Tech Tip

How to Test and Certify AOC/DAC Cables for Data Centers

Active optical cables (AOC) and direct attach copper (DAC) cables pose a problem for contractors working in data centers because the connectors are permanently attached. This makes it impossible to access the fiber in an AOC and the copper in a DAC cable, which rules out traditional testers for certification.

The fact that most testers won't work has contractors asking if the cables should be tested at all. The short answer is YES. Both types of cable must be tested *before and after* installation. There are new all-in-one testers that have dual SFP and QSFP ports to make this type of testing possible. Let's run through two testing scenarios that must happen during installation using these new testers.

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1) First, the cable must be tested before installation. Both AOC and DAC cables could have manufacturing defects, mislabeling issues or could have been damaged during shipment. To test that the cable is functioning properly, use the testing platform to perform a bit error rate (BER) test. Plug the ends of the cable into the dual ports on the tester and start the test. If the results are within satisfactory parameters, the cable is fine. If not, replace the cable and do the test again.

2) For this next example, you'll need two testers – one on each end of the cable. The first tester should be set to run the cable test script. The second tester should be set to monitor/thru mode (loopback). This will check for pluggable temperature (SFP/QSFP) and laser bias current (SFP). In addition, the test will also check the optical power range for AOC cables.

   Both testing scenarios are important during AND after installation as several issues can cause the cable to go bad over time. DAC cables are vulnerable to EMI degradation. AOC cables could have crushed fiber or excessive bends that can degrade service. Both types of cables could encounter failure of electrical (SFP) components. By using both testing scenarios, you'll be able to quickly find the bad cable and get it replaced.

   To learn more about conducting these tests, watch this video. You can also read about the VIAVI AOC/DAC Cable Tester in this product brief.

   Products Used for Testing:

   MTS 5800-100G

   MTS-5822P