



multiLane

**Maximum Density
Lowest Test Time
Built for AI**

2026 Product Brochure

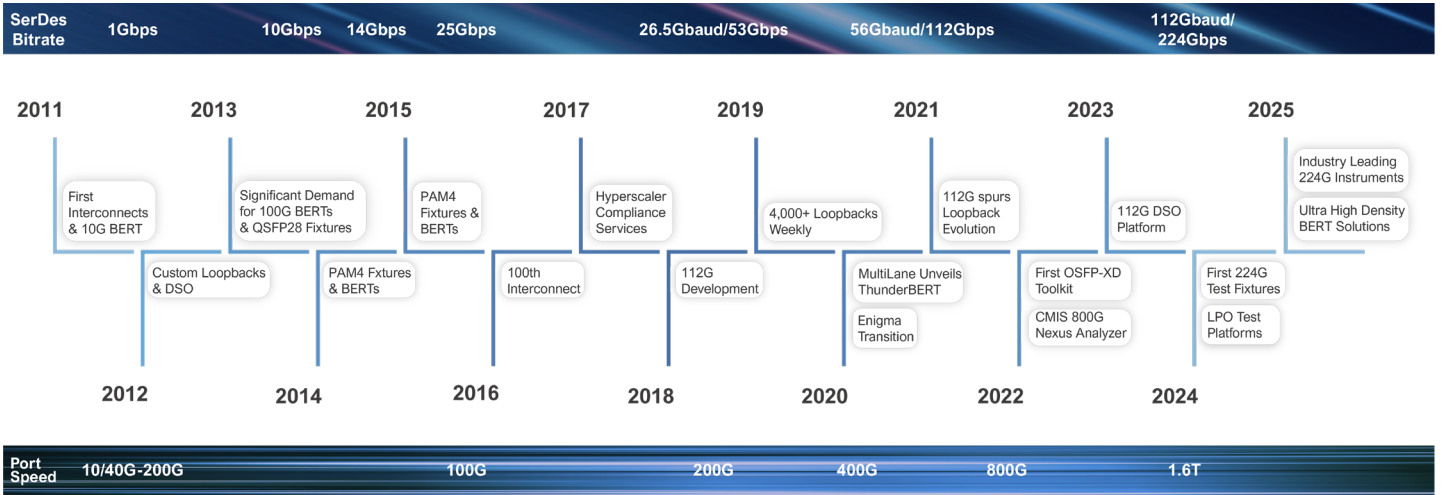
A Comprehensive Approach to a Diverse Industry

MultiLane high-speed test solutions have been accelerating industry evolution for over a decade. Specializing in hyper-scale, high-value validation, MultiLane offers a complete cycle support of data center test solutions encompassing IC and transceiver characterization, host line card test, and link testing.

Industry-leading solutions test from wafer to rack for developers, module vendors, interconnect and cable manufacturers, network installers, and data center operators with high performance, scalable equipment validating chips, active and passive copper, transceivers, and linear pluggable optics.

The MultiLane portfolio encompasses Bit Error Rate Testers (BERTs), Time Domain Reflectometers (TDR), optical and electrical Digital Sampling Oscilloscopes (DSO), Arbitrary Waveform Generators (AWGs), test fixtures, and a fleet of loopbacks for semiconductor wafer level testing, SerDes, TIAs, cable testing, and active interconnects up to 224 Gbps/lane.

