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INTRODUCTION

Description

Amphenol OCuLink is a high speed connector and cable assembly solution that can be used in PCIe Gen3/Gen4, SAS3.0/SAS4.0 and other potential applications. The solution can support wire to board application in system.

OCuLink cable assemblies can be provided with 30AWG~34AWG discrete pairs and flat ribbon cable. The OCuLink connector design is scalable to 12 channels and is available in straight, right angle, right side-exit and left side-exit plug configurations to mate with board mount connectors.

OCuLink cables are designed for applications in the data center and networking markets that use SAS, PCIe and other signal protocols. OCuLink cables and connectors support many interconnection configurations including backplane to motherboard, backplane to add-in card and card to motherboard.

Features and Benefits

- Support cable to board application
- Multiple channels are optional: 4X/6X(42pos),8X/12X(80pos)
- Small size design: pitch 0.5mm connector
- Excellent SI performance: signal rates up to PCIe4 16GT/s and SAS 4.0 24Gbps
- Straight, right angle, side exit and customization cable plug are optional
- Supports 85 ohm impedance applications, 100 ohm is available on request
- 30-34AWG cables are available for both discrete and ribbon cable
- RoHS compliant. Halogen free is available on request

Product Applications

- Servers and storage devices
- High performance computing
- Data center & networking equipment

Industry Standards

- SAS 3.0 / 4.0
- PCIe Gen 3 / Gen 4

Technical Documents

Product Specification: PS-AST-0868 and PS-AST-917 OCuLink Cable Assembly



Plug Part Numbers

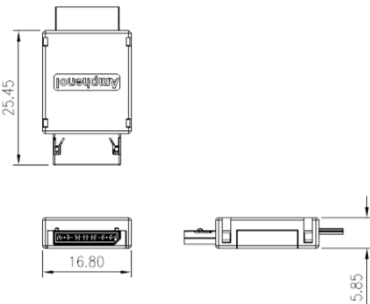
Table 1. Cable Connector Part Number Selection Guide

Part Description	Bulk Cable	42position	80position
		Plug Part Number	
Straight Plug with Passive Latch	Discrete pairs or Ribbon Cable	OCL42-0001	OCL80-0001
Straight Plug with Active Latch	Discrete pairs or Ribbon Cable	OCL42-0003	OCL80-0002
Straight Plug with Reverse Active Latch	Discrete pairs or Ribbon Cable	OCL42-0008	NA
Right Angle Plug with Passive Latch	Discrete pairs or Ribbon Cable	OCL42-0005	OCL80-0003
Right Angle Plug with Active Latch	Discrete pairs or Ribbon Cable	OCL42-0007	OCL80-0004
Right Side Exit Plug with Active Latch	Discrete pairs or Ribbon Cable	OCL42-0006	OCL80-0006
Left Side Exit Plug with Active Latch	Discrete pairs or Ribbon Cable	OCL42-0009	OCL80-0005

These plugs can be combined each other, please contact Amphenol for customized cable assembly

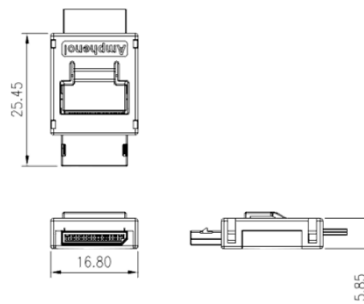
OCL42-0001

42pos Straight Plug with Passive Latch



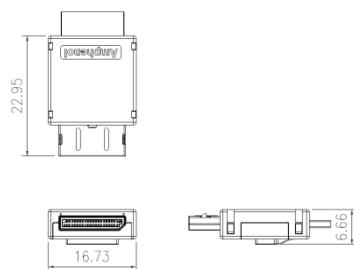
OCL42-0003

42pos Straight Plug with Active Latch



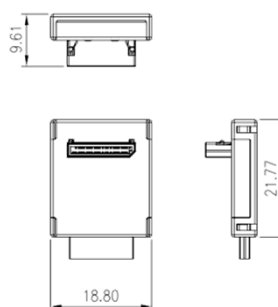
OCL42-0008

42pos Straight Plug with Reverse Active Latch



OCL42-0005

42pos Right Angle Plug with Passive Latch



Note: the above dimensions proportion is off.

