18 August 1987
SUPERSEDING
MIL-C-44050
15 September 1981

MILITARY SPECIFICATION

CLOTH, BALLISTIC, ARAMID

This specification is approved for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This document covers untreated and water-repellent treated aramid ballistic cloth.

1.2 Classification. The aramid ballistic cloth shall be of the following types and classes as specified (see 6.2):

Type I - 8.25 oz/sq. yd. (fragmentation protection)
Type IA - 8.25 oz/sq. yd. (bullet protection)
Type II - 14.0 oz/sq. yd.
Class 1 - Untreated
Class 2 - Water-repellent treated

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Documents. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents shall be those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation.

Beneficial comments (recommendations, additions and deletions) and any pertinent data which may be used in improving this document should be addressed to U.S. Army Natick Research, Development and Engineering Center, Natick, MA 01760-5014, by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A FSC 8305

SPECIFICATIONS

FEDERAL

V-T-285 - Thread, Polyester
V-T-295 - Thread, Nylon
PPP-P-1133 - Packaging of Synthetic Fiber Fabrics

MILITARY

MIL-P-46593 - Projectile, Calibers .22, .30, .50 and 20MM Fragment-Simulating

STANDARDS

FEDERAL

FED-STD-191 - Textile Test Methods
FED-STD-751 - Stitches, Seams, and Stitching

MILITARY

MIL-STD-662 - V_{50} Ballistic Test for Armor

(Copies of documents required by contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting activity.)

2.1.2 Other Government documents. The following other Government documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues shall be those in effect on the date of the solicitation.

Rules and Regulations Under the Trade Fiber Products Identifications Act

(Copies may be obtained without charge from the Federal Trade Commission, Washington, DC 20580.)

2.2 Other publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DOD adopted shall be those listed in the issue of the DODISS specified in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS shall be the issues of the nongovernment documents which are current on the date of the solicitation.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

D-885 Tire Cords, Tire Cord Fabrics, and Industrial Filament Yarns Made From Man-Made Organic-Base Fibers.

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.)

NATIONAL INSTITUTE OF JUSTICE

NIJ Standard 0101.03 - Ballistic Resistance of Policy Body Armor

(Application for copies should be addressed to: National Institute of Justice, National Criminal Justice Reference Service, Washington, DC 20531.)

(Technical society and technical association documents are generally available for reference from libraries. They are also distributed among technical groups and using Federal agencies.)

2.3 Order of precedence. In the event of conflict between the text of this document and the references cited herein, the text of this document shall take precedence. Nothing in this document, however, shall supersede applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 Material.

3.1.1 Fiber. Types I, IA, and II cloth shall be made from virgin para-aramid fiber (see 6.3).

3.1.2 Yarn.

3.1.2.1 Type I and IA. The warp and filling yarns shall be continuous filament, 1000 denier (nominal) and shall have a minimum average fiber tenacity of 20.0 grams per denier. No individual fiber tenacity value of the yarn shall be less than 19 grams per denier. The warp yarns shall have a minimum of 1.5 turns per inch.

3.1.2.2 Type II. The warp and filling yarns shall be continuous filament 1500 denier (nominal) and shall have a minimum average fiber tenacity of 20.0 grams per denier. No individual fiber tenacity value of the yarn shall be less than 19 grams per denier. The warp yarns shall have a minimum of 1.5 turns per inch.

3.2 Color. The color of the cloth shall be as produced from the fiber provided by the manufacturer. No bleach or color modifier shall be used.

3.3 Physical requirements. The physical requirements for the finished cloth shall be as specified in table I when tested as specified in 4.2.3.

TABLE I. Physical requirements

Characteristics	Requirements			
	Types I and IA		Type II	
	min.	max.	min.	max.
Weight per sq. yard ounces	8.0	8.5	13.5	14.5
Yarns per inch:				
Warp	30	---	35	---
Filling	30	---	35	---
Yarn breaking strength pound 1/:				
Warp	30	---	55	---
Filling	30	---	55	---
Water repellency (class 2), dynamic absorption (% increase).				
Initial	---	15	---	15
After one laundering	---	15	---	15

1/ Test specimen shall be taken from finished fabric.

3.4 Width. The minimum acceptable width shall be as specified (see 6.2) and shall be inclusive of the woven selvage when fly shuttle looms are used and exclusive of the lock-in selvage when shuttleless looms are used.

