

INCH-POUND

MIL-STD-202-309

18 April 2015

SUPERSEDING

MIL-STD-202G

w/CHANGE 2 (IN PART)

28 June 2013

(see 6.1)

**DEPARTMENT OF DEFENSE**

**TEST METHOD STANDARD**

**METHOD 309, VOLTAGE COEFFICIENT OF RESISTANCE DETERMINATION PROCEDURE**



AMSC N/A

FSC 59GP



FOREWORD

1. This standard is approved for use by all Departments and Agencies of the Department of Defense.
2. This entire standard has been revised. This revision has resulted in many changes to the format, but the most significant one is the splitting the document into test methods. See MIL-STD-202 for the change summary.
3. Comments, suggestions, or questions on this document should be emailed to [std202@dla.mil](mailto:std202@dla.mil) or addressed to: Commander, Defense Logistics Agency, DLA Land and Maritime, ATTN: VAT, P.O. Box 3990, Columbus, OH 43218–3990. Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at <https://assist.dla.mil>.

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METHOD 309  
VOLTAGE COEFFICIENT OF RESISTANCE DETERMINATION PROCEDURE

## 1. SCOPE

1.1 Purpose. Certain types of resistors exhibit a variation of resistance with changes in voltage across the resistor. This is a measurable characteristic; a test to determine the magnitude of such a characteristic is the Voltage Coefficient of Resistance Determination Procedure.

1.2 Precautions. Adherence to 4.1, applying voltage intermittently for not more than the total of 0.5 seconds in any 5 second interval is emphasized as an important consideration of this method. Failure to comply would result in a voltage coefficient of vast variations. A resistance measuring device capable of withstanding high voltage applications should be used. Certain types of resistors exhibit a variation of resistance with changes in potential difference, this effect being separate and distinct from the change in resistance due to heating effect whether from applied voltage or ambient conditions.

## 2. APPLICABLE DOCUMENTS

This section not applicable to this standard.

## 3. DEFINITIONS

This section not applicable to this standard.

## 4. GENERAL REQUIREMENTS

4.1. Procedure. The voltage coefficient is applicable only to resistors of 1,000 ohms and over. Unless otherwise specified in the individual specification, all measurements and tests shall be made at a temperature of 25°C ±5°C. Adjust the resistance measuring device to apply 0.1 X rated continuous working voltage to the resistor. Measure the resistance by applying this voltage intermittently for not more than the total of 0.5 second in any 5 second interval. Readjust the resistance measuring device to apply 1.0 X rated continuous working voltage to the resistor and repeat the above intermittent measuring procedure. Compute the Voltage Coefficient (VC) as follows:

$$VC = \frac{(R - r)100}{0.9Er}$$

Where:

- R = Resistance at rated continuous working voltage.
- r = Resistance at 0.1 rated continuous working voltage.
- E = Rated continuous working voltage.

## 5. DETAILED REQUIREMENTS

5.1. SUMMARY. The following detail is to be specified in the individual specification:

The continuous working voltage (see 4.1).

## 6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Supersession data. The main body and 38 parts of this revision of MIL-STD-202 replace superseded MIL-STD-202.

### Custodians:

Army - CR  
Navy - EC  
Air Force - 85  
DLA - CC

Preparing activity:  
DLA – CC

(Project 59GP-2015-039)

### Review activities:

Army - AR, AT, AV, CR4, MI, SM, TE  
Navy - AS, OS, SH  
Air Force - 19, 99  
NSA - NS

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