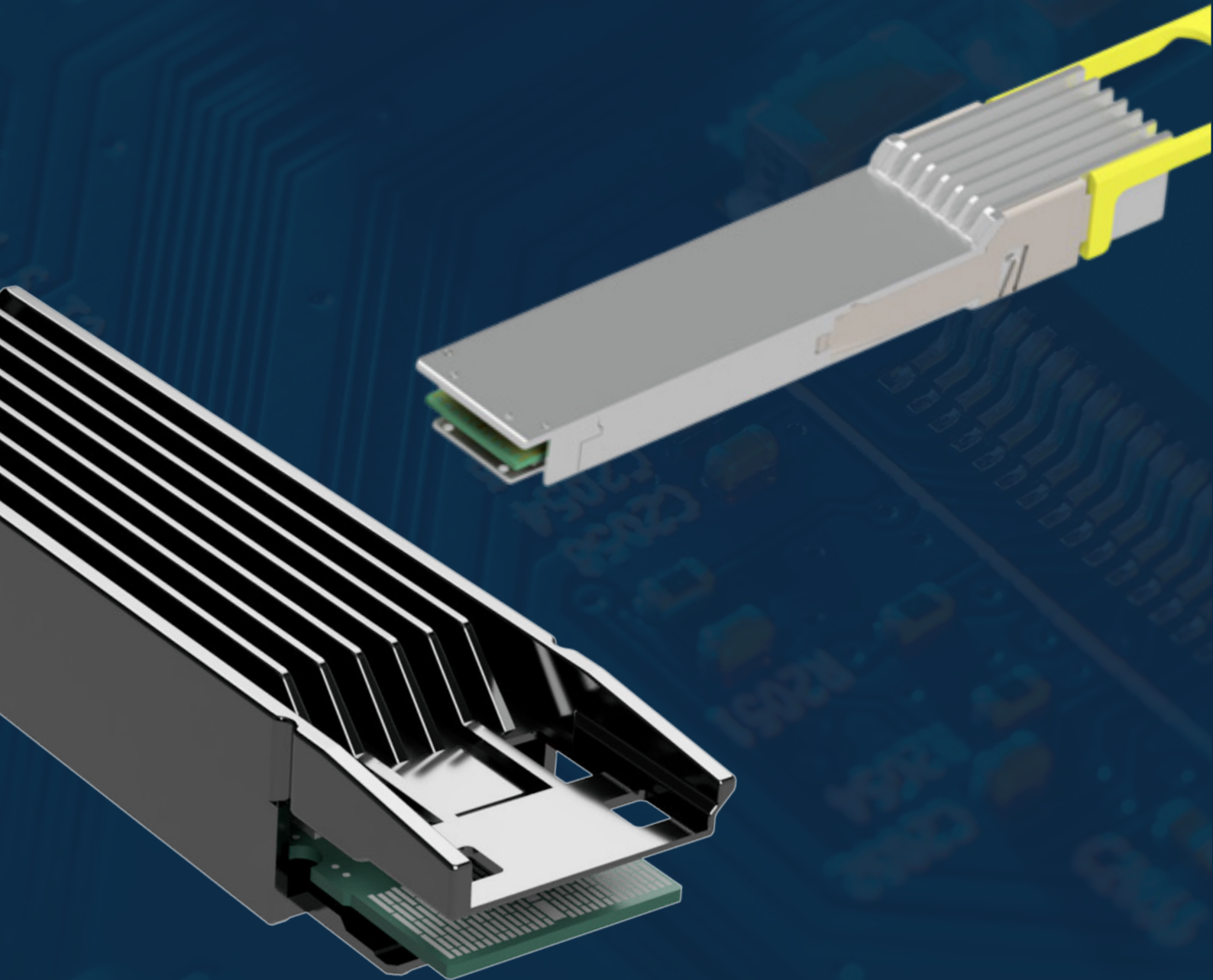
Innovation Timeline



DATA CENTER TEST SOLUTIONS

ACCELERATING HIGH-SPEED ADOPTION ACROSS THE INDUSTRY

MultiLane Data Center Test Solutions offer an extensive selection of testing capabilities to enable the modern day data center. We have ready solutions for the most dominant form factors across many generations. Our focus is on the specialized tools that allow for the development of 1.6T hosts ports and next-gen pluggables.

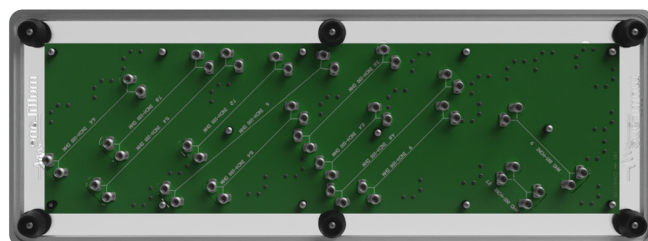


THE 1.6T ECOSYSTEM

MultiLane stands ready to accelerate the development and adoption of this latest technology with a comprehensive suite of solutions for 224Gbps Signal Integrity characterization. Taken together, these channel boards, test fixtures, and loopbacks offer a compliance and development suite to accelerate vital R&D for next-gen networks.

ML4067-224 CHANNEL EMULATION BOARD

The latest MultiLane Channel Emulation Board, the ML4067-224 provides a comprehensive set of trace paths for 224Gbps signals to test and validate responses to lossy channels. With 11 traces at 92 and another 11 traces at 100 Ohms the ML4067-224 can emulate losses which range from 4 to 30 dB at the target Nyquist frequency of 53.125 GHz. The board supports 1 mm and 1.85 mm connectors.

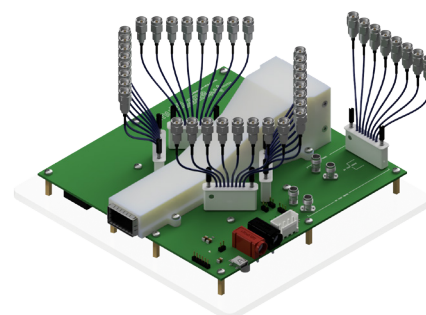


ML4067-224 Channel Emulation Board

224GBPS/LANE OSFP COMPLIANCE BOARDS

OSFP1.6T Module Compliance Board

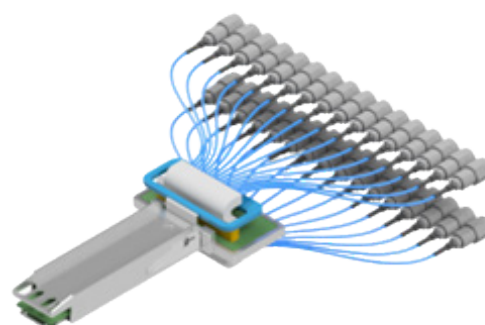
The MultiLane OSFP 224G MCB is designed to validate next-gen pluggables with loss profiles compliant with the IEEE 802.3df, high performance SMPX connectors offering a bandwidth of up to 110GHz, and a USB interface that gives access to a CMIS GUI. The MCB provides a comprehensive approach to compliance and interoperability validation with access to full CMIS implementation in modules



ML4064-MCB-224

OSFP1.6T Host Compliance Board

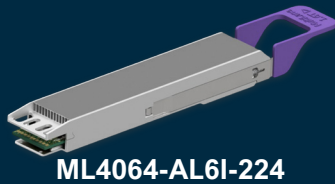
The MultiLane OSFP 224G Host Compliance Board (HCB), the ML4064-HCB-224, provides good SI performance as defined by the IEEE specification for accurate host characterization at 224Gbps/lane. With a narrow, cabled design to enable easy setup and crosstalk validation, the ML4064-HCB-224 is purpose built to address the challenges of streamlining the testing process without compromising that has come to define 224Gbps/lane validation.



