



# SURFACE VEHICLE STANDARD

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## Immunity to Conducted Transients on Power Leads

### RATIONALE

Document to be stabilized as no major changes are required.

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## TABLE OF CONTENTS

1.	SCOPE .....	2
1.1	Measurement Philosophy .....	2
2.	REFERENCES .....	2
2.1	Applicable Documents .....	2
2.1.1	SAE Publications .....	2
2.1.2	ISO Publications .....	3
3.	TEST EQUIPMENT .....	3
3.1	Test Facility .....	3
3.2	Test Instrumentation .....	3
3.2.1	Oscilloscope .....	3
3.2.2	Voltage Probe .....	3
3.2.3	DC Power Supply .....	3
3.2.4	Vehicle Simulator .....	4
3.2.5	DUT Monitoring Instrumentation .....	4
3.2.6	Test Pulse Generator .....	4
3.3	Test Voltages .....	4
3.4	Test Set-Up Documentation .....	4
4.	TEST PLAN .....	4
5.	TEST PROCEDURE .....	5

6.	TEST SEVERITY LEVELS AND EVALUATION OF RESULTS .....	7
7.	TEST DOCUMENTATION .....	7
8.	TEST PULSES .....	8
9.	NOTES .....	15
9.1	Marginal Indicia .....	15
APPENDIX A	(NORMATIVE) TEST PULSE GENERATOR VERIFICATION PROCEDURE .....	16
APPENDIX B	(INFORMATIVE) EXAMPLE OF TEST SEVERITY LEVELS (SEE 6.1) .....	18
APPENDIX C	(INFORMATIVE) DETERMINATION OF PULSE GENERATOR'S ENERGY CAPABILITY .....	19
APPENDIX D	(INFORMATIVE) ORIGIN OF TRANSIENTS IN THE ELECTRIC SYSTEM OF ROAD VEHICLES .....	23
APPENDIX E	(INFORMATIVE) HEAVY TRUCK LOAD DUMP CONSIDERATIONS WHEN A CLAMPING DEVICE IS USED .....	27

## 1. SCOPE

This SAE Standard defines methods and apparatus to evaluate electronic devices for immunity to potential interference from conducted transients along battery feed or switched ignition inputs. Test apparatus specifications outlined in this procedure were developed for components installed in vehicles with 12-V systems (passenger cars and light trucks, 12-V heavy-duty trucks, and vehicles with 24-V systems). Presently, it is not intended for use on other input/output (I/O) lines of the device under test (DUT).

### 1.1 Measurement Philosophy

Installed electrical equipment is powered from sources which contain, in addition to the desired electrical voltage, transients with peak values many times this value, caused by the release of stored energy during the operation of a relay and/or other loads connected to the source while starting and/or turning off the vehicle. These tests are designed to determine the capability of equipment to withstand such transients. The tests are performed in the laboratory (bench tests). Bench test methods give results, which also allow comparison between laboratories.

These tests may not cover all types of transients, which can occur in a vehicle. The test pulses described in Section 8 are, however, characteristic of typical pulses. To ensure proper operation of a vehicle in the electromagnetic environment, vehicle testing should be performed in addition to bench testing.

## 2. REFERENCES

General information regarding this document, including definitions, references, and general safety considerations, is found in SAE J1113-1.

### 2.1 Applicable Documents

The following publications form 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 Publications

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](http://www.sae.org).

SAE J1113-1 Electromagnetic Compatibility Measurement Procedures and Limits for Components of Vehicles, Boats (up to 15 m), and Machines (Except Aircraft) (16.6 Hz to 18 GHz)