

INCH-POUND

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SUPERSEDING
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MILITARY SPECIFICATION

CAMOUFLAGE SYSTEMS, MODULAR, LIGHTWEIGHT,X

SYNTHETIC, WOODLAND, DESERT AND SNOW

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

1. SCOPE

1.1 Scope. This specification covers woodland, desert and snow camouflage screening systems, synthetic, modular, complete with one hexagon and one rhombus lightweight screen, one repair kit with case, and quick-connect-disconnect devices, all within a transport case.

1.2 Classification. The camouflage screens covered by this specification shall be the following types and Classes, as specified (see 6.2):

Type I - Radar Transparent
Type II - 6-17 Giahertz (GHz) Radar Scattering
Type III - 6-35 Radar Scattering
Type IV - 6-94 GHZ Radar Scattering

Class 1 - Woodland
Class 2 - Desert
Class 3 - Snow

2. APPLICABEL DOCUMENTS

2.1 Government documents.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: USA Belvoir Research, Development, and Engineering Center, ATTN: STRBE-TSE, Fort Belvoir, VA 22060-5606 by using the self-addressed Standarization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

FSC 1080

DISTRIBUTION STATEMENT A. Approved for public release, distribution is unlimited.

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2.2.2 Specifications and standards. The following specifications and standards form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation (see 6.2).

SPECIFICATIONS

L-P-378	- Plastic Sheet and Strip, Thin Gage, Polyolefin.
QQ-S-781	- Strapping, Steel, and Seals.
PPP-B-26	- Bag, Plastic (General Purpose).
PPP-B-636	- Boxes, Shipping, Fiberboard.
PPP-S-760	- Strapping, Nonmetallic, (And Connector).

STANDARDS

FEDERAL

FED-STD-141	- Paint, Varnish, Lacquer, and Related Materials; Methods of Inspection, Sampling, and Testing.
FED-STD-191	- Textile Test Methods.
FED-STD-406	- plastics: Methods of Testing.
FED-STD-601	- Rubber: Sampling and Testing.

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MIL-STD-105	- Sampling Procedures and Tables for Inspection by Attributes.
MIL-STD-129	- Marking for Shipment and Storage.
MIL-STD-130	- Identification and Marking of US Military Property.
MIL-STD-1190	- Minimum Guidelines for Level C Preservation, Packing and Marking.

(Unless otherwise indicated, copies of federal and military specifications and standards are available from the Naval Publications and Forms Center, (ATTN: NFODS), 5801 Tabor Avenue, Philadelphia, PA 19120-5099.)

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

DRAWINGS

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TA13226E1355	- Camouflage Screening System, Snow, Radar Transparent, Type I.
TA13226E1356	- Camouflage Screening System, Woodland, Radar Transparent, Type I.
TA13226E1357	- Camouflage Screening System, Desert, Radar Transparent, Type I.
TA13226E1358	- Camouflage Screening System, Snow, Radar,

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	Scattering, Type II.
TA13226E1359	- Camouflage Screening System, Woodland, Radar Scattering Type II.
TA13226E1360	- Camouflage Screening System, Desert, Radar Scattering Type II.
TA13228E5928	- Camouflage Screening System, Snow, Radar Scattering, Type III.
TA13228E5929	- Camouflage Screening System, Woodland, Radar Scattering, Type III.
TA1322E5930	- Camouflage Screening System, Desert, Radar Scattering, Type III.
TA1322E5931	- Camouflage Screening System, Snow, Radar Scattering, Type IV.
TA1322E5932	- Camouflage Screening System, Woodland, Radar Scattering, Type IV.
TA1322E5933	- Camouflage Screening System, Desert, Radar Scattering, Type IV.

(Copies of drawings required by contractors in connection with specific acquisition functions should be obtained from the USA Belvoir Research, Development, and Engineering Center, ATTN: STRBE-JDA, Fort Belvoir, VA 22060-5606.)

2.2 Non-Government 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 are those listed in the issue of the DODISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS are the issues of the documents cited in the solicitation (see 6.2).