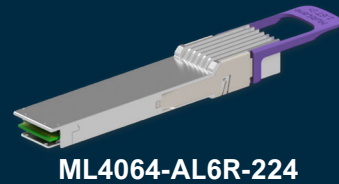
ML4064-HCB-224

OSFP1.6T LOOPBACKS

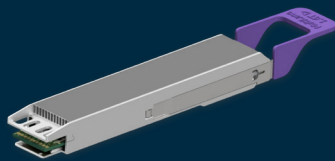
MultiLane offers both Electric and Active Loopbacks for OSFP 224G. These pluggables are designed to demonstrate host interoperability, establish a baseline performance before introducing outside variables, and run simplified debug routines to save on support cycles and FAE resources.



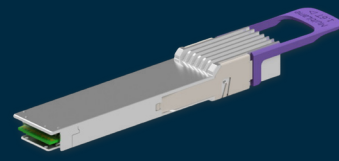
ML4064-AL6I-224



ML4064-AL6R-224



ML4064-AL7I-224



ML4064-AL7R-224

Active Loopbacks

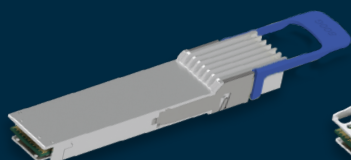
- Available in Type2 IHS and RHS shells
- OSFP1600 compliant shell with angled latch
- Available with two DSP options ALB6 and ALB7
- CMIS 5.x support with CDB, VDM, DPSM temperature sensors
- Real insertion counter
- Current sense
- Voltage Sense
- ThundertBert option

Redriver-Based Loopbacks

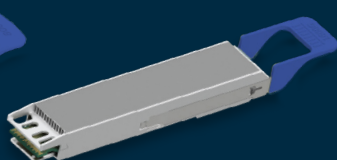
- 1.6T Redriver-based loopbacks to emulate Active Copper Cable applications
- Up to 40 W power dissipation
- OSFP1600 compliant shell
- Front LED
- Temperature, current, and voltage sensors
- CMIS 5.x compliant with CDB
- I2C and I3C support
- Real insertion counter

Passive Loopbacks

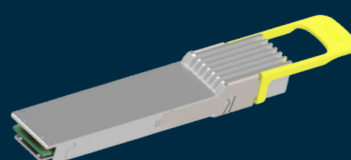
- Up to 45W power dissipation
- Available in Type2 IHS and RHS shells
- OSFP1600 compliant shell with angled latch
- Various options for various use cases : front LED, front pin header for external power, LCD
- 4 temperature sensors
- CMIS 5.x complaint with CDB
- I 2C and I3C support
- Real insertion counter
- Current sense
- Voltage Sense



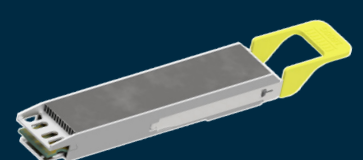
ML4064-RL2R-224



ML4064-RL2I-224



ML4064-LB2R-224



ML4064-LB2I-224

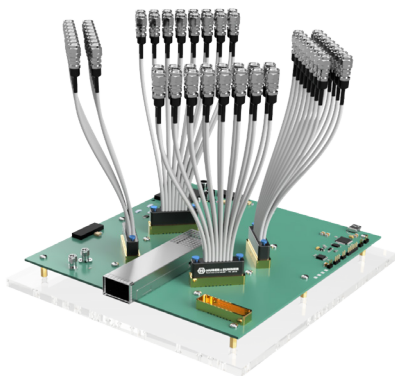
OSFP-XD

Test Fixtures

MultiLane's line of OSFP-XD Host and Module Compliance Boards (HCBs and MCBs) are ready to accelerate the industry into the Terabit generation. The ML4064-XD-MCB-112-MXPM70 provides a means of testing very early OSFP-XD pluggables, while the ML4064-XD-HCB1/2-112 and its series of high-performance SI traces allow for early port characterization/testing. Both test are compliant with the CEI-56G-VSR-NRZ and IEEE 802.3ck specs.

ML4064-XD-MCB-112-MXPM70 Key Features

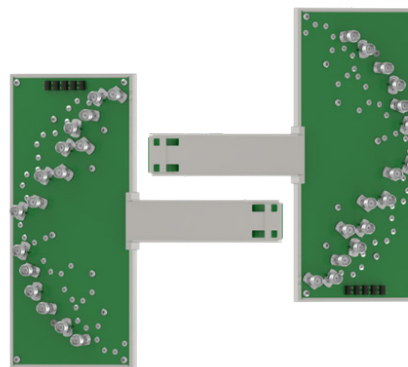
- MCB loss including the 3" MXPM70 cable is compliant with CEI-56G-VSR-NRZ and IEEE 802.3ck.
- CMIS GUI providing comprehensive approach to DUT interoperability, allowing users to access full CMIS implementation in modules. APIs available.
- I2C master driven from both on board microcontroller and/or external pin headers
- On-board LEDs display MSA output alarm states
- On-board buttons/jumpers for MSA input control signals



ML4064-XD-MCB-112-MXPM70

ML4064-XD-HCB1/2-112 Key Features

- Compliant with IEEE802.3ck and CEI-56G-VSR-NRZ
- Built with high performance PCB Material
- High performance signal integrity traces
- Same low Insertion Loss for all channels
- HCB1 supports 8x112G TX and RX lanes
- HCB2 supports 8x112G TX and RX lanes
- High speed signals accessible through 2.4-mm or 1.85-mm connectors



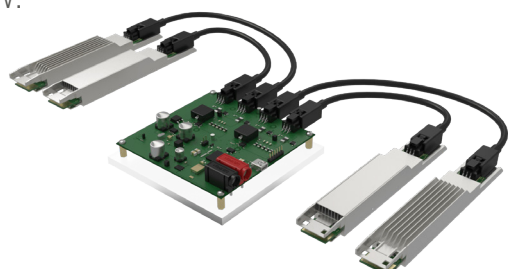
ML4064-XD-HCB1-112

ML4064-XD-HCB2-112

Thermal Solutions

MultiLane's Thermal Load and Controller Board – the ML4064-XD-TL and ML4064-XD-CNT – provide an early, efficient solution for testing the anticipated 45 W heat dissipation required by the 1.6T generation. Configurable power spots on the thermal load allows for a variety of internal combinations to be tested for both transceiver emulation and cooling solutions.

