How to Choose the Right Power Meter Light Source
Top 4 Questions to Ask a PMLS Vendor

A power meter light source (PMLS) test set tends to be viewed as a basic device for testing power and loss over fiber links. Such a simple verification device is likely to be considered a must-have tool for any network technician or installer responsible for first-line datacom cabling verification and troubleshooting – and rightly so. However, this basic functionality should not translate into low value or quality indifference, especially considering the majority of optical fiber deployments that require testing support the backbone and high-speed data center links. These communication links make up the most mission-critical portion of the network. Furthermore, these links likely must be able to support the higher-speed network technologies like 1-Gb per second, 10-Gb per second Ethernet, or the high-speed fiber channel. Such high-speed applications demand a relatively small loss limit for the end-to-end link. A measurement error as small as 0.25 dB represents 10% of the channel loss limit, underlying the importance of quality and precision, even in basic functionality PMLS test sets.

With such a wide variety of PMLS manufacturers to choose from, it can be overwhelming to decide which instrument is right for you. To assist in navigating the research process, here are four questions you should ask yourself – and the vendor – when deciding which PMLS you should purchase:

Q: How easy is it to use?

A: This criterion should be a no-brainer. Vendors that produce instruments meant to fulfill basic functions frequently claim that they are simple and straightforward to use – but are they really? Here is a quick way to check:

- **Can you figure out how to use the PMLS simply by playing with it straight out of the box?**
  While this may resemble impatience, it is none theless a telling litmus test for whether or not an instrument is easy to use. On a truly simple-to-use fiber tester, there should be virtually no learning curve. One should be able figure out how to set a reference to measure power and loss within minutes, without referring to the instructions. Beware of the thick manual.
- **How intuitive is the interface – are there more than three or four "functional" buttons?**
  At their core, PMLS test sets are expected to be quick and efficient for fiber link verification. It should be easy to navigate the tester to measure power or link loss. Setting a reference should not require multiple button pushes. Further facilitating ease-of-use, many present-day PMLS will automatically calculate the loss for the user from the "reference setting" while displaying the actual reference measurement being used.
- **Is the display large and crisp while clearly conveying the information you need?**
  When conducting a basic test, a technician should not have to squint to read the measurement. The instrument's display, like its interface, should be straightforward and free of clutter, communicating the desired data in an easily distinguishable manner.

Q: What does it do – and how does it help me?

A: Just because a PMLS tester is commonly perceived as a ubiquitous instrument does **NOT** mean that it is a commodity where one's purchase decision should be based solely on the lowest price – or even specs. Present-day fiber testers often have advanced capabilities beyond basic power and loss measurement verification that can save a user time and/or manpower resources. For example, most leading PMLS test sets on the market today can automatically identify which wavelength is being transmitted, along with testing multiple wavelengths simultaneously. Given the practice of verifying a link using more than one wavelength, the testing time is cut in half with the dual-wavelength measurement feature, enabling a technician to work more efficiently – highly valuable when many strands need to be tested. While capabilities such as these are becoming standard, other differentiating attributes on advanced PMLS also add value. For example, Fluke Networks' next-generation PMLS, the SimpliFiber Pro, includes a capability called "Min/Max" which

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automates precision tracking of intermittent power fluctuations. This time-saving feature negates the need to constantly monitor the display for any transmission instability, freeing the technician up to complete other tasks. The SimpliFiber Pro also has a toner-like double-ended fiber cabling identification feature named FindFiber" which can efficiently be performed by one technician. This feature translates into saved time and money compared to the usual requirement of two individuals, a visual fault locator (VFL), and a talk-set.

Q: Are the readings even accurate?

A: The accuracy of the measurements being displayed should not be taken for granted, but commonly is. There are a large number of PMLS vendors, which is great for product selection but not so much for ensuring quality – especially when you consider the level of precision required in fiber verification instruments to be able to support the new high-speed network applications. But the question of how to ascertain whether one's results are trustworthy is not an easy one and admittedly contains a measure of subjectivity.

Of course, using a manufacturer's brand name and reputation within the industry as a proxy for quality can be helpful as a data point; however, that information alone is insufficient. Some other indicators to look for include:

- **Is the vendor a recognized leader in its field?**
  Membership in standard-setting committees (such as the Telecommunications Industry Association) generally reflects public acknowledgment as an industry leader and innovator, increasing the likelihood that its products can be trusted to be reliable and trustworthy.
  http://www.tiaonline.org/join_tia/member_list.cfm
- **What do the vendor's white papers say? Has it published any at all?**
  Leading vendors are heavily involved in research and are oftentimes considered experts in the industry. As such, they will frequently share their findings, in addition to periodic tips and standards-related news, with the public via whitepapers or application notes.
- **Does the vendor include calibration certificates with its products?**
  Despite its basic functionality, PMLS testers are still precise instruments that must perform under exacting standards. Factory-provided documentation that sources and meters are properly calibrated should be included with the products.

Q: Will the manufacturer be around in six months?

A: Admittedly, the fact this is even an issue is an indicator of the current tenuous economic landscape. Customer and technical support, warranties, service plans, calibration, product accessories and expertise – these are just some of the benefits and services that customers typically take for granted – and that more-than-likely vanish when a vendor goes bankrupt. While there is no foolproof way to determine a company's financial strength or survivability through an extended downturn, common-sense attributes such as a vendor's size or reputation should bolster your confidence it will still be around in the future when you need it. For example, larger international organizations may have more overhead and liabilities – but they also command the resources and the reach to ride out difficult economic times relative to smaller, domestic-only companies. Manufacturers that have a reputation of producing quality products that users have long been drawn to are more likely to continue to do so, especially when compared to untested start ups that rely on cheap components and low prices to attract customers.

Note that these are only a couple of traits to look for and are certainly not hard and fast rules to predict a vendor's stability. Nonetheless, they do provide additional information about the manufacturer which is a valuable data point to consider in your PMLS set purchasing process.

Conclusion

Choosing the best PMLS for your needs does not need to be an overwhelming experience. This guide should serve as a tool to help cut through the clutter of low-quality test sets and assist you in finding the test set that will work for you and bring the most value to your organization – both immediately and over the long-term.