



Sub-appendix

Access specification

Dark fiber Light Consumer

V3.1
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1. Background

This sub-appendix specifies the standardized Access Products, interfaces and other technical functions used to build City Networks specific Access Products for Operators and Service Providers. Delivery presupposes that the product can be connected to the operator's / Buyer's equipment through placement products and dark fiber connection / s or in another way that City Network/ Seller can approve.

2. Interface

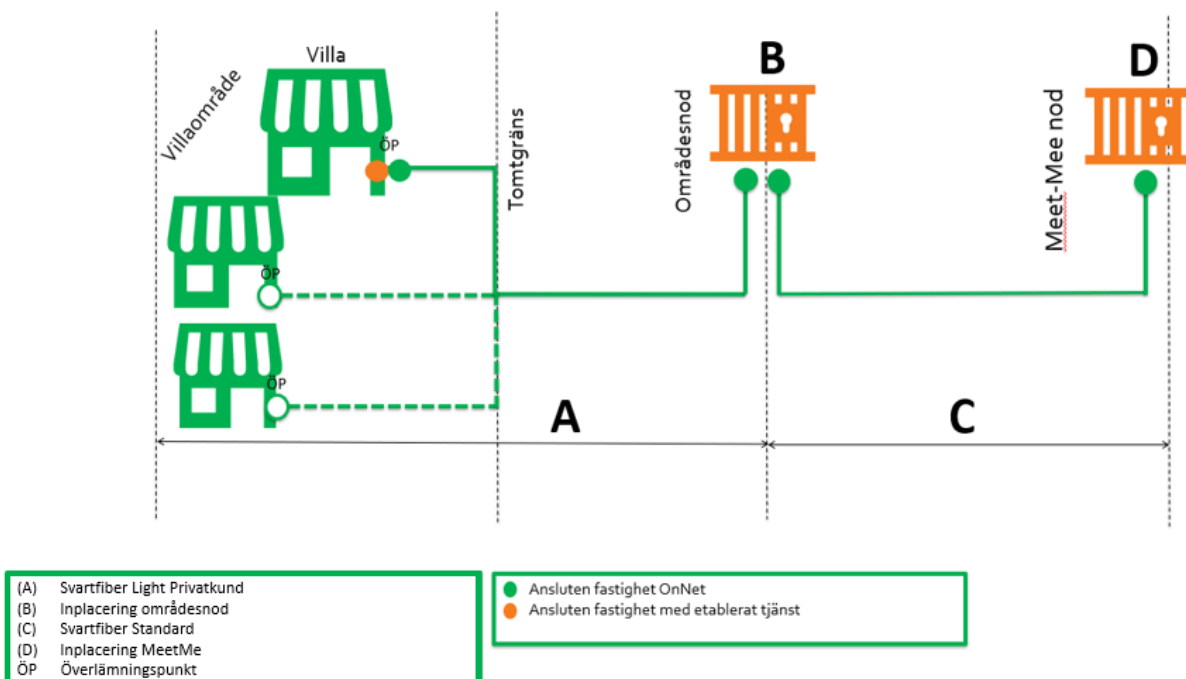
2.1 Interface overview

- Dark fiber Light Consumer
- Site access area node (Defined in Sub-appendix Service specification Site access)
- Dark fiber Standard (Defined in Sub-appendix Access specification Dark fiber standard)
- Site access MeetMe node (Defined in Sub-appendix Service specification Site access)