3.5 Weave.

3.5.1 Types I and IA. The weave shall be plain.

3.5.2 Type II. The weave shall be a 2 by 2 basket.

3.6 Finish.

3.6.1 Class 1. The cloth shall be scoured open width and dried following guidelines supplied by the fiber producer.

3.6.2 Class 2. The cloth shall be scoured (see 3.6.1) and water-repellent treated. The water-repellent treatment shall consist of an approved emulsified fluorochemical combined with a melamine extender in order to meet the requirements specified in table I, 3.7, 3.8, and 3.9 (see 6.4).

3.7 Spray rating (class 2). The results of three individual determinations on the sample unit for spray rating shall be equal to or better than 100, 100, 90 initially and 90, 90, 80 after one laundering when tested as specified in 4.2.3.

3.8 Resistance to organic liquid (class 2). The finished cloth shall show no wetting by n-dodecane initially, and after one laundering when tested as specified in 4.2.3.

3.9 Ballistic resistance.

3.9.1 Ballistic limit (type I). The ballistic limit V_{50} for eight layers of unbonded cloth shall be not less than 1200 feet per second when tested as specified in 4.2.3, when using a 10 shot V_{50} with a maximum spread of 125 feet per second.

3.9.2 Bullet resistance (type IA). Panels made up of eight plies of cloth shall defeat the 22 caliber, 40 grain long rifle (high velocity), lead bullets at 1050 + 50, -0 feet per second and the 38 caliber, 158 grain special round nose lead bullets at 850 + 50, -0 feet per second when tested as specified in 4.2.3.

3.9.3 Ballistic limit (type II). The ballistic limit V_{50} for 12 layers of unbonded cloth shall be not less than 1550 feet per second when tested as specified in 4.2.3 when using a 10 shot V_{50} with a maximum spread of 125 feet per second.

3.10 Length and put-up. Unless otherwise specified (see 6.2), the cloth shall be furnished in rolls of 80 to 120 yards each. Each roll shall contain not more than two pieces and no single piece shall be less than 40 yards in length. Each length shall be put-up in full width rolls as specified in 5.1.

3.11 Fiber identification. Each piece of cloth shall be labeled and ticketed for fiber content is accordance with the Rules and Regulations Under the Textile Fiber Products Identification Act.

3.12 Workmanship. The finished cloth shall conform to the quality of product established by this document, and the occurrence of defects shall not exceed the specified quality level.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the document where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.1.1 Responsibility for compliance. All items must meet all requirements of sections 3 and 5. The inspection set forth in this document shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirement in the document shall not relieve the contractor of the responsibility of assuring that all products or supplies submitted to the Government for acceptance comply with all requirement of the contract. Sampling in quality conformance does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to acceptance of defective material.

4.1.2 Certificate of compliance. When certificates of compliance are submitted, the Government reserves the right to check test such items to determine the validity of the certification.

4.2 Quality conformance inspection.

4.2.1 Component and material inspection. In accordance with 4.1, components and materials shall be inspected in accordance with all the requirements of referenced documents unless otherwise amended, modified, or qualified in this document or applicable purchase document.

4.2.2 End item examination.

4.2.2.1 Yard-by-yard examination. The entire yardage of every roll shall be examined at a viewing distance of approximately 3 feet for the defects listed below. Each defect shall be marked with a 1 to 1-1/2 inch red string sewn into one selvage in line with the defect. All defects, except for continuous defects, shall be marked regardless of frequency of appearance. A continuous defect shall be marked as one defect for each linear 1/4 yard in which it appears except that multiple continuous defects within the same linear 1/4 yard shall be marked as one defect. Any roll containing more than 15 strung defects per hundred linear yards shall be rejected.

Hard crease or wrinkle
Cut, hole, or tear
Broken or missing yarn
Smash

Multiple floats, mispick, harness skip,
or other misweave
Jerked-in filling
Open or thin place, crack (warp or filling)
Loose, slack yarn
Fine yarn
Mixed yarn
Spot or stain through fabric
Woven-in waste 1/8 inch or larger in diameter
Abrasion mark
Baggy or wavy cloth
Any mend or darn
Width less than minimum specified

4.2.2.2 Overall examination. Any roll containing any of the following defects shall be rejected.

More than two pieces in roll
Single piece less than 40 yards in length
Length of roll less than specified or less than indicated on ticket
Not labeled in accordance with Textile Fiber Products Identification Act

4.2.3 End item testing. The cloth shall be tested for the characteristics listed in table II. The methods of testing specified in FED-STD-191, wherever applicable, and as listed in table II shall be followed. Except for ballistic resistance, the physical and chemical values specified in section 3 apply to the results of the determinations made on a sample unit for test purposes as specified in the applicable test method. For fragmentation ballistic resistance, the V_{50} limit for the lot shall be reported as the average of all panels tested from the lot. The lot shall be unacceptable if the average V_{50} limit is less than 1200 fps for the type I cloth or less than 1550 fps for the type II cloth. Also, for the type II cloth, the lot shall be unacceptable if the V_{50} limit for any individual sample unit is less than 1535 fps. For bullet resistance, the lot shall be unacceptable if any one of the test missiles penetrates any test panel.

