

Amphenol AUTOMOTIVE 

*Automotive Ethernet connectors – NETbridge series
Product Presentation*

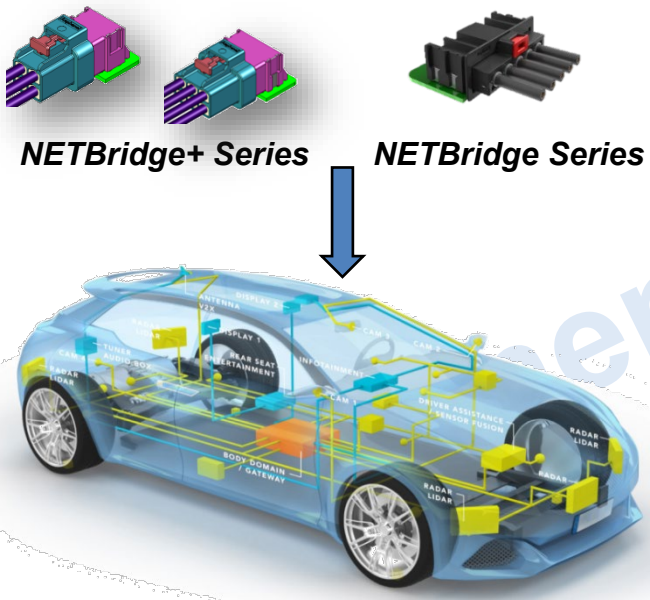
**Amphenol Information Communications
and Commercial Products**

Amphenol ICC

NETBridge+ - Application Guide

NETBridge+ Connector System is designed for the automotive environment and meet USCAR 2 / LV_214 specification. Different product series can be promoted to meet customer application, also price consideration.

NETbridge+ is a new generation product with full shielded and miniaturization and sealing type. Compliance with 100 BASE-T1 (IEEE 802.3bw and Open Alliance TC2) / 1000 BASE-T1 (IEEE 802.3bp and Open Alliance TC9) / IEEE 802.3ch Multi-Gig Automotive Ethernet



Source: NXP

- Typical target applications :
 - Automotive Ethernet gateway
 - Infotainment
 - Telematics
 - ADAS

Series	Shielded	Cable	Customer Application
NETBridge	No	UTP	100M Non water proof
	Yes	STP	1G with multi channel link Non water proof

new generation
Miniaturized, Waterproof

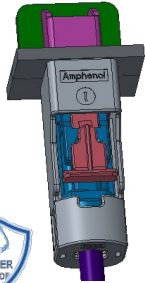
Series	Shielded	Cable	Customer Application
NETBridge+	Yes	STP	1G with multi channel link Water proof / Non water proof
	Yes	STP	10G Water proof / Non water proof

NETBridge+ Product Family

Small – Water proof – Fully Shielded

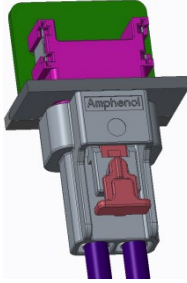
1x1 R/A

Unsealed
Sealed



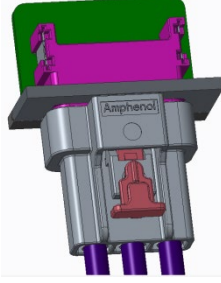
1x2 R/A

Unsealed



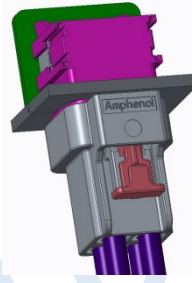
1x3 R/A

Unsealed



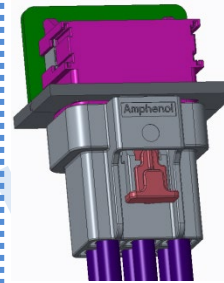
2x2 R/A

Unsealed



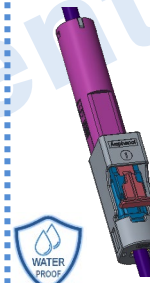
2x3 R/A

Unsealed



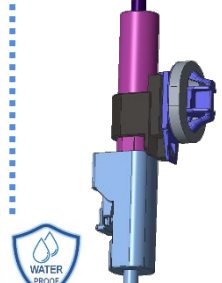
Inline

Unsealed
Sealed



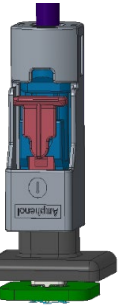
Inline Clip

Unsealed
Sealed



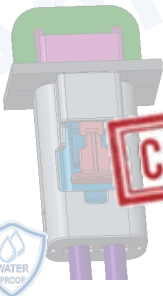
1x1 V/T

Unsealed
Sealed



1x2 R/A

Sealed



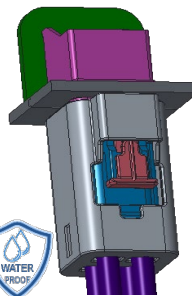
1x3 R/A

Sealed



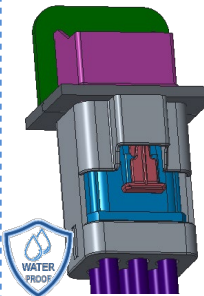
2x2 R/A

Sealed



2x3 R/A

Sealed



COMING SOON

NETBridge+

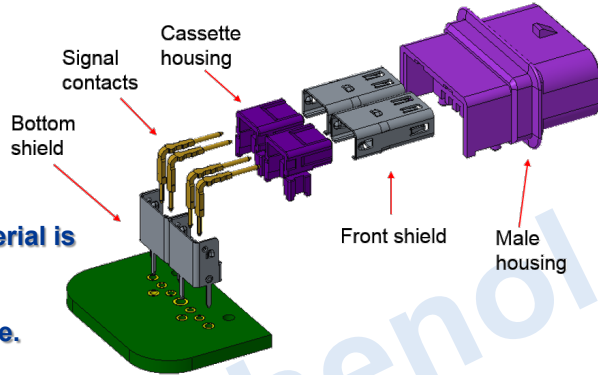
Component demonstration by 1*2

Board Connector

Cable Connector

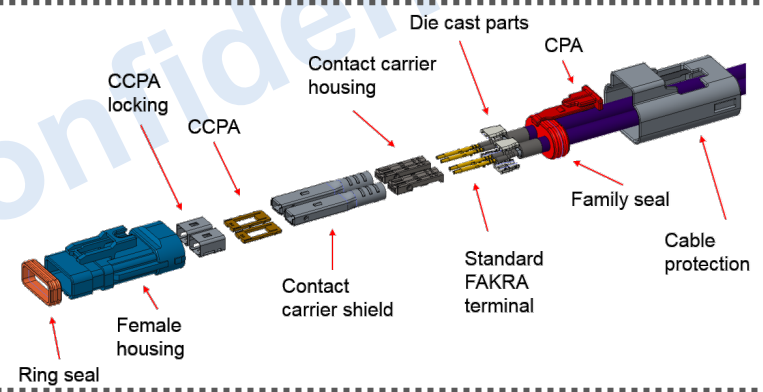
Board connector

Cable connector

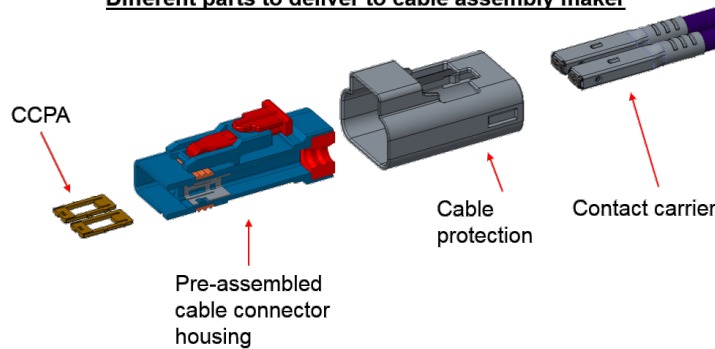


Male housing material is plastic no diecast:

- Low in price
- Easier to scale.
- Less weight.