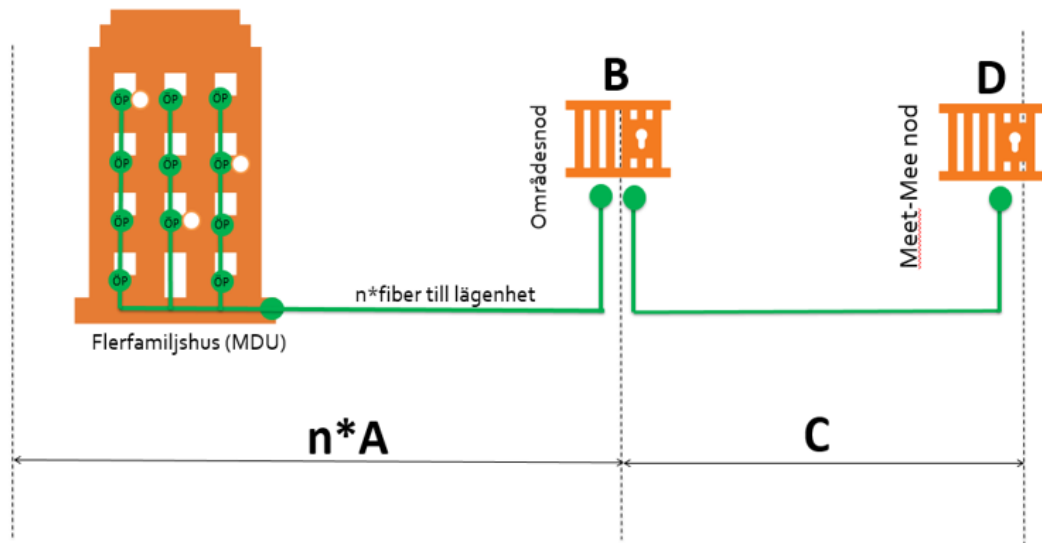
Current interfaces are shown in the image below.

Note: There may be variants of (B) and (D) where a larger central node replaces these. In these cases, specification and product variants are regulated by a local additional appendix for the specific node.

Picture: Interface overview of SDU



Picture: Interface overview of MDU



(A) Svartfiber Light Privatkund
(B) Inplacering områdesnod
(C) Svartfiber Standard
(D) Inplacering MeetMe
ÖP Överlämningspunkt

● Ansluten lägenhet OnNet
○ Ansluten fastighet med etablerat tjänst

2.2 Delivery measurement

After installation, delivery measurement of the Access is made and measurement protocols are prepared according to the method described in Robust fiber appendix 2 Robust networks, section 2.5.11 Delivery measurement of fiber connections.

2.3 Limit values

The access must meet the minimum requirements for limit values specified in Robust fiber appendix 2 Robust networks, section 2.5.12.1 Measurement results and limit values for fiber in cable.

3. Technical specifications

3.1 Technical specification Dark Fiber Light Business, Attributes

The table defines the attributes of the product type to create a product portfolio for Operators / Buyers' distribution of End Customer Services through a Dark fiber Access.

Product category: Access products	
Product type: Passive Access: Dark fiber	
Product: Dark fiber Light Consumer	
ATTRIBUTE (Technical properties)	
Variant:	Dark fiber Light Consumer
Interface Single mode fiber, 10 / 125µm. The connection interface consists of LC / SC ballasts / connectors in ODF or alternatively in an termination box or fiber tail (patch)	Yes
Type Optical fiber according to the standard ITU-T Rec. G.652C or later or ITU-T G.657 Category A	Yes
Attenuation Mean value in fiber cable for each wavelength range, including splice attenuation and excluding contact attenuation. 1310 nm: Max 0,40 dB/km average 0,37 dB/km 1550 nm: Max 0,25 dB/km average 0,22 dB/km 1625 nm: Max 0,40 dB/km average 0,30 dB/km	Yes
Reflection Reflection attenuation UPC contact: min 50 dB Reflection attenuation APC contact: min 60 dB	Yes
Weld / splice Maximum limit value access network (<10km): 0.25 dB	Yes
Connector Connector SC, according to ITU-T, of type SS-EN 61754-4 Connector LC, according to ITU-T, of type SS-EN 61754-20 Connector FC, according to ITU-T, of type SS-EN 61754-13	Yes
Service Level	SN Bas
Contract period	1 month

3.2 SELECTIVE CHARACTERISTICS (Variables)

The table defines the product type variables to create a product portfolio for Operators / Buyers' distribution of End Customer Services through a dark fiber connection.

Product category: Access	
Product type: Passive Access: Dark fiber	
Product: Dark fiber Light Consumer	
Variable (Selective characteristics)	
Variant:	Dark fiber Light Consumer
Installation and commissioning customer connection	Yes

4. Other technical functions and description

This chapter is a supplementary description of the technical functions for Access Products and other requirements covered by the Agreement.

4.1 Use of the product

- The product may only be used to deliver services to private consumers and households in villas, semi-detached and terraced houses as well as apartments.
- The product may only be used to establish a connection between an end customer's connection point and the nearest access point. The access point can be the nearest node, central node or other designated node according to special instructions.
- The product may only be used to connect one (1) end customer.
- Parties have one (1) months' notice period of the Access (A)
- The product does not need to be purchased in its entirety. A complete product consists of:
 - Dark fiber Light Consumer
 - Site access area node
 - Dark fiber Standard
 - Site access MeetMe node
- The Operator / Buyer shall without delay terminate the Call-Off Agreement if the Operator / Buyer no longer has an end customer connected to the product.