The sample unit for test purpose shall be as follows:

(a) Ballistic tests.

1 Types I and IA. For fragmentation resistance testing (type I), three cuts of 15 inches full width of the cloth with each cut originating from a different roll. For bullet resistance testing (type IA), six cuts of 15 inches full width of the cloth with no more than two cuts originating from any one roll.

2. Type II Five cuts of 15 inches full width of the cloth with each cut originating from a different roll.

(b) For other tests. One cut 3 yards long full width of the finished cloth originating from one of the rolls from which the sample unit for ballistic testing was drawn. Each individual cut comprising the sample unit shall be marked to indicate contractor's piece, lot and roll number, and the Government lot number. The lot size shall be expressed in units of 1 linear yard. The sample size (number of sample units) shall be as shown below. The lot shall be unacceptable if one or more sample units fail to meet any requirement specified.

Lot size (yards)	Sample size (units)
800 or less	2
801 up to and including 22,000	3
22,001 and over	5

TABLE II. End item tests

Characteristics	Requirement paragraph	Test method
Fiber identification	3.1.1	1/
Yarn denier	3.1.2	4021
Fiber tenacity		
Types I and IA		
Warp	3.1.2.1	ASTM D 885 1/
Filling	3.1.2.1	ASTM D 885 1/
Type II		
Warp	3.1.2.2	ASTM D 885 1/
Filling	3.1.2.2	ASTM D 885 1/
Color	3.2	1/
Weight	3.3	5041
Yarns per inch	3.3	5050
Yarn breaking strength		
Warp	3.3	ASTM D 885 2/
Filling	3.3	ASTM D 885 2/
Water repellency (class 2), dynamic absorption		
Initial	3.3	5500
After one laundering	3.3	5556/5500
Weave	3.5	Visual 3/
Finish (class 1)	3.6.1	1/

TABLE II. End item tests (cont'd)

Characteristics	Requirement paragraph	Test method
Spray rating		
Initial	3.7	5526
After one laundering	3.7	5556/5526
Resistance to organic liquid		
Initial	3.8	4.3.1
After one laundering	3.8	5556/4.3.1
Ballistic limit (type I)	3.9.1	4.3.2
Bullet resistance (type IA)	3.9.2	4.3.3
Ballistic limit (type II)	3.9.3	4.3.4

1/ Unless otherwise specified, a certificate of compliance shall be submitted and will be acceptable for the stated requirement.

2/ For the type I and IA cloth, clamps with flat-grip type jaws may be used. For type II cloth, the yarn shall be tested using a constant rate of extension (CRE) tensile testing machine set with a 10 ± 0.05 inch gage length and operated at 5 inches per minute speed. The yarn shall be tested at 1.5 turns per inch twist. Twist may be added or removed as appropriate, but care must be taken to handle the yarn in such a manner that the twist does not deviate from 1.5 turns per inch prior to closing the jaws of the clamps on the specimen.

3/ One determination shall be made from each sample unit and the results reported as "pass" or "fail".

4.2.4 Packaging inspection. The inspection shall be in accordance with the quality assurance provisions of PPP-P-1133.

4.3 Methods of inspection.

4.3.1 Organic resistance test. Place a small specimen of the cloth on a smooth horizontal surface, face up, using a pipette or eye dropper, gently deposit one drop of n-dodecane on the surface of the specimen. After 1 minute, examine the specimen under light at an angle. Absence of light reflectance at the fabric drop interface shall be taken as evidence of wetting. Three specimens taken at various locations across the sample shall be tested. Evidence of wetting on any specimen shall be cause for rejection of the lot.

4.3.2 Ballistic resistance test (type I). The test panels shall be made up of cut pieces taken from the sample unit. The size of each layer in the panels shall be approximately 15 by 15 inches. Each test panel shall contain 8 layers of cloth. The specimens shall be tested in accordance with the procedure in 4.3.6. Prior to conducting the test, the panels shall be preconditioned in the ballistic test area for at least 24 hours with air freely circulating on all sides of the layers. All test panels shall be sewn in accordance with 4.3.5.

4.3.3 Bullet resistance test (type IA). The test panels shall be made up of cut pieces taken from the sample unit. The size of each layer in the panels shall be approximately 15 by 15 inches. Each test panel shall contain 8 layers of cloth. Prior to conducting the test, the panels shall be preconditioned in the ballistic test area for at least 24 hours with air freely circulating on all side of the layers. All test panels shall be sewn in accordance with 4.3.5. The 8-layer panels being tested for bullet resistance shall be tested separately against the 22 and 38 caliber bullets and at the velocities specified in 3.9.2. Only dry panels shall be tested. The test procedures shall be in accordance with those specified for the Type I armor in NIJ Standard 0101.03.

