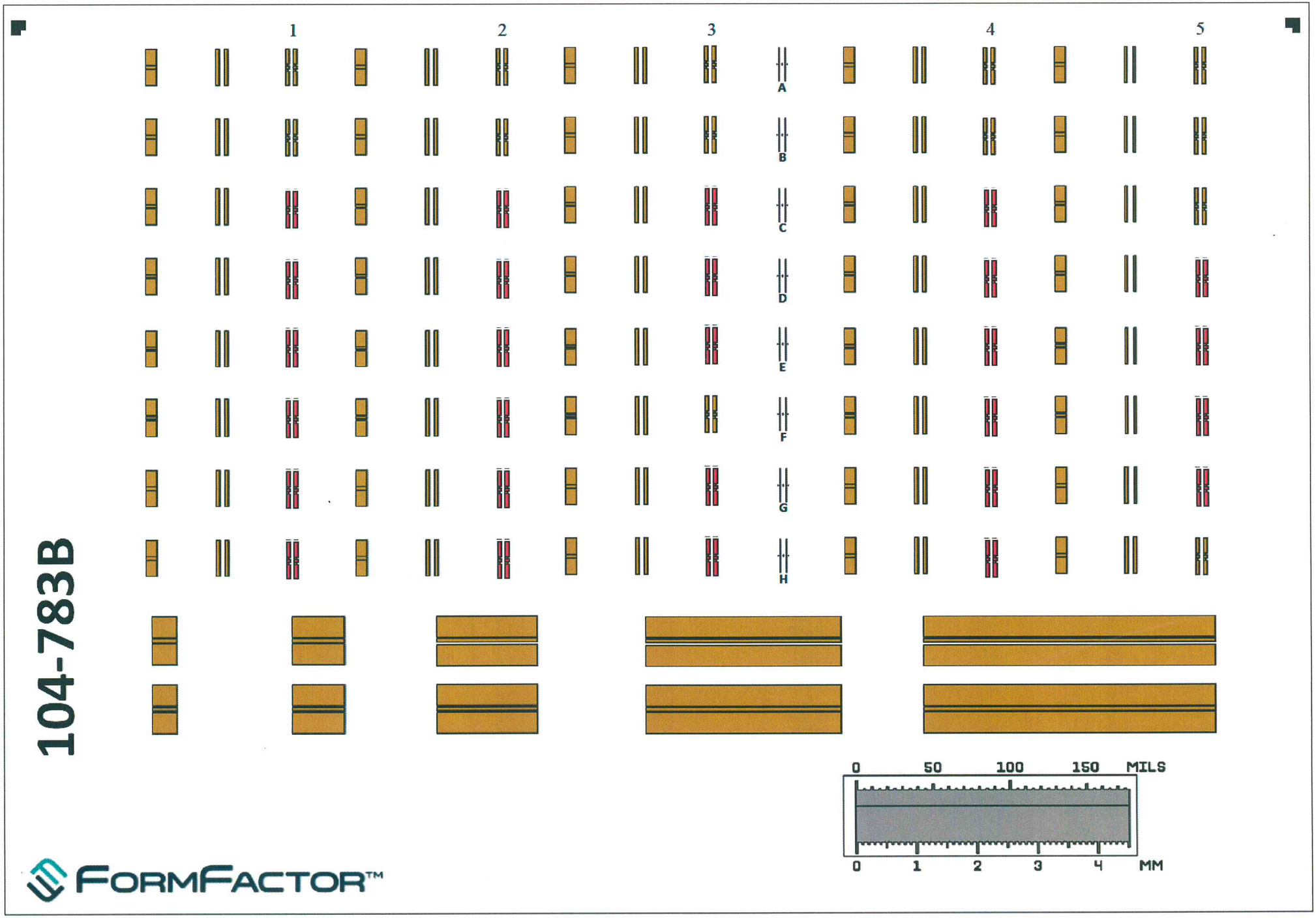
Impedance Standard Substrate

(Pitch: 75-150 um, Configuration: GSG)

