Electric near-field scanning for electronic PCB electromagnetic radiation measurement

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Abstract: This paper introduces a design and test of an electric (E) near-field scanning (NFS) system by using innovative 4- layer miniature probe for electromagnetic compatibility (EMC) application. The probe works in the challenging frequency band up to 12 GHz with spatial resolution lower than 2 mm. The NFS is designed to operate by automation based on PC driven by LabVIEW® interface controlling a vector network analyzer (VNA). The PC communicates with the VNA through the local area network to read and save the measured data emitted by the device under test (DUT). The LabVIEW® interface is

designed to control the E-NF positioning motion core by means of STM32® microcontroller. A stepper motor is used to move the E-NF probe along the scanning surface plan. Finally, the NFS is validated by visualizing the E-NF intensity maps generated in real time after calibration with a reference device under test represented by microstrip line and a microwave circuit.

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