4.3.4 Ballistic resistance test (type II). The test panels shall be made up of cut pieces taken from the sample unit. The size of each layer in the panels shall be approximately 15 by 15 inches. Each test panel shall contain 12 layers of cloth. The specimens shall be tested in accordance with the procedure in 4.3.6. Prior to conducting the test, the panels shall be preconditioned in the ballistic test area for at least 24 hours with air freely circulating on all sides of the layers. All test panels shall be sewn in accordance with 4.3.5.

4.3.5 Sewing of ballistic test panels. All ballistic test panels (types I, IA, and II) shall be sewn around the periphery 1/2 ± 1/8 inch from the edges. The sewing shall be accomplished in accordance with the following:

a. Thread-Nylon, conforming to type I, class B of V-T-295, or Polyester conforming to type I, class 1, subclass B of V-T-285. Thread size shall be "E". Color shall be optional.

b. Stitches per inch - 8 to 10.

c. Seam type - SSa-1 of FED-STD-751.

d. Stitch type - 301 of FED-STD-751.

4.3.6 Ballistic resistance V_{50} procedure. The ballistic resistance test for type I and type II cloth shall be conducted in accordance with MIL-STD-662 with the following exceptions

a. The projectile The test projectile shall be the 22 caliber type 2 projectile for body armor as specified in MIL-P-46593 except the projectile weight shall be 17 ± 0.25 grains and the configuration of the projectile shall conform to figure 1 of this document in lieu of figure 1.a of MIL-P-46593.

b. Barrel. The barrel shall be a .30 caliber rifled barrel with a one-in-sixteen twist. The barrel length shall be 28 inches. The barrel shall be chambered to accommodate firing the specified sabot.

c. Sabot. A sabot will be used in loading and firing the projectile. The sabot shall be manufactured to conform to figure 2. The projectile is to be loaded in such a manner that the whole body of the projectile is on the sabot except for the gash ring. The projectile shall be loaded so that the base of the projectile is in contact with the pusher plate. The impact shall be considered fair when an unyawed test projectile strikes an unsupported area of the test panel at least 2 inches from a supported area of the test panel and at least 2 inches from any previous impact, and shall not involve the same warp or filling yarns of any previous impact. The V_{50} limit for the lot shall be reported as the average of all panels tested from the lot.

d. Pusher plate. A pusher plate shall be utilized and placed flush with the edge of the throat of the cartridge. The pusher plate shall have the following characteristics:

1. Diameter - 0.304 inch (reference dimension)
2. Thickness - 0.050 inch (reference dimension)
3. Material - Aluminum, 7075T6 or 6061T6

e. Yaw card measurement system. A yaw card shall be used to determine yaw. The following procedure shall be employed.

1. Place the yaw card directly in front of the test sample with the emulsion side facing the sample. (The yaw card will be devoid of any markings. Kodak photographic paper, single weight, Kodabromide, or equal may be used for the yaw card.)

2. After the test, carefully measure the yaw card to determine the largest dimension of the hole caused by penetration of the projectile. An optical magnification device with a magnification between 5X and 10X shall be used for making this measurement. Compare this measurement to the X-axis on figure 3. The Y-axis of figure 3 will be used for determining the degree of the yaw.

3. The firing is considered invalid if the determined degree of yaw is more than 5^{o}.

f. Test sample mount. The armor test sample shall be secured with impact sites perpendicular to the line-of-flight of the projectile. The frame supports and clamps or mounting fixtures must be capable of retaining the sample and withstanding shock resulting from ballistic impact by the test projectiles. The test sample mount

shall be capable of adjustment for moving the sample in the vertical or horizontal directions so that the point of impact can be located anywhere on the sample, and rotation on the vertical axis so that zero degree obliquity impacts can be achieved anywhere on the sample. The test sample mount shall be able to rotate on the vertical or horizontal axis so that various obliquity attack angles can be achieved. The test samples shall be mounted with a rigidity equal to or greater than the actual installation of the part. The test panel shall be mounted between an inner and outer metal frame. The frame shall be designed to capture the entire periphery of the test panel to a depth of 1-1/2 to 2 inches. The frame shall also be designed to provide a minimum available test area of 121 square inches. The mounting frame will be clamped, at a minimum, in eight locations around its periphery, i.e. at each corner and at the mid-point of each side. (NOTE: vise-grip type pliers or equal have been found to be acceptable for clamping). The test panel shall be mounted with the expressed intent of providing for uniform tension throughout and to provide for a minimum of deflection at projectile impact.

g. Measurement of yaw: Yaw shall be determined using the system specified in 4.3.6. Yaw may be examined at any time deemed necessary. However, in any event, yaw shall be measured at intervals no less than those indicated below. When the barrel is new, a minimum of 25 shots shall be fired to "break-in" the barrel. Measurement of yaw shall be five successive shots at each interval.

