

# Unbundled Dark Fiber Product Guide

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# Unbundled Dark Fiber

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# Unbundled Dark Fiber

## Product Overview

Unbundled Dark Fiber (UDF) is unlit fiber optic cable strands between two points in the Sprint network. UDF is an existing, single-continuous transmission path that terminates on a Sprint Fiber Patch Panel (FPP). UDF can be between two Sprint wire centers, between a Sprint wire center and the end-user premises or between a Sprint wire center and an appropriate Outside Plant (OSP) structure such as a digital loop carrier or a hub in a cabinet. UDF can also be provided between two OSPs or between an OSP and the end-user premises.

The availability of UDF allows a Competitive Local Exchange Carrier (CLEC) to construct its facilities using existing spare Sprint optical fiber between locations. With the proper electronics, UDF offers unlimited bandwidth availability. Use of a high-speed backbone allows aggregation of lower speed traffic, which saves on plant investment. However, Sprint does not make any representations as to the transmission capability of these facilities.

UDF consists of the following elements:

- **Interoffice Facility:** This element provides a route between two existing Sprint wire centers.
- **Loop:** This element provides a route between a Sprint wire center and end-user premises.
- **Subloop:** This element provides a portion of an existing UDF Loop. A subloop terminating in an OSP is designated as feeder fiber. Subloop from a FPP in a remote OSP location to another remote OSP location or end-user premises is designated as distribution fiber.

Unbundled Dark Fiber can also be a combination of these elements. The CLEC must submit a Bona Fide Request (BFR) for an element not listed.

Sprint offers UDF via optical cross-connect or fiber jumper from the Sprint FPP to a collocated CLEC FPP. Sprint will provide UDF where it is both available and accessible for the dedicated transport and unbundled loop network elements. Additional splicing of fiber strands is not an element of this product offering, but is available on an individual case basis (ICB) from Sprint. Sprint provides UDF to a CLEC in increments of a single strand.

The CLEC will be required to submit a Dark Fiber Application with the application fee to their local account manager. The application process will verify the availability of the requested route, provide price quote information and reserve the requested dark fiber route for 10 business days. For additional information to initiate the process refer to the Requirements section of this guide.

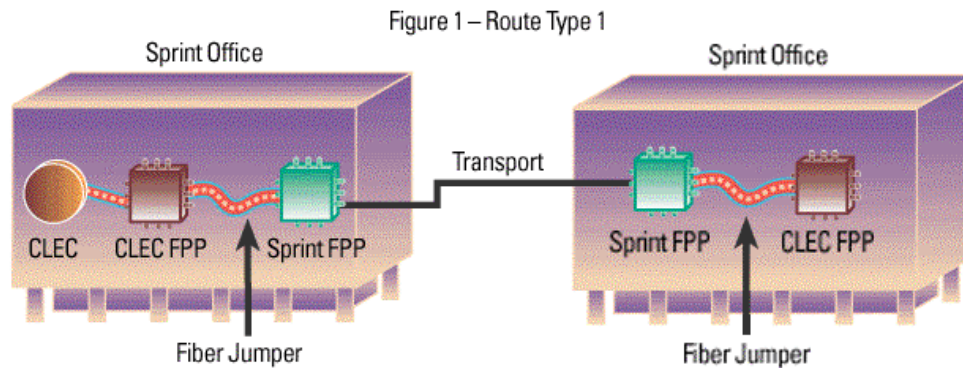
# Unbundled Dark Fiber

## Product Details

Sprint offers Unbundled Dark Fiber in the following configurations:

### Sprint Central Office (CO) to Sprint Central Office

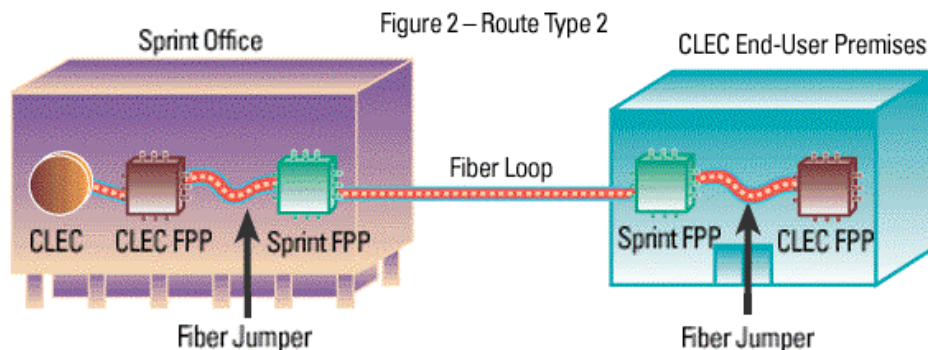
Route Type	Description
1) Central office to central office (interoffice transport)	The CLEC must have a collocation presence at each end of the fiber route. Fiber jumpers join the Sprint fiber, terminated on a patch panel, to the CLEC.



