



Fiber to the Home Time Study for Connecting the Home using *FastPass*[™]

Executive Summary

A large service provider¹ commissioned a study to quantify the time saved with the Clearfield *FastPass*[™] broadband deployment method during the segment of the job where the fiber is connected at the home. The time study was for residential accounts only, no commercial properties. A total of 159 installations were surveyed. The results were compared to a previous baseline survey. Utilizing the *FastPass* method resulted in time savings between 35% and 38% versus the baseline method for Outside and Inside work performed.

¹ Clearfield customer types fall under the categories of Community Broadband (tier 2 & 3, utilities, municipalities, and alternative carriers), National Carriers (tier 1 wireline and all wireless markets), MSO (cable TV), and International (Canada, Mexico, and Caribbean markets)

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Background

The customer's baseline process parameters are shown in Figure 1 with the portion under study labeled "Outside Work" and "Inside Work." The baseline process uses a fiber adapter (bulkhead) in a plastic box affixed to the premises. Mechanical connectors are attached to the house end of the drop cable and to both ends of the cable that enters the home to connect the ONU (optical networking unit).



Figure 1 Process Parameters

The baseline process for the Outside Work and the Inside Work is as follows:

1. Transfer the blunt end of the drop cable to the TAP box location.
2. Install the TAP box on the side of the house.
3. Install the drop cable in the TAP box.
4. Install the mechanical connector on the drop cable.
5. Connect the drop cable connector to the fiber adapter (bulkhead) in the TAP box.
6. Install the connector on the house cable on the TAP box side.
7. Connect the house cable connector to the remaining fiber adapter to mate with the drop cable connector in the TAP box.
8. Insert the house cable into the premises.
9. Install the connector on the house cable on the ONU side (inside the premises).
10. Connect the house cable to the ONU.
11. Safely store the house cable slack and the excess drop cable slack.
12. Proceed to testing and provisioning.

A photograph of the baseline unit is shown in Figure 2.



Figure 2 Baseline TAP Box Installation

Baseline Findings

Notable findings for the baseline case pointed to several potential failure points using the field-installed connectors and fiber cables cut & installed on site. The salient points were as follows:

Field-Installed Connectors

- Lower yield
- Higher optical Loss
- Time consuming process
- More truck rolls for repeat resolutions

Field Cables Cut & Installed On-Site

- Cable stripping, fiber cutting and fiber cleaving in an unprotected environment
- Cable pay-out rig created on-site
- Technician-dependent slack storage coiled by hand and fitted into TAP box

The Clearfield *FastPass* Method

Clearfield products used in this study included Clearfield's Small Count Delivery (SCD) Test Access Point (TAP) wall box with FLEXdrop[®] Deploy Reel and pushable connectors. Clearfield delivered pre-connectorized cable products for both the drop cable and the house cable. The house cable was supplied on Clearfield's FieldShield[®] FLEXdrop Deploy Reel, a 4-1/2" reel that can contain up to 100-feet of FLEXdrop optical cable. The Deploy Reel minimizes pre-engineering because there is no need to specify the exact length of cable needed and the reel allows FLEXdrop to be pulled directly to the access point. Once the pushable connector has reached its destination, the connector assembly is completed with the supplied connector housings and the connector is mated to the adapter. The remaining slack on the reel is pre-stored with no further slack management required. A photograph of the Clearfield SCD TAP Box with FLEXdrop Deploy Reel is shown in Figure 3.



Figure 3 Clearfield SCD TAP Box with FLEXdrop Deploy Reel

Looking again at the two segments of the process parameters (Figure 4), the *FastPass* method eliminates the requirement to set up a connector installation station since the cables are pre-connectorized. The other time advantage eliminated is setting up a cable payout station to cut the house cable to length, inserting the cable into the home and connecting both ends. Finally, with the FLEXdrop Deploy Reel, cable slack is simply reeled back onto the Deploy Reel spool instead of trying to coil excess cable without kinking or twisting and forcing the excess cable back into the TAP box.