Measurement interval

1. After "break-in" period.
2. After 250 shots.
3. After 500 shots.
4. After 750 shots.
5. After 1000 shots.

In the event the shots fired indicate yaw, the barrel should be rechecked for affect on yaw as follows: Fire five shots, if three or more shots exhibit yaw, discard the barrel. If one or two shots exhibit yaw, investigate cause and correct. If no yaw is indicated at the 1,000-shot interval, measurement for yaw shall be made at 100-shot intervals thereafter until such time as yaw is indicated. In the case of a dispute concerning a particular barrel, yaw shall be measured by a photographic measurement system using a multiflash light source to determine projectile velocity and yaw. Yaw shall be measured by the system to an accuracy of 0.5 degree.

h. Fair impact. The impact shall be considered fair when an unyawed test projectile strikes an unsupported area of the test panel at least 2 inches from a supported area of the test panel and at least 2 inches from any previous impact, and shall not involve the same warp or filling yarns of any previous impact.

5. PACKAGING

5.1 Put-up and preservation. Put-up and preservation shall be level A or Commercial as specified (see 6.2).

5.1.1 Levels A and Commercial. The cloth shall be put-up and preserved in accordance with the applicable requirements of PPP-P-1133.

5.2 Packing. Packing shall be level A, B, or Commercial as specified (see 6.2).

5.2.1 Levels A, B, and Commercial. The cloth shall be packed in accordance with the applicable requirements of PPP-P-1133.

5.3 Marking. In addition to any special marking required by the contract or purchase order, shipments shall be marked in accordance with the applicable requirements of PPP-P-1133.

6. NOTES

6.1 Intended use. Types I and II cloth are intended for use in fragmentation protective garments. Type IA cloth is intended for use in bullet (handgun) protective garments.

6.2 Ordering data. Acquisition documents should specify the following:

a. Title, number, and date of this document.
b. Type and class required (see 1.2).
c. Width required (see 3.4).
d. Length required if other than specified (see 3.10).
e. Selection of applicable levels of put-up preservation and packing (see 5.1 and 5.2).

6.3 Types of cloth. The three types of cloth described in this document were produced from "Kevlar" 29 manufactured by the E. I. duPont DeNemour Company, Wilmington, DE.

6.4 Water-repellent treatment. Approval of components and combinations of water-repellent treatments is the responsibility of the U.S. Army Natick Research, Development, and Engineering Center, Natick, MA 01760-5014 and is based on more extensive tests, including those for toxicity, which are not set forth in this document. Because of the time necessary to conduct full evaluation (approximately 6 months) only those chemical treatments already approved and so listed in the invitation for bids or request for proposal shall be considered acceptable for the related procurement.

6.5 Ballistic testing. Commercial laboratories capable of conducting the required ballistic testing are: Denver Research Institute, Denver, CL and H.P. White Laboratory, Bel Air, MD, and Gentex Corporation, P.O. Box 315, Carbondale, PA 18407.

6.6 Subject term (key word) listing.

Aramid
Bullet protection
Cloth, ballistic
Fragmentation protection

6.7 Changes from previous issue. Asterisks are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

Custodians.

Army - GL
Navy - NU
Air Force - 11

Preparing activity:

