

MIL-E-5400T
AMENDMENT 3
14 MAY 1990

~~SUPERSEDING~~
AMENDMENT 2
9 May 1986

MILITARY SPECIFICATION

ELECTRONIC EQUIPMENT, AEROSPACE GENERAL SPECIFICATION FOR

This amendment forms a part of Military Specification MIL-E-5400T dated 16 November 1979, and is approved for use by all Departments and Agencies of the Department of Defense.

PAGE 1

Specification title: Delete and substitute the title of this amendment.

1.1 Scope, line 3: Change the period at the end of the first sentence to a comma and add: "missiles, boosters and allied vehicles."

PAGE 2

After equipment classification Class 4, add:

"Class 5 Equipment designed for altitudes greater than 100,000 ft for periods of time not exceeding 6 hours, and continuous sea level operation over the temperature range of -54° to +95°C (+125°C intermittent operation)."

3.1 Parts, materials and processes.

Delete and substitute the following:

"3.1 Parts, materials and processes. Parts, materials and processes recommended for use in the design and construction of aerospace electronic equipment are covered by the documents listed in Appendix A."

3.1.1 Selection of parts and materials.

In the first sentence, change "and shall be used" to "and are recommended for use."

PAGE 3

3.1.1 Selection of parts and materials.

In the sixth sentence, add a period after "Appendix A are not standard." and delete "and approval must be obtained prior to their use in equipment."

In the last sentence, delete "or material."

AMSC N/A

AREA GDRQ

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3.1.1.1.2 Contracts for equipment which fall under Categories II and III.

In the first sentence, delete the words "and materials, except for metals."

In the second and third sentences, delete the words "and materials."

PAGE 4

3.1.1.1.4 Time schedule of material approval requests.

Delete this paragraph from Section 3 and move same paragraph to Section 6 as paragraph 6.2.2.

PAGE 7

3.1.9 Grounding, line 2: Delete "Requirement 1" and substitute "Requirements 1 and 74."

PAGE 10

3.1.25 Tools (special), line 2: Change the period at the end of the sentence to a comma and add: "except that the contractor shall not mount tools in the equipment or make space provisions therefore unless required by the detail specification or contract."

PAGE 11

*3.1.36 Microelectronic devices.

Delete and substitute the following:

"3.1.36 Microelectronic devices. Microelectronic devices, including hybrids, shall be in accordance with MIL-STD-454, Requirement 64. Devices selected shall be connected by means of soldering, welding or the use of shape memory metal alloy connectors."

PAGE 13

Add: "3.1.59 Standard electronic modules. Standard electronic modules shall be in accordance with MIL-STD-454, Requirement 73. The use of standard electronic modules requires the approval of the procuring activity."

PAGE 24

6.1 Intended use, line 3: Change the period at the end of the sentence to a comma, and add: "used in piloted aircraft, missiles, boosters and vehicles used for short periods of time in space environments."

PAGE 25

6.2 Ordering data. Add the following to the listing under ordering data:

"i. Nonstandard material approval requirements (see 3.1.1, 3.1.1.1, 3.1.1.1.2, 3.1.1.1.5 and 6.2.2)."

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"6.2.2 Time schedule of material approval requests. The request for approval of nonstandard materials shall be made at the time that the material is selected for use in the equipment. The Government retains the right to request changes to the material, if the performance, description, test data or inspection of the material indicates that the material will not perform its intended function."

PAGE 27/28

6.7 Detail equipment specifications. Add the following to the listing under paragraph 6.7:

"r. Nonstandard materials approval requirements (see 3.1.1, 3.1.1.1, 3.1.1.1.2, 3.1.1.1.5 and 6.2.2)."

PAGE 29

TABLE I. Environmental conditions. Delete the table and substitute new Table I of this amendment.

PAGE 40

Document number ANSI-Z-35.1-1968: Delete "1968" in document number and substitute "1972."

PAGE 41

Document number MIL-B-5087: In last column, add ",74:"

PAGE 44

Document number MIL-STD-1472: In last column, add "1,36,."

PAGE 45

Document number MIL-STD-196: In last column, add ",67."

PAGE 47

Document number FED-STD-No. 406: Delete "No." from the document number.

PAGE 48

Document number MIL-P-55640: Delete the following completely from list:

"Printed Wiring Boards, Multilayer MIL-P-55640 17
(Plated-Through Hole)"

Document number MIL-STD-275: In last column, delete ",36."

PAGE 49

Document number MIL-HDBK-217: In last column, delete "15" and substitute "35."