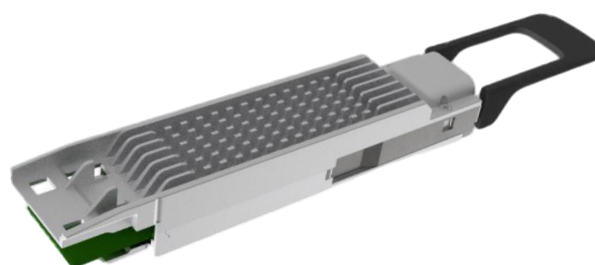
Up to 4 Thermal Loads can be controlled using the ML4064-XD-CNT Controller Board, allowing for multiple configurations to be tested at once for a total of 176 W.



Four ML4064-XD-TL thermal loads plugged into the ML4064-XD-CNT thermal controller board

OSFP-XD Loopback

Building on the strong MultiLane OSFP-XD portfolio, the MultiLane OSFP-XD loopback, the ML4064-XD-LB is designed to provide rapid, host port characterization and validation for OSFP-XD ports up to 1.6T.



ML4064-XD-LB Loopback

Nexus Analyzer

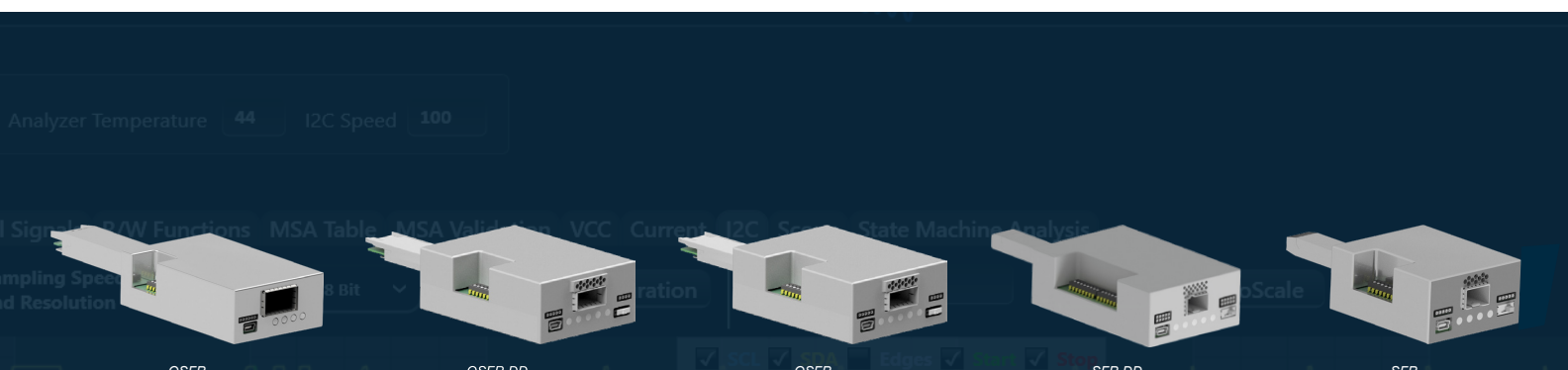
As new CMIS standards are developed and adopted, with a wide variety of SFF and CMIS specs available, CMIS testing becomes increasingly complex and time consuming. The MultiLane Nexus Analyzer is a direct response to this complexity, designed with speed and simplicity at its core. A CMIS/SFF debug tool for interoperability testing and CMIS/SFF failures, the Nexus Analyzer is equipped with a full feature sweep implemented in its GUI.

The Nexus Analyzer is used as a verification tool to validate the CMIS/SFF implementation, with a CMIS/SFF register sweep, state machine and data path state machine testing, I2C R/W commands and packet analysis, included in the product's features.

Capable of running a full system debug in minutes, with pinpoint accuracy on interoperability issues from either the module or host side, the Nexus Analyzer acts as a dramatic accelerant to CMIS adoption across the industry.

The product includes a port extender which connects low speed signals from the host to the plugged module while providing a probing interface at the same time. It also implements SI traces capable of 112G/lane, to connect the TX and RX paths from the host port to the plugged transceiver in the adapter.

Mating onto the adapter through a set of pin headers, the Analyzer gives access to the Nexus GUI with the capabilities to troubleshoot the interoperability between the system and the pluggable. Features include data path state machine testing, a full CMIS/SFF register sweep, I2C communication packets capturing and measurement of voltage and inrush current. The Nexus Analyzer is available in SFP, SFP-DD, QSFP-DD, and OSFP form factors.



Adapter

800G Adapter Key Features:

- SI traces and connector support 112G rates
- Support up to 30W modules
- Current and temperature sensor
- Module power ripples and inrush current measurement
- Detection of power spikes during module state transitions
- Probing interface for Vcc and GND pins
- External I2C
- Dip switch to choose low-speed signal source: internal/external
- Available in all SFF/CMIS form factors

Analyzer

800G Analyzer Key Features:

- Voltage sensor
- ePPS signal validation
- 1 MHz I2C
- Probing interface for low-speed signals
- External control for any low-speed signal:
 - INT/RST
 - LPW/PRS
 - SDA
 - SCL
- LEDs for control/alarm signal status
- USB port for PC connection to use GUI or API features
- Available in all SFF/CMIS form factors

Nexus Analyzer

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CHANNEL EMULATION BOARDS

MultiLane Channel Emulation Boards simulate lossy signals allowing vendors to characterize their designs for a variety of real-world environments. The ML4067 features a variety of carefully designed differential test traces, this passive test accessory adds precise ISI (inter-symbol interference) in order to calibrate or stress test DSPs, modules, gearboxes or other relevant systems in real-life environments. The channel emulation board is available to support 112Gbps/lane and 224Gbps/lane, ML4067-112 and ML4067-224, respectively.

