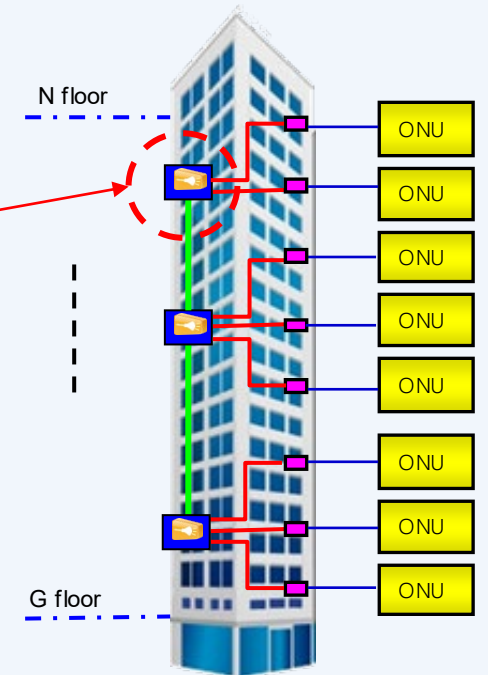
## (wall-mounted installation)

- Indoor application, compact design, easy installation, apply to wall-mounted
- With or without splitter
- Multi-fiber cable diameter max.12mm
- 4 or 8 SC ports
- Environment-friendly materials with good frame retardant



Two boxes directly assembled with pre-installed SC adapter

Multi-fiber cable diameter max.12mm





# Wall mount FDP – small type



- With or without splitter
- Drop cable pre-connectorized, or terminated with field assembly connector, or direct spliced to distribution fiber
- Indoor or outdoor
- Protection: IP 65 for outdoor usage



12 ports



24 ports

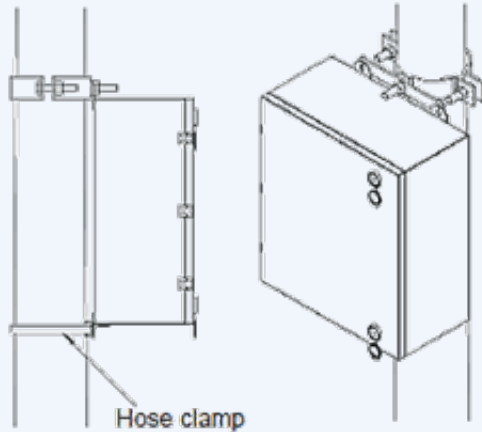


48 ports

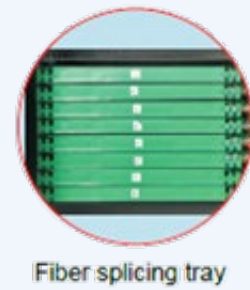




# Wall mount FDP – large type



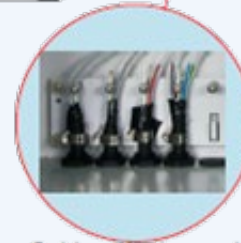
- Metallic material
- With or without splitter
- 72 or 144 ports, with splitter slots
- Indoor or outdoor
- Protection: IP 65 for outdoor usage



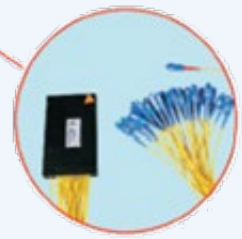
Fiber splicing tray



SC adaptor panel



Cable stripping and fixing protection unit



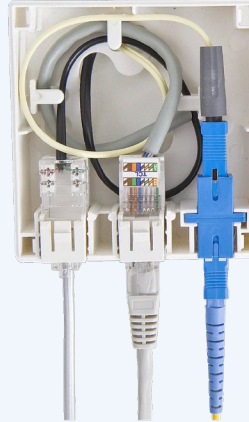
General cassette splitter



# Optical fiber outlets



Indoor, 1xSC



Indoor, 1xSC+1xRJ45+1xRJ11



Indoor, 2xSC+1xRJ45(or RJ11)