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PAGE 51

Document number MIL-T-7928: In last column, add "19,."

Document number MIL-T-22361: In last column, add "12."

PAGE 52

Add: "Welding Symbols ANSI Y32.3-1969 13."

PAGE 53

Document number MIL-S-1222: In second column, delete "1" and substitute "12."

Document number MIL-B-5087: In second column, add ",74."

Document number MIL-W-5486: Delete "5486" and substitute "5846."

Document number MIL-T-7928: In last column, add "19,."

PAGE 54

Document number MIL-C-22759: Delete "C" from document number and substitute "W." In second column, add ",71."

Document number MIL-P-55640: Delete "MIL-P-55640 17" completely from list.

PAGE 55

Document number MIL-STD-188: Delete "MIL-STD-188" completely from list.

Document number MIL-STD-275: In second column, delete "36."

Document number MIL-STD-883: In last column, add "5,."

PAGE 56

Document number MIL-STD-1472: In second column, add ",36."

Document number MIL-HDBK-217: In second column, delete "15" and substitute "35."

Document number ANSI Y32.3-69: In last column, add "13."

The margins of this amendment are marked with an asterisk (*) to indicate where changes 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.

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*TABLE I. Environmental conditions.

Equipment class	Equipment operating						Equipment nonoperating		
	Temperature extremes for the chamber (without external cooling provisions)			Combined temperature-altitude			Altitude	Temperature extremes	
	Column I continuous	Column II intermittent	Column III short-time	Column IV	Column V	Column VI	Column VII	Temperature shock	
Class 1	-54°C +55°C	30 min. +71°C	---	Defined by curve A, figure 3 (sheet 1)	Defined by curve B, figure 3 (sheet 1)	---	Sea level (30.0 in. Hg.) (3.4 in. Hg.) 50,000 ft.	Column IX -57°C to +85°C	Column X -57°C to +85°C
Class 1A	-54°C +55°C	30 min. +71°C	---	Defined by curve A, figure 3 (sheet 1)	Defined by curve B, figure 3 (sheet 1)	---	Sea level (30.0 in. Hg.) (8.89 in. Hg.) 30,000 ft.	-57°C to +85°C	-57°C to +85°C
Class 1B	-40°C +55°C	30 min. +71°C	---	Defined by curve A, figure 3 (sheet 1)	Defined by curve B, figure 3 (sheet 1)	---	Sea level (30.0 in. Hg.) (16.89 in. Hg.) 15,000 ft. <u>1</u>	-57°C to +85°C	-57°C to +85°C
Class 2	-54°C +71°C	30 min. +95°C	---	Defined by curve A, figure 3 (sheet 2)	Defined by curve B, figure 3 (sheet 2)	---	Sea level (30.0 in. Hg.) (1.32 in. Hg.) 70,000 ft.	-57°C to +95°C	-57°C to +95°C
Class 3	-54°C +95°C	30 min. +125°C	10 min. +150°C	Defined by curve A, figure 3 (sheet 3)	Defined by curve B, figure 3 (sheet 3)	Defined by curve C, figure 3 (sheet 3)	Sea level (30.0 in. Hg.) (0.32 in. Hg.) 100,000 ft.	-57°C to +125°C	-57°C to +125°C
Class 4	-54°C +125°C	30 min. +150°C	10 min. +260°C	Defined by curve A, figure 3 (sheet 4)	Defined by curve B, figure 3 (sheet 4)	Defined by curve C, figure 3 (sheet 4)	Sea level (30.0 in. Hg.) (0.32 in. Hg.) 100,000 ft.	-57°C to +150°C	-57°C to +150°C
Class 5	-54°C +95°C	30 min. +125°C	---	Same as Class 3 <u>2</u>	---	---	Sea level (30.0 in. Hg.) (10-10 in. Hg.) 2,000,000 ft.	-57°C to +125°C	-57°C to +125°C

1/ Altitude range shown is for operation only.

2/ Classes 1A and 1B equipment shall withstand a nonoperating altitude of 40,000 feet (5.5 in. Hg.). For altitude above 100,000 ft., the equipment's surrounding environment shall not exceed 71°C and means shall be available for reflection of heat into the surroundings by conduction, radiation or some other means.

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Custodians:

Army - CR
Navy - AS
Air Force - 11

Preparing activity:

Navy - AS
(Project No. GDRQ-0095)

Reviewer activities:

Army - MI, AR
Navy - EC
Air Force - 99

User activity:

Army - AV