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM B 117	- Salt Spray (Fog) Testing, Standard Method of.
ASTM D 471	- Rubber Property - Effects of Liquids, Standard Test Method for.
ASTM D 523	- Specular Gloss, Standard Test Method for.
ASTM D 1053	- Measuring Rubber Property-Stiffening at Low Temperature: Flexible Polymers and Coated Fabrics, Standard Method for.
ASTM D 1682	- Breaking Load and Elongation of Textile Fabrics, Standard Test Methods for.
ASTM D 2247	- Coated Metal Specimens at 100 Percent Relative Humidity, Standard Method for Testing.
ASTM E 308	- Spectrophotometry and Description of Color in CIE 1931 System, Standard Recommended Practices for.
ASTM G 26	- Operating Light-Exposure apparatus (Xenon-Arc Type with and without water for exposure of Nonmetallic Materials, Standard Recommended Practice for.

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

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(Non-Government standards and other publications are normally available from the organizations that prepare or distribute the documents. These documents also may be available in or through libraries or other informational services.)

2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, (except for related associated detail specifications, specification sheets or MS standards), the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 Description. TheThe camouflage screening system (hereinafter called "screening system") shall be in accordance with the following top assemblies and as specified herein:

Type I - Radar transparent

Class 1 - Woodland	TA13226E1356
Class 2 - Desert	TA13226E1357
Class 3 - Snow	TA13226E1355

Type II - 6-17 GHz Radar Scattering

Class 1 - Woodland	TA1322E1359
Class 2 - Desert	TA1322E1360
Class 3 - Snow	TA13226E1358

Type III - 6-35 GHz Radar Scattering

Class 1 - Woodland	TA13228E5929
Class 2 - Desert	TA13228E5930
Class 3 - Snow	TA13228E5928

Type IV - GHz Radar Scattering

Class 1 - Woodland	TA13228E5932
Class 2 - Desert	TA13228E5933
Class 3 - Snow	TA13228E5931

The screening system screens shall consist of one hexagon-shaped screen and one rhambic-shaped screen, each 4.9 meters per side. The screens shall consist of edge-reinforced polyester fiber nets of 2-1/4 inch, $\pm 1/4$ inch square mesh, garnished with expanded incised camouflage cloth affixed to the net in color and texture patterns. The screens shall be equipped with quick-connect-disconnect (QCD) devices to allow multiple screen combinations. The screens shall be reversible, employing two different color blends.

3.1.1 Assembly. The screening system shall consist of the following components, and shall weigh not more than 65 pounds for class 1 and 2 screening systems and 85 pounds for class 3 screening systems:

- a. Screens, one hexagon and one rhambic.1
- b. Repair kit, one.

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- c. Lanyards, three.
- d. Transport case, one.
- e. Technical manual, one.

3.1.2 Drawings. The drawings forming a part of this specification are end product drawings. No deviations from the prescribed dimensions or tolerances is permissible without prior approval of the contracting officer. Where tolerances could cumulatively result in incorrect fits, the contractor shall provide tolerances within those prescribed on the drawings to insure correct fit, assembly, and operating of the screens. Any data (e.g., shop drawings, layouts, low sheets, processing procedures, etc.) prepared by the contractor or obtained from a vendor to support fabrication and manufacture of the production item shall be made available, upon request, for inspection by the contracting officer or the designated representative.

3.2 First article. When specified (see 6.1), a sample shall be subjected to first article inspection (see 6.3) in accordance with 4.3.

3.3 Material. Material shall be as specified herein and as shown on applicable drawings. Materials not specified shall be selected by the contractor and shall be subject to all provisions of this specification.

3.3.1 Base cloth. The base cloth shall be constructed so as to meet the performance requirements for finished cloth (see 3.5).

3.3.2 Recovered materials. For the purpose of this requirement, recovered materials are those materials which have been collected from solid waste and reprocessed to become a source of raw materials, as distinguished from virgin raw materials. The components, pieces and parts incorporated in the screen may be newly fabricated from recovered materials to the maximum extent practicable, provided the screen produced meets all other requirements of this specification. Used, rebuilt or remanufactured components, pieces and parts shall not be incorporated in the screen.

3.4 Performance requirements, nets. The hexagon and rhombic nets shall be fabricated as shown on the following drawings:

13226E0959	- Net, Rhombic, Snow.
13226E0958	- Net, Hexagon, Snow.
13226E0961	- Net, Rhombic, Woodland/Desert.
13226E0960	- Net, Hexagon, Woodland/Desert.

