



White Paper

Discovering the truth behind PON
Interoperability and compatibility

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The market for optical transceivers is very competitive and ProLabs believes that the customer should benefit from having the choice to purchase optics from whom they please. Sometimes ProLabs receives feedback from our customers that a network equipment manufacturer's sales representative has threatened a warranty or support of a system if third-party transceivers are installed. ProLabs has debunked the myth that OEMs can legally void the equipment warranty's by using third-party optics. Additional feedback indicates tactics used by OEMs to strong arm customers in to using their optics through long term purchase agreements tied to a large project or by tying the purchase of OEM optics to government funded financing bills of material. These tactics often leave customers disappointed with their chosen OEM platform, as they are effectively locked out of options to purchase optics of equal or better quality at lower prices.

Third-party PON transceivers, just like OEM PON transceivers, operate at layer 1. When installed in the OLT host card, the system reads the EEPROM memory to recognize the optic. Once the optic is recognized, the host system monitors the digital diagnostics provided by the transceiver. Information such as temperature, wavelengths, and data rates are passed on to the host system. Beyond those basic functions, PON transceivers are "dumb." They simply pass the data through the system.

Third-party transceiver suppliers, like ProLabs, warranty the compatibility of their optics with the host platform to operate as the switch expects from day one through end of product life.

GPON Interoperability

GPON interoperability is a broad topic involving OLT host OEMs and ONT or ONU. ITU G.984, or GPON, was developed be a standards-based technology to ensure that service providers had the choice of suppliers for GPON OLT and ONTs.

A GPON standard held the promise that any GPON-compliant ONT would be interoperable with any GPON-compliant OLT OEM platform.

In reality most OLT hardware and ONT hardware are built compliant with GPON optical and electrical standards. However, the software each OEM may use for managing the platforms may be radically different, thus causing interoperability issues. GPON's primary management protocol that regulates interoperability between OLT and the ONT, ITU G.984.4 or OMCI, operates on Layer 2. This protocol has responsibility for messaging between the OLT and ONT within the GPON stack. Sadly, each OEM's software stack interfaces with OMCI differently and this is where interoperability becomes an issue with GPON.

A Choice

Luckily, service providers at least have a choice for GPON and for next generation PON technologies like 10G-EPON, XG-PON, XGS-PON, and NG-PON2. Third-party optics operate at layer one, out of the way of the higher layer management protocol squabbles of OEMs. OEMs do not manufacture their own transceivers. Thus, service providers can rest assured that third-party optics are also equal, if not better quality, as OEM transceivers. Third party transceivers often ship from the same factories as those supplied by OEMs. Third-party PON transceivers from suppliers like ProLabs have a lifetime warranty, OEMs typically only warranty transceivers for five years or less.

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