Note: Transport routing can be provided through intermediate central offices. Collocation is not required in the intermediate offices. Terminating central offices need not be in adjacent wire centers.

### Sprint Central Office to End-user Premises

Route Type	Description
2) Central office to an end-user premises located FPP (loop)	The CLEC must have a collocation presence in the Sprint CO. Fiber jumpers join the Sprint fiber, terminated on a patch panel, to the CLEC.

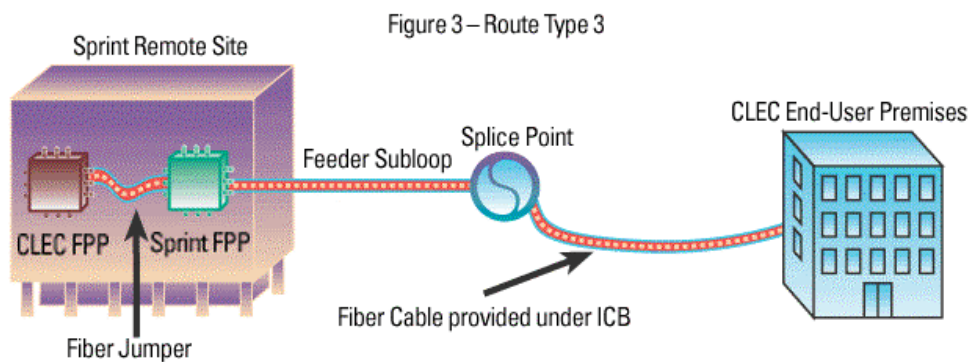


# Unbundled Dark Fiber

## Product Details (Continued)

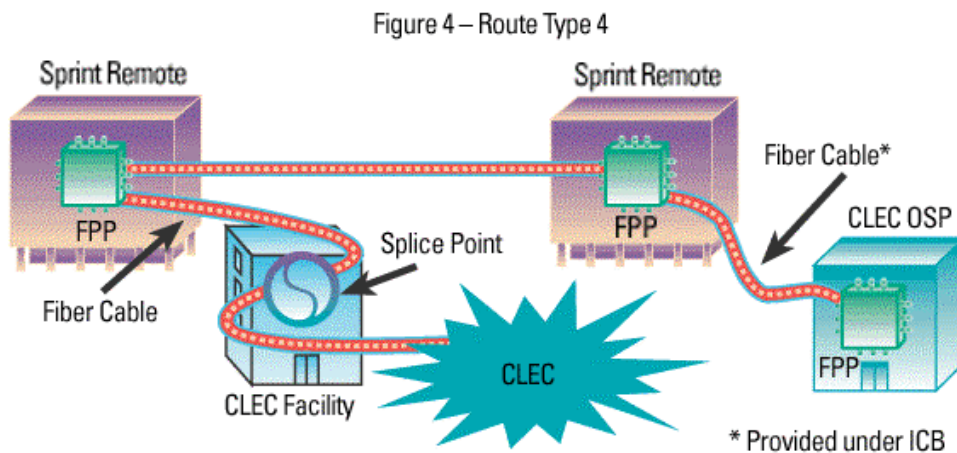
### Sprint Central Office to Sprint Remote Site

Route Type	Description
3) Central office to remote site (feeder subloop)	The CLEC must have a collocation presence in the Sprint CO and the remote site. A fiber jumper connects the Sprint FPP to the CLEC FPP. Additional fiber cable and splicing will be provided on an ICB at the remote site.



### Sprint Remote Site to Sprint Remote Site

Route Type	Description
4) Remote to remote (distribution subloop)	The CLEC must have a collocation presence in both remote sites. A fiber cable may terminate from the Sprint FPP to CLEC outside plant (OSP) facility.