Different parts to deliver to cable assembly maker

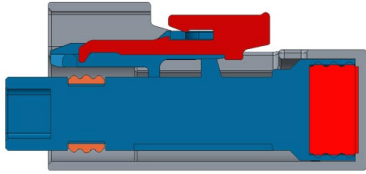


NETBridge+

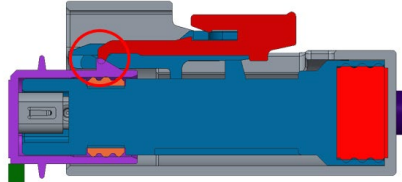
Functionalities

CPA Functionality

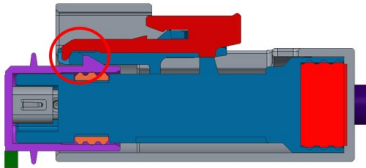
CPA preposition



Full assembly

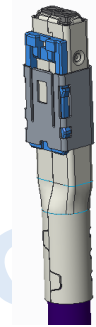


CPA activated

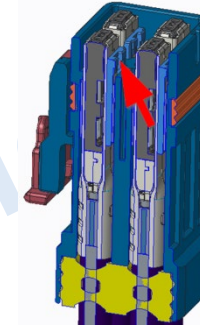


CCPA Functionality

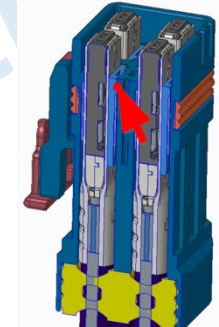
CCPA in position



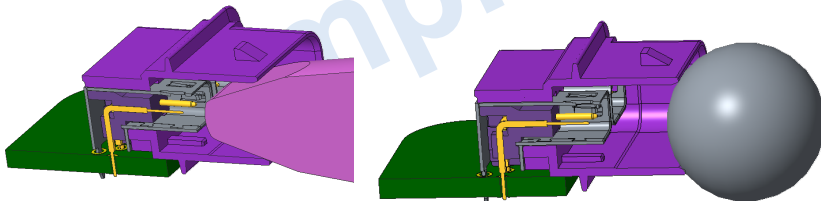
Full assembly



CCPA activated

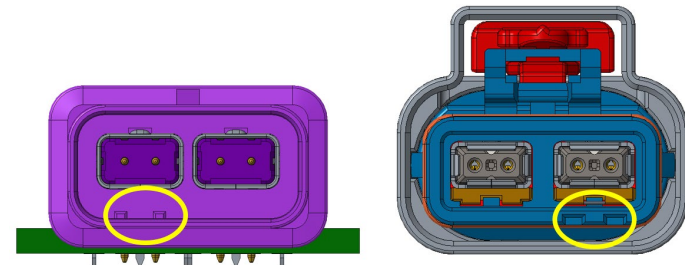


Touch proof



- Separate pockets per pair.
- Touch proof according to IEC-60950
- Touch proof according to USCAR12-C9