Indoor, 2xSC



Outdoor, 2xSC



# FiberHome New Designed Field Assembly Connector



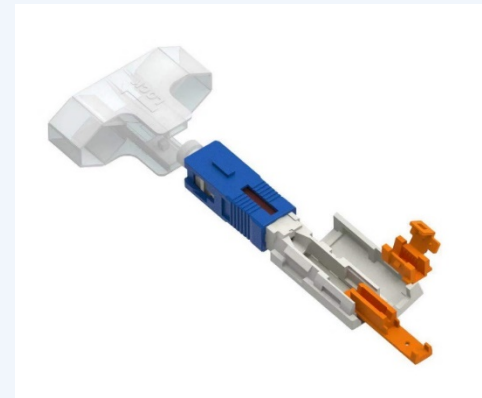
Field Assembly SC Connectors enable fast, on-site installation of single-mode fiber to the FTTH drop cable connection without polishing. It is assembled on the cable sheath to eliminate bare fiber storage. It can be field assembled and installed quickly.

## Features

- Compact structure, Easy assembly
- Special structure design to ensure assembly accuracy
- Special length control jig, matching different types of cutting tools

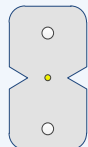


Length Control Jig



Item	Parameters
Insertion Loss	Type $\leq$ 0.3dB, MAX $\leq$ 0.5dB
Return Loss	UPC $\geq$ 50dB;APC $\geq$ 55dB
Working Temperature	-40°C to 70°C

