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INCH-POUND
MIL-PRF 39018C
AMENDMENT 2
24 December 1993
SUPERSEDING
AMENDMENT 1
16 July 1993

PERFORMANCE SPECIFICATION

CAPACITORS, FIXED, ELECTROLYTIC (ALUMINUM OXIDE), ESTABLISHED RELIABILITY
AND NON-ESTABLISHED RELIABILITY, GENERAL SPECIFICATION FOR

This amendment forms a part of MIL-C-39018C, dated 7 January 1991, and is approved for use by all Departments and Agencies of the Department of Defense.

PAGE 4

*3.4.1, following the first sentence, add: "Capacitor bodies shall not be free to turn within the sleeving."

PAGE 5

Following 3.5.2.1.2, add:

*3.5.2.2 Tin plated finishes. Tin plating is prohibited as a final finish or as an undercoat. Tin-lead (Sn-Pb) finishes are acceptable provided that the minimum lead content is 3 percent (see 6.8)."

PAGE 9

3.29, delete in its entirety.

PAGE 12

*4.4.2, line 6, delete "XII" and substitute "XI".

PAGE 14

TABLE II, group XI, delete in its entirety.

PAGE 15

*TABLE II, delete "Group XII" and substitute "Group XI".

PAGE 17

*4.5.1.1.1, lines 2 and 3: Delete "in the same voltage group (see 30.1.2 of the appendix),".

PAGE 18

*TABLE III, Inspection column, Subgroup 2 (PPM), Mechanical examination: Delete "design and construction" and substitute "(dimensions only)".

*TABLE III, Sampling procedure column, Subgroup 4: Delete "13" and substitute "5".

*TABLE IV, delete in its entirety and substitute the following:

*TABLE IV. Sampling plans for PPM categories.

Lot size	Sample size	
	PPM-2 and subgroup 1 of table V	PPM-3
1 - 13	100%	100%
14 - 125	100%	13
126 - 150	125	13
151 - 280	125	20
281 - 500	125	29
501 - 1,200	125	34
1,201 - 3,200	125	42
3,201 - 10,000	192	50
10,001 - 35,000	294	60
35,001 - 150,000	294	74
150,001 - 500,000	345	90
500,001 - UP	435	102

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*TABLE V, Sampling procedure column, Subgroup 1: Delete "125 samples" and substitute "See table IV".

PAGE 20

*4.5.1.2.1.4.1, line 1: Delete "Thirteen" and substitute "Five".

PAGE 21

*4.5.1.2.1.4.2b, line 6: Delete "Thirteen" and substitute "Five".

PAGE 22

*TABLE VI, delete in its entirety and substitute the following:

*TABLE VI. Group B inspections.

Inspection	Requirement paragraph	Test method paragraph
<u>Subgroup 1</u>		
Terminal strength (not applicable to style CU81) <u>1/</u>	3.12	4.6.9
Stability at reduced and high temperatures <u>2/</u>	3.13	4.6.10
<u>Subgroup 2</u>		
Life (250 hours) (non-ER only)	3.14	4.6.11.2.1
<u>Subgroup 3</u>		
Reverse voltage aging (all polarized styles)	3.30	4.6.27

See footnotes on next page.

TABLE VI. Group B inspections - Continued.

- 1/ If the manufacturer can demonstrate that this test has been performed five consecutive times with zero failures, this test, with the approval of the qualifying activity, can be deleted. The manufacturer, however, shall perform this test every three years after the deletion as part of long term design verification. If the design, material, construction or processing of the part is changed, or if there are any quality problems, the qualifying activity may require resumption of the specified testing. Deletion of testing does not relieve the manufacturer from meeting the test requirements in case of dispute.
- 2/ If the manufacturer can demonstrate that this test has been performed five consecutive times with zero failures, the frequency of this test, with the approval of the qualifying activity, can be performed on an annual basis. If the design, material, construction or processing of the part is changed, or if there are any quality problems or failures, the qualifying activity may require resumption of the original test frequency."

*4.5.1.3.1. delete in its entirety and substitute the following:

"4.5.1.3.1 Sampling plan. The sample size used for all styles shall be eight with no failures permitted for subgroups 1 or 2, and one failure permitted for subgroup 3. If one failure does occur in subgroups 1 or 2, or two failures occur in subgroup 3, a second group of sample units shall be subjected to the test with no failure permitted. No failures by shorting shall be allowed. Sample units shall not be shipped on contract or purchase orders."

PAGES 23 AND 24

*TABLE VII. delete in its entirety and substitute the following:

"TABLE VII. Group C inspection.

