

MIL-F-12717 (ORD)

13 May 1953

SUPERSEDING

Army 51-78-93

30 December 1947

MILITARY SPECIFICATION

FILTERS, RAY, GLASS, FINISHED, AND BLANKS

This specification consists of this cover sheet and Specification 51-78-92 dated 30 December 1947, attached hereto, without modification

When a request for this specification is received by a supplying activity it will be necessary to attach this cover sheet to the pertinent specification before issue.

Copies of specifications required by contractors in connection with specific procurement functions should be obtained from the procuring agency or as directed by the contracting officer

Custodian:

Army - Ordnance Corps

U. S. ARMY
SPECIFICATIONS

No. 51 - 78 - 93
30 DECEMBER 1947

FILTERS, RAY, GLASS, FINISHED, AND BLANKS
AND PLATES

A. APPLICATION SPECIFICATIONS

A-1. The following specifications, of the issue in effect of invitation for bids, form a part of this specification

U. S. Army Specifications:

No. 51-7. Instruments, Fire Control: General Specification Governing the Manufacture and Inspection of.

No. 51-70-2. Optical Components for Fire Control Instruments; General Specification Governing the Manufacture, Assembly and Inspection of.

A-2 Applicable drawings furnished by the contracting officer in connection with the contract, form a part of this specification.

B. Types

B-1 This specification covers finished ray filters and the colored glass blanks and plates therefor.

B-1a. Colored glass.-Finished **ray filters blanks and plates** shall be made of colored glass of **optical quality of the following and/or drawings.**

Type I, Amber.

Type II, Blue

Type III, Red

Type IV, Neutral.

B-2 The glass shall be furnished as finished **ray filters or unfinished ray filters** in the form of flat plates or **formed blanks, as** specified by the contract and/or drawings.

C. Material AND WORKMANSHIP

C-1. Material and workmanship shall be in accordance with the drawings, and applicable specifications.

D. General Requirements

D-1. Unless otherwise specified herein all applicable requirements and associated tests as specified in U. S. Army Specification No. 51-70-2, Optical Components for Fire Control Instruments; General Specification Governing the Manufacture Assembly and Inspection of, shall apply.

D-2 Plates

D-2a. Dimensions.- Unless otherwise specified, plates shall be square or rectangular, with sides not less than 2 inches long. In rectangular plates the length of the long side shall not be greater than three times the length of the short side

D-2b. Limiting sizes of defects.- The total projected area of all bubbles and seed on a polished surface, when examined visually shall not exceed 0.1 percent of the surface per 10 centimeters, (3.94 inches) of light path and the total number of bubbles and seeds

shall not exceed 1 per cubic centimeter (0.061 cubic inch). In no case shall the mean diameter of any individual bubble exceed 0.021 inch. (0.58 millimeter).

D-2c. Striac shall be light and scattered when viewed in the direction of maximum visibility. The striac shall be just above the limit of visibility..

D-2d. Color characteristics of a specimen or specimens within a thickness range of 1.5 to 3.0mm, representative of a lot of plates shall conform to the requirements of section E.

D-3. Formed blanks.

D-3a. Dimensions - Thickness shall be as specified in the contract with in the following tolerances:

Diameter of blank	Tolerance Of thickness	
	Plus	Minus
10 mm to 40 mm	3 mm	0 mm
41 mm to 75 mm	4 mm	0 mm

Unless otherwise specified, blanks shall be circular. Diameters shall be as specified in the contract within a tolerance of plus 2 mm minus 0.

D-3b. Limiting sizes of defects.

D-3b(1). Formed blanks intended for use as a finished filter which lies internally in an optical system shall not contain more than one bubble, seed, stone or inclusion visible to the unaided eye. No defect shall larger than 0.008 inch (0.23 millimeter) in mean diameter, tanks othemwise specified on the drawing to meets better

D-3b(2) Formed blanks intended for use as a finished filter which lie between eyelens and the exit pupil of an optical system not contain bubbles larger than 0.008 inch (0.20 millimeter) in diameter and in other formed blanks the bubbles shall not be larger than 0.020 inch (0.50 millimeter) in mean diameter. The total projected area of the bubbles visible to the unadded eye shall be not more than 0.025 percent of the projected area of the blank except that then may be at least one bubble per blank but never more than eight. All bubbles shall be scattered.

