



SURFACE VEHICLE RECOMMENDED PRACTICE

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Measurement of Radiated Emissions from Integrated Circuits—
Surface Scan Method (Loop Probe Method) 10 MHz to 3 GHz

RATIONALE

To revise the SAE J1752 series of documents for current practice and commonization within the series with the intent of stabilizing these documents.

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1. SCOPE

This SAE Recommended Practice defines a method for evaluating the near field electric or magnetic component of the electromagnetic field at the surface of an integrated circuit (IC). This technique is capable of providing a detailed pattern of the RF sources internal to the IC. The resolution of the pattern is determined by the characteristics of the probes used and the precision of the mechanical probe positioner. The method is usable over the 10 MHz to 3 GHz frequency range with existing probe technology. The probe is mechanically scanned according to a programmed pattern in a plane parallel or perpendicular to the IC surface and the data is computer processed to provide a color-enhanced representation of field strength at the scan frequency. This procedure is applicable to measurements from an IC mounted on any circuit board that is accessible to the scan probe. For comparisons, the standardized test board shall be used. This diagnostic procedure is intended for IC architectural analysis including functional floor plan and power distribution.

1.1 Measurement Philosophy

The electric and magnetic field scan over the surface of the IC yields information on the relative strength of sources within the IC package. This provides for comparisons between different architectures to facilitate reductions in RF emissions from the IC. The electric and magnetic field pattern over the surface of the IC is related to the electromagnetic radiation potential of the IC and of the electronic module of which it is a part. However, this procedure is intended to provide a comparative measure for ICs and not to predict far field levels for the IC or its circuit board.

2. REFERENCES

General information supporting this document is available in SAE J1752-1.

2.1 Applicable Publication

The following publication forms a part of this specification to the extent specified herein. Unless otherwise indicated, the latest issue of SAE publications shall apply.

2.1.1 SAE Publication

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or 724-776-4970 (outside USA), www.sae.org.

SAE J1752-1 Electromagnetic Compatibility Measurement Procedures for Integrated Circuits—Integrated Circuit EMC Measurement Procedures—General and Definitions