3.4.1 Treated nets. All nets shall be treated with stable dyes or pigmented coating compound in accordance with the drawings specified in 3.4. When tested as specified in 4.5.2.1.1, the weight increase of the treated net after thorough drying shall be not more than 40 percent of the untreated net.

3.4.1.1 Weight increase after water immersion. When tested as specified in 4.5.2.1.2, the weight increase of the treated net mesh shall be not more than 5 percent based on the weight of the treated net mesh before immersion.

3.4.1.2 Breaking strength. When tested as specified in 4.5.2.1.3, the breaking strength of the treated net mesh before exposure shall be not less than 50 pounds.

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3.4.1.2.1 Breaking strength, after exposure. When tested as specified in 4.5.2.1.3.1 through 4.5.2.1.3.5, the breaking strength of the treated net mesh after accelerated weathering, accelerated aging, water immersion, petroleum immersion add salt fog exposure shall be not less than 45 pounds.

3.4.1.3 Stiffness. When tested as specified in 4.5.2.1.4, the stiffness ratio of the treated net at -40°F shall be not more than 10.

3.4.1.4 Solubility. The compounds used in coloring the net shall not be soluble in water. When tested as specified in 4.5.2.1.5, the water shall show no evidence of discoloration.

3.4.1.5 Flame resistance. When tested as specified in 4.5.2.1.6, the treated net mesh shall be self-extinguishing and after-flame shall be not more than 8 seconds. After-glow shall be not more than 15 seconds after the flame is extinguished or the twine ceases to burn.

3.4.1.6 Fungus resistance. When tested as specified in 4.5.2.1.7, the treated net shall not support fungus growth.

3.5 Performance requirements, camouflage cloth. The camouflage cloth shall be base cloth as specified in 3.3.1 with color compounds applied as specified in 3.5.3. The camouflage cloth shall be processed to produce our basic types of garnish: type I - radar-transparent, type II - 6-17 GHz radar scattering, type III - 6-35 GHz radar scattering, and type IV - 6-94 GHz radar scattering.

3.5.1 Radar transparent cloth. Nothing shall be in or applied to the base cloth which would interfere with the transmission of the emitted or reflected radar signals. When tested as specified in 4.5.2.2.13, the one-way transmission of flat stock color-coated, radar transparent cloth shall not be less than 90 percent.

3.5.2 Radar scattering cloth. When tested as specified in 4.5.2.2.13, the one-way transmission of flat stock, color-coated, radar scattering cloth shall be not more than 20 percent nor less than 10 percent.

3.5.2.1 Finished screen radar properties. When tested as specified in 4.5.2.2.14, the radar properties of the screen shall be not less than 3 decibels one-way transmission attenuation.

3.5.3 Color compounds. The color compounds used to produce colors shall impart to the camouflage cloth of both types the required spectral reflectance properties to the ultraviolet (350 to 360 nanometers, white cloth only), visible (380 to 700 nanometers), and near infrared (700 to 900 nanometers) spectrums. The color compounds shall be formulated with commercially available pigments or dyestuffs. The color compounds shall be applied to each side of the base cloth to produce the colors as specified in table 1. Color compounds used shall not produce skin irritation or other effects deleterious to the health of personnel under the proposed condition of use. The color compounds shall seal the cloth and provide a matte finish. Surface interruptions or color streaking on the color-treated cloth shall be not more than 1/8 inch width, maximum total length of 24 inches in any one pattern, and not more than 30% of the patterns on a screen may contain such discontinuities.

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3.5.4 Finished camouflage cloth. The finished camouflage cloth shall be the base cloth with color compounds applied (radar transparent, type I) or the base cloth rendered radar scattering with color compounds applied (type II, type III, and type IV). When tested as specified in 4.5.2.2.1.1, the finished type I, type II, type III, and type IV camouflage cloth shall weigh not more than 8.0 ounces per square yard each for class 1 and class 2 screens and not more than 8.5 ounces per square yard for class e screens.

3.5.4.1 Water immersion. When tested as specified in 4.5.2.2.1.2, the weight increase after water immersion in distilled water shall be a maximum of 1.2 ounces for woodland and desert screens and a maximum of 2.1 ounces for snow screens based on the weight of the unimmersed finished cloth.