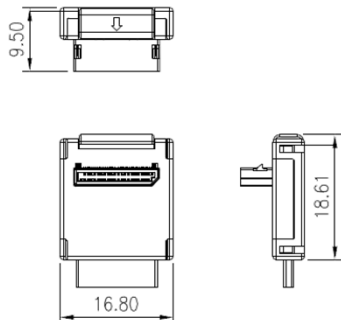
Mini Cool Edge IO (MCIO) Cable Assemblies

Part Numbers

Cable Connector Part Number Selection Guide

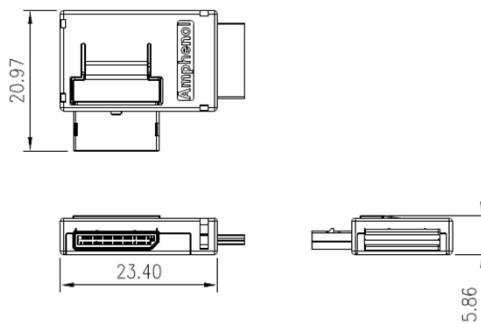
OCL42-0007

42pos Right Angle Plug with Active Latch



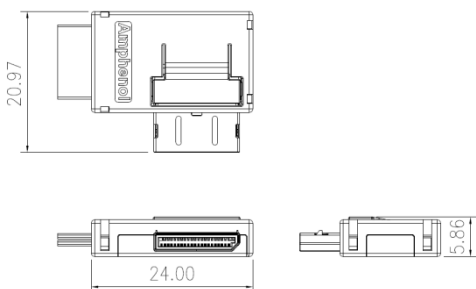
OCL42-0006

42pos Right Side Exit Plug with Active Latch



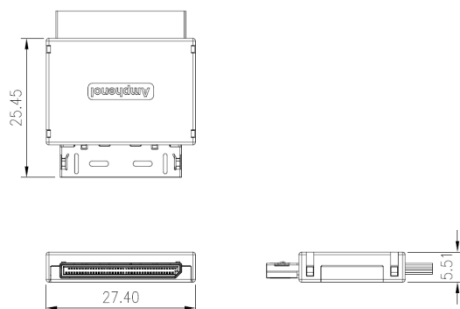
OCL42-0009

42pos Left Side Exit Plug with Active Latch



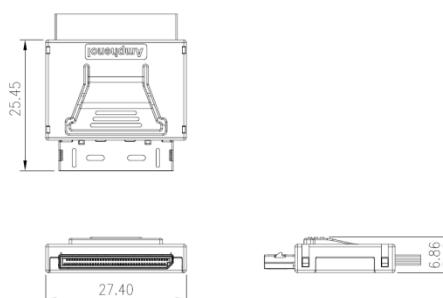
OCL80-0001

80pos Straight Plug with Passive Latch



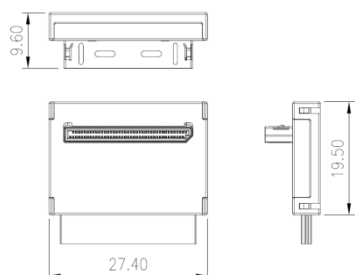
OCL80-0002

80pos Straight Plug with Active Latch



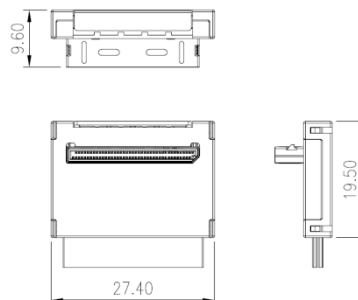
OCL80-0003

80pos Right Angle Plug with Passive Latch



OCL80-0004

80pos Right Angle Plug with Active Latch



Note: the above dimensions proportion is off.

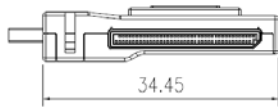
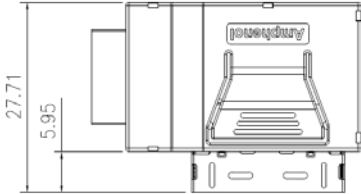
Mini Cool Edge IO (MCIO) Cable Assemblies

Part Numbers

Cable Connector Part Number Selection Guide

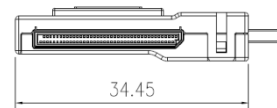
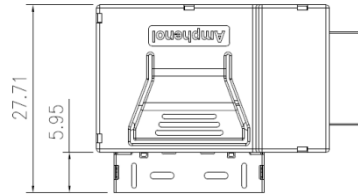
OCL80-0005

80pos Left Side Exit Plug with Active Latch



OCL80-0006

80pos Right Side Exit Plug with Active Latch



Note: the above dimensions proportion is off.