D-3c Color characteristics of a specimen, or specimens within a thickness range of 1.5 to 3.0 mm, representative of a lot of formed blanks shall conform to the requirements of section E

D-3d Striac- Shall be light and scattered when viewed in the direction of maximum visibility. The striae shall be just above the limit of visibility

D-4 Finished ray filters.

D-4a Dimensions shall be as specified on the drawing.

D-4b. Limiting sizes of defects shall be as specified on the drawing or as specified in U. S. Army Specification No. 51-70-2.

D-4c. Color characteristics of a finished ray filter within a thickness range of 1.5 to 3.0 mm shall conform to the requirements of section E.

D-4d Strias. - The finished my filter shall contain no visible striae.

(No. 51-73-92)

E. DETAIL REQUIREMENTS

E-1. Color characteristics.- With reflection losses include the trilinear coordinate values (dominant wave length, excitation purity and transmission) for Standard Illuminant C of a filter within a thickness range of 1.5 to 3.0 mm shall be within the maximum and minimum tolerances specified for that particular type.) (see paragraph H-1 for preferred limits for each type.)

F. Methods Of INSPECTION AND TESTS

F-1. Unless otherwise specified, 100 percent inspection shall be made of plates, formed blanks, and finished ray filters for conformity with this specification.

F-2. Approval of design. - At the start of a given contract the contractor shall submit a ground and polished filter representative of the filter color characteristics to the contracting officer for approval. Upon approval the contracting officer will furnish to contractor maximum and minimum standard filters for comparison as a guide in mass production inspection. These standards shall be returned as soon as the contractor can duplicate two sets. One set will be set aside for the contractor's standard and the other shall be furnished to the Ordnance inspector for inspection standards.

F-3. Each plate, blank, or finished filter shall be inspected through the flats for striae in accordance with Method 1, U. S. Army Specification No. 51-70-3 Glass, Optical.

G. PACKING AND MARKING

G-1. Packing and marking shall be in accordance with U. S. Army Specification No. 51-7.