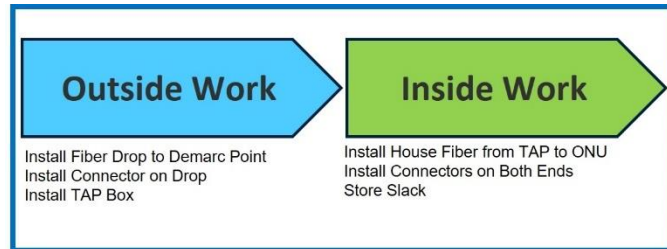


Figure 4 Process Parameters under Time Study

FastPass Method Findings

Notable findings for the *FastPass* method pointed to several improvements over the baseline as follows:

<u>Factory-Installed, Factory-Tested Connectors</u>	<u>FLEXdrop Deploy Reel</u>
<ul style="list-style-type: none">• 100% guaranteed performance• FiberDeep[®] Assemblies = lowest loss• Simply snap-on connector housing at mating point	<ul style="list-style-type: none">• Terminations designed to Telcordia GR-326• Simplified installation by paying out exact amount of cable required• Superior cable management with remaining slack safely stored on the reel

The Time Study

The provider offers “triple-play” services, meaning broadband internet, traditional cable television video and landline phone services. The provider used only in-house technicians, both new and experienced. No contractors were used. The time study was for residential accounts only, no commercial properties. A total of 159 installations were surveyed. The results were compared to a previous baseline survey.

First, the time savings for the Outside Work. The Baseline study recorded an average time of 1 hour and 44 minutes to install the demarcation box, route the drop cable to the box and attach the connector. Using the Clearfield *FastPass* method, the time was reduced to an average of 1 hour and 5 minutes, a savings of 39 minutes or 38% as shown in Figure 5.

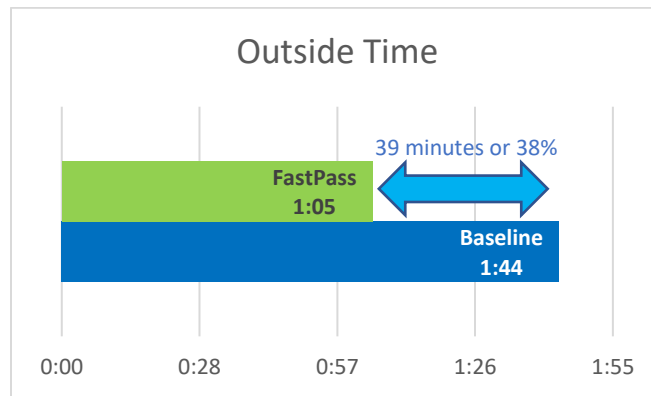


Figure 5 Outside Time Comparison

The Baseline average for Inside Time was 54 minutes. Using the Clearfield *FastPass* method, Inside Time was reduced to 35 minutes, a savings of 19 minutes or 35% as shown in Figure 6.

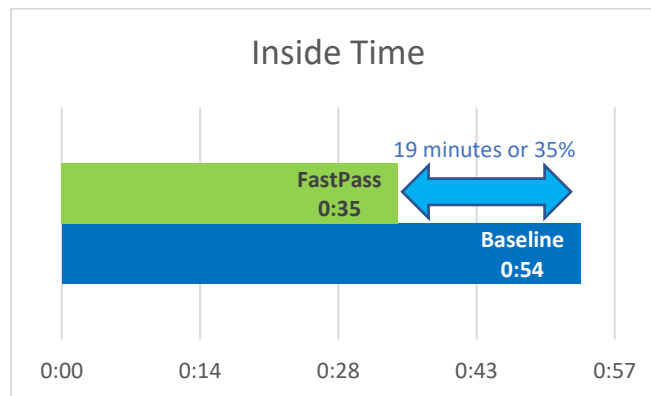


Figure 6 Inside Time Comparison

The cumulative time savings enabled this operator to add one – sometimes 2 – additional installation appointments per day for each technician. This time study illustrates the availability of new methods to speed fiber connections at the home and to accelerate fiber provider deployment goals.