



**DEFENSE LOGISTICS AGENCY**  
DEFENSE SUPPLY CENTER, COLUMBUS  
PO BOX 3990  
COLUMBUS OH 43218-3990

IN REPLY  
REFER TO

DSCC-VAT (K Bernier/DSN 850-0563/(614)692-0563)

5 May 2008

MEMORANDUM FOR VSS

SUBJECT: Dated Engineering Practices Study of MIL-PRF-39006 Concerning a possible change in the measuring capability of the test equipment for intermittent contact on Shock (specified pulse), Random Vibration, and Vibration High Frequency;  
Project number 5910-2007-031

The subject engineering practices study is dated 5 May 2008. If you have any questions please contact the project officer Ken Bernier, by email at [Kenneth.bernier@dla.mil](mailto:Kenneth.bernier@dla.mil) or by phone at 614-692-0563.

Michael A. Radecki  
Chief  
Electronic Components Team



ENGINEERING PRACTICE STUDY

TITLE: Dated Engineering Practices Study Concerning a possible change in the measuring capability of the test equipment for intermittent contact on Shock (specified pulse), Random Vibration, and Vibration High Frequency;

PROJECT NUMBER 5910-2007-031

5 May 2008  
(approval date)

STUDY PROJECT (SEE ENCLOSED)

FINAL REPORT

Study conducted by Ken Bernier

Prepared by:

Ken Bernier  
DSCC-VAT

Approved by:

Michael A. Radecki  
Chief  
Electronic Component Team

EP STUDY for intermittent contact on Shock (specified pulse), Random Vibration, and Vibration High Frequency;  
Project number 5910-2007-031

OBJECTIVE:

Gather information on intermittent contact failures in Space and Military applications for Tantalum capacitors.

PROBLEM BACKGROUND:

At the GEIA G11 committee meeting on 23 May 2007, task 07-205; the subject of intermittent contacts was discussed. The conclusion was that newer equipment can detect open circuit/short circuit to a resolution in the nano second range. The suggestion was to change MIL-PRF-39006 open circuit/short circuit detection from 500uS to 100uS.

On June 27, 2007 an EP study was sent out to determine if a change in detecting intermittent contact was necessary. The current requirement is 500 microseconds for MIL-PRF-39006 product. A request was made to change the detecting time to 100 microseconds.

CURRENT INTERMITTENT CONTACT REQUIREMENTS

An inspection of MIL-PRF-39006 requirements for intermittent contacts states that the test equipment shall be capable of measuring any interruption of 500 microseconds or less.

PROPOSED CHANGE

An example of proposed change to intermittent contacts in MIL-PRF-39006 is as follows:

Paragraph 3.11 [Shock (specified pulse)]:

CHANGE FROM "When capacitors are tested as specified in 4.8.7, there shall be no momentary intermittent contacts of 0.5 ms or greater duration.

CHANGE TO "When capacitors are tested as specified in 4.8.7, there shall be no momentary intermittent contacts of 100  $\mu$ s or greater duration.

Paragraph 4.8.7c [Shock (specified pulse)]:

CHANGE FROM: "Detection equipment shall be sufficiently sensitive to detect any interruption of 0.5 ms or greater duration."

CHANGE TO: "Detection equipment shall be sufficiently sensitive to detect any interruption of 100  $\mu$ s or greater duration."

ATTEMPT TO GATHER INTERMITTENT CONTACT FAILURES DATA

I have requested information from users on the significance of a problem with intermittent contact of less than 500uS. To date I have no definitive data, only a comment that this may be a problem but is not repeatable. This information makes it difficult to go to the manufacturers and require a change.

CONCLUSION:

Given the fact that there is no hard data to support a change in intermittent contact measurement and the manufacturer's reluctance to purchase new equipment, I cannot justify a change in intermittent contact requirement at this time.

RECOMMENDATIONS:

If there is a need for a part to meet a lower intermittent contact time we suggest a new high reliability DSCC drawing to meet this lower intermittent contact time. Periodic repeatable occurrence of an intermittent contact may force a design change in MIL-PRF-39006 wet Tantalum capacitors.