3.5.4.2 Stiffness. When tested as specified in 4.5.2.2.2, the stiffness of the finished cloth shall be not more than 10 centimeters (cm) at room temperature, 16cm at -40°F for class 1 and 2, and 20 cm at -40°F for class 3.

3.5.4.3 Tackiness. When tested as specified in 4.5.2.2.3, folds of the finished camouflage cloth shall not adhere to each other.

3.5.4.4 Solubility. The compound used in coating the cloth shall be insoluble in water. When tested as specified in 4.5.2.2.4, the water shall show no evidence of discoloration.

TABLE I. Color requirements.

Color	Fig.	Chromaticity coefficients		Brightness	Brightness Tolerance
		x	y	Y	Y _t
<u>Woodland</u>					
1. Light Green	2	0.362	0.395	0.101	0.094 - 0.108
2. Dark Green	3	0.343	0.390	0.078	0.070 - 0.085
3. Forest Green	4	0.330	0.355	0.065	0.058 - 0.072
4. Olive	5	0.363	0.377	0.105	0.097 - 0.113
5. Khaki	6	0.357	0.362	0.220	0.210 - 0.230
6. Brown	7	0.360	0.350	0.110	0.102 - 0.118
7. Tan	8	0.388	0.370	0.220	0.210 - 0.230
<u>Desert</u>					
1. Khaki	9	0.350	0.355	0.253	0.242 - 0.264
2. Tan	10	0.356	0.351	0.349	0.336 - 0.361
3. Light Brown	11	0.367	0.358	0.200	0.190 - 0.210
<u>Snow</u>					
1. Forest Green	4	0.330	0.355	.065	0.058 - 0.072
2. Tan	8	0.388	0.370	.220	0.210 - 0.230
3. White	1	0.310	0.315	.869	0.85 or above

Note: Color difference tolerances are shown in figures 1 through 11.

3.5.4.5 Breaking strength, cloth. When tested as specified in 4.5.2.2.5, the breaking strength of the finished camouflage cloth before exposure shall be not less than 40 pounds in both the warp and fill directions.

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3.5.4.5.1 Breaking strength cloth, after exposure. When tested as specified in 4.5.2.2.5.1 through 4.5.2.2.5.7, breaking strength of the finished camouflage cloth in both directions shall be not less than 40 pounds after accelerated weathering, accelerated aging, accelerated fading, petroleum immersion, salt fog and humidity exposure, and not less than 36 pounds after water immersion exposure.

3.5.4.6 Flare resistance. When tested as specified in 4.5.2.2.6, test specimens shall be self-extinguishing prior to burning of 60 percent of the specimen area.

3.5.4.7 Color. When tested as specified in 4.5.2.2.7, the color of the finished cloth shall be such that the average chromaticity (x, y) and visual reflectance (Y) shall be within 2.0 NBS units of the appropriate values in table I, when calculated by means of the NBS error equation below at the average visual reflectance of the range allowed. Figures 1 through 11 may be used as approximate guidelines to the chromaticity limits for the appropriate color. No individual sample color difference shall be greater than 2.25 NBS units, and no more than two individual color differences shall be greater than 2.0 NBS units. The color difference for the Snow color white and Woodland colors Light green and dark green after the environmental exposures in 4.5.2.2.7.1 through 4.5.2.2.7.5 shall be less than 2.5 NBS units. Figures 1 through 3 may be used as approximate guidelines. The visual reflectance (Y) of every color shall fall within the allowable tolerance (Y_i) specified in figures 1 through 11 and table I.

NBS ERROR EQUATION

Required Data: x, y, Y ———> Chromaticity and brightness from table I.
 x_S, y_S, Y_S ———> Chromaticity and brightness of sample.