- Connector Type: SC-UPC/SC-APC
- Support Cable: 2\*3mm figure 8 drop cable







# FiberHome New Designed Field Assembly Connector

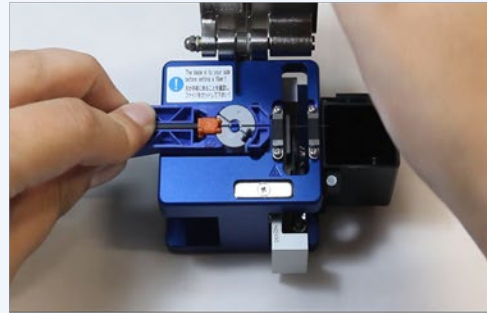
## Assembly Procedure



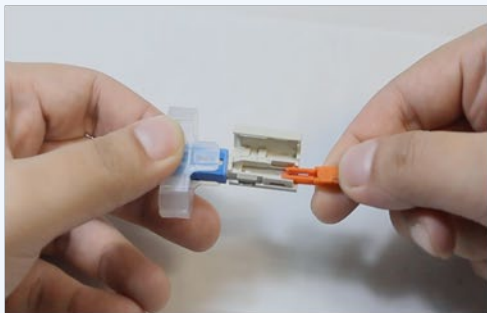
① Stripping



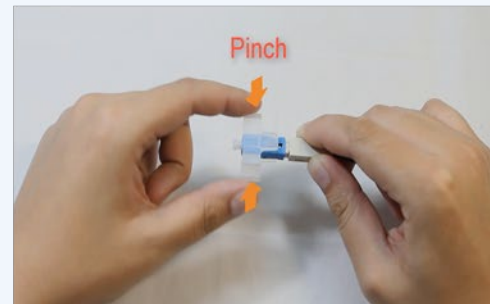
② Cleaning



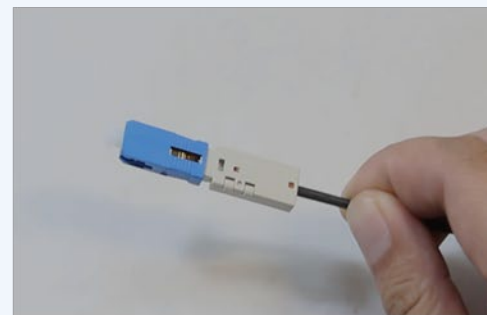
③ Cleaving



④ Inserting

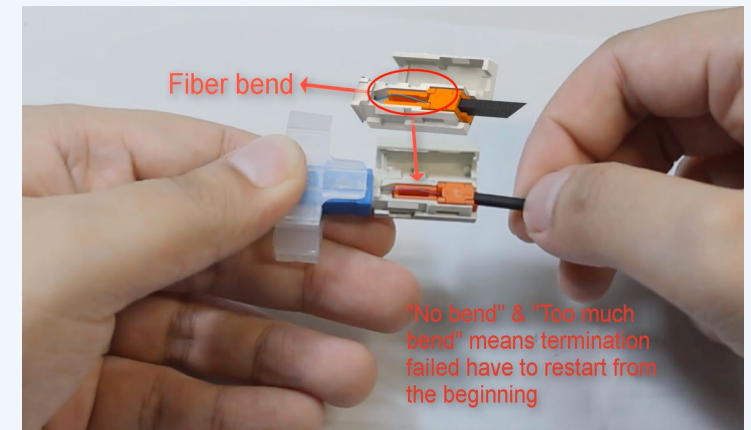
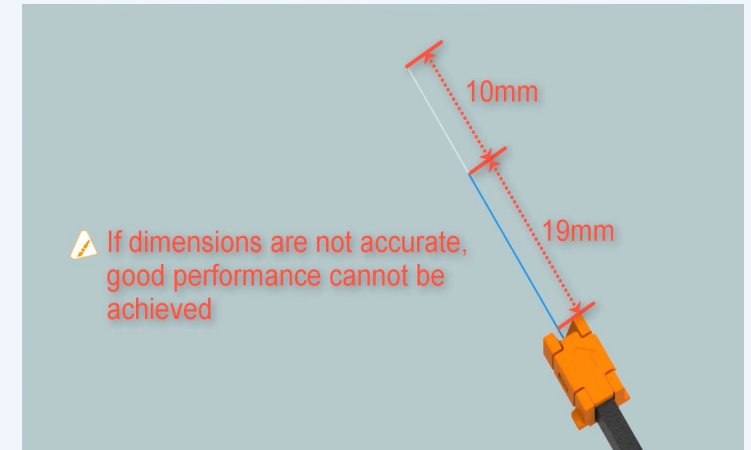


⑤ Removing



⑥ Finishing

- Length Control Jig is used for accurate assembly, ensure good optical performance.





# Europe





# FiberHome ODN in Russia

- In Feb 2019, FiberHome patch cord successfully passed the Tomacc lab testing requested by MTS.
- May 2019, FiberHome began the ODN delivery for MTS.

№ п/п	Артикул	Наименование Товара
1		Дуплексная оптическая кабельная сборка dLC-dLC, 30м
2		Дуплексная оптическая кабельная сборка dLC-dLC, 50м
3		Дуплексная оптическая кабельная сборка dLC-dLC, 70м
4		Дуплексная оптическая кабельная сборка dLC-dLC, 100м
5		Дуплексная оптическая кабельная сборка dLC-dLC, 150м



Акционерное общество по разработке и совершенствованию технологии строительства сооружений связи "ССКТБ-ТОМАСС" (АО "ССКТБ-ТОМАСС")  
105066, г. Москва, ул. Нижняя Красносельская, д.13, стр.1  
тел: +7 (499) 261-33-14, факс: +7 (499) 267-33-98, E-mail: office@ssktb.ru

аккредитовано в качестве испытательного центра:  
Федеральной службой по аккредитации  
(аттестат аккредитации № ИЦ-05-10, срок действия 25.09.2015 г.)

ПРОТОКОЛ ИСПЫТАНИЙ  
УТВЕРЖДАЮ  
Начальник испытательного центра  
Л.А. Шендерович  
01 марта 2019 г.

**ПРОТОКОЛ ИСПЫТАНИЙ № ИЦ 5989/2019**  
Объект испытаний: Дуплексная оптическая кабельная сборка dLC-dLC

Заказчик: ОБЩЕСТВО С ОГРАНИЧЕННОЙ ОТВЕТСТВЕННОСТЬЮ ФАЙБЕРХОУМ ИНТЕРНЕШНЛ ТЕХНОЛОДЖИС РУС

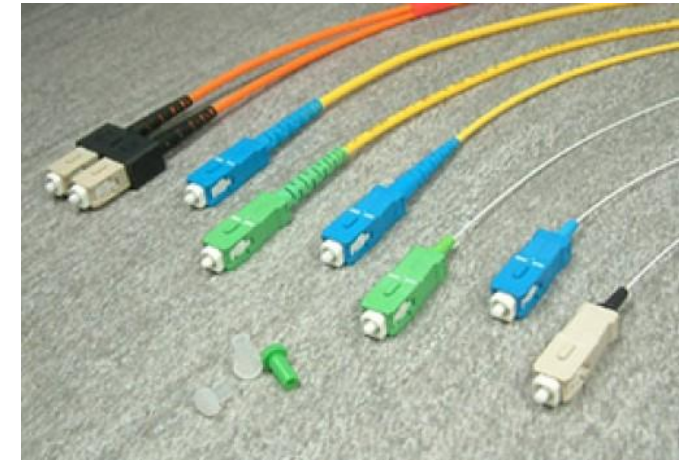
Нормативный документ:  
Техническое задание №1 от 31.01.2019 на проведение работ по испытаниям дуплексной оптической кабельной сборки dLC-dLC  
(Приложение к договору № 22/19 от 31.01.2019)



