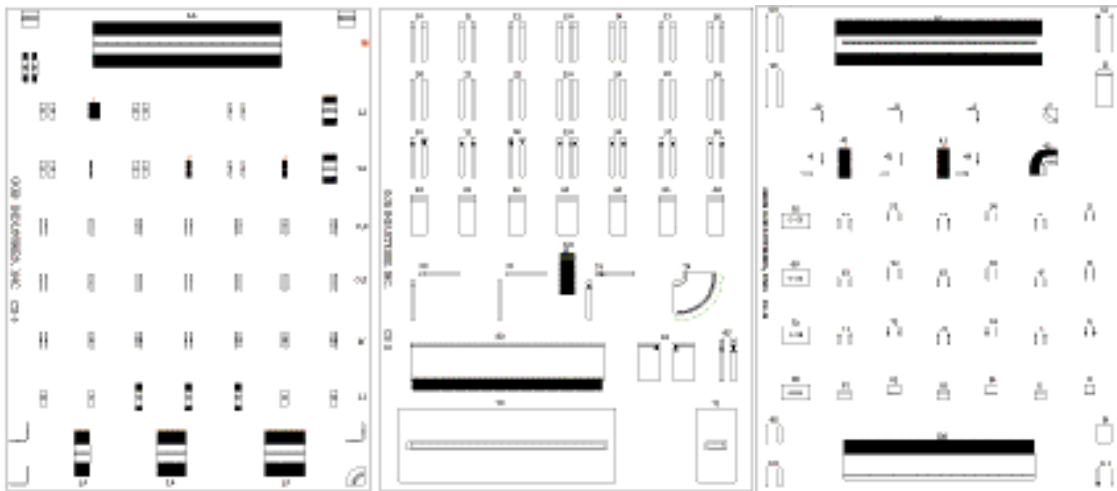




Calibration Substrates

The GGB Industries, Inc., line of calibration substrates allows the user to calibrate any GGB Industries, Inc., microwave Picoprobe directly at the probe tip. The underlying principal of the calibration of a measurement system is to provide accurate, known standards to which the measurement system can be connected. The GGB Industries, Inc., line of calibration substrates is such a standard. Each calibration substrate contains highly precise elements for calibrating out the unavoidable errors and losses in a microwave network analyzer, its associated cabling, and the microwave probe to ensure accurate on-wafer testing.



**Supports precise SOLT, TRL
& TRM calibrations**

**Convenient alignment
structures**

**Wide pitch range--30 to 2,540
microns**

**Suitable for all Picoprobes
from DC to 220 GHz**

**Available for GS, SG, or
GSG Footprints**

**Individually tested &
trimmed to exacting standards**

Note: The above specifications may vary. See Calibration Substrate Selection Guide for details.

Our accurate, easy to use calibration substrates, calibration coefficients, and detailed instructions allow you to correct the measurement system (network analyzer + cabling + probe) whenever it produces a reading different than the standard.

The typical elements for calibrating a microwave measurement system consists of opens, shorts, matched loads, and throughs. These four elements have electrical characteristics that are very different from one another so that each element contributes an important part to the overall calibration process. In principle any set of standards could be employed, however, the more identical the standards are, the less accurate the calibration process becomes, which in turn results in inaccurate the on-wafer testing. Our precision crafted calibration substrates, when properly used, assure you of accurate on-wafer test results from the creator of the original Picoprobe.

How to select the correct calibration substrate for your probing application(s):

- 1) Identify your Picoprobe's footprint and pitch (tip spacing);
- 2) Determine which calibration type is appropriate for your application (SOLT, TRL/LRL, or TRM/LRM)*;
- 3) Using the Calibration Substrate Selection Guide below, choose the calibration substrate which matches your Picoprobe's footprints recommended pitch range, and your preferred calibration type.

Calibration Substrate Selection Guide

Calibration Substrate	Pad Size (microns)	Calibration Types Supported	Footprint	Pitch Range Recommended (microns)	Pitch Range Acceptable (microns)
CS-5	50 X 50	SOLT, TRL, TRM	GSG	75 - 250	75 - 250
CS-9	100 X 100	SOLT, TRL, TRM	GSG	250 - 600	150 - 600
CS-10	150 X 150	SOLT, TRM	GSG	600 - 1250	225 - 1250
CS-18	300 X 300	SOLT, TRM	GSG	1250 - 2540	500 - 2540
CS-8	50 X 50	SOLT, TRM	GS, SG	50 - 250	50 - 300
	100 X 100				
	150 X 150				
CS-14	100 X 100	SOLT, TRM	GS, SG	250 - 600	150 - 600
CS-11	150 X 150	SOLT, TRM	GS, SG	600 - 1250	175 - 1250

Special Calibration Substrate Designed For Use Above 110GHz

Calibration Substrate	Pad Size (microns)	Calibration Types Supported	Footprint	Pitch Range Recommended (microns)	Pitch Range Acceptable (microns)
CS-15	25 X 25	SOLT, TRL, TRM	GSG	40 - 150 (SOLT) 30 - 150 (TRL)	40 - 150

* SOLT = Short-Open-Load-Through
TRL = Through-Reflect-Line (Which is equivalent to LRL = Line-Reflect-Line)
TRM = Through-Reflect-Match (Which is equivalent to LRM = Line-Reflect-Match)

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