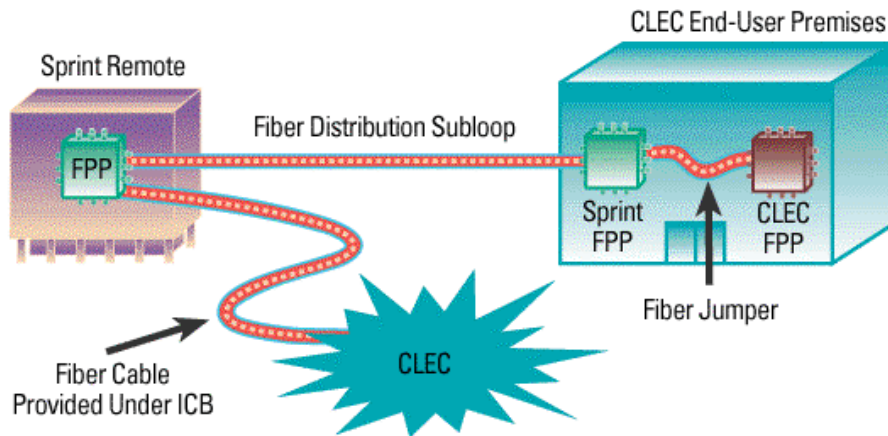
# Unbundled Dark Fiber

## Product Details (Continued)

### Sprint Remote Site to End-user premises

Route Type	Description
5) Remote site to an end-user premises located FPP (distribution subloop)	The CLEC must have a collocation presence at the end-user premises. A fiber jumper provided through the collocation agreement connects the Sprint FPP to the CLEC FPP. At the remote site (OSP) a fiber cable provided under ICB will connect the Sprint FPP to the CLEC facilities.

Figure 5 – Route Type 5



Note: Sprint also provides Route Types 2, 3, 4 and 5 (above) with Interoffice Transport.

# Unbundled Dark Fiber

## Ordering Process

UDF must be ordered via a Local Service Request (LSR) or an Access Service Request (ASR), depending on the type of route requested. Refer to Table 1 below to determine which type of order to use. Submission of a UDF firm order indicates that the CLEC agrees to pay the quoted monthly recurring and non-recurring charges.

Sprint will provide the UDF route to the CLEC within 20 business days after a firm order is received from CLEC. Sprint will begin invoicing of the monthly recurring and non-recurring charges upon completion of the order.

**Table 1 – Order Types for Unbundled Dark Fiber**

Route Type	Definition	Order Type
1) CO to CO (interoffice transport)	Dark fiber transport is between two Sprint FPPs in two separate Sprint offices.	ASR
2) CO to an end-user premises located FPP (loop)	Dark fiber loop is between a Sprint FPP located in a Sprint CO and a Sprint FPP located at an end-user premises.	LSR
3) CO to remote (feeder subloop)	Dark fiber feeder is between two Sprint FPPs - one located in a Sprint CO and one at a remote location served by that CO.	LSR
4) Remote to remote (distribution subloop)	Dark fiber distribution can be between Sprint FPPs at two remote locations, such as digital loop carriers.	LSR
5) Remote to an end-user premises located FPP (distribution subloop)	Dark fiber distribution can be between a Sprint FPP located outside a Sprint CO (e.g., remote site) and a FPP located at end-user premises.	LSR

## Interoffice Transport Orders

Route Type 1 is considered Interoffice Transport. Route Type 1 should be ordered via an ASR and submitted to the Sprint National Access Service Center (NASC).

Additionally, orders may be placed in Access Request Management System (ARMS) via Sprint's Host on Demand. The entries required for Interoffice Transport orders placed into ARMS are provided on the sample screens below. Each field should be populated with end-user specific information.

# Unbundled Dark Fiber

## Interoffice Transport Orders (Continued)

### Administrative Section

Additional entries as noted in Table 2 are required in the Administrative section of the ASR.

**Table 2 – Administrative Entries**

Field	Entry
Access Customer Terminal Location (ACTL)	The CLEC Common Language Location Identifier (CLLI) code
Unbundled Network Element (UNE)	Y
Request Type (REQTYP)	SD
All other fields	Complete with standard entries

Figure 6 highlights the entries described above.