# Deutsch Telecom Patch-cord Supply



- ❑ We successfully won the contract agreement for Deutsch Telecom in 2017 and started supplying from 1<sup>st</sup>,Jan,2018.
- ❑ The contract agreement lasts for 2 years from 1<sup>st</sup>,Jan, 2018 to 1<sup>st</sup>,Jan,2020.
- ❑ Main delivered products are patch-cords and pigtails with simplex and duplex connectors.
- ❑ The sales amount was up to **2 million** USD by now.





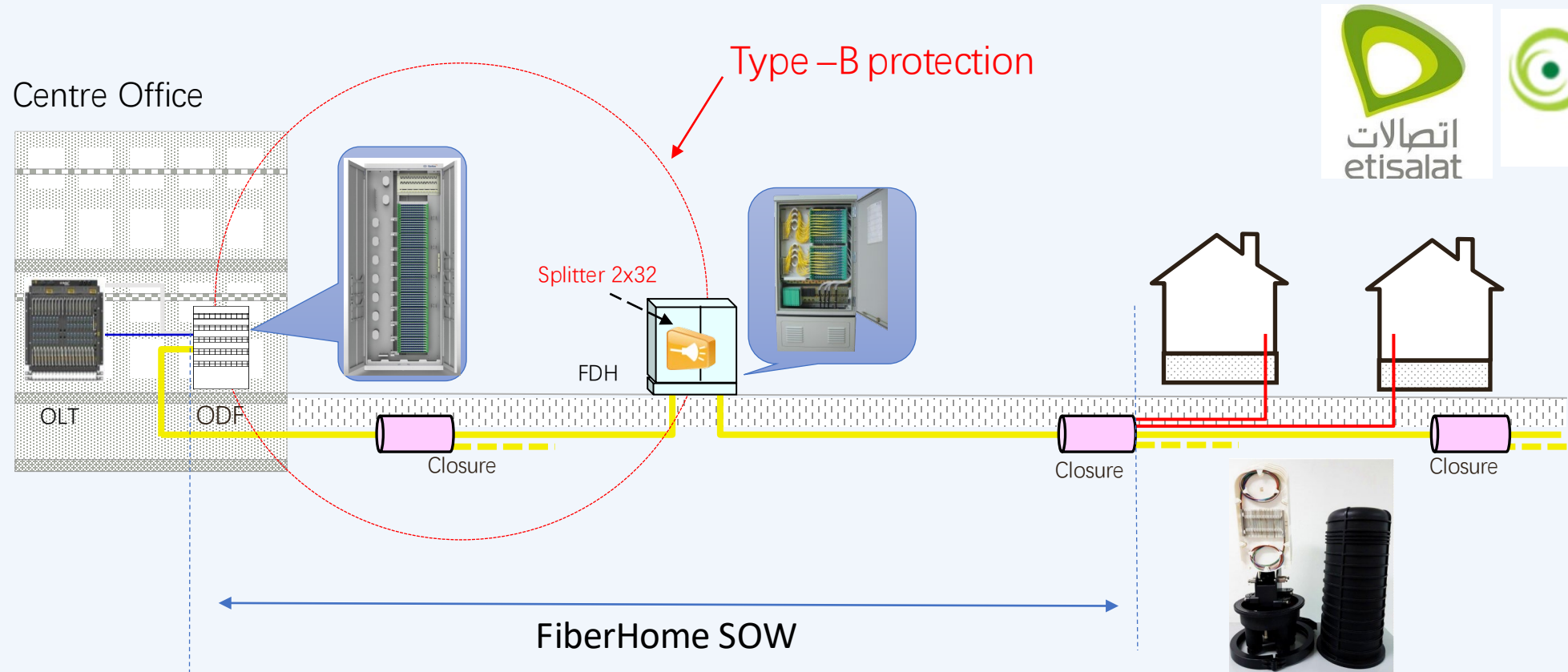
# Middle East





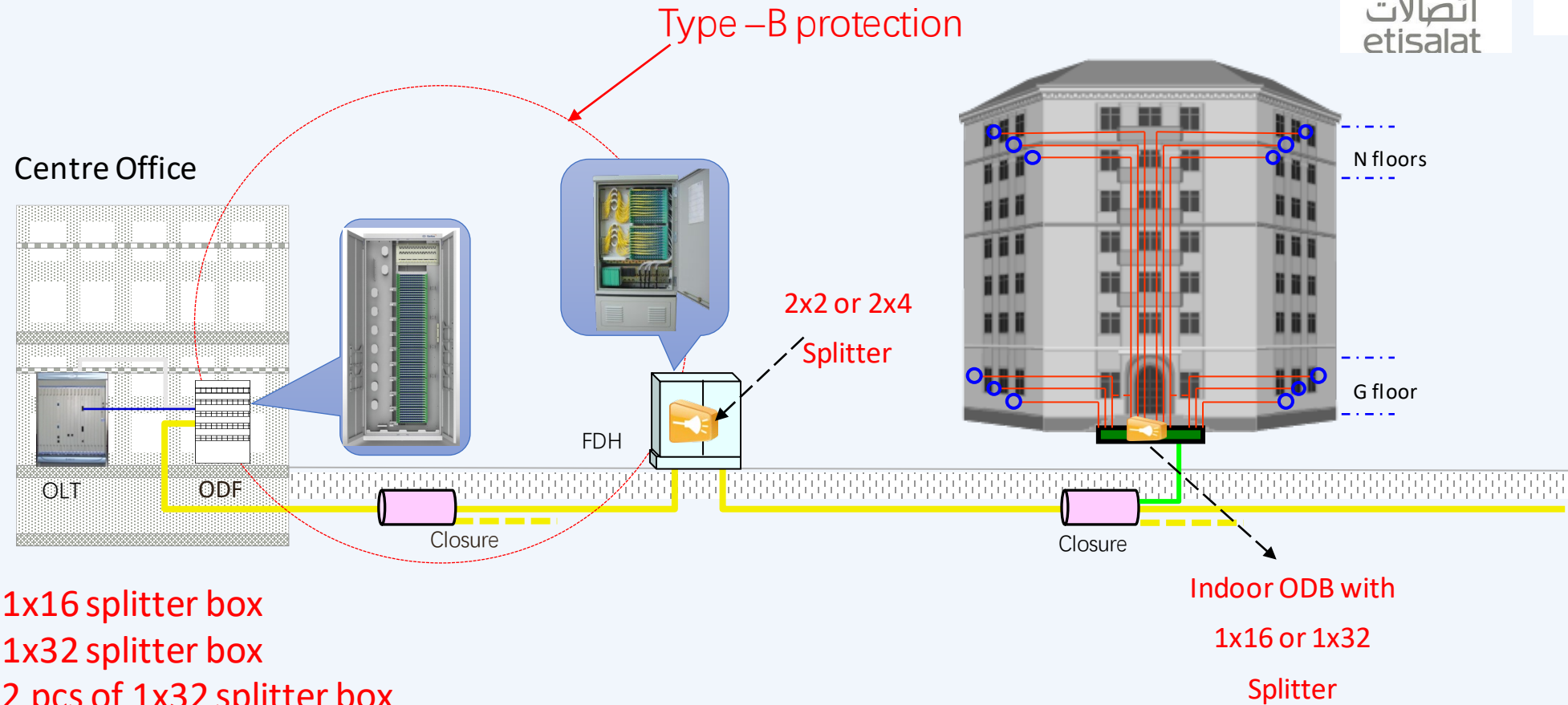
# Deployment Model 1—Villa/House Access

- The first FTTH turnkey project for PTCL in Pakistan, it is deployed for the most high-level and largest real estate group Bahria. Approved by Etisalat.
- 40,000 lines FTTH Full-Turnkey project , active and passive, signed contract with PTCL in May 2017.





# Deployment Model 2—Building Access



- 12 users: 1x16 splitter box
- 24 users: 1x32 splitter box
- 48 users: 2 pcs of 1x32 splitter box



# PTCL ODN Turnkey Project-ODN Construction Overview

- Divide target area into several sub-areas according to actual number of users and FDH capacity.
- Placed the FDH in the center point of the planning area, to minimize the downlink fiber size and length.
- Feeder cable duct shall be 2-way 4 inch with average 4 feet underground depth as per PTCL standard.
- Distribution duct shall be 1-way 2 inch with average 3 feet underground depth as per PTCL standard.