Inspection	Requirement paragraph	Test method paragraph	Number of sample units to be inspected	Number of failures allowed 1/	
				Non-ER	ER
<u>Subgroup 1</u>					
Vibration	3.17	4.6.14	} 6	} 1	} 1
Shock (specified pulse) 2/	3.16	4.6.13			
Salt spray (corrosion) (all styles except CUB1 and CURB1) 3/	3.18	4.6.15			
Thermal shock and immersion 3/	3.19	4.6.16			
<u>Subgroup 2</u>					
Surge voltage 2/	3.20	4.6.17	} 6	} 1	} 1
Vent (when specified, see 3.1) 2/	3.21	4.6.18			
<u>Subgroup 3</u>					
Moisture resistance	3.22	4.6.19	12	1	1
Terminal strength (style CUB1 only) 3/	3.12	4.6.9	12	1	N/A

See footnotes at end of table.

*TABLE VII. Group C inspection - Continued.

Inspection	Requirement paragraph	Test method paragraph	Number of sample units to be inspected	Number of failures allowed ^{1/}	
				Non-ER	ER
<u>Subgroup 4</u>					
Barometric pressure (reduced) ^{3/}	3.24	4.6.21] 6] 1] 1
High temperature exposure	3.25	4.6.22			
<u>Subgroup 5</u>					
Life (1,750 hours) (non-ER only)	3.14	4.6.11.2.2	12	1	N/A
Life (10,000 hours) (ER only)	3.14	4.6.11.2.3	12	N/A	^{4/}
<u>Subgroup 6</u>					
Reverse voltage (styles CUI2, CUI3, CUR13, CUI6, CUI7, and CUR17 only) ^{5/}	3.26	4.6.23	6	1	1
<u>Subgroup 7</u>					
High temperature verification (styles CUI2, CUI3, CUR13, CUI4, CUI5, CUI6, CUI7, CUR17, CUR19, CU01, CU01, CU02, CU03, and CU04 only) ^{5/}	3.27	4.6.24	24	1	1
<u>Subgroup 8</u>					
AC verification (styles CUR91 and CUR92 only) ^{5/}	3.28	4.6.25	^{6/} 12	N/A	1

- ^{1/} A sample unit having one or more defects shall be considered as a single failure.
- ^{2/} (Not applicable for styles CUI4, CUI5, and CU81) If the manufacturer can demonstrate that this test has been performed five consecutive times with zero failures, the frequency of this test, with the approval of the qualifying activity, can be performed on a semiannual basis. If the design, material, construction or processing of the part is changed, or if there are any quality problems or failures, the qualifying activity may require resumption of the original test frequency.
- ^{3/} If the manufacturer can demonstrate that this test has been performed five consecutive times with zero failures, this test, with the approval of the qualifying activity, can be deleted. The manufacturer, however, shall perform this test every 3 years after the deletion as part of long term verification. If the design, material, construction or processing of the part is changed, or if there are any quality problems, the qualifying activity may require resumption of the specified testing. Deletion of testing does not relieve the manufacturer from meeting the test requirements in case of dispute.
- ^{4/} Number of allowable failures may vary depending on the failure rate level of the part being tested.
- ^{5/} (Not applicable for CUI4, and CUI5 in subgroup 7.) If the manufacturer can demonstrate that this test has been performed five consecutive times with zero failures, the frequency of this test, with the approval of the qualifying activity, can be performed on an annual basis. If the design, material, construction or processing of the part is changed, or if there are any quality problems or failures, the qualifying activity may require resumption of the original test frequency.
- ^{6/} Six units of each voltage group every 6 months."

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AMENDMENT 2

PAGE 25

*4.5.2.1.1, line 2: Delete "through 3." and substitute "and 2."

*4.5.2.1.1, line 4: Delete "4 through 9." and substitute "3 through 8."

*4.5.2.1.1b, line 2: Delete "4, 5, 7, 8, and 9" and substitute "3, 4, 6, 7, and 8"

*4.5.2.1.1b, line 4: Delete "6" and substitute "5".

PAGE 34

4.6.26, delete in its entirety.

PAGE 35

Following 6.7, add:

*6.8 Tin plated finishes. Tin plating is prohibited (see 3.5.2.2) because it may result in tin whisker growth. Tin whisker growth could adversely affect the operation of electronic equipment systems. For additional information, see ASTM B545, 'Standard Specification for Electrodeposited Coating of Tin.'

The margins of this amendment are marked with an asterisk to indicate where changes (additions, modifications, corrections, deletions) from the previous amendment were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous amendment.

CONCLUDING MATERIAL

Custodians:

Army - ER
Navy - EC
Air Force - 85

Review activities:

Army - MI
Navy - AS, CG, MC, OS, SH
Air Force - 17, 19, 99
DLA - ES

Preparing activity:

Navy - EC

Agent:

DLA - ES

(Project 5910-1875)