Army - GL

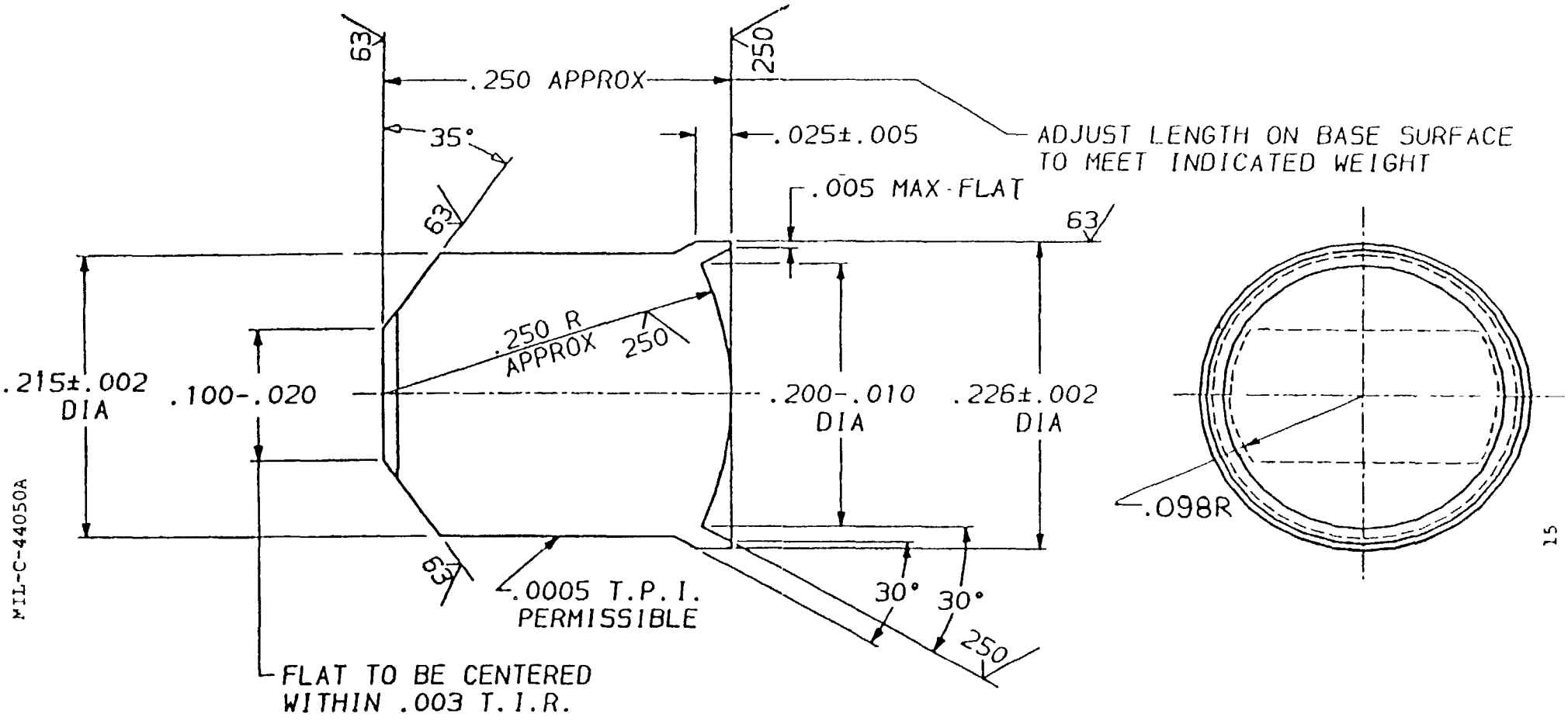
Project No. 8305-0053

Review activities:

Army - MD
Air Force - 99
DLA - CT

User activity:

Navy - MC



MIL-C-44050A

15

NOTES:

1. NO SUBSTITUTES FOR STEEL
2. FINISH 125 EXCEPT AS NOTED
3. TOLERANCES ON ANGLES ±1°
4. SIMULATORS SHALL BE TUMBLED WITH AN APPROPRIATE GRIT TO REMOVE BURRS AND SHARP EDGES
5. DIMENSIONS ARE IN INCHES

FIGURE 1. FRAGMENT SIMULATOR CALIBER .22, TYPE 2(BODY ARMOR)