Product Specifications

Table 2. Material Specifications

Contact	30µin min hard Gold plated contact pads
Connector housing	Thermoplastic UL94V-0
Active latch	Stainless steel
Raw Cable (30-34AWG)	Silver plated copper conductor
	Fluoropolymer dielectric
	Tinned copper drain wire
	Metallic tape pair shield
	Polyester tape jacket

Table 3. Electrical/Mechanical Specifications

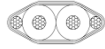
Impedance	85Ω, optional 100Ω
Data Rate	24Gbps per channel
Within Pair Skew	Max. 10 ps/m
Rated Voltage	30V
Rated Current	0.5A per pin
Durability	250 mating cycles
Mating force	Connector W/Active latch: 8~40N Connector W/Passive latch: 10~40N
Un-Mating force	8~25N
Wrenching test	Max 10N for each axis direction

Table 4. Environmental Specifications

Storage Temperature	-20° to 80°C
Operating Temperature	0° to 80°C
Flammability Rating	VW-1
Safety Certificates	RoHS compliant, HF optional

OCuLink Cable Assemblies

Table 5. Typical Cable Specifications



30AWG 85Ω Cable Bend Radius	1.95mm (good way bend)	30AWG 85Ω Cable Bend Radius	2.1mm (good way bend)
Cable Dimensions	Thickness =0.78 mm	Cable Dimensions	Thickness =0.85 mm
	Width per pair = 1.80 mm		Width/12 pairs = 27.30 mm
31AWG 85Ω Cable Bend Radius	1.8mm (good way bend)	31AWG 85Ω Cable Bend Radius	1.95mm (good way bend)
Cable Dimensions	Thickness = 0.72mm	Cable Dimensions	Thickness = 0.78mm
	Width per pair = 1.70 mm		Width/12 pairs = 25.90 mm
32AWG 85Ω Cable Bend Radius	1.6mm (good way bend)	32AWG 85Ω Cable Bend Radius	1.8mm (good way bend)
Cable Dimensions	Thickness =0.65 mm	Cable Dimensions	Thickness =0.71 mm
	Width per pair = 1.56 mm		Width/6 pairs = 13.80 mm
34AWG 85Ω Cable Bend Radius	1.4 mm (good way bend)	34AWG 85Ω Cable Bend Radius	1.5mm (good way bend)
Cable Dimensions	Thickness =0.55 mm	Cable Dimensions	Thickness =0.60 mm
	Width per pair = 1.25 mm		Width/6 pairs = 12.0 mm

30AWG 85Ω Cable Attenuation (max)	4.5GHz = 4.5 dB/m
	9.0 GHz = 8.8 dB/m
	12.0 GHz = 10.7 dB/m
31AWG 85Ω Cable Attenuation (max)	4.5GHz = 5.0 dB/m
	9.0 GHz = 8.8 dB/m
	12.0 GHz = 10.7 dB/m
32AWG 85Ω Cable Attenuation (max)	4.5GHz = 5.8 dB/m
	9.0 GHz = 10.5 dB/m
	12.0 GHz = 14.0 dB/m
34AWG 85Ω Cable Attenuation (max)	4.5GHz = 4.8 dB/0.7m
	9.0 GHz = 9.8 dB/0.7m
	12.0 GHz = 12.8 dB/0.7m

Note:

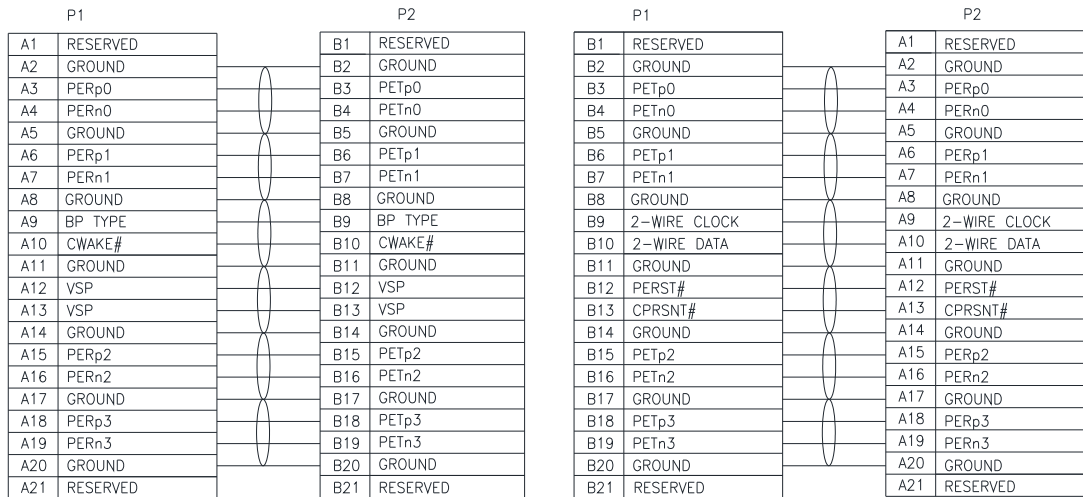
Conductor is solid copper for discrete and ribbon cable.