Where: 0 ≤ Y, Y_S ≤ 100, i.e. percentage (%) visual reflectance

$$E_{NBS} = F_g \{ [221 \cdot (Y_m)^{1/4} \cdot (\Delta\alpha^2 + \Delta\beta^2)^{1/2}]^2 + [12 \cdot (Y^{1/2} - Y_S^{1/2})]^2 \}^{1/2}$$

Where: Y_m = (Y + Y_S)/2

$$F_g = Y_m / (Y_m + 2.5)$$

Define: A = 2.4266 · x - 1.3631 · y - 0.3214
 A_S = 2.4266 · x_S - 1.3631 · y_S - 0.3214
 B = 0.5710 · x + 1.2447 · y - 0.5708
 B_S = 0.5710 · x_S + 1.2447 · y_S - 0.5708
 D = x + 2.2633 · y + 1.1054
 D_S = x_S + 2.2633 · y_S + 1.1054

Then, α = A/D β = B/D
 α_S = A_S/D_S β_S = B_S/D_S

And, Δα = α - α_S Δβ = β - β_S

3.5.4.8 Crocking. When tested as specified in 4.5.2.2.8, the finished camouflage cloth shall be good for wet and fair for dry as defined in FED-STD-191, method 5651.

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3.5.4.9 Specular loss. When tested as specified in 4.5.2.2.9, the finished camouflage cloth shall have a specular gloss of more than 1.0 gloss unit at 85 degrees and 2.0 gloss units at 60 degrees, for all colors of Table I except for Snow color No. 3, white, which will have a specular gloss at 60 degrees of not more than 2.5 gloss units.

3.5.4.10 Spectral reflectance values. When tested as specified in 4.5.2.2.10, separate samples of finished Camouflage cloth before exposure, after accelerated weathering, after accelerated fade, after salt fog exposure, after fungus resistance exposure, and after humidity shall have reflectance values within the limits specified in table II. For Woodland colors No. 1 and 2 the spectral curve 600 to 900 nanometers shall conform to Table III before and after exposure.

3.5.4.11 Fungus resistance. When tested as specified in 4.5.2.2.11, the finished camouflage cloth shall not support fungus growth.

3.5.4.12 Tear strength. When tested as specified in 4.5.2.2.32, the warp thread pull out or break value of the finished camouflage shall be a minimum of 5 pounds or the fill break before the wrap threads can be pulled out of the coating.

3.6 Identification of screen color blend. The color blend of the screens shall be identified on each side of the four reinforcing straps of the rhombic and the six reinforcing straps of the hexagon in accordance with MIL-STD-130 and figure 14.

3.7 Workmanship. The finished screen shall be clean and free from all foreign matter. Patterns shall not be overstretched or stressed on netting. Workmanship shall conform to the appendix.

TABLE II. Color reflectance in the red, infrared, and ultraviolet spectral regions.

Color No.	Color name	Infrared reflectance ^{1/} range ^{2/}		Ultraviolet	Allowable ratio ^{3/}
		<u>Percent</u>			
		(max)	(min)	(min)	(min)
<u>Woodland</u>					
1	Light green	65.0	-	-	5.2
2	Dark green	65.0	-	-	5.2
3	Forest green	35.0	25.0	-	-
4	Olive	55.0	25.0	-	-
5	Khaki	75.0	40.0	-	-
6	Brown	25.0	20.0	-	-
7	Tan	55.0	35.0	-	-

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TABLE II. Color reflectance in the red, infrared, and ultraviolet spectral regions. (Cont'd)

Color No.	Color name	Infrared reflectance ^{1/} range ^{2/}		Ultraviolet	Allowable ratio ^{3/}
		<u>Percent</u>			
<u>Desert</u>					
1	Khaki	60.0	25.0	-	-
2	Tan	60.0	35.0	-	-
3	Light brown	45.0	25.0	-	-
<u>Snow</u>					
1	Forest green	35.0	25.0	-	-
2	Tan	55.0	35.0	-	-
3	White	-	85.0*	75.0**	-

1/ IR reflectance range to BaSO₄ or freshly smoked MgO.

2/ See table V for wavelength definition.

3/ The ratio is calculated by dividing the value of the infrared spectral range by the value of the red spectral range (see table V).

* After environmental exposure, the infrared reflectance shall be 80.0 (min).

** After environmental exposure, the ultraviolet reflectance shall be 73.0 (min).

TABLE III. Spectral reflectance limits for light green and dark green colors.