H. NOTES

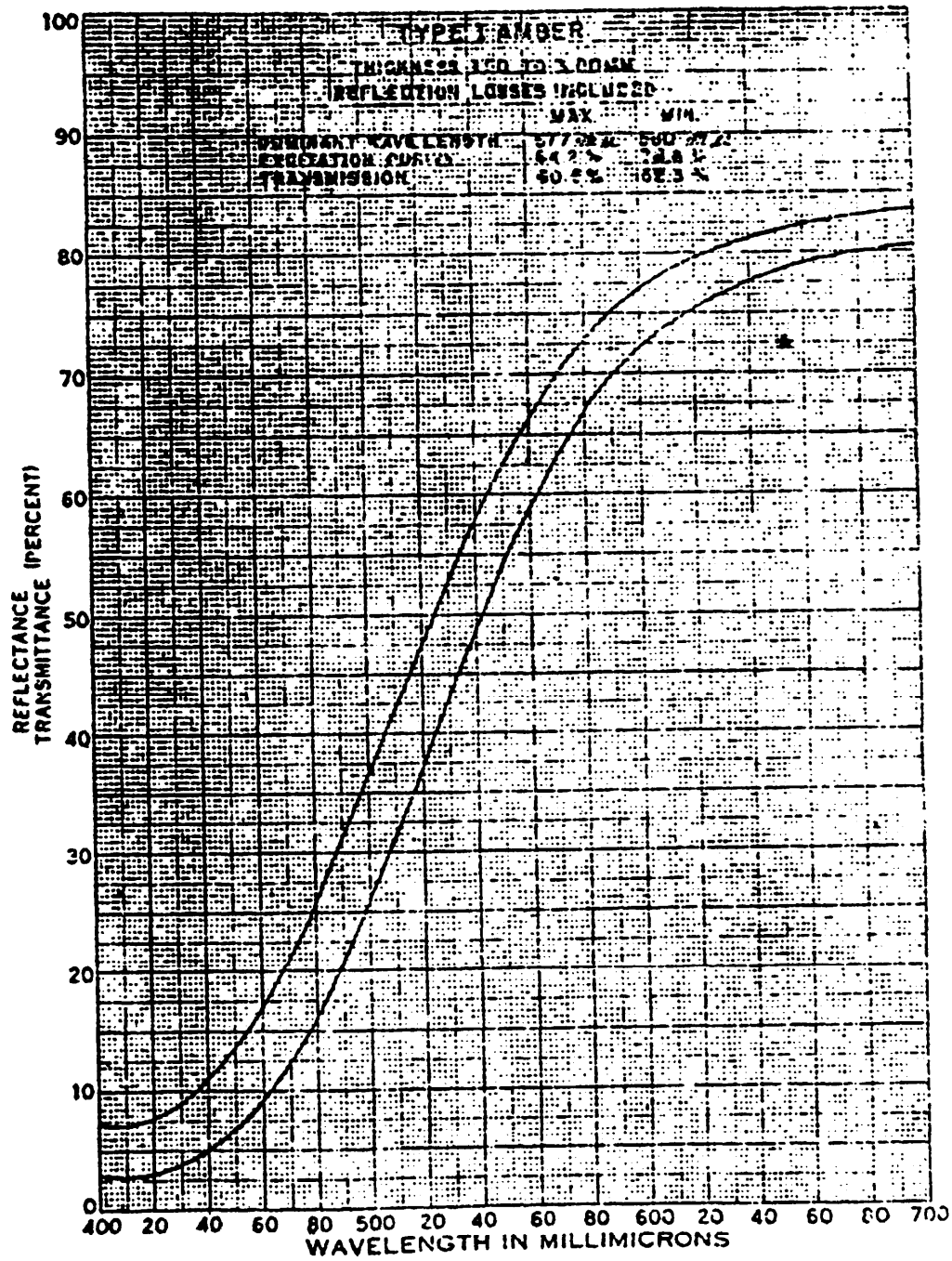
H-1. Color characteristic limits.- For informative purposes, at attached figures, Types I, II, III, and IV, indicate the special transmission curves corresponding closely to the maximum and minimum limits of the trilinear coordinate value, for each type of filter.

