DOD-STD-480A
NOTICE 1
29 December 1978

## MILITARY STANDARD

## CONFIGURATION CONTROL

## ENGINEERING CHANGES, DEVIATIONS

## AND WAIVERS

TO ALL HOLDERS OF DOD-STD-480A

1. The following page has been revised and superseded by the page listed:

| NEW PAGE | DATE | SUPERSEDED PAGE | DATE |
|----------|------|-----------------|------|
| 69 | 29 Dec 78 | 69 | 12 Apr 1978 |

2. An Appendix F has been added having the following pages:

| NEW PAGE | DATE |
|----------|------|
| 70 - 75 | 29 Dec 78 |

3. RETAIN THIS NOTICE AND INSERT BEFORE TABLE OF CONTENTS.

4. Holders of DOD-STD-480A will verify that page changes and additions indicated above have been entered. This notice page will be retained as a check sheet. This issuance, together with appended pages, is a separate publication. Each notice is to be retained by stocking points until the Military Standard is completely revised or canceled.

Lead service activity:
  Navy - NM

Preparing activity:
  Navy - AS

Custodians:
  Army - AR
  Navy - AS
  Air Force - 10

Review activities:
  Army - AR, MI, EL,
  Navy - AS, EC, OS, SH, YD, CG
  Air Force - 10, 11, 26
  Marine Corps - MC
  DLA - DH
  DOD - NS, DC, DS

Project Number:
  CMAN - D001

\* 110.60  <u>Acronynoms</u>

| | |
|---|---|
| ACI | Allocated configuration Identification |
| A&E | Architectural engineering |
| AGE | Aerospace ground equipment |
| AQL | Acceptable quality level |
| CD | Classification of defects |
| CFE | Contractor furnished equipment |
| CI | Configuration item |
| CPCI | Computer program configuration item |
| DOD | Department of Defense |
| ECP | Engineering change proposal |
| EID | End item description (now ECP) |
| GFE | Government furnished equipment |
| FCI | Functional configuration identification |
| FSCM | Federal supply code for manufacturers |
| I&C | Installation and checkout |
| ILS | Integrated logistics support |
| I/O | Input/output |
| MIPR | Military interdepartmental purchase request |
| MRB | Material review board |
| NOR | Notice of revision |
| PCA | Physical configuration audit |
| PCI | Product configuration identification |
| RPIE | Real property installed equipment |
| SE | Support equipment |
| SCN | Specification change notice |
| WBS | Work breakdown structure |

Supersedes page 69 of 12 Apr 1978

APPENDIX F

GUIDANCE FOR THE TAILORING OF
DOD-STD-480A TO SPECIFIC PROGRAM REQUIREMENTS

120     Purpose. This appendix sets forth guidance for the cost effective application of the requirements for DOD-STD-480A to specific program requirements.

121     Scope. This appendix identifies specific paragraphs in DOD-STD-480A that are most likely to be the source of excessive costs and provides guidance for possible tailoring of requirements. This appendix is to serve as a guide for the activity responsible for the preparation of contract requirements, and as such, shall not in itself form a part of the contract. It is not the intent of this Appendix to tailor requirements to satisfy individual contractor desires. The guidelines contained herein implement the DOD policy issued under DOD Directive 4120.21 which requires all DOD components to selectively apply and tailor military specifications and standards prior to their contractual imposition.

122     General. Paragraphs and subparagraphs of DOD-STD-480A identified as potential cost drivers toward which tailoring should be aimed to improve contractural application are as follows:

a.    1.2     Application

b.    1.2.1    (No heading)

c.    2.0     REFERENCED DOCUMENTS

d.    4.2     Classification (of ECPs)

e.    4.3     Engineering change justification

f.    4.4     Class I ECP types

g.    4.5     Class I engineering change priorities

h.    4.8.3    Related engineering changes-single prime

i.    4.8.7    Supporting data

j.    4.9.1.1  Class I compatibility engineering change

k.    4.9.2    Class II engineering changes

l.    4.9.5    Target for decision on Class I ECPs

123    Specific paragraph guidance.  For potential cost driver para-
graphs of DOD-STD-480A, identified by number and heading, the following
guidance is provided:

    a.    1.2        Application

    b.    1.2.1      (No  heading).  For  effective  utilization  of  the
standard, its application must be tailored to the program life
cycle phase and the requirements and complexity of the config-
uration item.  To be cost effective, it is essential to avoid
premature or late establishment of base line documentation.

    c.    2.    REFERENCED DOCUMENTS. The documents referenced in DOD-STD-
480A, where they are referenced (shown in parenthesis), and
the extent to which they are applicable, are as follows:

        (1)    MIL-STD-481 (Foreword) is addressed only to clarify
when DOD-STD-480A should be utilized and does not
form a part of this standard.