ML4067-112-18/24 Key Features

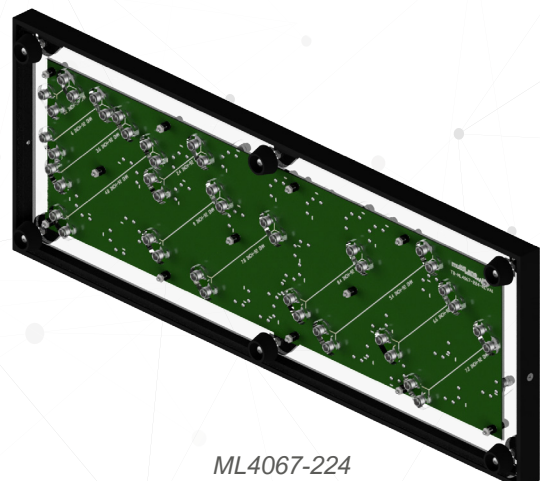
- 13 trace paths
- Loss from 2 dB to 24 dB with a 2 dB increment
- Target Nyquist frequency of 26 GHz
- 100 ohms and 93 ohms differential traces
- Available in 1.85-mm or 2.4-mm connectors



ML4067-112-24/18

ML4067-224 Key Features

- 11 trace paths
- Loss from 3 dB to 25 dB
- Target Nyquist frequency of 53 GHz
- 100 ohms and 93 ohms differential traces
- Available in 1-mm or 1.85-mm connectors



ML4067-224

ENGINEERING TEST SERVICES

TESTING AS A SERVICE

With a decade of experience developing solutions at the forefront of the industry, MultiLane has cultivated a wealth of engineering and high speed physical layer testing expertise that stands ready to be placed at your fingertips. Our Engineering Test Services provide customised requests either in the form of a plan to validate or test your products at one of MultiLane's labs, team augmentation, or custom engineering solutions.



Test as a Service

MultiLane Engineering Test Services (ETS) are committed to confidence, enabling accelerated pluggable development and qualification thanks to comprehensive compliance testing and team augmentation.

Compliance Testing

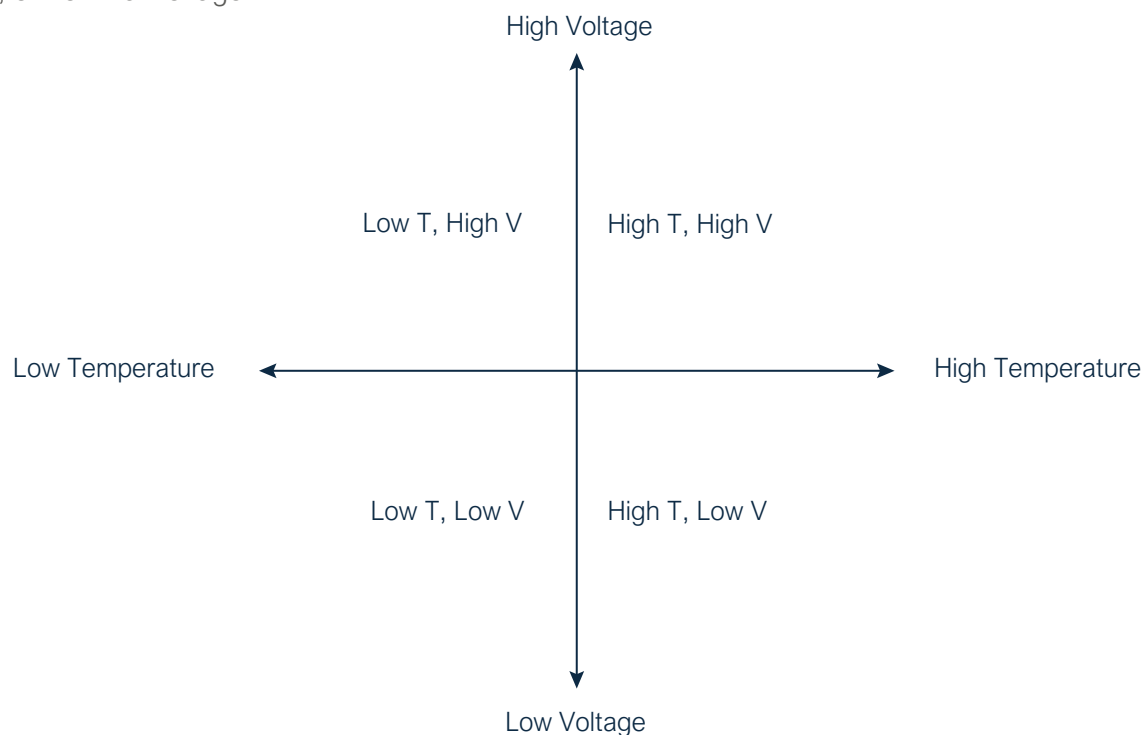
MultiLane's compliance testing service encompasses the entire spectrum of transceivers, cables and modules ranging from 1G to 800G covering rigorous evaluations for electrical, optical and environmental measurement well as extensive testing capabilities for jitter and noise analysis.