For more details, please contact local Amphenol sales person or visit www.amphenol-ast.com.

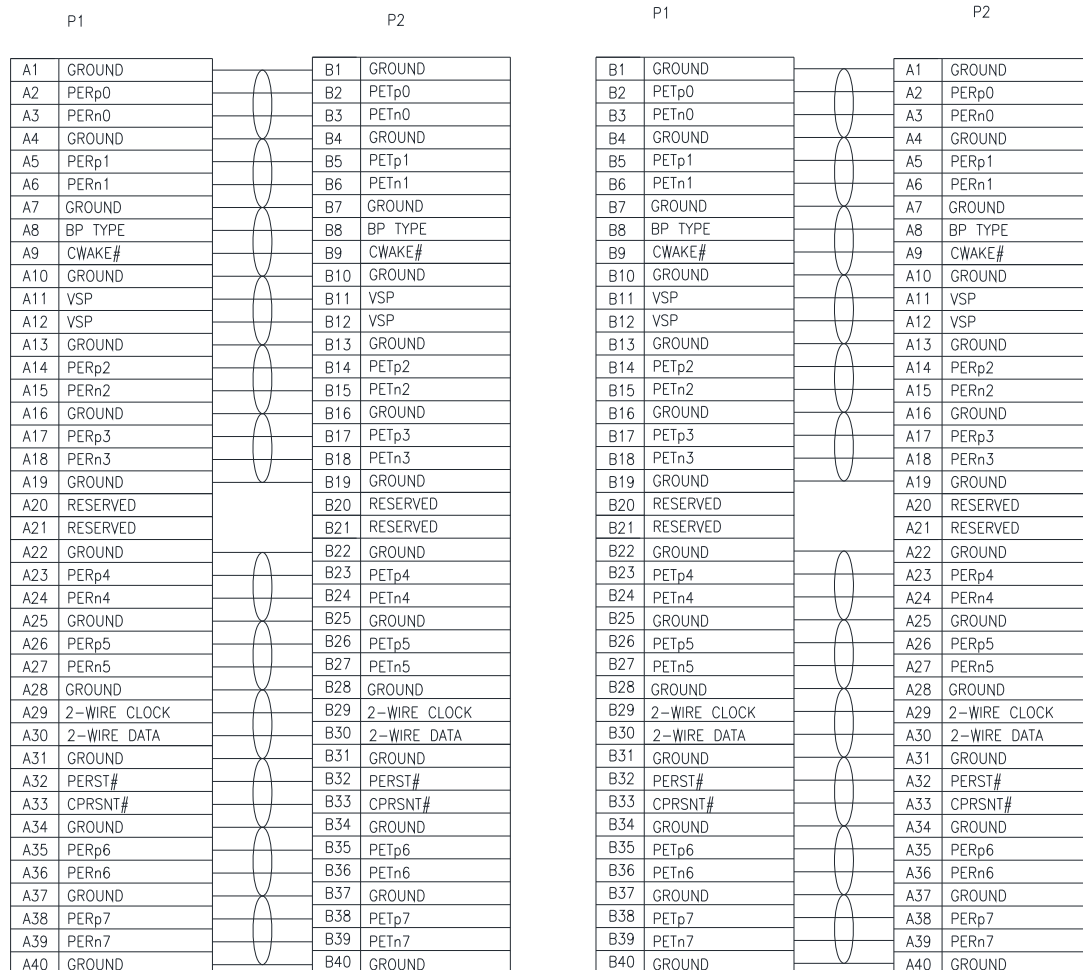
OCuLink Cable Assemblies

Pin Configurations

OCuLink 42 Position



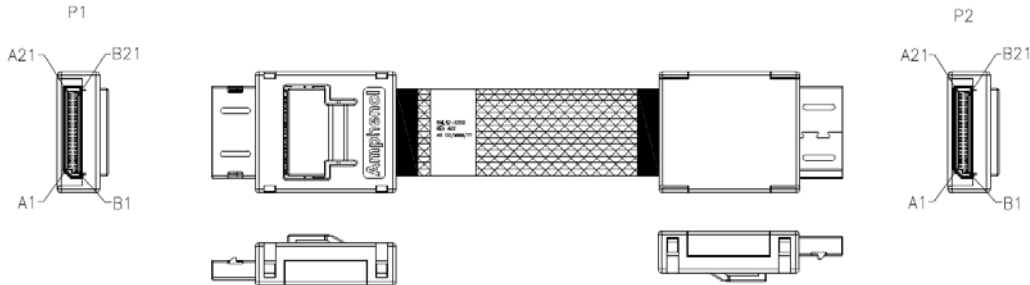
OCuLink 80 Position