**Figure 6 – Administrative Screen**

```

ASR ADMINISTRATIVE DATA - 1   NON ACCESS Y
ADMINISTRATIVE SECTION      ORD NO _____ MORE? _
ICSC MG07 PON DARKFIBEREXAMPLE VER ___ NOR ___ OF ___ ASR NO _____
D/T SENT 10 - 30 - 01 - 0301PM QA _ DDD 11 - 30 - 01 PROJECT _____
RTR F CC 1811 CNO _____ UNE Y WST _ QNAI _ QSA _ CBD _
REQTYP SD ASC-EC _____ ACT N SUP _ AFO _____ EXP _ AENG _ ALBR _ SPA  TO _
CCNA ZZZ CUST CLEC          AGAUTH _ DATED _ - - - _ LUP _____
CKR _____ PIU 000 PLU 100
ECCKT _____ UNIT _ QTY 0000004
FBA _____ FNI _____ CFNI _____ PBT _ QTY _____

BAN 999 - XXX - XXXX ASG _____ ACTL HLSMMOXARSO APOT _____ AI _ AFG _
BIC _ BIC TEL _ - - - _ BIC ID _____ TSC _____
FDT _____ BSA _ SPEC _____ PSL _____ PSLI _ LTP _____
RORD _____ RPON _____ CCVN _____ TSP _____ - _
PPTD _ - - - _ PFPTD _ - - - _ WSTN _ - - - _
LA _ LADATED _ - - - _ LANM _____

REMARKS: APPLICATION NO. 1234HLSMMO-001 FOR UNBUNDLED DARK FIBER.
    
```

### Transport Section

Additional entries as noted in Table 3 required in the Transport section of the ASR.

**Table 3 – Transport Entries**

Field	Entry
Network Channel (NC)	LX--
Network Channel Interface (NCI)	01QBF.LLX
Secondary NCI (SECNCI)	01QBF.LLX
Secondary Location (SECLOC)	E
All other fields	Complete with standard entries



# Unbundled Dark Fiber

## Transport Section (Continued)

Figure 7 highlights the entries described above.

**Figure 7 – Transport Screen**

```

TRANSPORT: NC LX-- NCI 01QBF.LLX TLV _____ T _____ R
SECNCI 01QBF.LLX SECTLV _____ T _____ R NSIM _ SR _____ S25 _____ ER _
SSS _ ATN _____ TRF _ MST _ HVP _ OTC _____ ISDN SEQ _ OF _
CKLT _____ NSL _ CFAU _ CFA _____
DIR _ CPT _____ - _____ SCFA _____
SDIR _ SECLOC E _____ MUXLOC _____ HBAN _____ - _____ - _____
PRI ADM _____ SEC ADM _____
CLK _ NVC _____ PSPEED _____ LMP _ N/U _ ZLG _ BSC ETET _
CCEA _____
SCCEA _____
GETO _ GBTN _____ - _____ - _____ GCON _____
GTEL _____ - _____ - _____ - _____
CTX TEL _____ - _____ - _____ CTX LSTD NM _____

W1 _____ W2 _____
REMARKS _____
    
```

## Loop Orders

Route Types 2, 3, 4 and 5 are considered Loop activity. They should be ordered via an LSR and submitted to the National Exchange Access Center (NEAC). Orders for these Route Types may be placed through Sprint's Integrated Request Entry System (IRES).

Examples of the special entry instructions for IRES described below are provided on the following pages. Entries in all other tabs within IRES are completed with standard entries.

Special entry instructions apply for the CLLI code information in IRES as reflected in Table 4.

**Table 4 – IRES Special Entry Requirements**

Route Types	Tab	Field	Entry
2, 3, 4, 5	Service	ACTL	Location Z, the CLLI associated with the point of interface (POI) CLLI at the CO or OSP
3, 4	Service	Additional Point of Termination (APOT)	Location A, the POI CLLI at the OSP
2, 5	End User	Address fields	End-user (EU) address

# Unbundled Dark Fiber

## Loop Orders (Continued)

Table 5 provides the appropriate location information by Route Type.  
Table 5 – Route Type Information

