# Custom Loopbacks – A Customer Perspective

## Why Custom Loopbacks Are Essential for Network Switch Developers

Loopback Modules are key to network switch design and validation testing. They take the place of pluggable transceivers and other interconnects, and are used in the early design verification stages, manufacturing testing, and to assist field deployments. Although Loopback Modules emulate the pluggables they replace, in many cases they offer additional capabilities for diagnostics and visualization to aid in switch validation and development.

### Loopback modules are used to test switch host ports for the following metrics

- **Signal integrity:** is the signal integrity of the host port sufficient, and can the received signal be detected easily once looped back from transmitter to the receiver side?
- **Thermal capacity:** can the host port and switch operate at the maximum power dissipation of the pluggable without overheating?
- **CMIS compliance:** is the host port compliant with the intended CMIS revision, and can an effective handshake be accomplished through the management interface?

There are many different form factors on the market today, with customers having specific requirements for their loopback designs. Responding to this demand, MultiLane provides specialized custom loopback to meet our customers' needs. **Below are some examples of real customer needs:**

**Basic Identification**

Many customers require specialized identification markers for their customized loopbacks including labeling, pull-tab color, and EEPROM identification of a custom part number.

**Customer Specific Test Plans**

Custom loopbacks are essential to support customer specific test plans. For instance, if host ports need to be able to overcome certain loss profiles, then the Loopback needs to be able to support that exact profile.

**History and Logging**

Loopback modules provide customized logging and visualization capabilities of the history of CMIS transactions, for detailed design verification, which cannot be easily supported by generic pluggables.

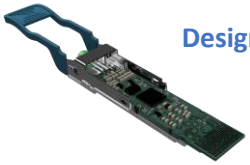
**Custom Control Signals and Pins**

Some customers need to implement additional control signals and/or pins to enable the specific features of their system. Although not specified by the MSA, the Loopback modules require these customizations to be able to support their testing needs.

**Signal Monitoring**

Some customers want to loop back a certain signal and monitor it in their switch. Specific designs like these are not supported by the MSA and require a custom Loopback module.

**Design Phases**



When customers want to test the thermal capacity of the host port, but cannot wait until the CMIS specification is completed, then a basic Thermal Load without loopback traces, and management interface can be designed at an early stage. Other features can be implemented later in a new Loopback design, to support the next phases of the program.

Loopbacks are essential tools in the design and test of switch host ports through validation testing. Custom Loopbacks address customer specific needs and support their design implementations in ways that standard Loopbacks, pluggable Data Center Interconnects and even optical transceivers cannot.

To learn about how we can help you with your own custom loopback module needs, contact our sales department at sales@multilaneinc.com.

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