

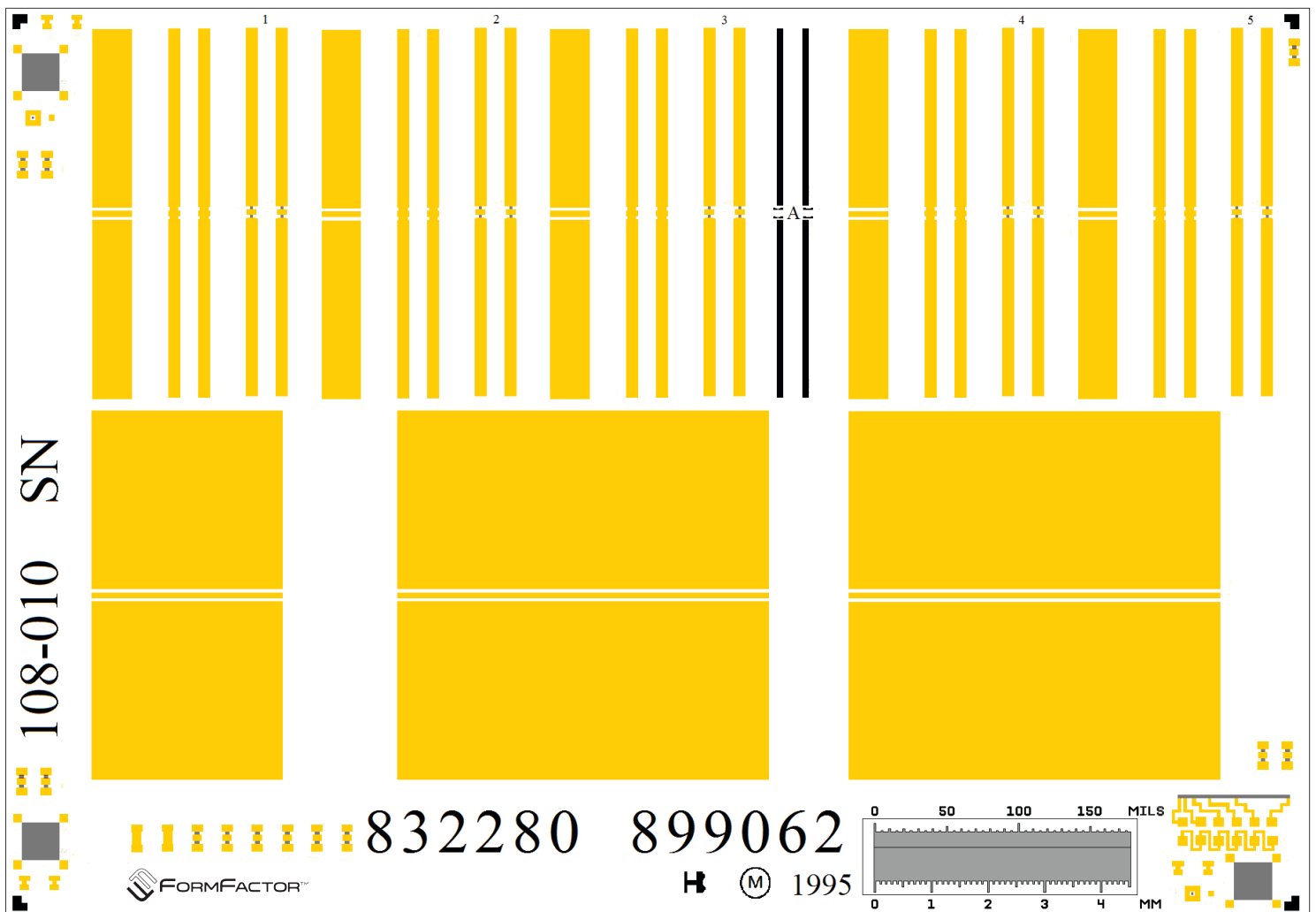
Cascade Impedance Standard Substrate Map

➤ Impedance Standard Substrate For Up to 67 GHz



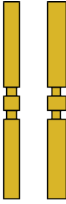
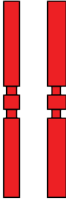

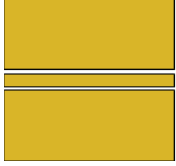
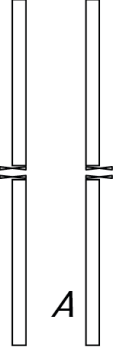
Pitch: 150 μm - 3000 μm , **Configuration:** Ground-Signal-Ground

P/N: 108-010

S/N:



Substrate specifications: Material: Alumina; **Thickness:** 625 $\mu\text{m} \pm 25 \mu\text{m}$; **Dielectric constant:** 9.9

<p>Thru</p>  <p>Short</p> 	<p>Thru delay: 4 ps Impedance: Nominally 50 Ω Dimensions: Length: 645 μm</p>	<p>Load</p>  <p>Precision 50 Ω Load</p> 	<p>For optimum calibration accuracy only the Red-marked load standards should be used</p> <p>DC accuracy: $\pm 0.3 \%$</p> <p>Note: Ensure the bias supply is turned off during calibration. Applying bias to the probe during calibration could cause the resistance of the load to change</p>	<p>Verification Lines</p>  <p>Thru Delay ≈ 25 ps; Length $\approx 3150 \mu\text{m}$</p>  <p>Thru Delay ≈ 50 ps; Length $\approx 6150 \mu\text{m}$</p>	<p>Alignment Marks</p>  <p>Note: An Open is synthesized by raising the probes in air a minimum distance of 250 μm above the chuck surface</p>
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All of the above specifications are based on an overtravel (downward movement of probe after initial touchdown on the substrate) of 75-125 μm . This amount of overtravel can be set before calibration on the Impedance Standard Substrate (ISS) using the alignment marks (allows precise setting of probe separation and overtravel). Figure 1 shows that initial contact with the edge of the probe tips should be made at reference plane X (midpoint between the outer flat edge and the internal apex). The desired overtravel and thus skate (forward movement of probe tips after initial contact with substrate) is then achieved by adjusting the Z height on the positioner to move the edge of the probe tips to reference plane Y (midpoint between the internal apex and the flag points). This can also be seen from the photographic images shown in Figure 2.

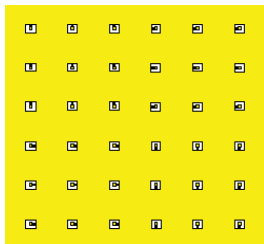
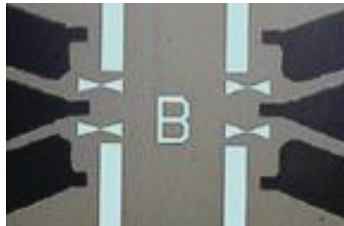


Figure 1: Alignment marks

Initial contact



Final contact

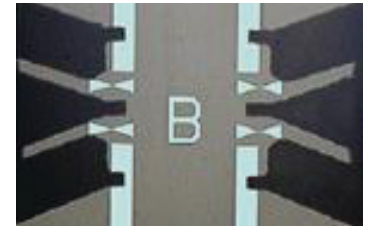


Figure 2: Images showing correct alignment and placement of probe tips

Calibration Coefficients

Calibration coefficients are dependent on the probe tip configuration, placement on a standard, and the shape and configuration of the set of standards. This leads to unique calibration coefficients for a unique pair of probe and ISS. Therefore, the calibration coefficients are supplied with the probe not with the ISS.

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