Available Tests:



Our multi-corner environment test allows for a fully customisable approach to seeing how your devices perform in a variety of situations, with any combination of the following factors:

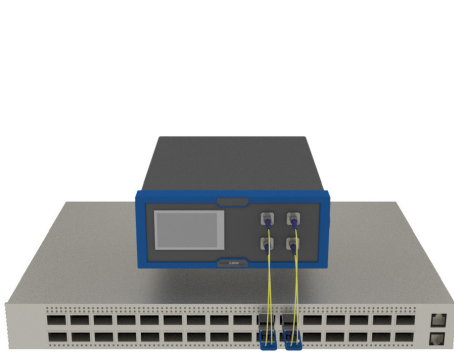
- High, low, or nominal temperature
- High, low, or nominal voltage



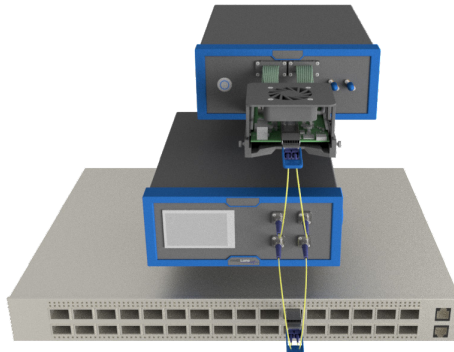
Interoperability Testing

MultiLane's interoperability services offer a range of custom testing approaches for a number of different parameters for host and module interoperability including:

- Switch BER
- Pre/Post-FEC Link Testing
- CMIS Testing



Switch BER



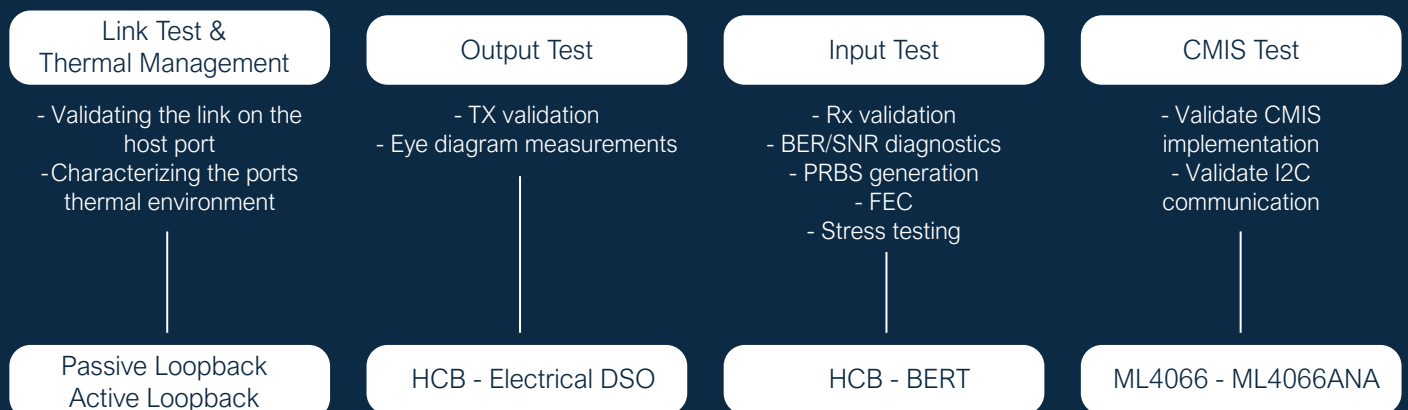
Pre/Post-FEC Link Testing



CMIS Testing

Physical Layer Testing

We are experts in HSDIO using our extensive suite of home-grown testing tools to provide a variety of detailed physical layer testing options.



Team Augmentation

MultiLane's extensive network of experienced engineers stand ready to enhance your team. Team augmentation can be as small as a single engineer providing support to an existing group, or as large as a full team ready to take on a specific project.

Core Competencies:

- High-speed testing
- PCB layout design
- Mechanical design
- Signal Integrity
- 3D modelling
- Hardware capabilities

Custom Engineering Solutions

Need a specialized product for HSIO Test and Measurement? Our team has you covered. Whether for box building or protoboards for SOCs, MultiLane handles the supply chain management from idea to production across the product's full lifecycle. With direct access to all of MultiLane's Business Units, we can pull resources from our core competencies to offer specialised test solutions made to your exact specifications.

Share your thoughts with us and let's see what we can build together at services@multilaneinc.com



INTERCONNECT PORTFOLIO

DEPLOY YOUR INSTRUMENTS WITH OUR INNOVATIVE INTERCONNECTS

MultiLane Interconnects use the most advanced manufacturing technology available, to develop a suite of solutions emphasizing high density & repeatability for single ended & differential cable assemblies, test boards, precision adaptors, terminators, coaxial adapters, and RF cable assemblies in high volume. All products are designed and assembled with industry-leading quality in our USA branch and Lebanon headquarters.