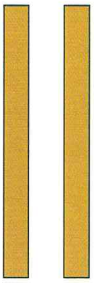
P/N: 104-783, S/N: SB110166.12



Key to the 104-783 Map

Substrate specifications: Material: Alumina; Thickness:10 mils (254 um); Dielectric constant: 9.9

Thru



Short

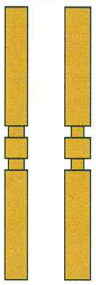
Thru delay: 1 ps

Impedance: Nominally 50 Ω

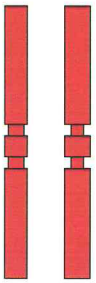
Recommended Overtravel:

ACP
75 – 125 µm

Infinity
50 – 75 µm



Load



Precision 50 Ω Load

For optimum calibration accuracy **only** the **Red** -marked load standards should be used

DC accuracy: +/- 0.3 %

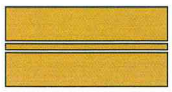
Note:

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

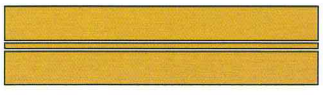
Verification Lines

Thru Delay 3 ps; Length 446 µm

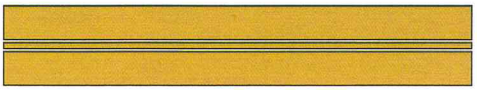
Thru Delay 7 ps; Length 896 µm



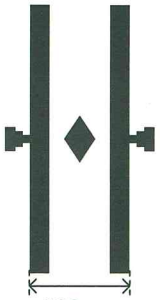
Thru Delay 14 ps; Length 1796 µm



Thru Delay 27 ps; Length 3496 µm



Thru Delay 40 ps; Length 5246 µm



Alignment Marks

Note:

An **Open** is synthesized by raising the probes in air a minimum distance of 250 µm above the chuck surface

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. 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. This can also be seen from the photographic images shown in Figure 2.

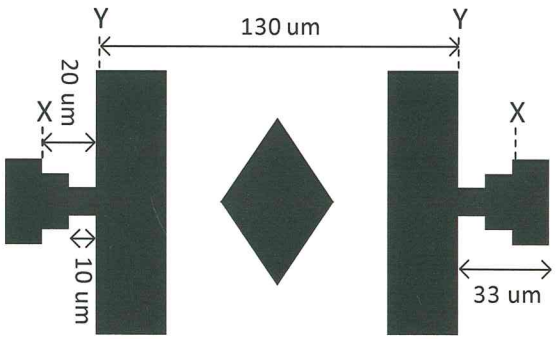


Figure 1: Alignment marks

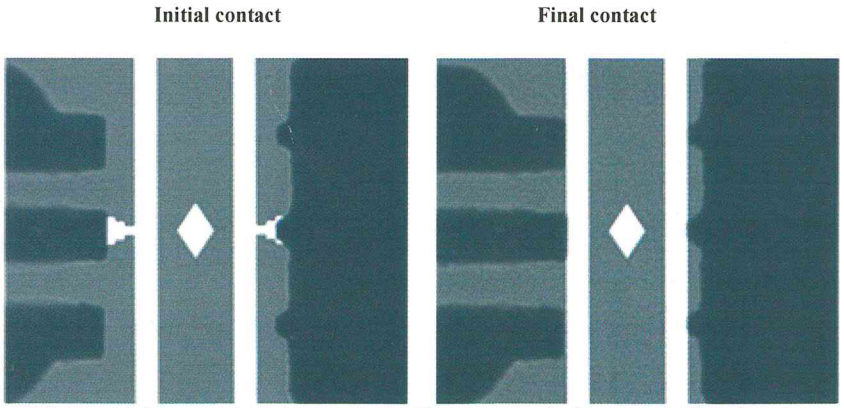


Figure 2: Images showing correct alignment and placement of probe tips

Calibration Coefficients are dependent on the probe tip configuration, placement on a standard, and the standard configurations. 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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