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- (54) **Title:** COMPENSATING FOR REFERENCE MISALIGNMENT DURING INSPECTION OF PARTS

(57) **Abstract:** Methods and apparatus for inspection of electronic parts such as semiconductor wafers, high-density circuit boards, multi-layer substrates, chrome on glass masks, and other fine line products which compensates for reference misalignment. Conductor linewidth and space measurements are performed along the entire length of every conductor to sub-camera pixel, sub-micron accuracy in real time as the 5 part is scanned. Billions of metrology measurements are also performed in real time to sub-micron accuracy. A self-learning automated method to extract measurement values from Computer Aided Design (CAD) files is described. This method automatically determines locations to perform these billions of operations within defined allowed manufacturing tolerances.

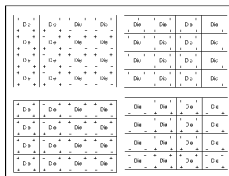


Figure 9: A 4x4 grid of 16 squares, each containing a 2x2 grid of smaller squares, labeled with 'E' and 'D' in various combinations.

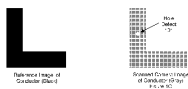


Figure 10: A diagram showing a large 'L' shaped conductor on a grid. The vertical leg is labeled 'E' and the horizontal leg is labeled 'D'.

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