Coding

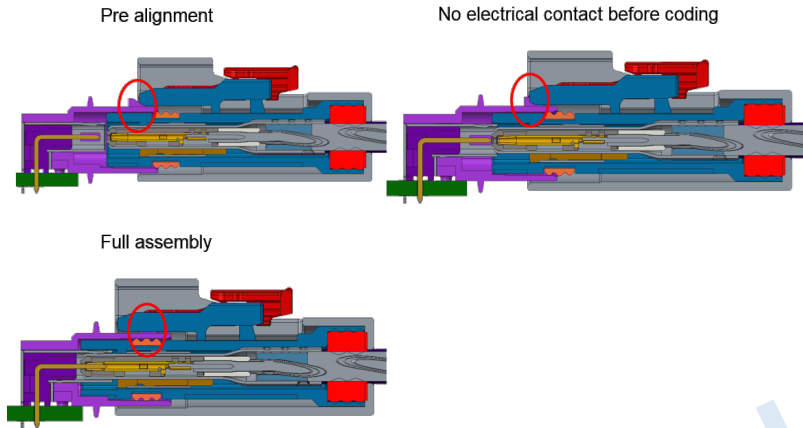


- Coding variety : 6

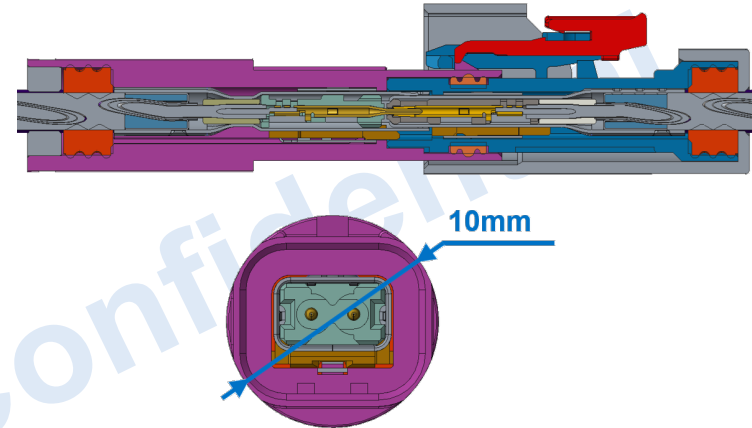
NETBridge+

Functionalities

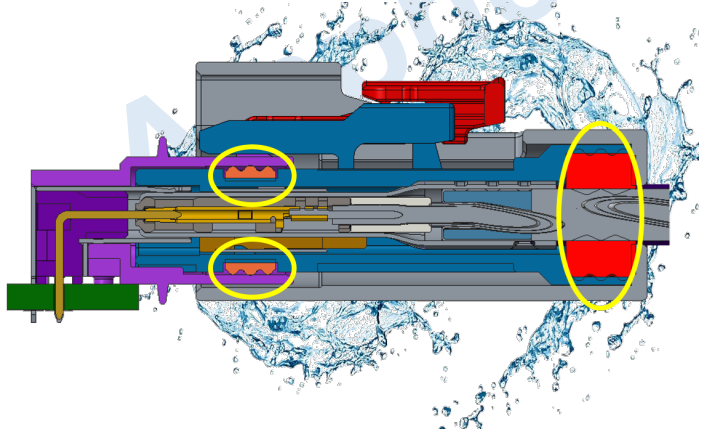
Assembly sequence



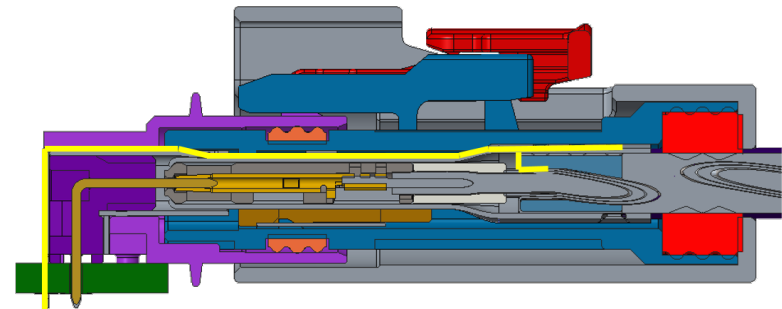
Small inline



Waterproof IP69k



Ethernet ground



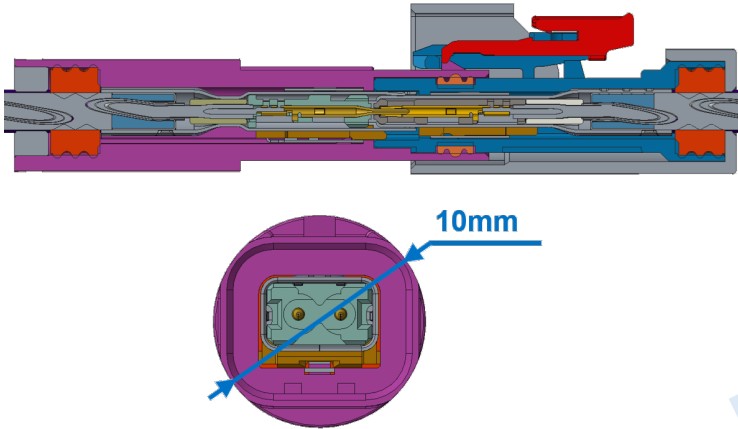
Cable to consider:

- G&G X9305
- Dacar 686-3

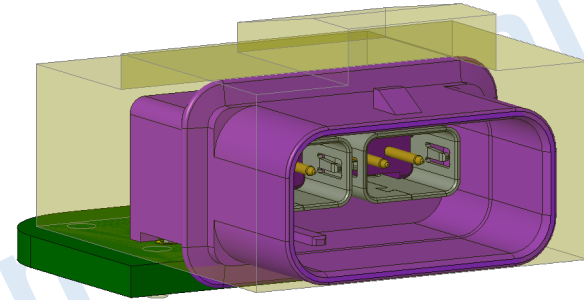
NETBridge+

Functionalities

Small inline

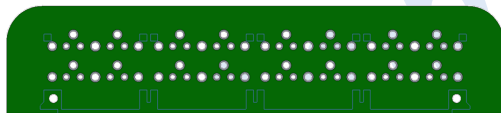


Smaller than the competition



Transparent yellow = the competition outer shape

PCB Design (Multi port)

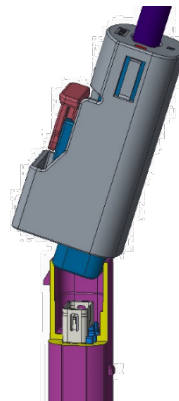


PCB Layout

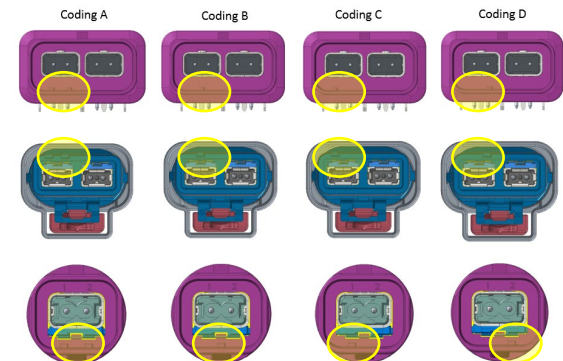
- 2 Signal contacts
- 3 Ground contacts

→ Multiple interfaces are possible.

Kojiri Safeness

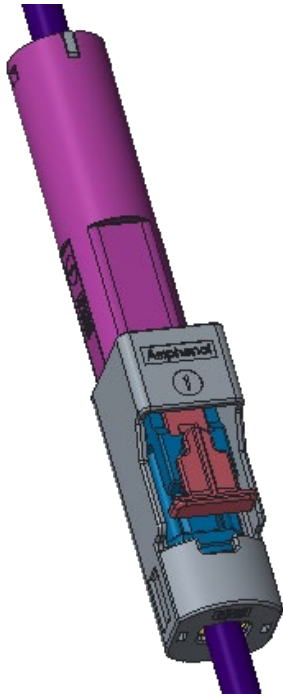


Coding

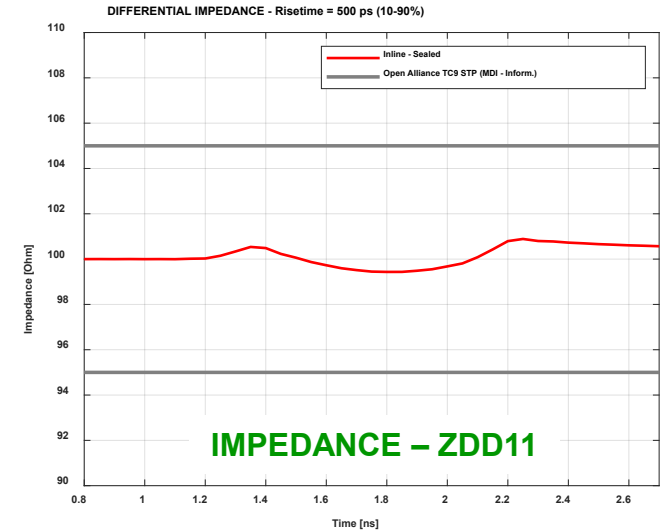
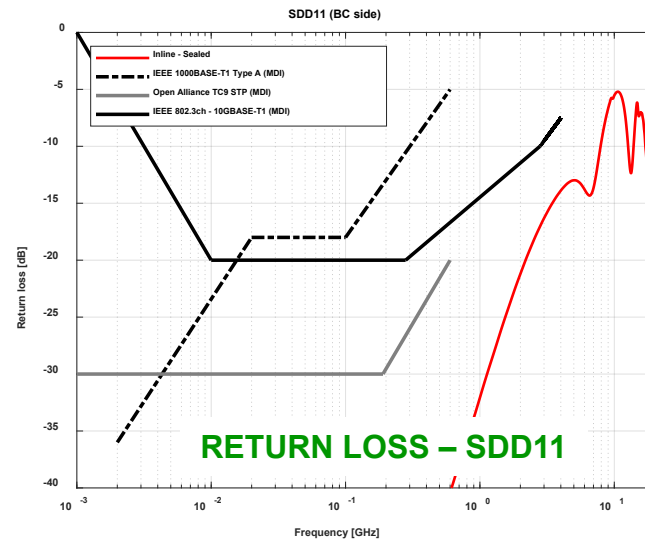
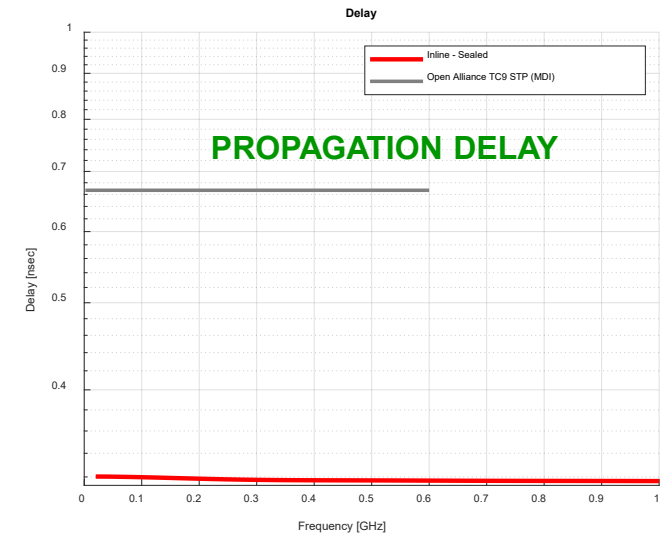
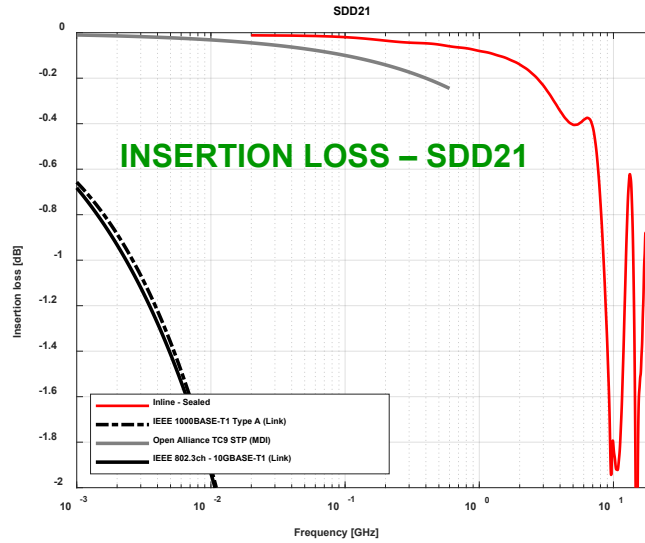


