

Tech Tip

Quickly Find Fiber-to-the-Antenna Issues

As a cell technician, you're tasked with finding an issue and calling the correct contractor to fix the problem, but many times, the problem isn't obvious and could take several days – and a lot of money – to solve as contractors try to locate the issue for you.

That OTDR tester sitting in your truck could be the answer to your problems. You already use it to test fiber in backhaul situations, and that same tester can be used to find issues with Fiber-to-the-Antenna (FTTA). OTDR testers can find a problem with fiber and its location in a matter of minutes. Most of the problems you can easily fix yourself – saving a lot of time and money.

Below are three common issues you'll encounter with FTTA.

- 1) Dirty Connectors:** Dirty connectors can increase return loss and insertion loss. This causes an increase in bit error rates and can sometimes cause loss of the signal. Inspect the connectors to make sure they are clean. If the connector is dirty, use a connector cleaning tool to clean the end face. Re-inspect the connector. If both male and female connectors are clean, make the connection.



- 2) **Fiber Bends:** Service degradation can be caused by macro-bends in the fiber. The picture above shows a widespread problem where the fiber was bent during installation. Locate a bend by comparing two OTDR traces measured at two different wavelengths, such as 1310nm and 1550nm. Once the bend has been located, gently adjust the fiber to eliminate the macro-bend. Re-test to make sure the problem has been corrected.

- 3) **Fiber Break:** Fiber on the tower can work fine for years and then suffer a break due to conditions such a major storm or someone accidentally breaking the fiber while trying to solve another issue on the tower. A stop in all service traffic is a sign that you may have a fiber break. The OTDR test set will be able to tell you where the break is located so that you can pass this information along to the contractor. This will save the contractor time in locating and fixing the problem.

Recent OTDR testers are as easy to use as connecting the optical fiber and pressing the start button. The tester will then create all the needed settings and tell you what the in-line elements are (connectors, splices, etc.). It will also tell you if there is an issue with the fiber and where it's located. Additionally, the most advanced OTDR testers can be setup to the fronthaul configuration you see on a regular basis. The tester only needs a one-time setup to make this happen. Results are then displayed in easy to understand terms such as BBU, bottom of tower, top of tower, and RRU.

Nervous about using your OTDR tester to find a FTTA problem? Practice using it on a tower that you know is working properly. This will give you the confidence to quickly find a problem when a tower does malfunction.

Your OTDR tester will give you the visibility to find a problem yourself and can be the difference between waiting days for a contractor to find the problem for you, versus you quickly finding the problem and waiting for the contractor to fix the issue. Also, if the fiber is not the issue, you can find that out immediately and work on data/traffic issues instead of waiting for the contractor to say the fiber is fine.

To learn more about using an OTDR tester to troubleshoot FTTA, read [A Quick Start Guide to FTTA](#).

Products Used for the Tests Above:

[FiberChek Probe Microscope](#)

[FiberChek Sidewinder](#)

[Choosing the Right OTDR](#)

[MTS-5800](#)