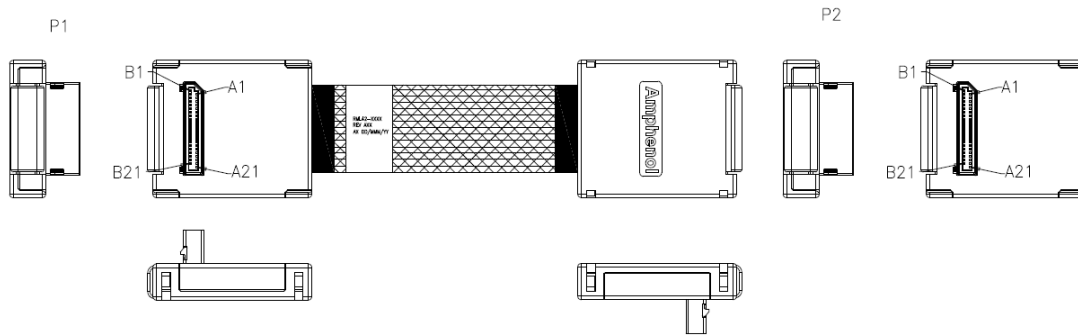
Note: P1 and P2 are connectors on both ends of cable assembly.

OCuLink CABLE ASSEMBLY MECHANICAL SCHEMATICS

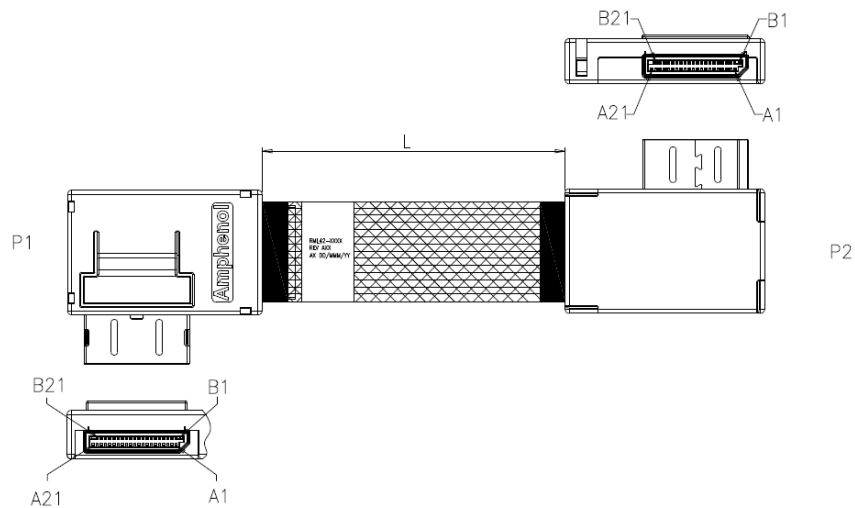
OCuLink 42 Position Straight to Straight Cable Assembly