Route Type	Location Z	Location A
2) Central Office to an end-user premises located FPP (loop)	POI CLLI at the CO (CLLI Z)	End-user address
3) Central Office to remote (feeder subloop)	POI CLLI at the CO (CLLI Z)	POI CLLI at the OSP (CLLI A)
4) Remote to remote (distribution subloop)	POI CLLI at the OSP (CLLI Z)	POI CLLI at the OSP (CLLI A)
5) Remote to an end-user premises located FPP (distribution subloop)	POI CLLI at the OSP (CLLI Z)	End-user address

## Service Tab

In IRES, entries are required in the ACTL and APOT fields on the Service tab when two CLLI codes are required (Route Types 3 and 4). When one CLLI code and one address are required (Route Types 2 and 5), the only field requiring an entry is the ACTL field.

In addition, entries are required in the NC, NCI and SECNCI fields on the Service tab. Table 6 provides the codes for loop Route Types 2, 3, 4 and 5.

**Table 6 - Codes**

Route Type	NC	NCI	SECNCI
2) Central Office to an end-user premises located FPP (loop)	LX--	01QBF.LLX	01FCF.X
3) Central Office to remote (feeder subloop)	LX--	01QBF.LLX	01QEF.X
4) Remote to remote (distribution subloop)	LX--	01QEF.X	01QEF.X
5) Remote to an end-user premises located FPP (distribution subloop)	LX--	01QEF.X	01FCF.X

Figure 8 illustrates the required entries described above. The remaining fields highlighted on the Service tab should be completed with standard entries.

# Unbundled Dark Fiber

## Service Tab (Continued)

Figure 8 – Service Tab

Login LSR Preorder Messages Tracking Reports Directory Circuits TNA

CC 1111 PON TEST PON VER 1 Inquire SUP ?  
Related PON Impcon JIM BRALY Tel No 913-315-8307  
DDD 05/09/2002 Project EBD / /

REQ TYP A=Loop ACT N=New Install  
TOS 1=Business D=Advanced Se... ? ?  
DFDT APPT ? ACTL GNLVNC11002 APOT GNLVXAH17  
CHC ONSP Complex  
NC LX-=Loop Pre-Qualification NCI 01 QBF.LLX=Dark Fiber, CO  
SECNCI 01 QEF.X=DARK FIBER,XCO  
Conditioning Opt ? Condition \$ Pre-Qual #  
Conditioning Remarks

Info Confirm CLEC Service End User Ln Dtl Loop NP Billing Listing Dir SOE CASS Response

## Loop Tab

The CLEC should enter the appropriate cable identification and channel pair in the Loop tab as shown in Figure 9.

Figure 9 – Loop Tab

Login LSR Preorder Messages Tracking TNA

Loop Qty:  
1 of 1 LNUM 1 LNA N=New Inst... Tel No CLEC Tel No  
ECCKT TSP  
Shelf SLOT Relay Rack  
Cable ID XXXXX Chan Pair 0000000  
CKR NIDR EEL LoopTag CTEST  
CFA  
Info Confirm CLEC Service End User Ln Dtl Loop NP Billing Listing Dir SOE CASS Response

CC 1111 PON Ver Submit Clear Print Preview

# Unbundled Dark Fiber

## CLEC Tab

The CLEC should enter the application number as shown on the Dark Fiber Application (DFA) confirmation on the CLEC Tab in the Remarks to Sprint section as shown in Figure 10.

**Figure 10 – CLEC Tab**

The screenshot displays a web application interface for the CLEC Tab. At the top, there are navigation tabs: Login, LSR, Preorder, Messages, Tracking, and TNA. The main content area is titled 'CLEC Information' and contains the following fields:

- CLEC Cust Name: NEVTRN
- CLEC Init: AMBER HAWKINS
- CLEC Tel No: 913-315-7940
- CLEC Fax No: 913-315-0625

Below these fields is a 'Remarks to Sprint' text area with the text: APPLICATION NO.9999GNLVNC-002 FOR UDF.

At the bottom of the interface, there is a row of buttons: Info, Confirm, CLEC, Service, End User, Ln Dtl, Loop, NP, Billing, Listing, Dir, SOE, CASS, and Response. Below this row is a status bar with fields for CC (1111), PON, and Ver, and buttons for Submit, Clear, and Print Preview.