NETBridge+

SI Performance – 1x1 in-line connector

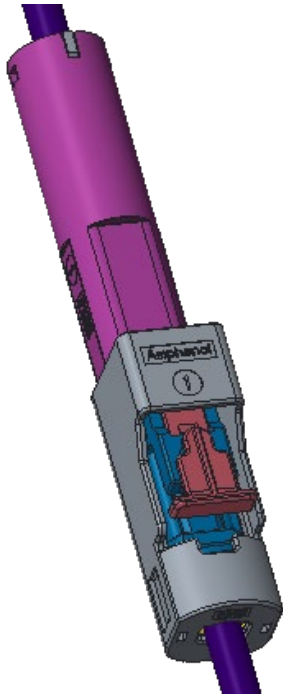


1x1 IN-LINE CONNECTOR

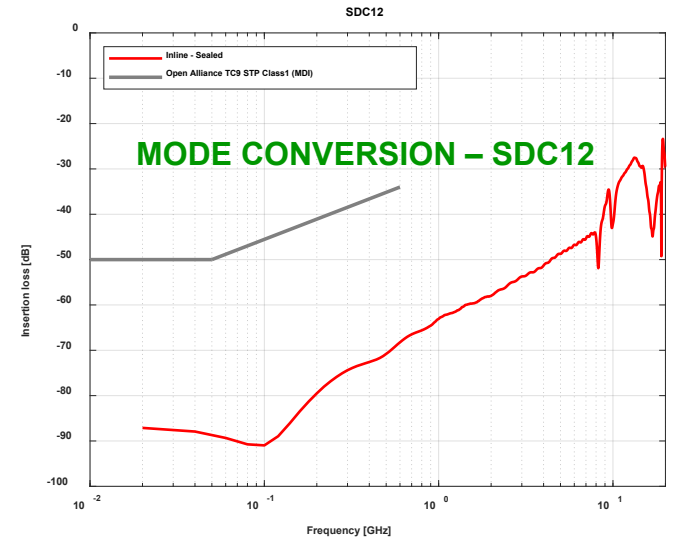
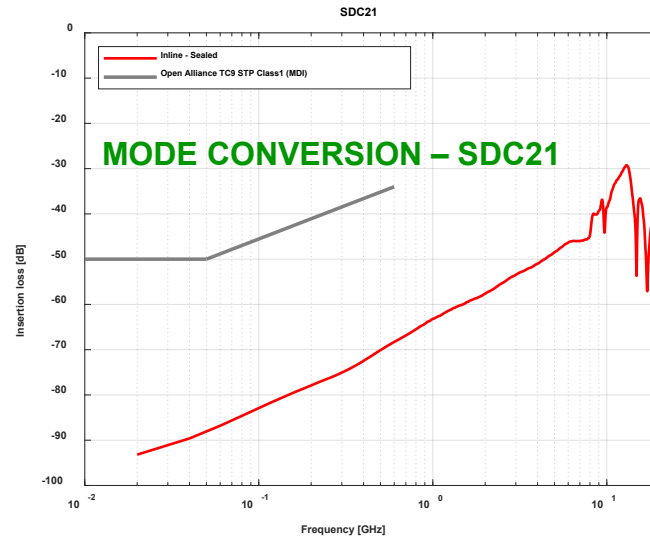
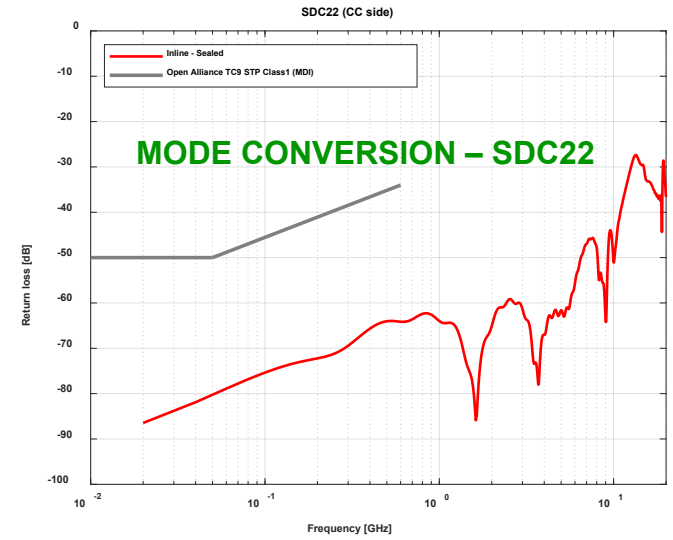
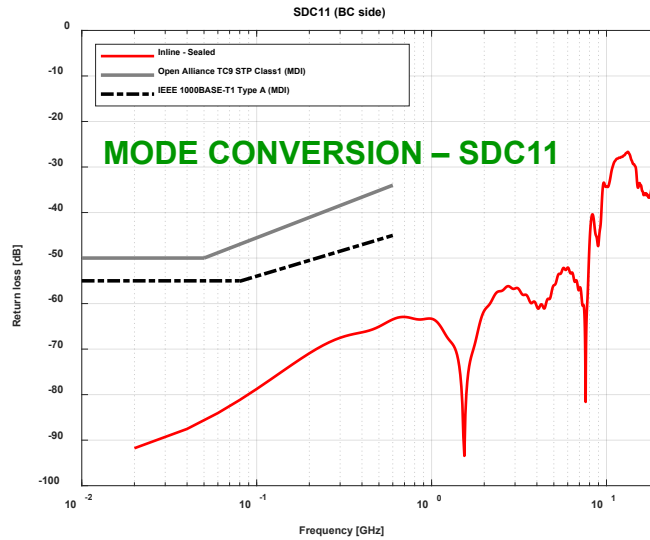