        (2)    MIL-STD-109, (7.2.1(a), 7.2.2(a), 7.2.3(a), 8.2.1(b),
8.2.2(b), 8.2.3(a)), is cited to define minor, major
and critical deviations and waivers.

        (3)    MIL-STD-280 (Appendix E, 110.33) is applicable only
for defining interchangeable, substitute and replace-
ment items when determining the classifications.

        (4)    MIL-STD-490 (4.8.7.1.1) is applicable only to the
extent that the instructions contained therein are
to be utilized for the preparation of proposed SCNs
for ECPs and associated page(s) when the speci-
fication affected bears the originator's or acquir-
ing activity's name and FSCM number.

    d.    4.2  Classification of ECPs.  The  following  is  guidance  for
cost effective application of Class I ECPs to base line docu-
mentation during various life cycle phases:

        (1)    Program initiation (conceptual phase).  Class I ECP
control is not normally applied; however, if program
requirements result in an overwhelming necessity for
the imposition of this level of control, it should
be applied by imposition of a base line which identi-
fies the minimum essential functional characteristics
and primary interfaces.

        (2)    Demonstration/validation phase.  Class I ECP control
may be applied to the functional and allocated base
line requirements.

(3) <u>Full scale engineering development</u>. Class I ECP control may be applied to the functional and allocated base line requirements with control of the allocated base line requirements subject to tailoring as follows:

    (a) Previously developed CIs, e.g., GFE and CFE, may be identified in the allocated base line, but, controlled by the application of DOD-STD-480A to the product base line.

    (b) The allocated base line(s), if established, should be flexible to avoid premature commitments to specific detailed performance requirements and resultant ECP cost to effect a change. Cost effective application of Class I ECP control may be accomplished by incremental approval of the allocated base line documentation; e.g., establishment of an "initial" allocated base line with top level or key CI specifications. The remaining CI specifications required for the program are provided for Government review and concurrence, but are not incorporated in the allocated base line (approved) until the specified detail performance requirements have been defined and Government concurrence is provided. Until the point of incorporation in the allocated base line, these unincorporated specifications are maintained under contractor change control in lieu of Class I ECPs during Government review and concurrence and prior to incorporation in the allocated base line. A request for copies of all changes to these CI specifications may be made in the contract and, on an exception basis, justification for a change may be requested.

    (c) Under certain conditions, program requirements may dictate the incorporation of a CI specification in the allocated base line prior to the time that all required information is available or has been defined to the degree desired for allocated base line control. The Government and contractor may contractually recognize this situation and provide for the addition of the initially missing information. The specific method; e.g., SCN and added pages, should be identified in the contract.

(d) Factors identified in paragraph 4.2.1e of DOD-STD-480A, which pertains only to product base line documentation should not be imposed during full scale engineering development, since this results in a level of control on contractor documentation not appropriate to functional or allocated base line control.

(4) <u>Production/deployment phase</u>

(a) The product base line should not normally be established before changes resulting from development testing and production/manufacture testing, e.g., first article, are incorporated.

(b) Class I ECP control should be imposed down to the lowest level at which the CI will be repair-ed or maintained (reference 4.2.1e(9) of DOD-STD-480A).