Wavelength	% Reflectance		Wavelength	% Reflectance	
	(max)	(min)		(max)	(min)
600	10.2	-	760	59.5	40.0
610	9.8	-	770	61.5	42.0
620	9.8	-	780	-	42.0
630	9.8	-	790	-	42.0
640	9.5	-	800	-	42.0
650	9.5	-	810	-	42.0
660*	9.8	-	820	-	42.0
670*	12.0	4.0	830	-	42.0
680*	14.0	5.8	840	-	42.0
690	21.5	8.5	850	-	42.0
700	28.0	11.0	860	-	42.0
710	35.8	15.0	870	-	42.0
720	41.0	19.0	880	-	42.0
730	48.5	27.0	890	-	42.0
740	51.8	30.0	900	-	42.0
750	56.0	36.3			

* Values marked with asterisks are for light green cloth only. For dark green cloth, use the following values:

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<u>Wavelength</u>	<u>% Reflectance</u>	
	(max)	(min)
660	9.5	-
670	10.0	4.0
680	13.0	5.8

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 (examinations and tests) 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 specification where such inspections are deemed necessary to ensure supplies and services conform to prescribed requirements.

4.1.1 Responsibility for compliance. All items must meet all requirements or sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements, however, this 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 Component and material inspection. The contractor is responsible for insuring that components and materials used are manufactured, examined, and tested in accordance with referenced specifications and standards, as applicable.

4.1.3 Government verification testing. Verification testing of first article, quality conformance, comparison or validation testing when requested by the Government shall be performed by the U.S. Army Belvoir Research Development and Engineering Center (BRDEC). Failure of any test performed by BRDEC is cause for rejection.

4.2 Classification of inspections. The inspection requirements specified herein are classified as follows:

- a. First article inspection (see 4.3).
- b. Quality conformance inspection (see 4.4)
- c. Inspection of packaging (see 4.6).

4.3 First article inspection.

4.3.1 Examination. The nets shall be examined as specified in 4.5.1.1 and the screens shall be examined as specified in 4.5.1.2. Presence of one or more defects shall be cause for rejection.

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4.3.2 Tests. The treated nets and finished cloth shall be subjected to the tests marked "X" in column e of table IV. Samples for test for the net and finished cloth shall be representative of materials used to fabricate the screens. Unless otherwise indicated, test results shall be based upon the average of five specimens. Failure of any test shall be cause for rejection.

4.4 Quality conformance inspeciton.

4.4.1 Sampling for examination.

4.4.1.1 Screens. For the purpose of sampling for examinaiton, a unit of product shall be one complete screen of the type and class specified (see 6.2). Sampling shall be in accordance with MIL-STD-105, inspection level S-4.

4.4.1.2 Attachment rings. For the purpose of the examinaiton of attachment rings on the screens, the samples shall be an area of 40 X 40 meshes for the hexagon screen and 27 X 27 meshes for the rhambic screen. If twenty defects are observed on the hexagon screen, the screen shall be rejected. If ten defects are observed on the rhambic screen, the screen shall be rejected.

4.4.1.3 Nets. For the purpose of sampling for examination, a unit of product shall be one complete net of the type and class specified (see 6.2). Sampling shall be in accordance with MIL-STD-105, inspection Level S-4.

4.4.2 Sampling for tests.

4.4.2.1 Sampling for nets, plan A. Samples of netting sufficient for testing shall be furnished from not more than 100,000 square yards of net.

4.4.2.2 Sampling for nets, Plan B. One unit out of every 20,000 units shall be furnished.

4.4.2.3 Sampling for finished cloth, Plan A. Samplies of finished cloth sufficient for testing shall be furnsihed from not more than 50,000 square yards for each color of finished cloth, except inspeciton sequence 34 which requires 100 percent testing of all the finished cloth.

4.4.2.4 Sampling for finished cloth, plan B. One unit out of every 20,000 units shall be furnished.

4.4.3 Examination.

4.4.3.1 Screens. Samples selected in accordance with 4.4.1.1 shall be examined for the defects specified in 4.5.1.2. AQL shall 4.0 percent defective.

4.4.3.2 Attachment rings. Attachment rings on the screens selected in accordanoe with 4.4.1.2 shall be examined for the defects specified in 30.1.4 of the appendix.

4.4.3.3 Nets. Samples selected in accordance with 4.4.1.3 shall be examined for the defects specified in 4.5.1.1. AQL shall be 4.0 percent defective.