OCuLink 42 Position Right Angle to Right Angle Cable Assembly

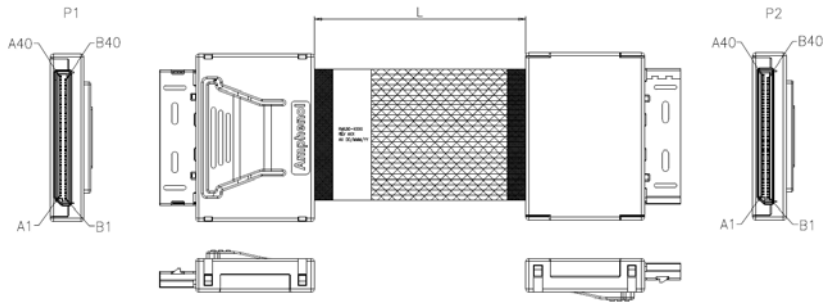


OCuLink 42 Position Right Side Exit to Left Side Exit Cable Assembly

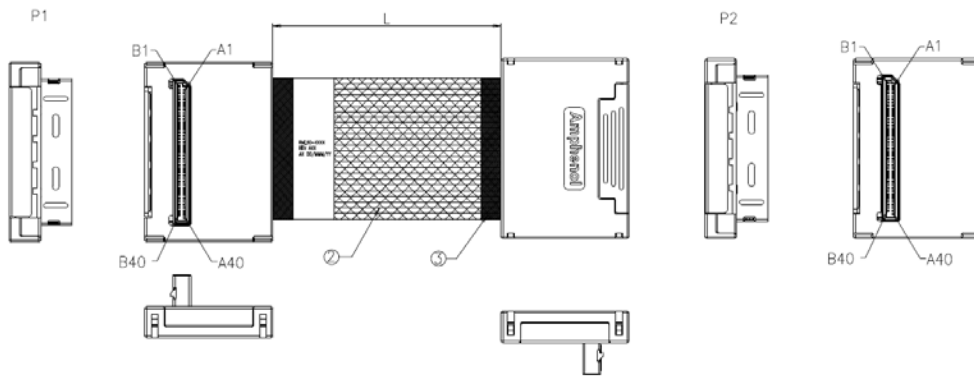


OCuLink Cable Assemblies

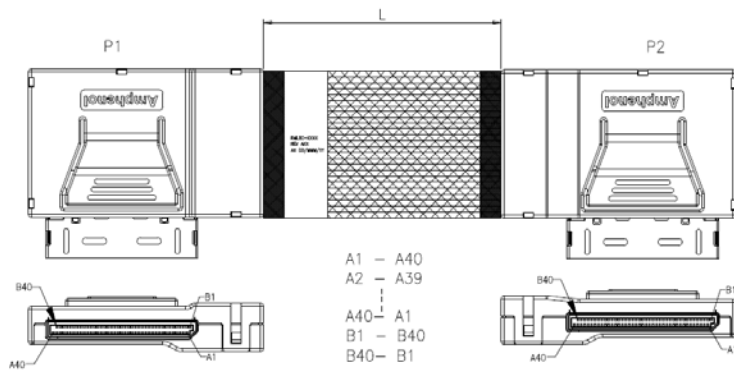
OCuLink 80 Position Straight to Straight Cable Assembly