## Invoicing Elements

UDF is provided using loop and interoffice (transport) invoicing elements. Pricing is included in the interconnection agreement or its addenda. No volume or term discount plans are provided.

Invoicing Elements may include:

- Unbundled Dark Fiber Loop
- Unbundled Dark Fiber Interoffice Transport
- Unbundled Dark Fiber Local Feeder (office to remote subloop)
- Unbundled Dark Fiber Local Distribution (remote to remote or remote to end-user subloop)

Other invoice components include non-recurring charges for initial installation, monthly and non-recurring charges for fiber patch cords, fiber patch panels and end-to-end testing after initial installation. Special construction charges may apply for central office interconnection cabling and fiber patch cords.

# Unbundled Dark Fiber

## Requirements

CLECs must have UDF language and rates identified in their Master Interconnection and Resale Agreement prior to submitting a Sprint Dark Fiber Application (DFA) and the appropriate application fee.

Sprint will provide access to the CLEC for accessible and available UDF facilities. The CLEC is responsible for obtaining and connecting electronic facilities to the UDF. Sprint will not remove, and CLEC will be permitted to use, any regenerating equipment in existing facilities.

The CLEC must have an established collocation with an FPP at the end points of the UDF transport facility, at the serving wire center of the UDF loop or at the feeder subloop. No collocation is required at intermediate wire centers where the fiber route passes through that wire center.

The CLEC may request UDF prior to collocation build. The CLEC must complete a Sprint DFA in order to determine availability of the requested route. Once verification of availability is obtained, the CLEC has 10 business days to submit a firm order for that route. Once the UDF route is complete, all recurring and non-recurring charges will be applied.

Use restrictions applied for leased dark fiber are consistent with those for loop, transport and EELs.

Sprint will reserve a minimum of four fibers per sheath and up to a maximum of 12 for testing and maintenance use by Sprint. In addition, Sprint reserves the right to take back fiber to meet Sprint's carrier of last resort obligations. Refer to the Master Interconnection Agreement for details.

The CLEC will be required to submit a DFA prior to submitting a firm order for UDF. Refer to Figure 11 for a sample application. The CLEC initiates the process by submitting an application for UDF with the appropriate application fee to the local account manager. The purpose of the application is to verify that the requested UDF route is available and to provide pricing of the route prior to ordering.

Within 20 business days of receipt of the DFA, Sprint will provide the CLEC with an analysis and response regarding route availability and cost details. Refer to Figure 12 for a sample analysis and response.

If UDF is available, the CLEC is required to notify Sprint of acceptance or rejection of the price quote. Acceptance must be via a firm order, within 10 business days of receipt of the quote. Sprint will reserve the requested dark fiber for the CLEC during those 10 business days.

If, however, the CLEC does not submit a firm order within 10 business days, the fiber reservation expires. Additionally, if the CLEC has not accepted the price quote after 10 business days of receipt, the CLEC must submit another DFA and application fee.

# Unbundled Dark Fiber

## Requirements (Continued)

**Figure 11 – Sample Dark Fiber Application**

<b>DARK FIBER APPLICATION</b>	
<b>Customer Provided Information:</b>	
CLEC Name: <input style="width: 90%;" type="text" value="***CLEC Name***"/>	Requested # of Fibers: <input style="width: 80%;" type="text" value="4"/>
CLLI A: <input style="width: 90%;" type="text" value="11 Character CLLI"/>	CLLI Z: <input style="width: 90%;" type="text" value="11 Character CLLI"/>
OR	OR
Customer Address 1: <input style="width: 90%;" type="text"/>	Customer Address 1: <input style="width: 90%;" type="text"/>
Address 2: <input style="width: 90%;" type="text"/>	Address 2: <input style="width: 90%;" type="text"/>
City: <input style="width: 90%;" type="text"/>	City: <input style="width: 90%;" type="text"/>
State: <input style="width: 90%;" type="text"/>	State: <input style="width: 90%;" type="text"/>
Zip: <input style="width: 90%;" type="text"/>	Zip: <input style="width: 90%;" type="text"/>
CLEC Remarks: <input style="width: 95%;" type="text" value="Inquiry is for 4 fibers from CLLI A to CLLI"/>	
<b>Sprint Provided Information:</b>	
FSM Name: <input style="width: 90%;" type="text"/>	State/Territory (See fee below): <input style="width: 80%;" type="text" value="MO"/>
*Application Number: <input style="width: 90%;" type="text"/>	Requested Fiber Route Available: <input style="width: 80%;" type="text" value="Yes"/>
Date Received: <input style="width: 90%;" type="text"/>	Reason (If Unavailable): <input style="width: 80%;" type="text" value="Not Applicable"/>
Date Returned to CLEC: <input style="width: 90%;" type="text"/>	Type of Firm Order Required: <input style="width: 80%;" type="text" value="ASR"/>
	(If completed quote results in an order)