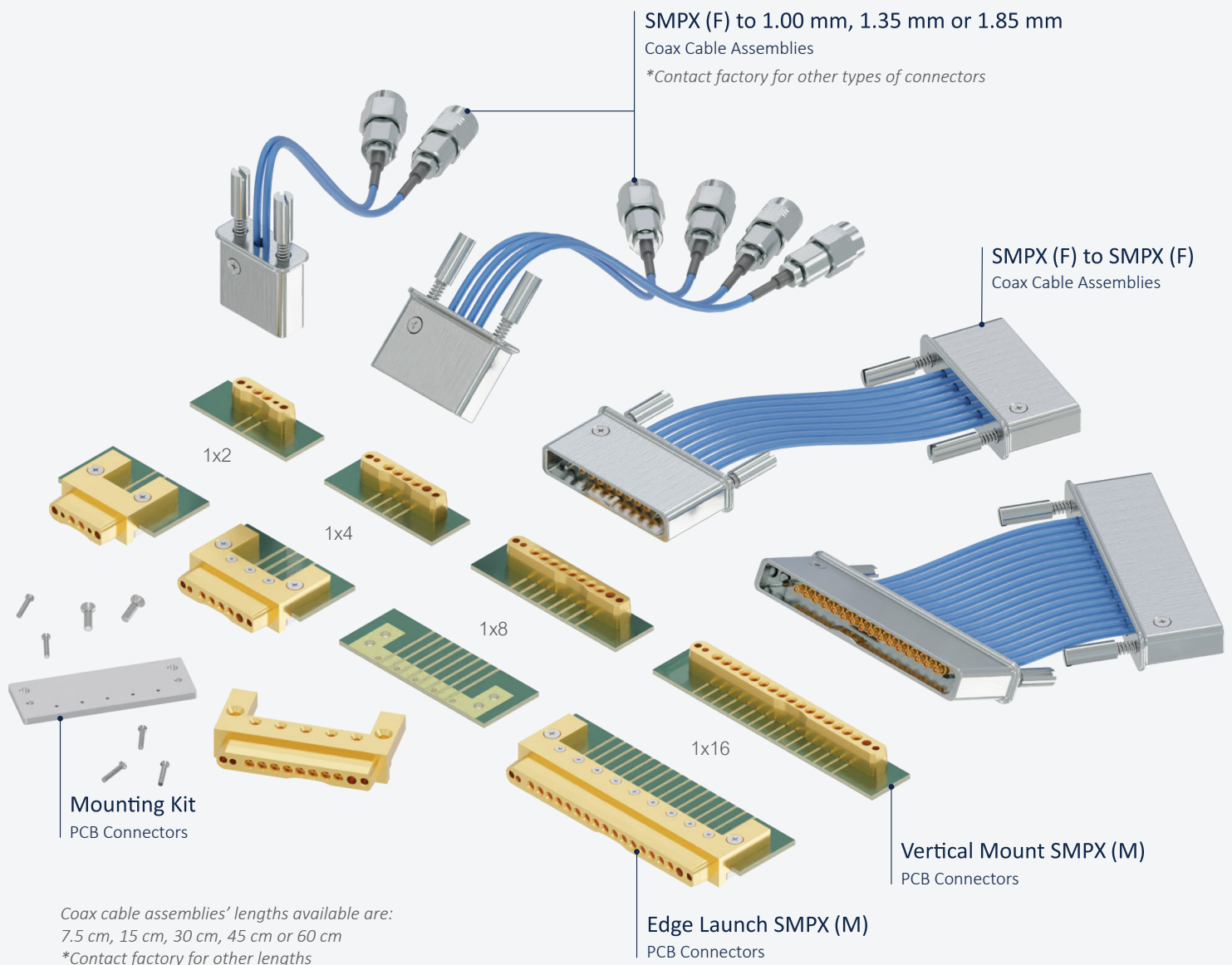




SMPX Interconnects | DC- 110 GHz

Solderless Multiport System

A Comprehensive Offering:



Features:

- Solderless design
- High density 2.54 mm pitch
- High performance DC-110 GHz
- Blind-mateable mating interface
- Coplanar waveguide & stripline compatible

Benefits:

- Compact footprint
- Easy field installation & replacement for lower cost, fast cycle time and high repeatability
- Fully customizable
- Cost effective

SMPM Interconnects | DC - 67 GHz

Subminiature Push On Mini

MultiLane SMPM product line was developed for applications with strict design density limitations and where high performance is crucial. SMPM connector applications include, but are not limited to semiconductor development, ATE testing, and data center testing.