OCuLink 80 Position Right Angle to Right Angle Cable Assembly

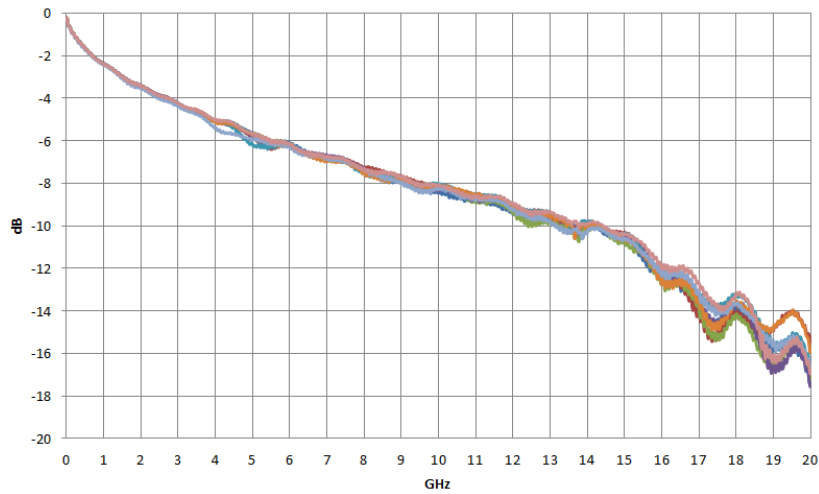


OCuLink 80 Position Right Side Exit to Left side Exit Cable Assembly

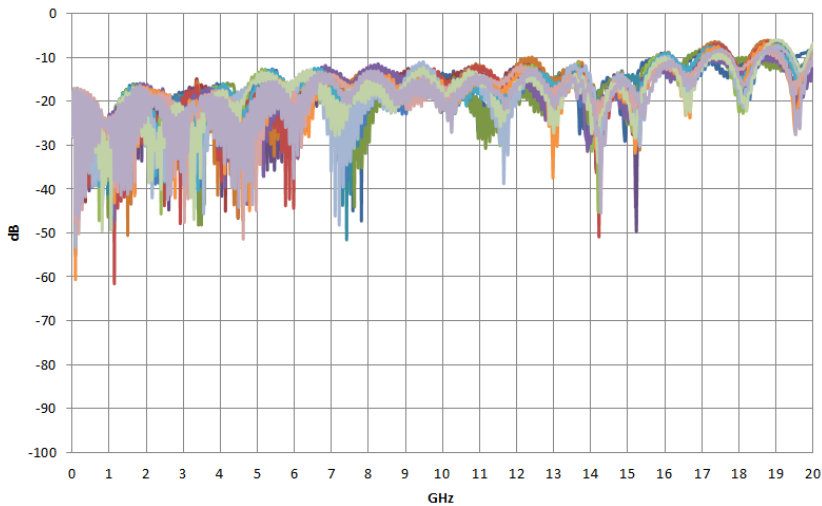


Signal Integrity Performance

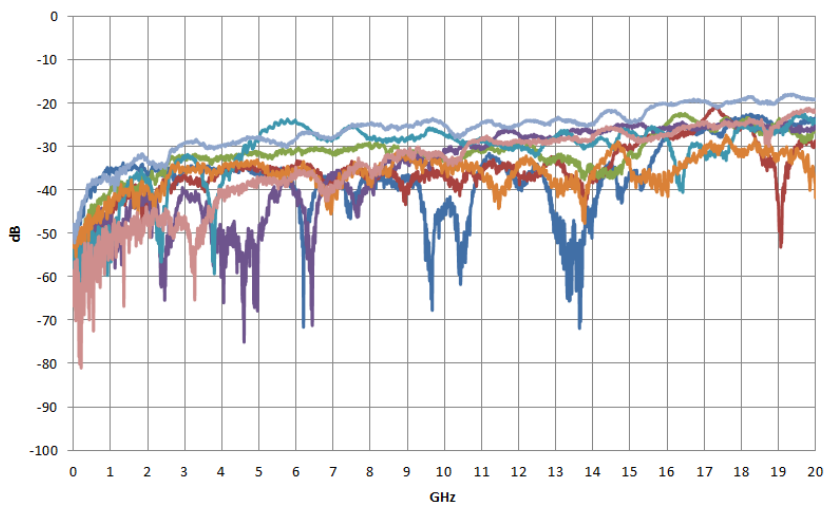
Insertion Loss (SDD21) of 1m 32AWG 85 Ohm OCUlink