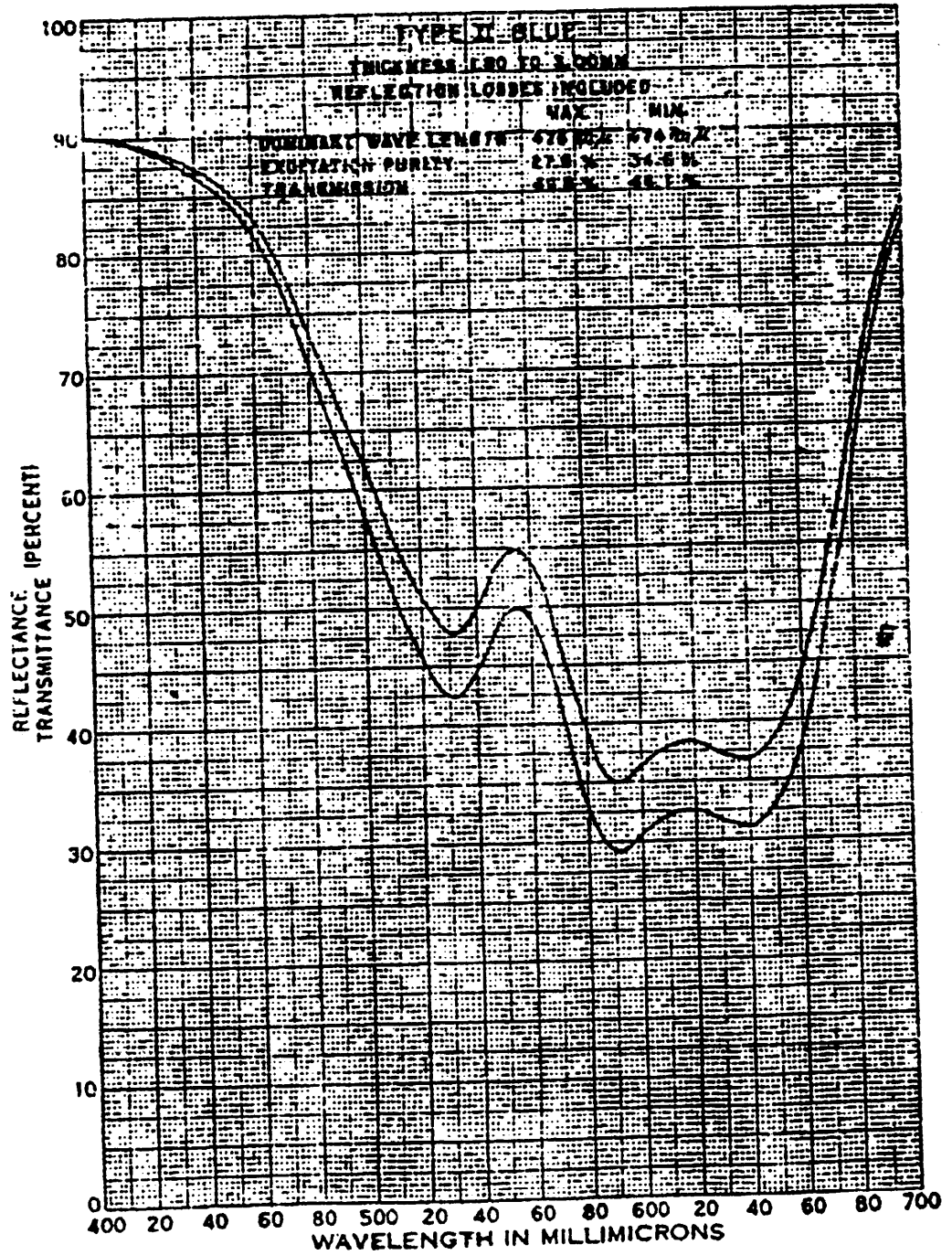
H-2. This specification replaces Frankford Arsenal Tentative Specification FXS-269, Rev. 4.