High Performance
DC - 67 GHz

High Density
3.5mm pitch

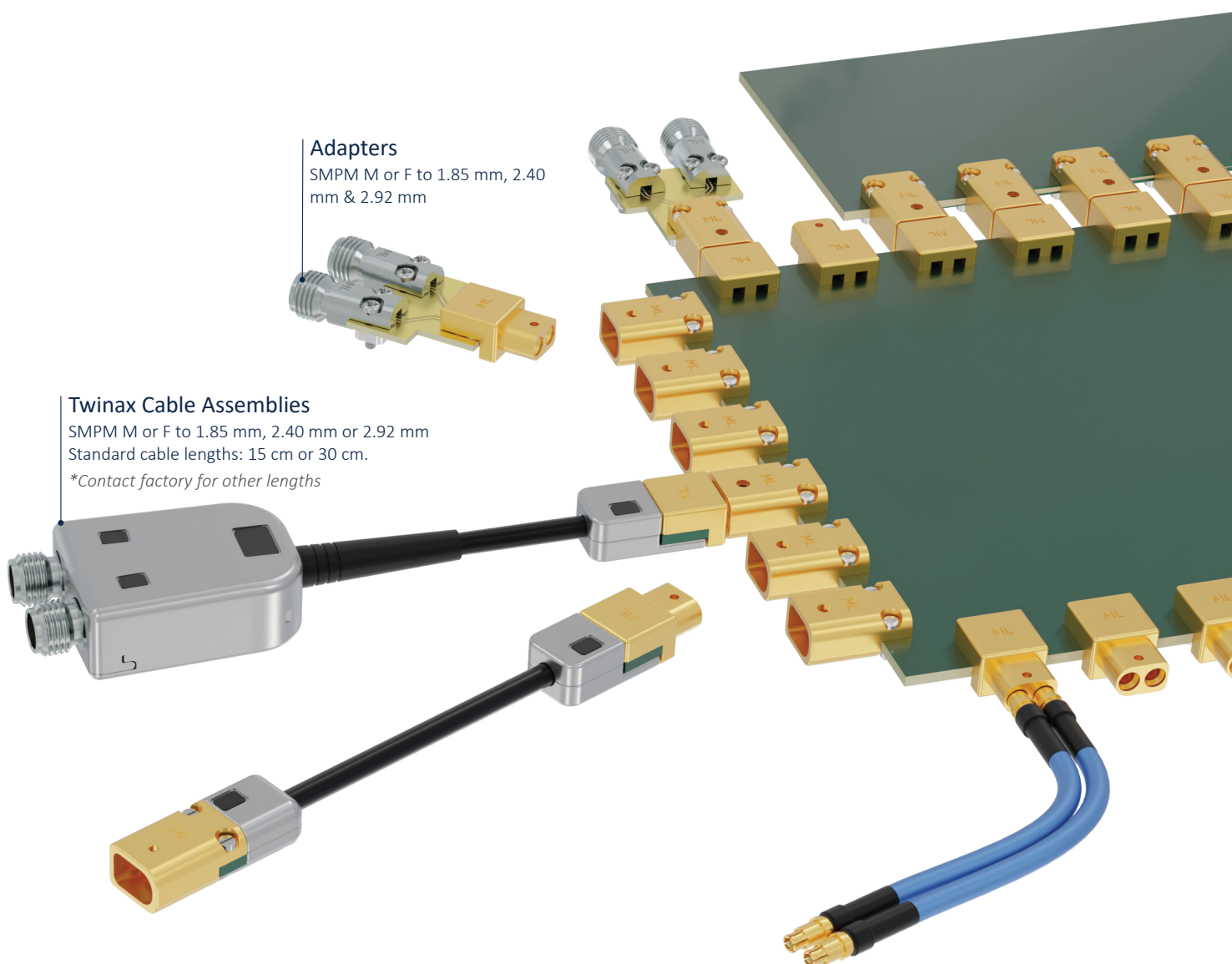
Solderless
Installation

Highly
Customizable

Cost Effective
Solutions

Key Features

- Male & Female solderless edge launch connectors



Adapters

SMPM M or F to 1.85 mm, 2.40 mm & 2.92 mm

Twinax Cable Assemblies

SMPM M or F to 1.85 mm, 2.40 mm or 2.92 mm
Standard cable lengths: 15 cm or 30 cm.

**Contact factory for other lengths*

Twinax Cable Assemblies*

- SMPM M to SMPM M
- SMPM M to SMPM F
- SMPM F to SMPM F
- Standard cable lengths: 15 cm or 30 cm

Coax Cable Assemblies*

- SMPM F to SMPM F
- SMPM F to 1.85 mm, 2.40 mm or 2.92 mm
- Standard cable lengths: 15 cm or 30 cm

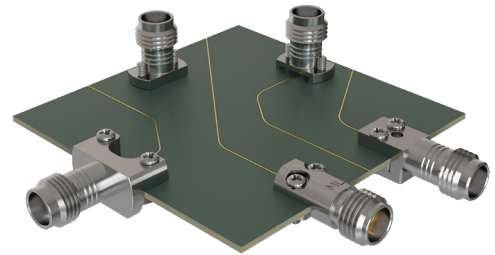
**Contact factory for other lengths*

INDUSTRY'S MOST REQUESTED

An interconnect for every instrument

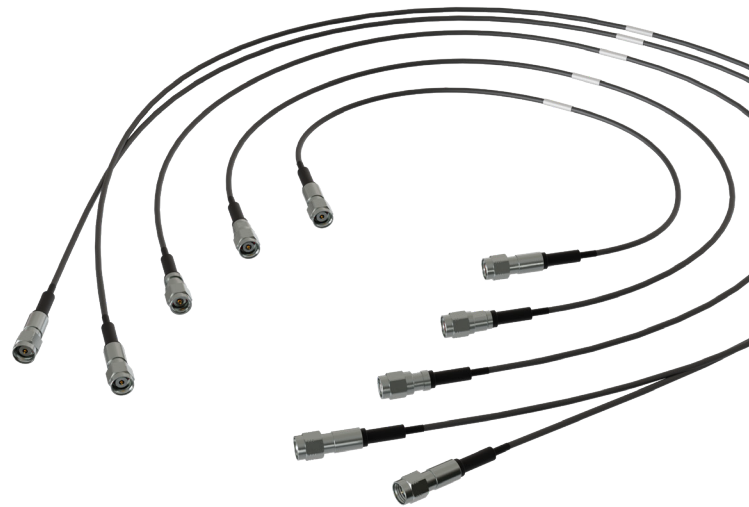
Solderless Board Mount Precision RF Connectors | DC-110GHz

- Vertical Launch: Coplanar Waveguide and Stripline transmission lines compatible
- Edge Launch: EMI, Wide Body, Narrow Body both Coplanar Waveguide and Stripline transmission lines compatible
- 1.00 mm, 1.35 mm, 1.85 mm, 2.40 mm, 2.92 mm
- Configurable footprint to stack up
- Test boards available
- Customization offered



Rf Jumpers | DC-110GHz

- Ø.047 Coax Cables with 1.00mm, 1.35 mm, 1.85 mm, 2.40 mm & 2.92 mm precision connector interfaces
- Ø.086 Coax Cables with 1.85 mm, 2.40 mm & 2.92 mm precision connector interfaces
- Phase stable assemblies sold individually and in pairs matched to 2 picoseconds
- 12 in, 24 in, 32 in, 39 in & custom length available
- 50-ohm cable assemblies
- Customization offered



Adapters | DC-110GHz

- 1.00 mm, 1.35 mm, 1.85 mm, 2.40 mm & 2.92 mm
- Between Series & Within Series
- Straight configuration
- 50 ohms coaxial adapters
- Rated to 500 mating cycles typical

Terminators | DC-110GHz

- 1.00 mm, 1.35 mm, 1.85 mm, 2.40 mm & 2.92 mm
- Male & Female straight configuration
- 50 ohms coaxial terminators
- Rated to 500 mating cycles typical



Revision No.	Last Modified
0.7	April 2026

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