NETBridge+

SI Performance – 1x1 in-line connector

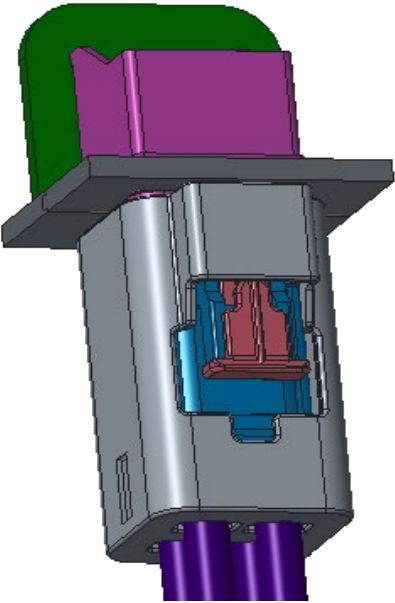


1x1 IN-LINE
CONNECTOR



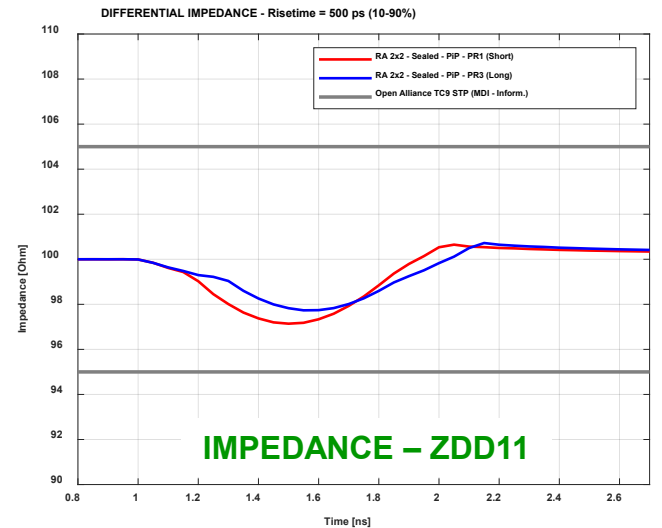
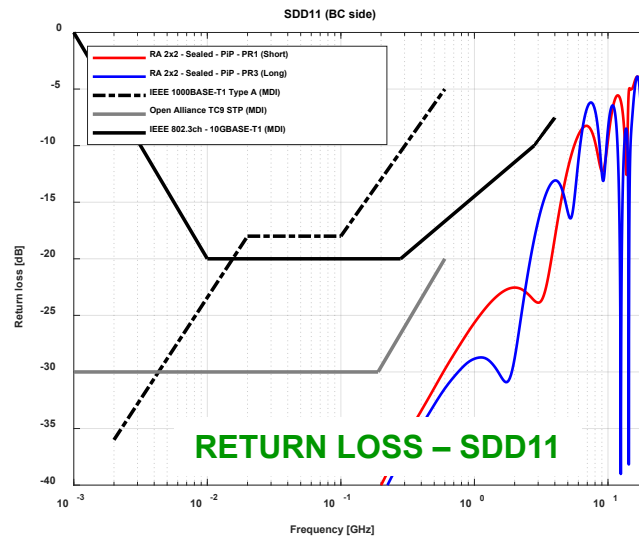
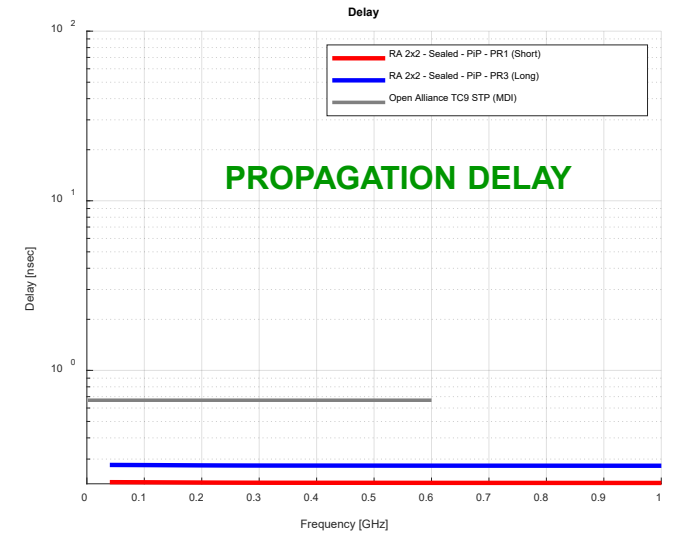
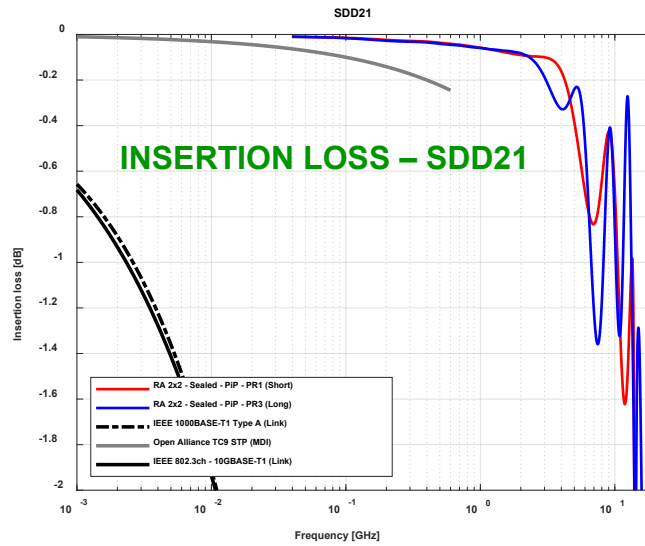
NETBridge+

