Edge Launch Connectors

**ELF110** \(1.0 \text{ mm (110 GHz)}\) Edge Launch Connectors

- **Common Interface**: ELF110
- **Narrow Profile**: ELF110-001
- **Standard Profile**: ELF110-002

2" GCPW test board with typical data through 110 GHz

**ELF67** \(1.85 \text{ mm (67 GHz)}\) Edge Launch Connectors

- **Common Interface**: ELF67
- **Narrow Profile**: ELF67-001
- **Standard Profile**: ELF67-002

2" Microstrip test board with typical data through 70 GHz

**ELF50** \(2.40 \text{ mm (50 GHz)}\) Edge Launch Connectors

- **Common Interface**: ELF50
- **Narrow Profile**: ELF50-001
- **Standard Profile**: ELF50-002

2" Microstrip test board with typical data through 50 GHz

**Signal Microwave**

**Edge Launch Key Features:**
- No Soldering Required
- Top Ground Only
- Board Design Support Available
- Test Boards Available
**Signal Microwave**

**ELF40** 2.92 mm (40 GHz) Edge Launch Connectors

Common Interface  
ELF40  
Narrow Profile  
ELF40-001  
Standard Profile  
ELF40-002

1” microstrip test board with typical data through 40 GHz

**Edge Launch Drop-in Replacement Connectors**

**ELFT40** 2.92 mm (40 GHz)

Common Interface  
ELFT40  
Standard Profile  
ELFT40-002

1” microstrip test board with typical data through 40 GHz

**Extended Length Edge Launch Connectors**  
For the Mount Panel Applications

**ELFXL40** 2.92 mm (40 GHz)

Common Interface  
ELFXL40  
Narrow Profile  
ELFXL40-001

1” microstrip test board with typical data through 40 GHz
**Test Boards for Edge Launch Connectors (40 GHz)**

- All test board launch designs are available at no charge in .pdf and .dxf formats
- 1” and 2” length microstrip and grounded coplanar waveguide (GCPW) boards available
- Available in both 40 GHz, 70 GHz and 110 GHz versions

**Typical test Data is shown in the Edge Launch Connector section. Demo boards are also available with sample connectors and test data.**

**Test Boards for Edge Launch Connectors (70 GHz)**

**Test Boards for Edge Launch Connectors (110 GHz)**

**All test board designs are available to customers at no charge in .pdf and .dxf formats. Demo boards are also available with sample connectors and test data.**
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Top Launch Connectors

TLF40 2.92 mm (40 GHz)

- Edge Launch Type Performance Anywhere on the Board
- 2.92 mm Connector for high speed digital industry with superior electrical performance
- Compression fit, screw-on mounting, does not require soldering

Test Boards for Top Launch Connectors

(40 GHz)

- Connector: TLF40-001
  - Tested on a GCPW test board

1" microstrip test board with typical data through 40 GHz

40 GHz Test Board Part Numbers:

- 085-085-1F
  - 1" Microstrip
- 085-085-1.5F
  - 1.5" Microstrip
- 087-087-1F
  - 1" Grounded Coplanar Waveguide (GCPW)
- 087-087-1.5F
  - 1.5" Grounded Coplanar Waveguide (GCPW)
Field Replaceable Connectors

**FRF40 2.92 mm (40 GHz)**

- 2.92 mm Interface
- Standard 2 & 4 Hole Flanges
- 40 GHz Bandwidth
- Rear Socket for 12 mil pin
- Low VSWR:
  - DC – 27.0 GHz: 1.10:1
  - 27.0 – 40.0 GHz: 1.15:1
- Temp Range -55º to +105º

![FRF40-001](image1)
![FRF40-002](image2)
![FRF40-003](image3)
![FRF40-004](image4)
![FRF40-005](image5)

Typical test data through 40 GHz using FRF40-001 back-to-back connector pair with test pin.

Vertical Launch Connectors

**VLF40 2.92 mm (40 GHz)**

- 2.92 mm Connector for high speed digital industry with superior electrical performance
- Compression fit, screw-on mounting, does not require soldering

![VLF40-002](image6)

Complete mounting hardware guidelines available on our website

Typical data for 2 connectors tested as a back-to-back pair
Plug and Play De-embedding Kit in Support of IEEE-P370

Our library of innovative designs led to this kit which includes 70 GHz test boards, 2.92 mm or 1.85 mm connectors, and a flush short, all using our own designed and manufactured boards and connectors. At DesignCon a paper, “A NIST Traceable PCB Kit…” will be presented by members of the committee which describes the use of this kit.

Five Board Types

1. **6 cm DUT Microstrip**
   The de-embedded kit takes a known DUT which can be directly measured and the results saved. The data for the DUT is established at NIST traceable reference planes and therefore is repeatable.

2. **6 cm Test Fixture**
   A set of 2 test fixtures with good performance can be measured and de-embedding files created. The de-embedding algorithm is applied and the resultant DUT data can be compared to the directly measured DUT data.

3. **6 cm 105% ZØ Test Fixture**
   A degraded set of fixtures with 105% impedance is also included to challenge the de-embedding algorithm.

4. **2 Vias Test Fixture**
   A third set of fixtures with the microstrip line starting on top of the board then transitioning to the bottom of the board and back on top again is included. These will further challenge the de-embedding algorithm.

5. **Beatty Standard DUT**
   A “Beatty” standard line of 50 ohm /25 ohm /50 ohm impedance is also available as a DUT and can be used to verify TDR measurement de-embedding.
Calibration Boards

**Turnkey 0402 Package Test System**
with 40 Ghz TRL/LRL Calibration and DUT Boards

This kit provides a total test fixture solution by providing both the TRL/LRL calibration board to calibrate the VNA to remove the connectors and 4 inches of the PCB trace from the measurement. Each test fixture contains 2.92 mm connectors on each end and a solder point for the SMD component for accurate measurements.

**Other Boards (40 GHz and 70 GHz)**

Part No. 907-xxx-10077

Part No. 907-xxx-10057
Signal Microwave

Broadband Test Verification Boards (40 GHz and 70 GHz)

“xxx” is a placeholder to define frequency range depending on connector types.

Signal Microwave, LLC • www.signalmicrowave.com • info@signalmicrowave.com
**Connector Nomenclature**

### 2.92mm Interface
- Outer Conductor: Ø 2.92mm
- Center Conductor: Ø 0.050 in
- Pin Diameter: Ø 0.036 in

### 1.85mm Interface
- Outer Conductor: Ø 1.85mm
- Center Conductor: Ø 0.0316 in
- Pin Diameter: Ø 0.0200 in

**Connector Compatibility**

### SMA / 3.5mm / 2.92mm
- SMA interface connectors (18/27 GHz bandwidth)
- 3.5mm interface connectors (33 GHz bandwidth)
- 2.92mm interface connectors (40 GHz bandwidth)
- All of these connectors are compatible with each other

### 2.40mm / 1.85mm
- 2.40mm interface connectors (50 GHz bandwidth)
- 1.85mm interface connectors (70 GHz bandwidth)
- All of these connectors are compatible with each other
PCB Design Resources for Board Mount Connectors

- 3D models for simulation are available at no charge to help customers in their own development efforts.
- "Transparent Connections for 5G and WiGig Testing" that describes using 3D modeling tools to design board launches.
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NEW PRODUCT
100 Ohm True Odd Mode Differential Probes in Frequency Ranges up to 70 GHz
Probe 70 GHz s-parameters

Magnified side view of Pins