Optical Transceiver Qualification Process

DHD provides the industry's highest quality optical transceivers, functionally tested and configured to our customer's exact specifications. A DHD coded and tested part will work exactly to specification, right out of the box and is backed by a lifetime warranty policy. DHD has a dedicated lab with testing beds to mimic our customer's current environment to ensure we deliver 100% compatible optics every time. We have invested in and maintain an extensive suite of switch based test systems, from multiple switch manufacturers, that allow us to perform plug-n-play testing. We can replicate down to the hardware and IOS level to troubleshoot any inconsistencies.

Our process starts with best in class manufacturers of MSA spec transceivers. These companies follow rigorous design verification and test processes that meet performance standards set by OEM's. Through years of testing a wide variety of parts from many manufacturers, DHD has developed a refined approved vendor list of companies that consistently deliver high quality parts. These companies routinely conduct comprehensive functional and environmental testing to industry standards and hold ISO, RoHS and other key certifications.

The second step is to select and approve parts to add to DHD's approved parts list. This selection criteria includes reviewing performance specifications against our knowledge base of compatibility requirements as years of experience have identified issues not always captured in communication industry standards. Sample parts are acquired are then tested to meet key specifications for bit error rate, transmitter accuracy and receiver sensitivity.
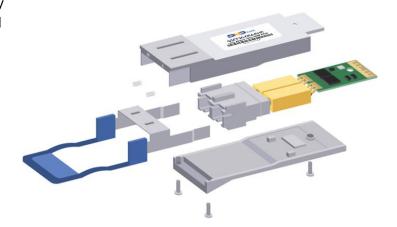
The following parametric tests are done over a range of environmental conditions depending on commercial or industrial usage. Using Digital Diagnostic Monitoring (DDM), we verify thresholds to industry standards.

- Output Power
- Receive Power
- Module Voltage
- Laser Bias Current
- Optical Fiber Scope inspection
- Receiver sensitivity
- SNR

- Sensitivity
- Temperature
- Wavelength verification for WDM products
- BER
- Extinction ratio
- Dispersion Tolerance Testing
- Eye Diagrams

Next, parts are disassembled to inspect assembly workmanship, cleanliness of optical and electrical connectors, component quality and design fit.

The last step in the part qualification process is coding and application testing in a wide variety of platforms. Depending on the form-factor, a part will be tested in as many as 50 different platforms or combinations of chassis, controllers, line cards and operating system revisions from multiple OEM's. Test results are recorded for each configuration and added to DHD's part compatibility matrix.

Application Testing include:

Traffic functionality TX/RX per supported layer2/3 protocol

Brand specific EPROM values are verified
EEPROM MSA Value Verification

In collaboration with our customers, we have developed unique configurations that create or emulate known system incompatibilities. A Qualification checklist with up to 15 quality checks is used to summarize all our testing and verify the adherence to industry part (PMD) standards.