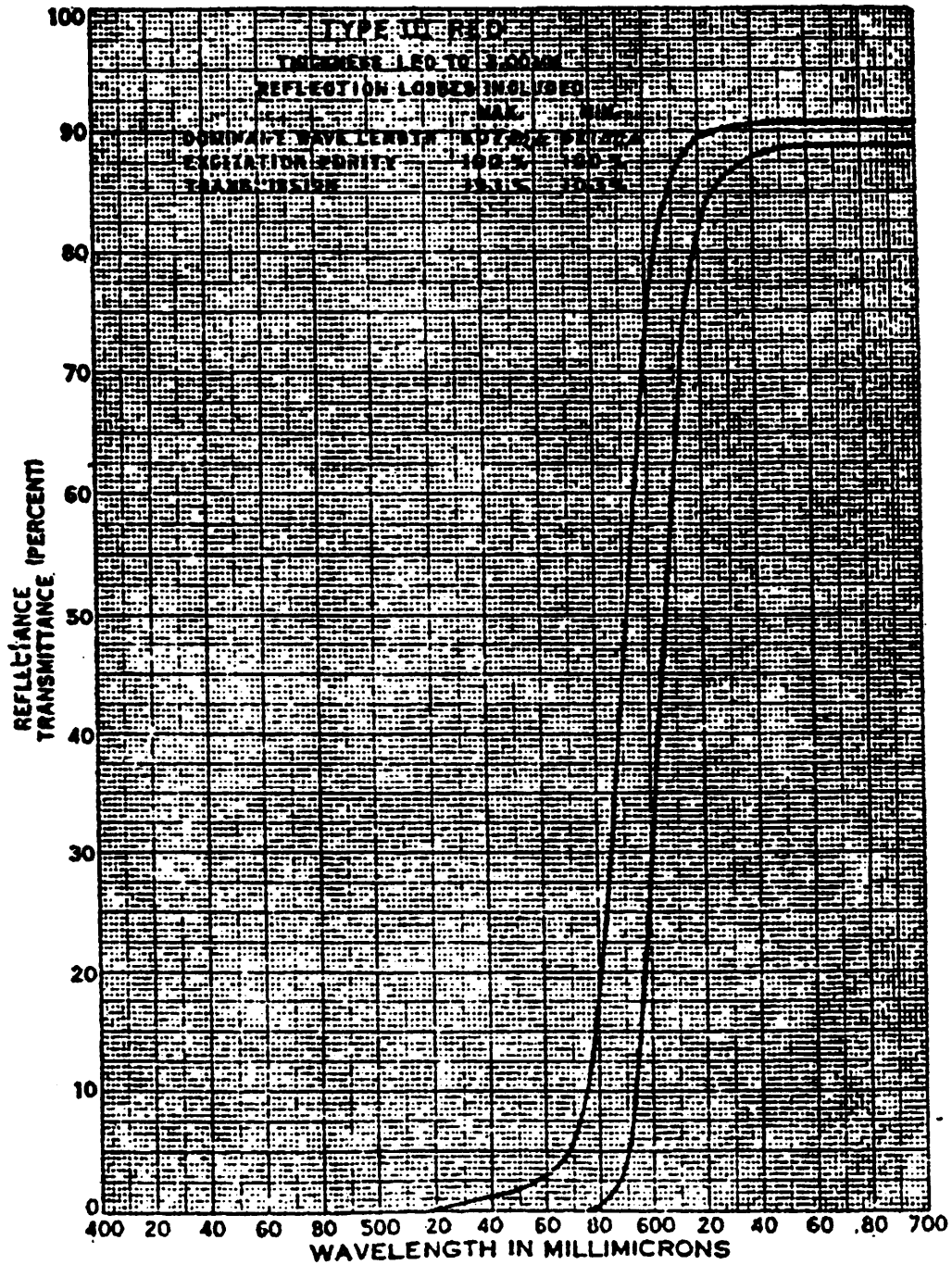
H-3. The use of this specification whenever applicable is mandatory on all procuring agencies of the Army.