SI Performance – 2x2 board connector + footprint



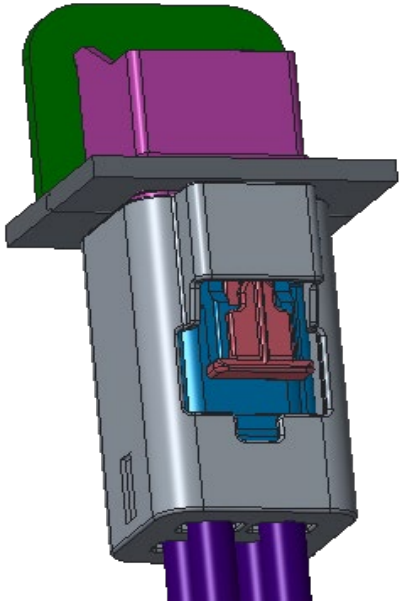
2x2 BOARD
CONNECTOR
+ FOOTPRINT

Am

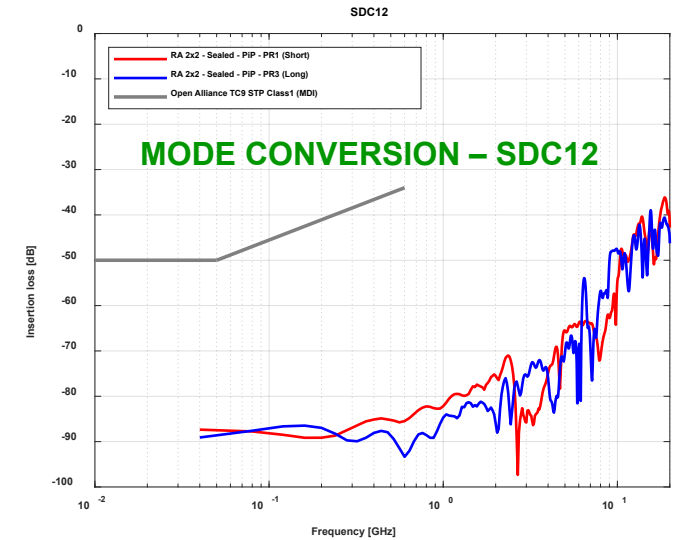
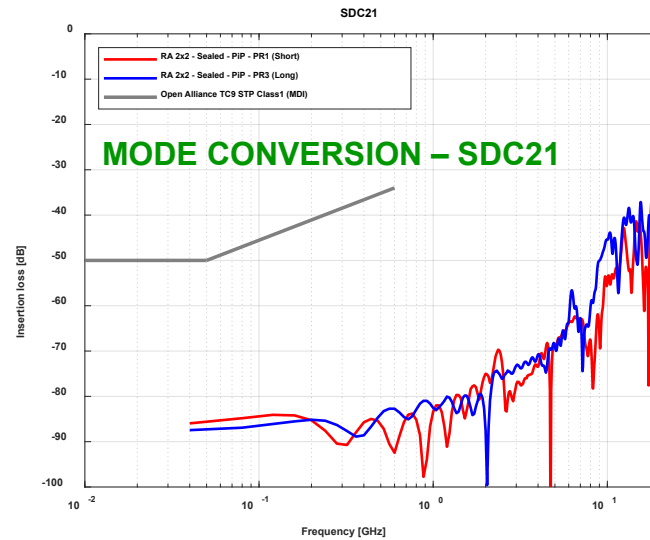
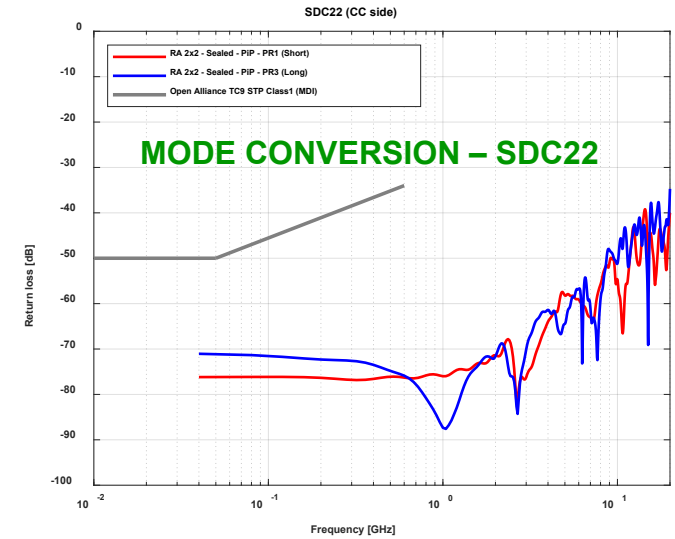
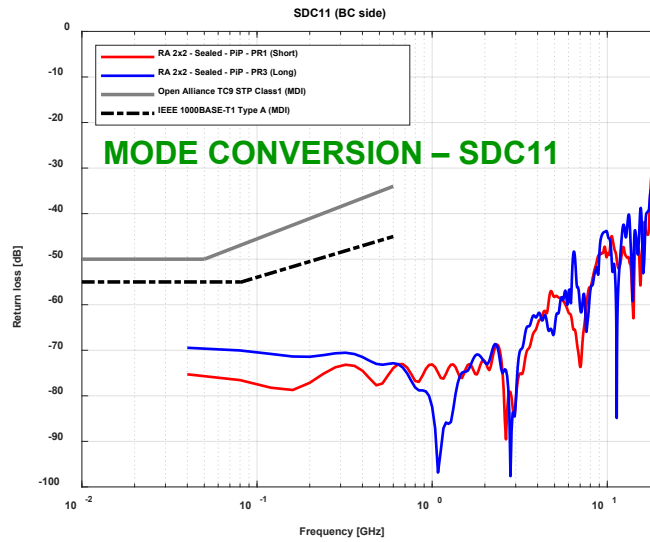


NETBridge+

SI Performance – 2x2 board connector + footprint

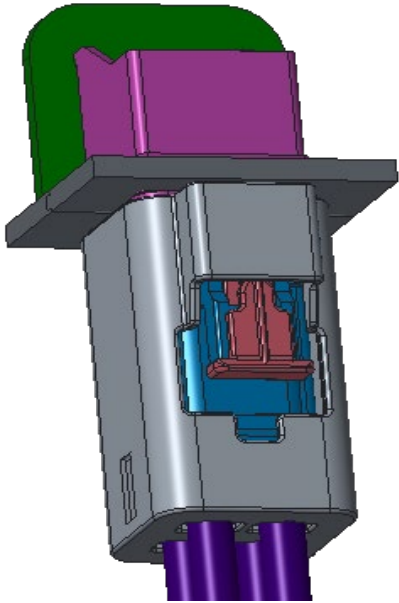


2x2 BOARD
CONNECTOR
+ FOOTPRINT



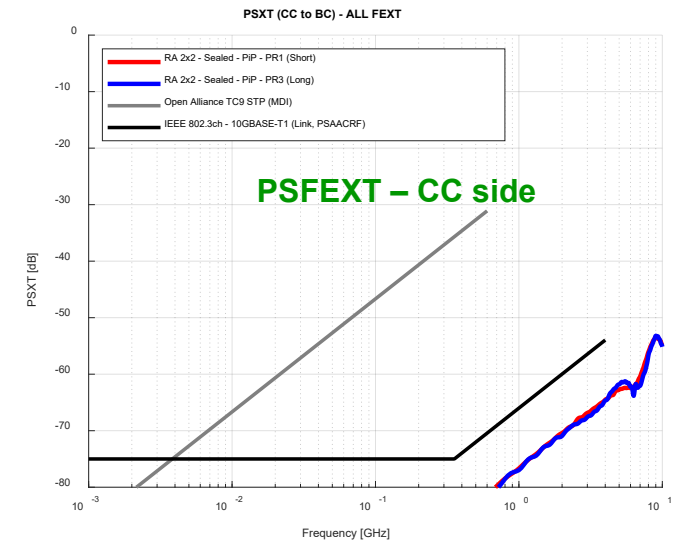
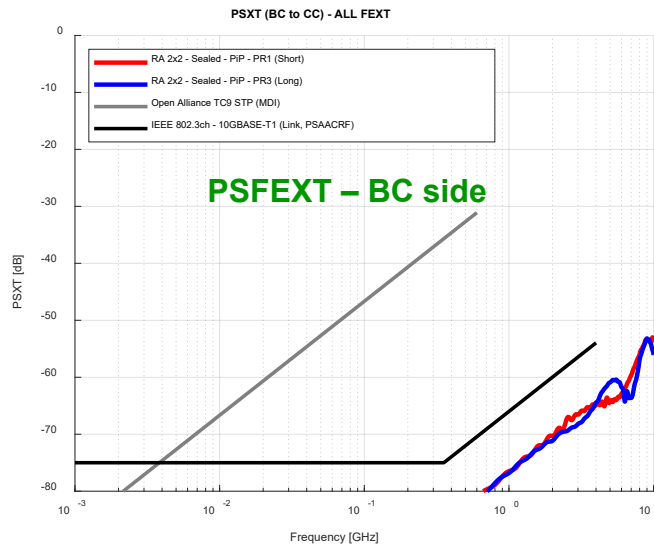
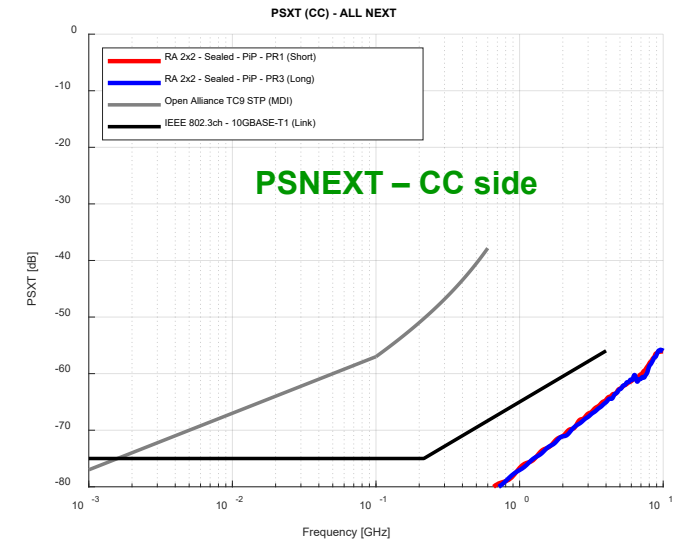
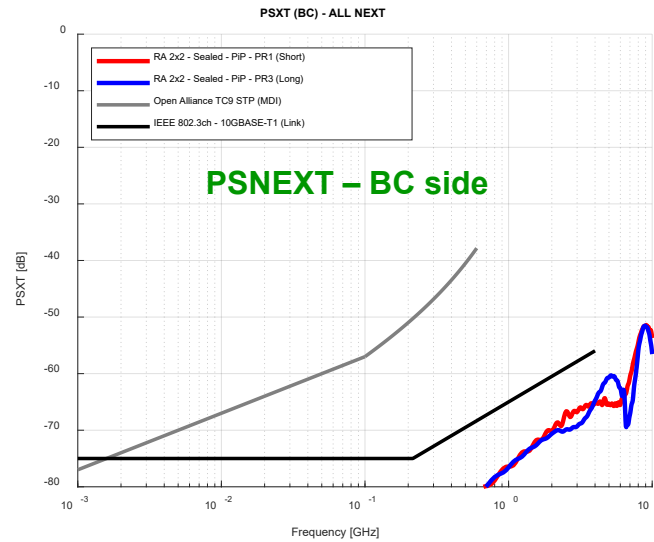
NETBridge+

