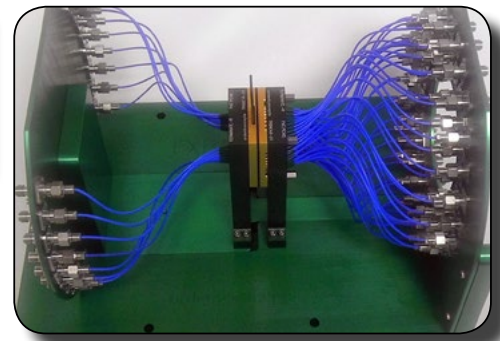
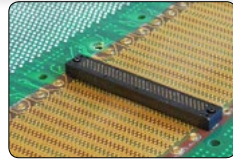
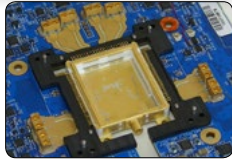


# Application Case Study

ACS #0009



## High Speed Transceiver Characterization

### Problems Faced During Application

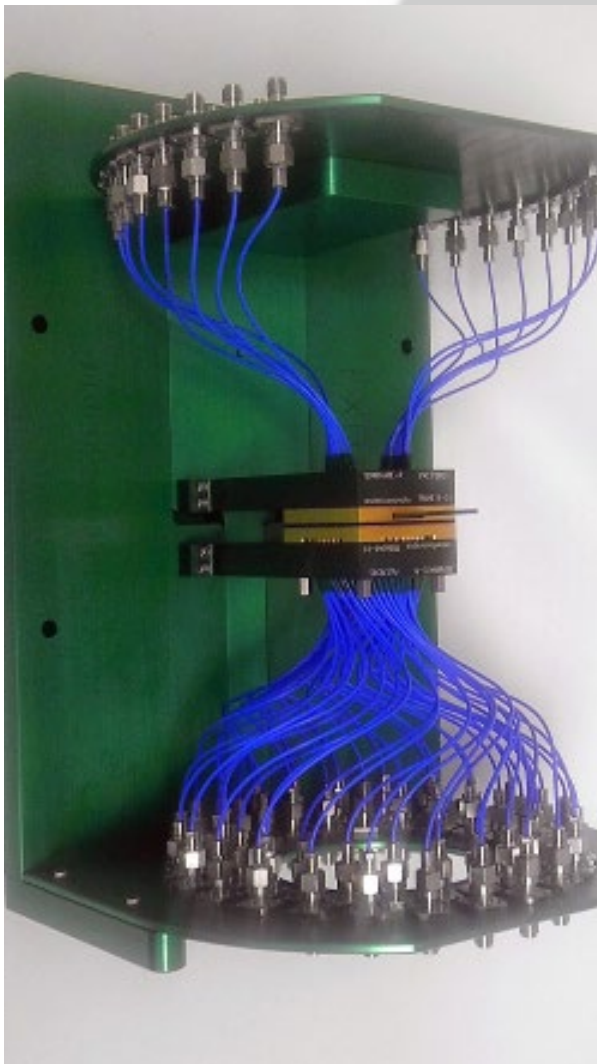
A major defense contractor was developing a high speed transceiver and developed their own, custom IC substrate. Looking to minimize signal degradation during test and characterization as much as possible, the customer was looking for an unconventional, non-PCB testing solution.

### The Ardent Solution

The defense contractor worked with Ardent to develop a custom version of TR, 'Medusa,' that allowed for direct access to signals on their IC Substrate. This eliminated the need for the PCB, allowing the customer to characterize their IC only having to account for the Ardent connector interface and cables—eliminating the need to de-embed PCB traces from their measurements.

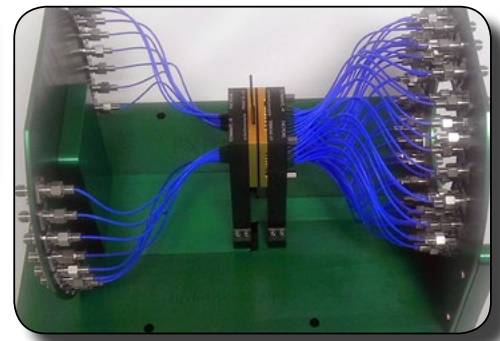
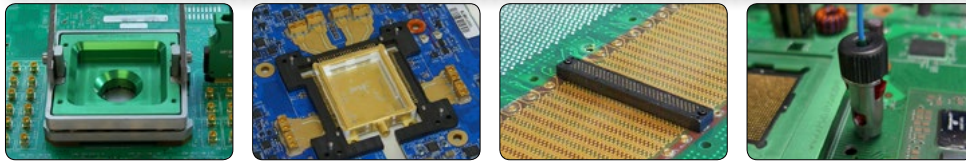
### Key Benefits

