said measured data point being mutually spaced apart generally by a predetermined sampling distance;

(c) applying the output of the detectors to a memory having cells for storing, in the cells thereof, a two dimensional digital grey scale image of the electrical circuit substrate, said image having pixels corresponding to said measured data points;

(d) obtaining from said two dimensional digital grey scale image a map of said electrical circuit substrate, said map formed of digital map elements, wherein at least some non-adjacent digital map elements represent portions of the electrical circuit that are separated by a distance that is smaller than said predetermined sampling distance; and

(e) employing said map to detect defects in said electrical circuit.

96. A method for manufacturing an electrical circuit, comprising:

depositing at least one conductive member on a surface of an electrical circuit substrate;

forming a two-dimensional grey scale image of said surface from data elements acquired by an array of detectors displaced with respect to the surface, wherein ones of said detectors each view corresponding ones of first elemental areas on said surface;

modifying at least some data elements of said two-dimensional grey scale image to provide a plurality of modified data elements;

forming a map of said electrical circuit from digital map elements that are formed by interpolating between selected modified data elements, wherein said digital map elements correspond to second elemental areas on said surface of the electrical circuit that are smaller than said first elemental areas; and

analyzing said map to detect defects in said electrical circuit substrate.

97. A method for manufacturing an electrical circuit, comprising:

depositing at least one conductive member on a surface of an electrical circuit substrate;

forming a two-dimensional grey scale image of said surface, said image having pixels, wherein each pixel corresponds to one of a plurality of elemental areas of a first size on the surface;

processing said two dimensional grey scale image to form a map of said surface, said map including digital map elements representing second elemental areas on the surface, said second elemental areas being smaller than said first elemental areas; and then

employing said map to detect defects in said electrical circuit.

98. A method for manufacturing an electrical circuit, comprising:

depositing at least one conductive member on a surface of an electrical circuit substrate;

producing a digital grey scale image of said surface with a given grey scale image spatial resolution, said given grey scale image spatial resolution being related to the size of first elemental areas of said surface viewed by ones of pixels in an optical detector;

processing the grey scale image to produce a digital map of the surface, said digital map having a digital map spatial resolution which is greater than said given grey scale image spatial resolution; and

analyzing the digital map to detect defects in said electrical circuit.

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