SI Performance – 2x2 board connector + footprint



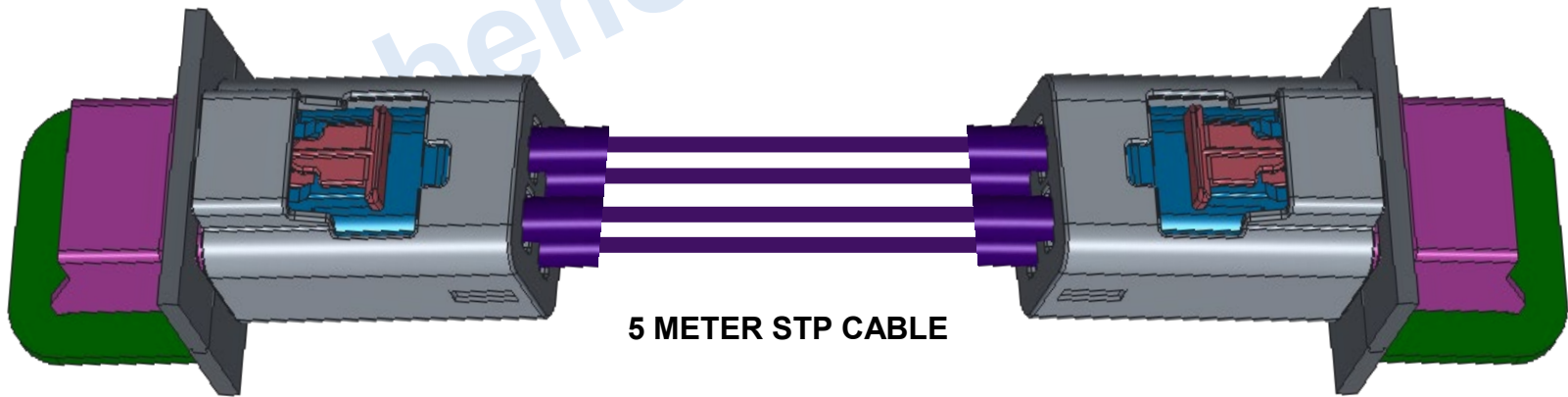
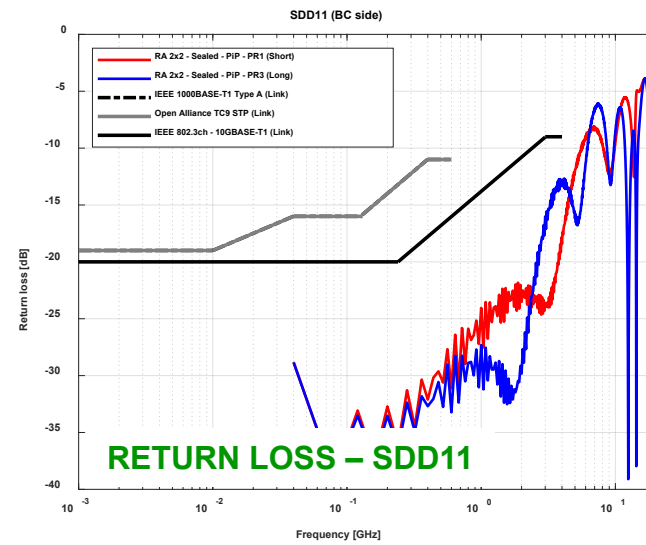
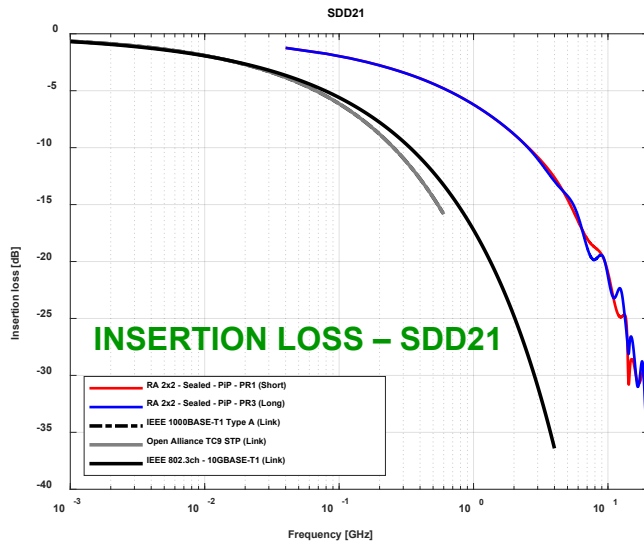
2x2 BOARD
CONNECTOR
+ FOOTPRINT