(5) <u>Computer program configuration items</u>. The configuration control over computer program configuration items may introduce a series of documentation terms and change control classification factors which differ from those in DOD-STD-480A. In such case, the standard should be tailored to clearly define which documents comprise which base line and which factors control the classification of changes.

e. 4.3 <u>Engineering change justification</u>. Use of the codes to justify engineering changes necessary to the Government (codes D, O, P & A) may conflict with other contractual clauses, particularly in relation to other "deficiencies" clauses in the contract. Such other deficiencies clauses impose penalties on contractural financial arrangements; as a result, there may be a reluctance on the part of contractors to define ECPs that are corrections of deficiencies. This reluctance becomes significant where the changes deal with either safety and/or interface characteristics (Codes S and C), since they have connotations reserved for mistakes, poor system engineering practices, etc., and fall under the general heading of "deficiencies". The penalties of the contractual deficiencies clause may cause avoidance of coding under DOD-STD-480A and result in a loss of desired effects the changes would bring. Through careful tailoring of this paragraph and other deficiencies contractual clauses, the justification codes can be restored to their regular use without inferring any wrong doing, penalties, etc., and the other contractural deficiencies clauses, to their contractually separate and intended purposes.

73

f.  4.4 Class I ECPs types. The principle difference between preliminary and formal ECPs is the availability of information necessary to define the complete scope and effect of a given Class I change. In the case of a preliminary Class I ECP, the exact content desired is deliberately left open but is considered to be less than that of a formal ECP. As a result, much is left open to the subjective judgement and preliminary ECPs have in the past gradually grown in content, cost to prepare, and time required for preparation. Restraint should be exercised in requesting information not readily available or which requires additional contractor effort, as testing, studies of cost analysis, etc.

Where possible consideration should be given to tailoring the requirements of para 4.4 to allow for an expeditious and least cost approach to determine whether preparation and submission of a preliminary ECP is necessary. Consideration should be given to the use of an Advance Change Study Notice (ACSN), MIL-STD-483, DI-E-3122, in lieu of a preliminary ECP.

When the change required involves items no longer procurable and there is no increase in contract cost, a preliminary ECP may be useful. The logistics data may not be available and its use may preclude contract delay.

g.  4.5 Class I engineering change priorities. Tailoring activities in this area should be carefully reviewed to assure full awareness of the impact which deletion or limitation of a specific priority code can have on Government options in the change control area. Specifically, some contracts have attempted to restrict the availability of both "urgent" and "emergency" priority codes to certain ECP justification code categories; e.g., allowing all 3 priority codes (emergency, urgent and routine) to be applied only to those ECPs bearing an "O" - operational or logistics support justification code, with a corresponding limitation of all other ECPs to a "routine" status only.

This practice can deny the Government the advantages of reduced cost which could result from the expeditious review and approval of Class I ECPs in the justification codes, P - production stoppage, or R - cost reduction. Also, some contracts have deleted sub-paragraphs 4.5.2(c) (d) and (e) from usage within the "urgent" priority code. This can have the same effect as precluding Code P, Code B, Code V, and Code R justified Class I engineering changes from any but "routine" handling by the Government. Those responsible for tailoring must remain alert to and aware of the cost driving results which a contract limited to "routine" priority designation can produce.

h. 4.8.3 Related engineering changes - single prime. Changes to related configutation items (CI) being produced by a single "prime" contractor may be submitted and approved on a single ECP, unless it is not technically feasible because of the impact on other CIs or for reasons of acquiring activity organization and funding structure.

i. 4.8.7 Supporting data. The extent of supporting data to be submitted with an ECP should be limited to the data which are necessary to understand and evaluate the ECP. Sketches and test results, in lieu of drawings, may suffice in some instances.

j. 4.9.1.1 Class I compatibility engineering change. This paragraph of DOD-STD-480A, should be reviewed carefully, and tailored appropriately in RFP/contractual applications to avoid potential abuses which may occur due to misinterpretation and, which can contribute to costly results not in keeping with other facets of Configuration Management precepts.

To preclude costly reaccomplishments of compatibility changes subsequent to the development of additional information relative to the need for change, contracts may be tailored to provide for timely government review and/or concurrence of planned contractor actions. One method of providing for the pre-implementation review is the contractual establishment of a period for Government review and response prior to contractor implementation.

k. 4.9.2 Class II engineering changes. Paragraph 4.9.2.2, requiring each Class II change be approved by the Government, should be applied only in exceptional cases and when applied, may be tailored to utilize contractor format (ref. 4.6.2).

l. 4.9.5 Target for decision on Class I ECPs. Processing schedules for Class I ECPs will be tailored to minimize the turn-around time to the originator recognizing the program/ system complexity within the delegated authority of the cognizant program/project/product manager. The schedules established should consider the impact on effectivities, delivery of hardware, and ECP pricing when turn around time is excessive.