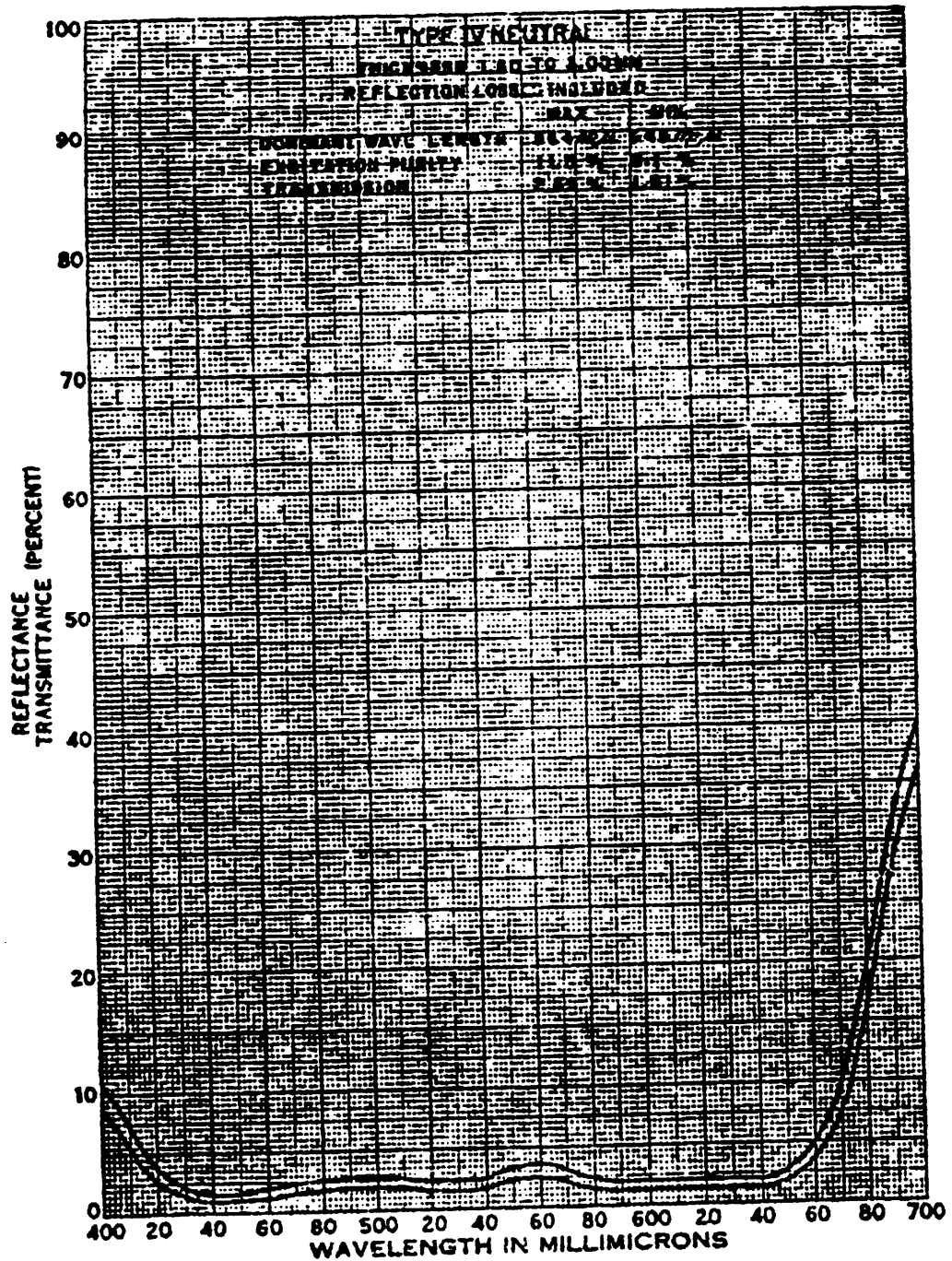
Notice - This specification, together with specifications and drawings pertaining to it and bearing a "Notice" of similar restrictions, is intended for use only in connection with procurement by the United States Government and shall not be reproduced either wholly or in part; except when authorized in connection with Government procurement nor be used for any other purpose except when specifically authorized by the Chief of Ordnance.

Note - Copies of this specification may be obtained from the Office Chief of Ordnance, Department, of the Army, Washington 25, D.C.









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SPECIFICATION ANALYSIS SHEET

Form Approved
Budget Bureau No. 119-R004

INSTRUCTIONS

This sheet is to be filled out by personnel either Government or contractor, involved in the use of the specification in procurement of products for ultimate use by the Department of Defense. This sheet is provided for obtaining information on the use of this specification which will insure that suitable products can be procured with a minimum amount of delay and at the least cost. Comments and the return of this form will be appreciated. Fold on lines on reverse side, staple in corner, and send to preparing activity (as indicated on reverse hereof).

SPECIFICATION

ORGANIZATION (of submitter)

CITY AND STATE

CONTRACT NO.

QUANTITY OF ITEMS PROCURED

DOLLAR AMOUNT

\$

MATERIAL PROCURED UNDER A

☐

DIRECT GOVERNMENT CONTRACT

☐

SUBCONTRACT

1. HAS ANY PART OF THE SPECIFICATION CREATED PROBLEMS OR REQUIRED INTERPRETATION IN PROCUREMENT USE?

A. GIVE PARAGRAPH NUMBER AND WORDING.

B. RECOMMENDATIONS FOR CORRECTING THE DEFICIENCIES.

2. COMMENTS ON ANY SPECIFICATION REQUIREMENT CONSIDERED TOO RIGID

3. IS THE SPECIFICATION RESTRICTIVE?

☐

YES

☐

NO IF "YES", IN WHAT WAY:

4. REMARKS (Attach any pertinent data which may be of use in improving this specification. If there are additional papers, attach to form and place both in an envelope addressed to preparing activity)

SUBMITTED BY (Printed or typed name and activity)

DATE