- Allowed for direct access to signals on their IC Substrate
- Eliminated the need for the PCB and allowed for characterization of IC
- Eliminated the need to de-embed PCB traces from measurements



# Application Case Study

ACS #0009



## Key Performance Data

### Electrical Specifications

|                             |  |
|-----------------------------|--|
| Frequency Range             | DC to 70 GHz                                 |
| Return Loss <sup>1</sup>    | -18 dB through 70 GHz                        |
| Insertion Loss <sup>2</sup> | -1.5 dB through 40 GHz, -3 dB through 70 GHz |
| Crosstalk                   | -70 dB through 70 GHz                        |
| Impedance <sup>1</sup>      | 50 Ω +/- 2.5 Ω                               |
| Phase Matching              | +/- 2 ps standard                            |

### Mechanical Specifications

|                             |                                      |
|-----------------------------|--------------------------------------|
| Pitch                       | 2.54 mm                              |
| Cables                      | .047" diameter cables <sup>3</sup>   |
| Connectors                  | SMA, SMK (2.92 mm), or V (1.85 mm)   |
| Cable Length                | 6"/ 152 mm, 12"/ 304 mm, 24"/ 608 mm |
| Insertion Life              | 1,000+ mating cycles                 |
| Field Replaceable Interface | Yes                                  |
| Footprint                   | Microstrip & Stripline compatible    |

Notes: <sup>1</sup>Largely a function of PCB design. <sup>2</sup>Measurement includes 3" of cable. <sup>3</sup>Consult factory for additional cable options.

## Related Products

### CA Series™ - Connectors & Interposers



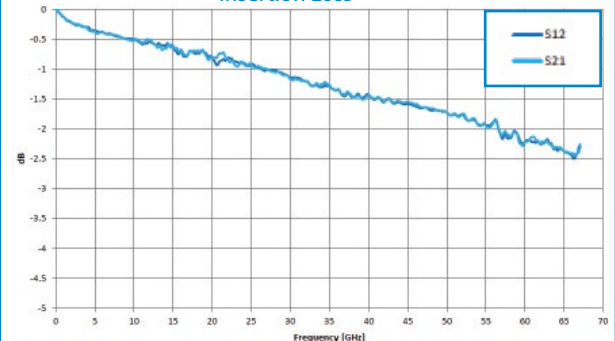
- 32 Gbps+
- Area array to 0.4mm pitch
- Compression mount & solderless
- Pure vertical interface – no offset required
- Ideal for high shock and vibration/extreme temperatures applications

### SK Series™ - Multi-GHz Sockets



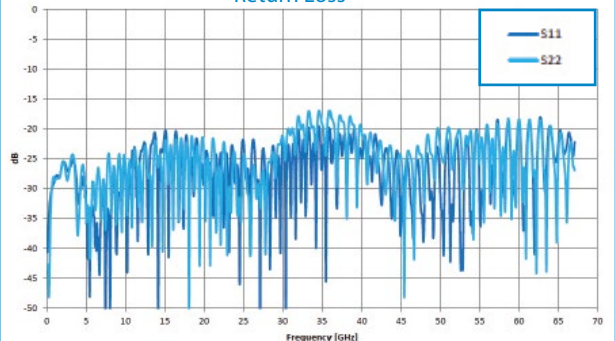
- 40 GHz+/32 Gbps+ performance
- Thermal management ready
- Solderless/compression mount system provides flexibility throughout design
- Quick connection of multiple signals to PCB
- Custom designed to your application

Insertion Loss



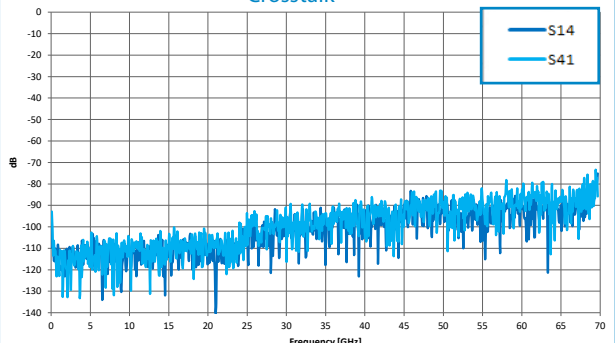
❖ Measurement of the TR interface and one 3 inch V connector assembly.

Return Loss



❖ Measurement of the TR interface between two 3 inch V connector assemblies.

Crosstalk



❖ Crosstalk measurement between two channels spaced 100 mils apart.

### More Information

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