4.2 Operator change

4.2.1 General

A Change of Operator means that the incoming Operator / Buyer takes over an existing Access from another Operator / Buyer, the outgoing Operator / Buyer. The Operator can request an Operator Change for an existing Connection.

Request the incoming Operator / Buyer Change of Operator, the Seller terminates the resigning Operator Call-Off Agreement by the date specified in the request for Change of Operator.

Operator change presupposes that the incoming Operator / Buyer has an agreement with the end customer which shows a willingness from the end customer to carry out an Operator Change on the connection in question.

The agreement with the incoming Operator / Buyer shall be entered into by an end customer who is authorized to terminate the service delivery that is in progress on the Connection and the date of conclusion of the agreement shall be stated. The date for the Change of Operator must be agreed with the end customer

Operator change shall strive for a hassle-free change for the end customer. The outgoing Operator / Buyer may not close the customer's service until the Connection has been transferred to the incoming Operator / Buyer.

4.2.2 Prove the request for a change of operator

The incoming Operator / Buyer shall, at the request of the Seller, and within the time specified by the Seller, be able to prove the agreement and the agreement on the exchange date with the end customer. Seller has the right to hand over this information to the resigning Operator / Buyer.

If the basis for the Change of Operator cannot be proven for the Seller within the time specified by the Seller, the Seller may, at the request of the resigning Operator, carry out a return of the Change of Operator on the Access to the resigning Operator / Buyer.

The cost, called the cancellation fee for returning the Operator Change, shall be charged to the Operator / Buyer who ordered the Operator Change without being able to prove the basis for the Operator Change within the specified time.

4.3 Installation of the operator's media converter / CPE

Installation of media converter / CPE can be ordered when ordering Connection. Installation of electrical outlets for media converters is not included. The media converter is attached to the fiber socket or in the nearest living area from the fiber socket and connected to the fiber socket with a patch cable.

4.4 Deviations and additions

Deviations and additions to this appendix must be documented in Appendix Special Conditions.

5. Service Level

5.1 SN BAS	<p>The seller always provides the basic level Service level BAS, as below.</p> <table border="1" data-bbox="450 338 1090 678"> <thead> <tr> <th></th> <th>Cable Breakage</th> <th>Other Errors</th> </tr> </thead> <tbody> <tr> <td>Service time</td> <td>24 hours a day 365 days a year</td> <td>Working days 07.00- 17.00</td> </tr> <tr> <td>Error reporting</td> <td>24 hours a day 365 days a year</td> <td>Working days 07.00- 17.00</td> </tr> <tr> <td>Action time *</td> <td>4 working days</td> <td>4 working days</td> </tr> </tbody> </table> <p>* Action time presupposes that the End Customer leaves access to the Delivery Point, in which case this required for troubleshooting.</p>		Cable Breakage	Other Errors	Service time	24 hours a day 365 days a year	Working days 07.00- 17.00	Error reporting	24 hours a day 365 days a year	Working days 07.00- 17.00	Action time *	4 working days	4 working days
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5.2 Availability	<p>The Seller guarantees availability for Service Level SN Bas in such a way that Access shall be available 24/7/365 (6), with the exception of Scheduled Interruptions.</p>												
5.3 Errors	<p>Errors are divided into the following different error types:</p> <table border="1" data-bbox="450 1016 1517 1184"> <tbody> <tr> <td>Cable Breakage</td> <td>Cable breakage refers to a break in the fiber cable, which interferes with the delivery of the Access.</td> </tr> <tr> <td>Other Errors</td> <td>Errors of a less serious nature for the Buyer.</td> </tr> </tbody> </table>	Cable Breakage	Cable breakage refers to a break in the fiber cable, which interferes with the delivery of the Access.	Other Errors	Errors of a less serious nature for the Buyer.								
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5.4 Compensation at Service level BAS	<p>The amount of compensation is the monthly fee Buyer has paid to the Seller for Access to the End Customer. The compensation must be paid at the request of the Buyer.</p>												

6. Personal data

The parties shall, if necessary, sign a special personal data assistant agreement to comply with the rules in force at any given time regarding the handling of personal data.