Return Loss (SDD11) of 1m 32AWG 85 Ohm OCUlink

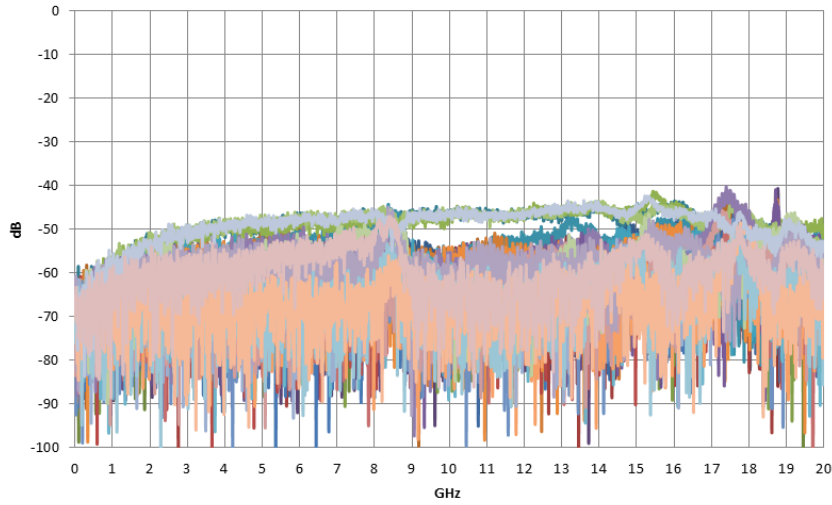


SCD21-SDD21 of 1m 32AWG 85 Ohm OCUlink

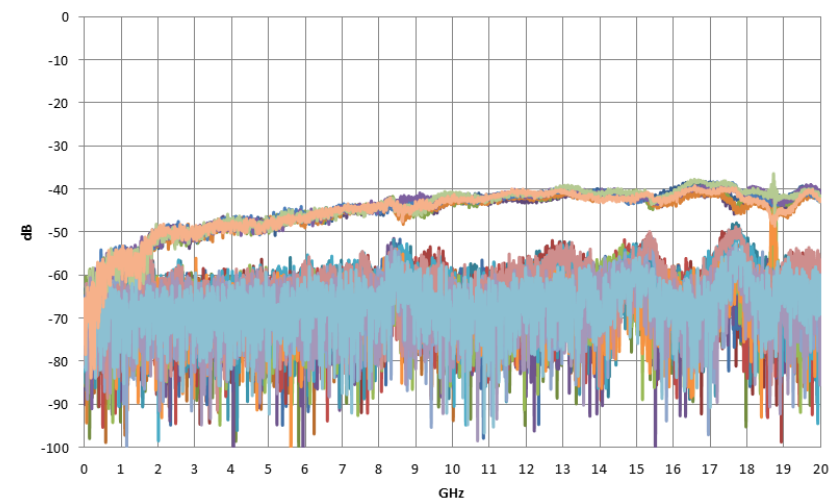


OCuLink Cable Assemblies

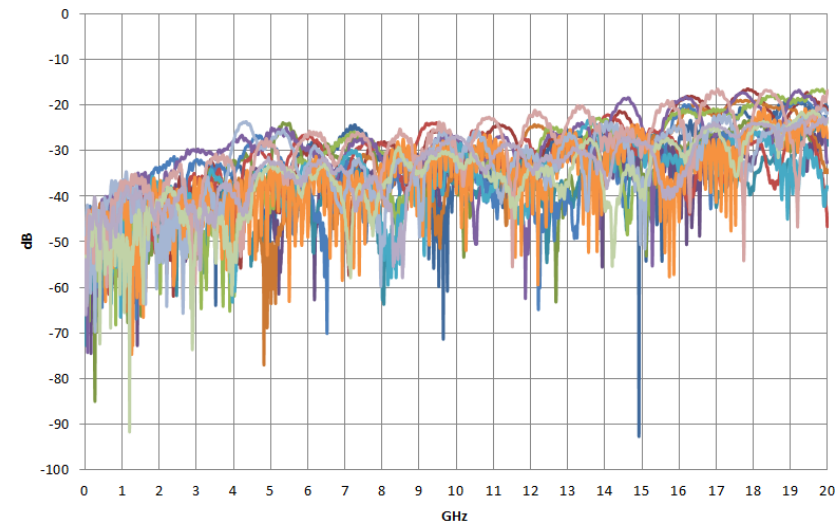
NEXT of 1m 32AWG 85 Ohm OCuLink



FEXT of 1m 32AWG 85 Ohm OCuLink

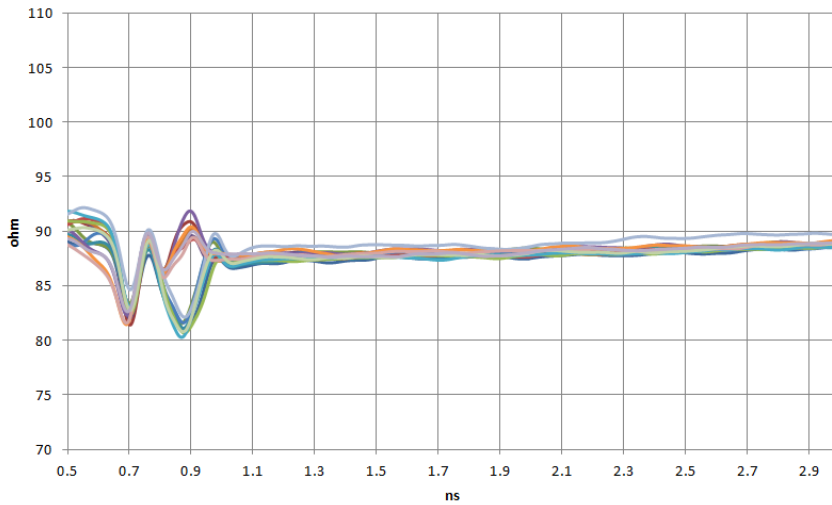


SCD21 of 1m 32AWG 85 Ohm OCuLink



OCuLink Cable Assemblies

Differential Impedance @ $T_r=40ps(20\%-80\%)$ of 1m 32AWG 85 Ohm OCuLink



Note:

1. Please visit our website <http://www.amphenol-ast.com/V3/en/product.aspx?classId=164> to find specific product information.
2. Any requirement, please send email to sales@amphenol-ast.com or inquire our local sales.