# Latin America







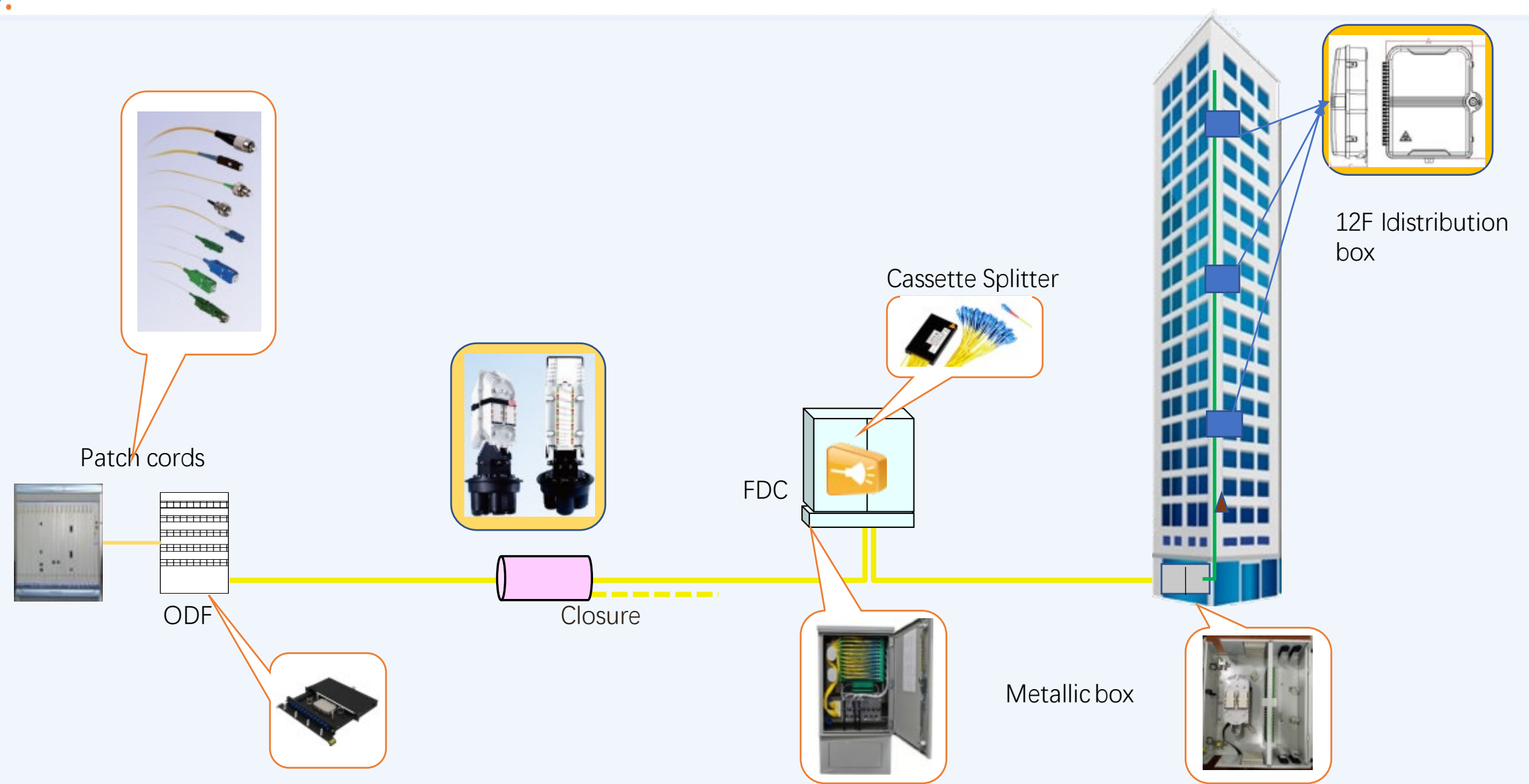
# Chile ENTEL Project



- Entel is one of the biggest telecommunications operator in Chile
- Entel re-start ROMA project since 2013
- Now Entel starts focus on FTTH construction in high level building and valley.
- FDH from FiberHome could cover 300K subscribers by 2017.



