

## Launch Condition Testing

### Is your Fiber Properly Filled?

When testing insertion loss the results are greatly affected by the launch conditions within the reference cable connector.

An **overfilled launch**, where the entire core of the fiber is excited, will lead to insertion loss values that are overly pessimistic. Any core/connector misalignment is accentuated by an overly excited core.

An **underfilled launch** will yield overly optimistic results for connector loss due to the core being excited mainly in the center. Connectors would need to be greatly misaligned to experience any loss. This may not reflect performance in the field.

Standards organizations, such as the **IEC** and **TIA**, have developed requirements for launch conditions to ensure loss testing is accurate and repeatable for the given application. The **OP1021 LCA (Launch Condition Analyzer)** characterizes the reference connectors launch condition to ensure standards compliance, such as conformity to **IEC 61300-3-4, IEC 61300-1**.

The OP1021 performs a direct farfield scan to obtain the farfield profile. This profile can be used to calculate the Numerical Aperture (NA) of multimode fibers or the Mode Field Diameter (MFD) of single mode fibers. NA and MFD are measurements instrumental in the production of multimode and single mode fiber respectively.

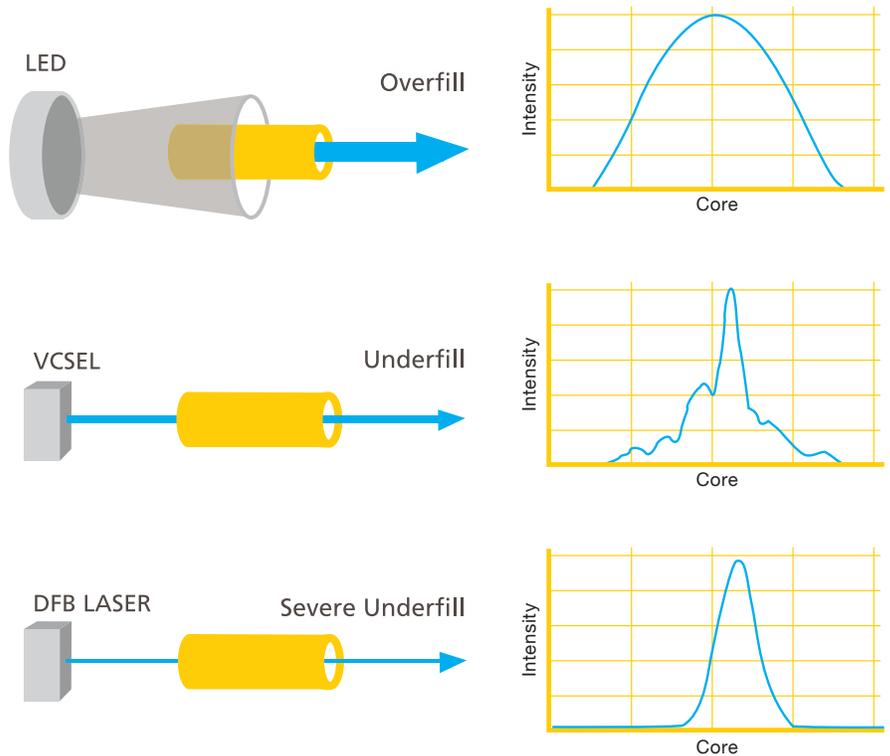


Figure 1: Three different fill conditions: Overfill (LED), Underfill (VCSEL), Severe Underfill (DFB LASER)

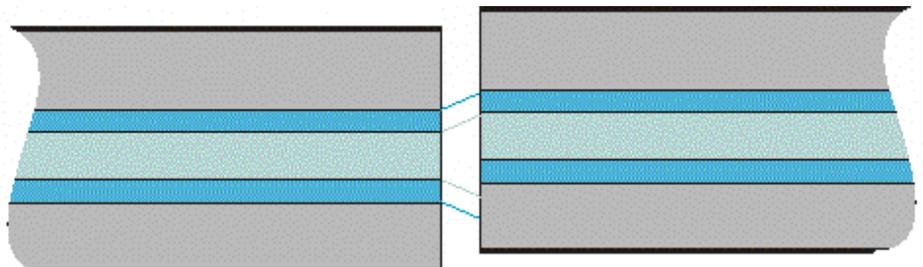


Figure 2: Fiber mismatch can not only cause insertion loss, but will also affect the fill of the fiber

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### Optimize your Launch Condition

The **OP1021 LCA** is used to analyze how light is populated at the connector endface (near field), as well as measure how light is exiting the fiber endface (far field). With the proper overfilled source (included), the numerical aperture of the fiber can be measured. In addition, it can generate detailed reports on launch condition and compare to standard conditions for; Encircled Flux, 70/70, 80/80 or other specified launch conditions which can be calculated based on near field and far field scans. The **OP1021 LCA** is ideal for customers who need to test the launch condition of their production equipment or laboratory sources on a routine basis and is frequently used for military and aviation applications.

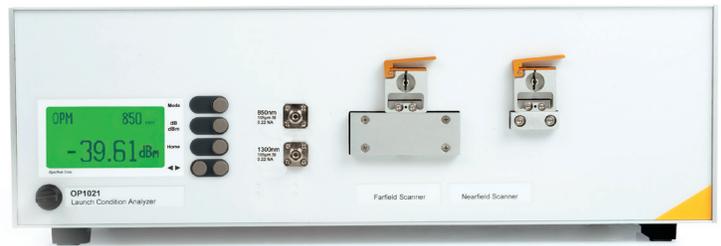


Figure 3: OP1021 Launch Condition Analyzer with far field and near field scanners

### Key Benefits

The **OP1021 LCA** comes standard with a far field scanner for testing the numerical aperture of the fiber and a near field scanner for testing the optical power distribution across the face of the fiber. This unit can be built with two source outputs on the front panel and the near and far field scanners come with interchangeable adapter mounts for 1.25mm and 2.5mm ferrules.

- Variable step size for both near field and far field actuators
- Export data to Excel spreadsheets for further data analysis
- Quick chart printing directly from **OPL-LCA**
- Launch Condition calculations for Encircled Flux
- Launch Condition calculations for 70/70, M80, and more
- Mode field diameter is measured via the direct farfield measurement technique.

### Contact us

To learn more about the Launch Condition Analyzer OP1021 and schedule a free demonstration, contact our Sales Team. Let OptoTest help you with the right test solution: [sales@optotest.com](mailto:sales@optotest.com) | 1.805.987.1700

### Specifications

Far field Scan Range	+/-0.5NA, 0.01NA resolution
Near field Scan Range	+/-150µm, 0.2µm resolution
Wavelength Range	830nm to 1700nm (InGaAs) 430nm to 1080nm (Silicon)
Optical Power Range	+20dBm to -45dBm
Optical Interface	Universal 2.5mm, 1.25mm, 1.6mm
Mechanical Dimensions	Standard 19" rack mount enclosure, 3U
Analysis Software	Far field scans Near field scans Encircled Flux Mode field diameter