8-2-883

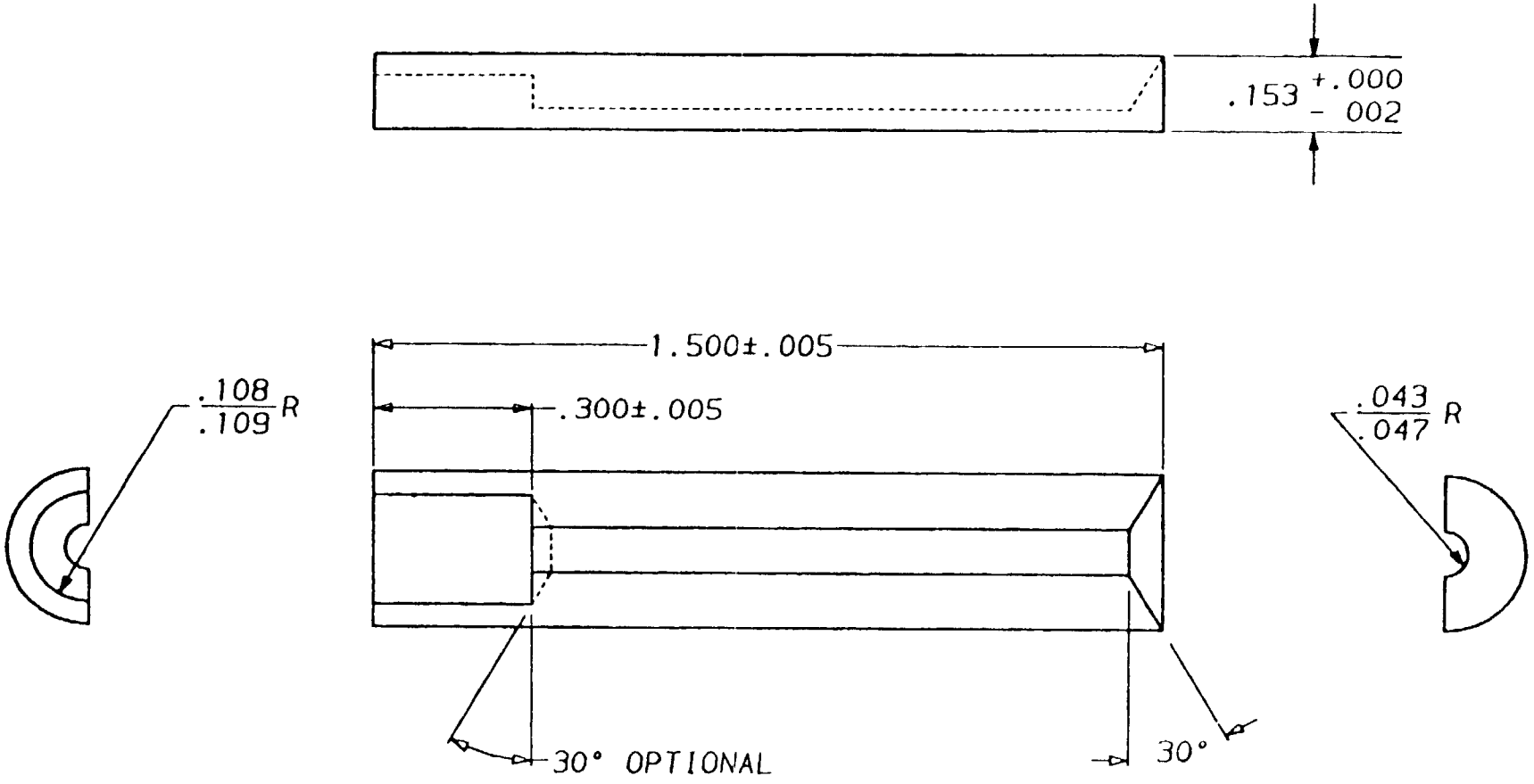


FIGURE 2. SABOT FOR 17 GRAIN FSP (FRAGMENT SIMULATED PROJECTILE)
INJECTION MOLDED, TWO HALVES
MATERIAL POLYCARBONATE
DIMENSIONS ARE IN INCHES