Am



NETBridge+

SI Performance – 2x2 to 2x2 with 5 meter cable



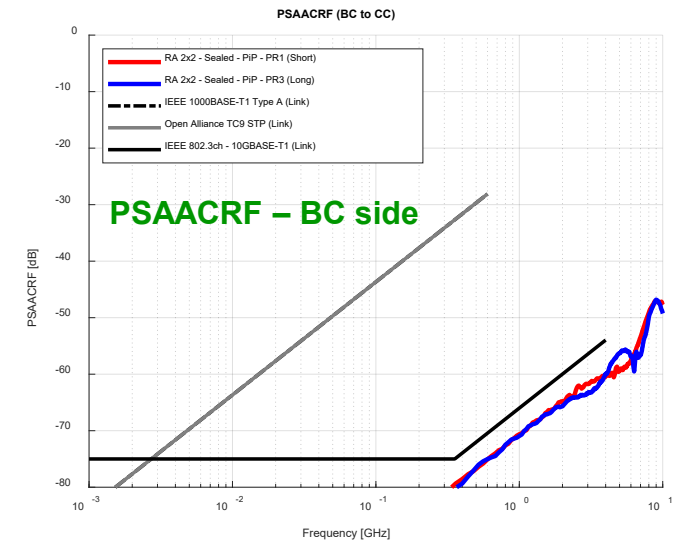
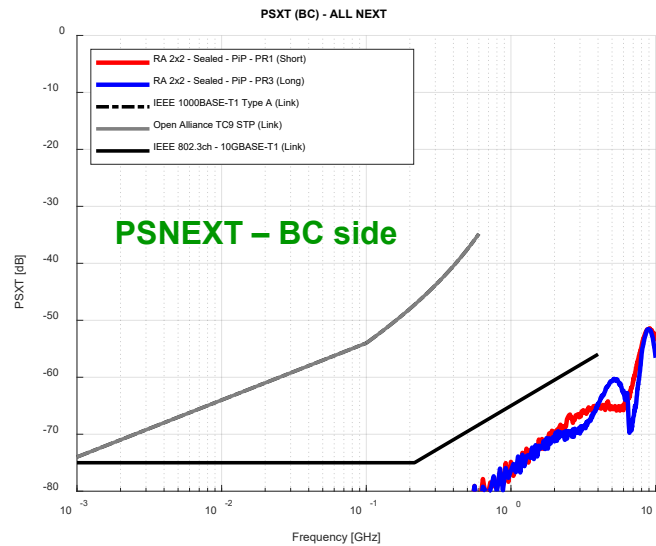
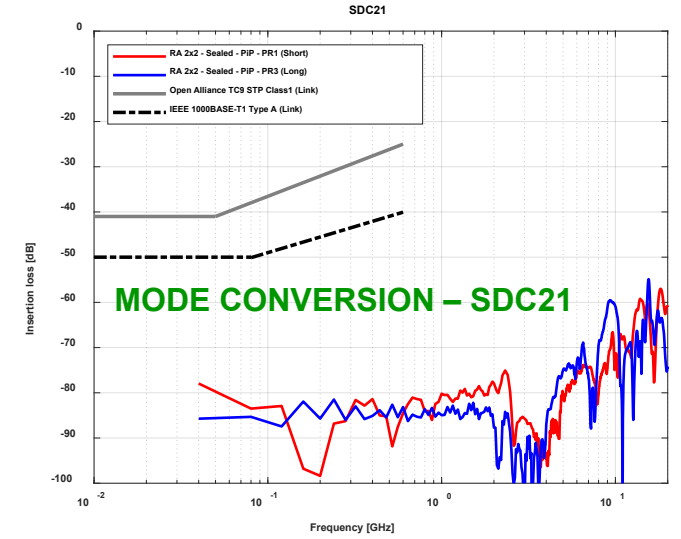
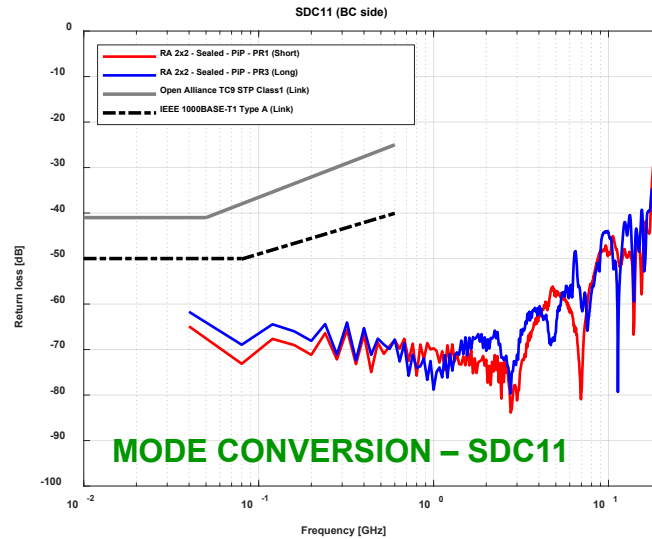
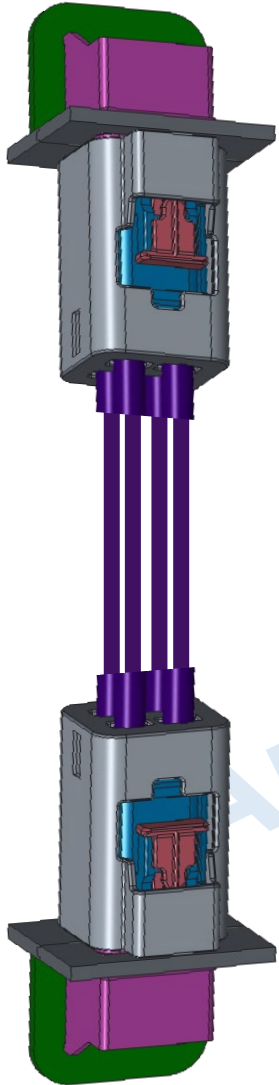
5 METER STP CABLE

FOOTPRINT + 2x2 BOARD CONNECTOR

2x2 BOARD CONNECTOR + FOOTPRINT

NETBridge™+

SI Performance – 2x2 to 2x2 with 5 meter cable

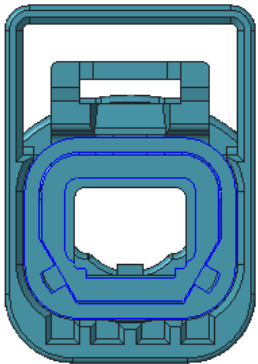


NETBridge+

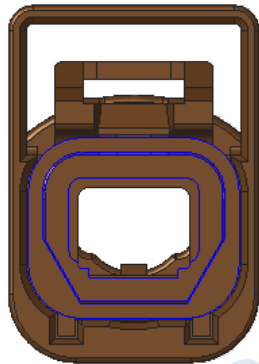
Coding for 1x1 Seal and Unseal

Codings : 5 options

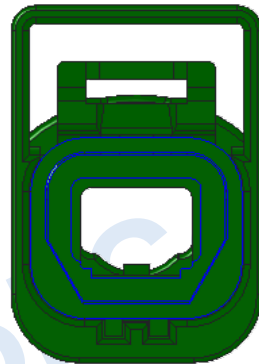
Z code



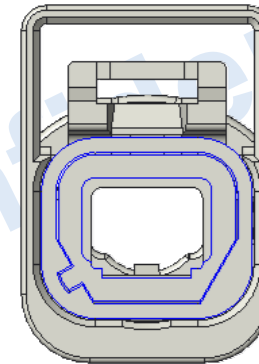
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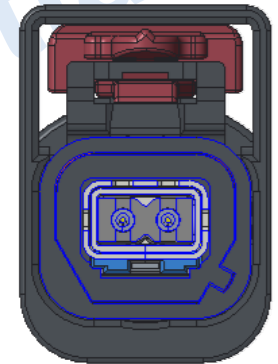
C code



B code



A code



Ra1 5021 不来梅蓝
Water blue

Ra1 8011 深棕色
Nut brown

Ra1 6002 叶绿色
Leaf green

Ra1 9003 信号白
Signal white

Ra1 9005 墨黑色
Jet black

NETBridge+

Advantages



Scaleable design

Modular tooling



Different versions possible

Shielded, sealed, un-sealed



Small form factor

Inline receptacle diameter is smaller as $\varnothing 10\text{mm}$



Touch proof

IEC60950 and USCAR12-C9 avoid finger contacting the pins.



Targeted compliance to Standard

Full shielded version: 100 BASE-T1 (IEEE 802.3bw and Open Alliance TC2)
1000 BASE-T1 (IEEE 802.3bp and Open Alliance TC9)
USCAR-2

Seal

IP69k

Amphenol ICC



www.amphenol-icc.com



Wechat ID: Amphenol_ICC

THANK YOU

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Wechat ID: Amphenol_ICC



Commercial IO