# The ODN Solution Entel is using





# Claro Backbone Network Node Layout



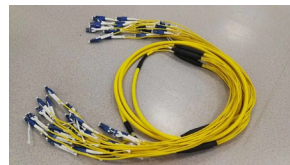
48F ADSS Cable



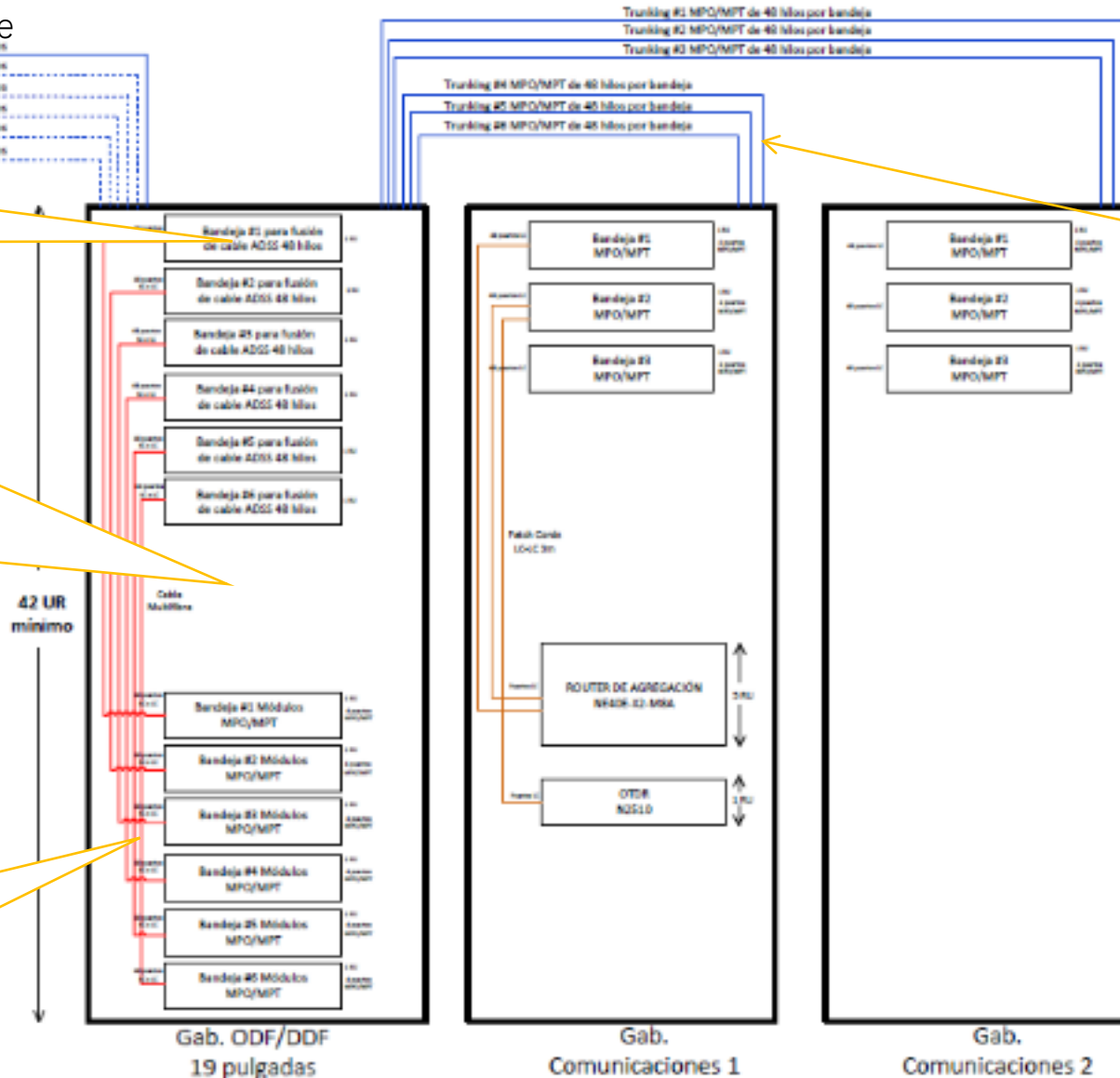
48F LC ODU



44U Two-door Cabinet



48F LC Patch cord



24F MPO/MTP Patch cord



DDF subrack with  
4 X 12F MPO-LC  
Module



# Thanks!