B 2-882

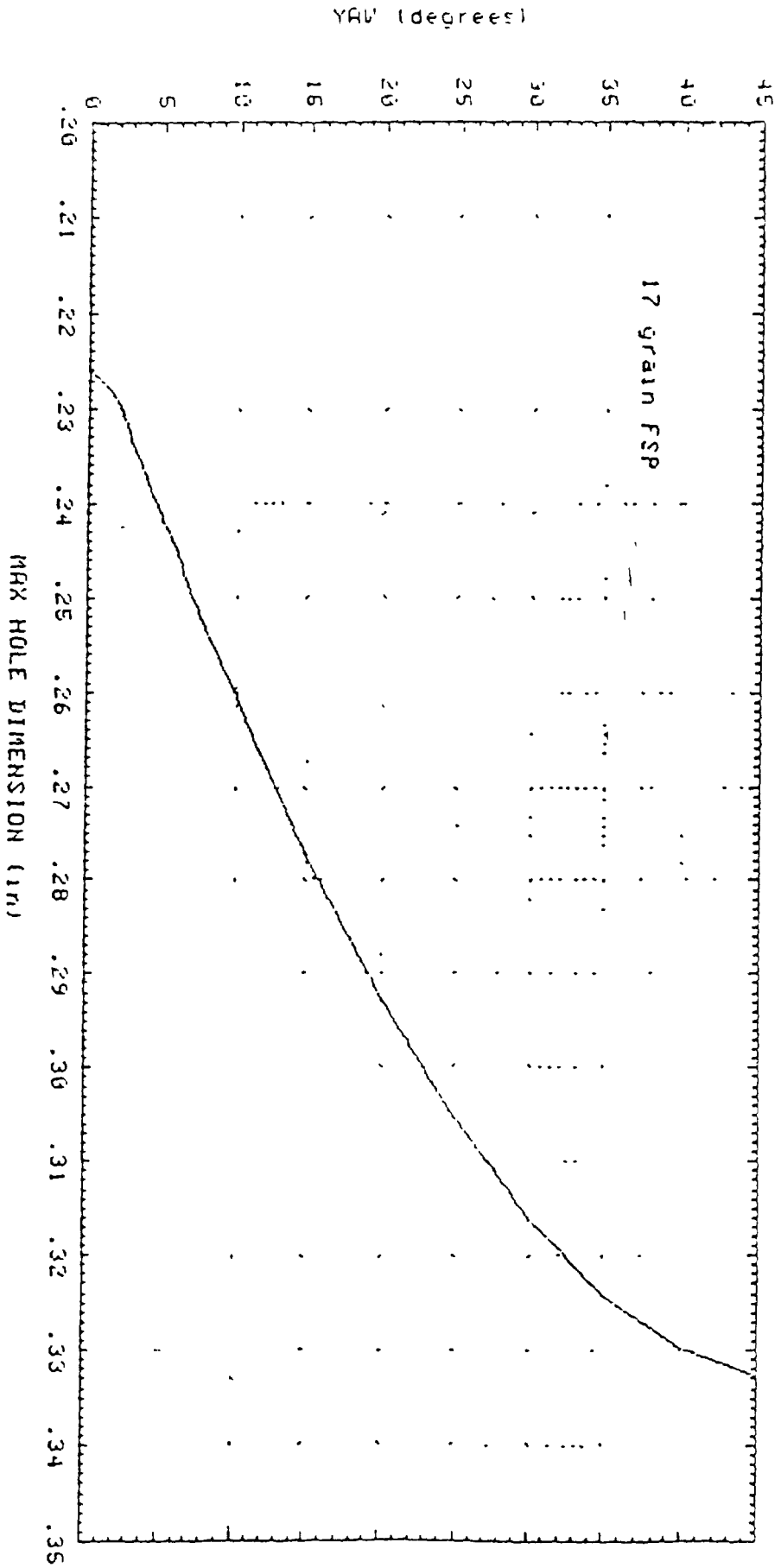


FIGURE 3 PROJECTILE YAW VERSUS MAXIMUM HOLE DIMENSION

INSTRUCTIONS: In a continuing effort to make our standardization documents better, the DoD provides this form for use in submitting comments and suggestions for improvements. All users of military standardization documents are invited to provide suggestions. This form may be detached, folded along the lines indicated, taped along the loose edge *(DO NOT STAPLE)*, and mailed. In block 5, be as specific as possible about particular problem areas such as wording which required interpretation, was too rigid, restrictive, loose, ambiguous, or was incompatible, and give proposed wording changes which would alleviate the problems. Enter in block 6 any remarks not related to a specific paragraph of the document. If block 7 is filled out, an acknowledgement will be mailed to you within 30 days to let you know that your comments were received and are being considered.

NOTE. This form may not be used to request copies of documents, nor to request waivers, deviations, or clarification of specification requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

(Fold along this line)

(Fold along this line)

DEPARTMENT OF THE ARMY

U S ARMY NATICK RESEARCH, DEVELOPMENT
and ENGINEERING CENTER
ATTN STRNC-ES
Natick, MA 01760-5014

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE $300

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL
FIRST CLASS PERMIT NO 12062 WASHINGTON D C

POSTAGE WILL BE PAID BY THE DEPARTMENT OF THE ARMY

Commander
U S Army Natick Research, Development
and Engineering Center
ATTN STRNC-ES
Natick, MA 01760-5014

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions – Reverse Side)

1 DOCUMENT NUMBER	2 DOCUMENT TITLE
MIL-C-44050A	Cloth, Ballistic, Aramid

3a. NAME OF SUBMITTING ORGANIZATION	4 TYPE OF ORGANIZATION *(Mark one)*
	☐ VENDOR
b ADDRESS *(Street, City, State ZIP Code)*	☐ USER
	☐ MANUFACTURER
	☐ OTHER *(Specify)* _____

5 PROBLEM AREAS

a. Paragraph Number and Wording

b. Recommended Wording

c. Reason/Rationale for Recommendation

6 REMARKS

7a. NAME OF SUBMITTER *(Last, First, MI)* – Optional	b. WORK TELEPHONE NUMBER *(Include Area Code)* – Optional
c. MAILING ADDRESS *(Street City State ZIP Code)* – Optional	8. DATE OF SUBMISSION *(YYMMDD)*

DD FORM 82 MAR 1426 PREVIOUS EDITION IS OBSOLETE

NATICK OP-1, Feb 86