\* NOTE: Any firm order (ASR or LSR as specified in the completed application) resulting from this application MUST include the Application Number shown above in the remarks section of the ASR or LSR.

### Terms and Conditions:

This Dark Fiber Application will not be processed unless the above information is complete, and it is submitted with a check in the amount shown at the right, for the state and territory indicated above.

\$267.32

Upon providing the pricing and availability for the requested Dark Fiber route, Sprint will reserve the fiber route (if available) for up to 10 business days pending the receipt of a firm order. Beyond 10 business days, if an ASR/LSR has not been received, a new application and fee will be required.

The pricing information outlined in this quote is applicable until the expiration or mutually agreed upon amendment of the interconnection agreement.

# Unbundled Dark Fiber

## Requirements (Continued)

Figure 12 provides an example of a Sprint analysis and response prepared for cost details for a requested dark fiber route.

**Figure 12 – Cost Details Example**

<b>Cost Details For Dark Fiber Route Requested</b>				
<b>Non Recurring Charges</b>				
	<b>USOC</b>	<b>Quantity</b>	<b>Price</b>	<b>Total</b>
<b>Loop NRCs:</b>				
Patch Cord Inst		1	\$27.8900	\$27.89
Co Interconnection				
Research				
Special Const. Pigtail				
Transport				
End-to-end Testing		1	\$63.1200	\$63.12
Other				
<b>Subtotal:</b>	DFLOP			<b>\$91.01</b>
<b>Interoffice NRCs:</b>				
Patch Cord Inst				
Co Interconnection				
Research				
Special Const. Pigtail				
Transport				
End-to-end Testing				
Other				
<b>Subtotal:</b>	DFINO			<b>\$0.00</b>
<b>Total NRC:</b>				<b>\$91.01</b>
<b>Monthly Recurring Charges</b>				
	<b>USOC</b>	<b>Quantity</b>	<b>Price</b>	<b>Total</b>
<b>Loop MRCs:</b>				
Feeder		2	\$189.0000	\$378.00
Distribution				
Patch Panel		2	\$0.7000	\$1.40
Patch Cord		2	\$0.8600	\$1.72
<b>Subtotal:</b>	DFLOP			<b>\$381.12</b>
<b>Interoffice MRCs:</b>				
Interoffice		147,660	\$0.0076	\$1,122.20
Patch Panel				
Patch Cord				
<b>Subtotal:</b>	DFINO			<b>\$1,122.20</b>
<b>Total MRC:</b>				<b>\$1,503.32</b>

# Unbundled Dark Fiber

## Frequently Asked Questions

<b>Number</b>	<b>Question</b>	<b>Answer</b>
1	Does Sprint UDF require collocation?	Yes. UDF requires collocation at each Sprint CO or OSP facility where UDF is terminated.
2	Where is UDF available?	UDF route availability is determined through the Dark Fiber Application process based on route end points and strand quantities requested.
3	Can UDF be provided where fiber is not accessible?	UDF is provided only where facilities are both available and accessible. Any other requested arrangements must be submitted via a BFR.
4	What are other considerations for UDF?	UDF terminates at a Sprint FPP. Additional fiber cable and necessary splicing for connecting to the CLEC facilities will be provided as requested under ICB at the remote site. For that reason, an ICB request must be made for connectivity beyond the physical UDF termination. UDF service is priced using distance-sensitive rate elements. These distances are determined using actual footage. For this reason, the actual physical length of the route, not airline mileage, determines UDF prices.
5	What testing is performed?	Sprint will provide end-to-end testing for UDF routes during the firm order provisioning process. Sprint does not make any representation as to the transmission capability of these facilities.
5	Who should be contacted if additional information is needed?	The local account manager should be contacted for additional information.



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