4.4.4 Tests.

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4.4.4.1 Nets.

4.4.4.1.1 Nets, plan A. Samples selected in accordance with 4.4.2.1 shall be subjected to the tests marked "X" in column 3 of table IV. Failure of any test shall be cause for rejection.

4.4.4.1.2 Nets, plan B. Samples selected in accordance with 4.4.2.2 shall be tested as specified in 4.5.2.1. Failure of any test shall be coause for rejection.

4.4.4.2 Finished cloth.

4.4.4.2.1 Finished cloth, plan A. Samples selected in accordance with 4.4.2.3 shall be subjected to the tests marked "X" in column 3 of table IV. Failure of any test shall be cause for rejection.

4.4.4.2.2 Finished cloth, plan B. Samples selected in accordance with 4.4.2.4 shall be tested as specified in 4.5.2.2. Failure of any test shall be cause for rejection.

4.4.4.2.3 Finished cloth, color validaiton test. When specified (see 6.2) the contracting officer or his representative whall require the Government *representative to select six 3-inches X 5-inches cloth samples for each color of finished cloth and contractor test results for those samples and forward both to the U.S. Ar;my BelvoirResearch, Development and Engineering Center, ATTN: STRBE-JDA, Fort Belvoir, VA 22060-5606, for validation of color, specular gloss and spectral reflectance. Samples of finished cloth for testing shall be selected in accordance withj 4.4.2.4.*

4.4.4.2.4 Finished cloth, radar validation test. When specified (see 6.2) the contracting officer or his representative shall require th Government representative to select a 100-square foot cloth sample and forward it toa Government-approved independent radar testing facility selected by the contractor for testing at the contractor's expense. Test results shall be forwarded to the U.S. Army Belvoir Research, Development and Engineering Center, ATTN: STRBE-JDA, Fort Belvoir, VA 22060-5606. Samples of finished cloth for testing shall be selected in accordance with 4.4.2.4.

4.5 Inspection procedures.4.5.1 Examination.

4.5.1.1 Net examination. The net shall be examined as specified herein for the following defects. (Reference appendix for workmanship standards).

101. Material not as specified.
102. Components missing, not as specified, or damaged.
103. Dimensions not as specified.
104. Colors not as specified.
105. Fabrication of edge-reinforcement not as speciried.
106. Stitching nut as specified.
107. Conrner loatin patches not as specified.
108. Severed, broken and loose strands of netting.
109. Twine not as specified.

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- 110. Sealing of cord ends not as specified.
- 111. Severed strand of edge cord.
- 112- Used, rebuilt or remanufactured components, pieces, or parts incorporated in the screen.

4.5.1.2 Screen examination. The screen shall be examined as specified herein for the following defects. (Reference apenmdix for workmanship standards.) This examination requirement is only for the screen manufactureer. If netting defects are found during the screen final inspection, the screen manufacturer will be responsible for repairing the net and the screen shall be accepted.

- 113. Material not as specified.
- 114. Components missing, not as specified, or damage.
- 115. Dimensions nut as specified.
- 116. Weight of assembly not as specified.
- 117. Colors not as specified.
- 118. ColOr-texture patterns for camouflage screen not as specified.
- 119. Color uniformity not as specified.
- 120. Color migration from side to side.
- 121. Attachments not as specified (patterns, brackets and pins) .
- 122. Holes in screen larger than specified.
- 123. Incising nut as specified.
- 124. Repair kit not as specified.
- 125. Delamination of the color compounds from the base cloth.
- 126. Incorrect assembly.
- 127. Malformed attachment rings.
- 128. Surface discontinuities larger than specified, or more than specified.
- 129. Screen incorrectly folded.
- 130. Screen identification tag marking missing, incorrect or illegible.
- 131. Pattern location not as specified.
- 132. Pattern attachment not as specified.
- 133. Excessive pattern hangdown.
- 134. Excessive torn patrterns.
- 135. Color-coated cloth not as specified.
- 136. Excessive cloth overlay.
- 137. Used, rebuilt or remanufactured components, pieces, or parts incorporated in the screen.

4.5.2 Tests. Unless otherwise specified herein, test results shall be3based on the average of five samples or specimens.

4.5.2.1 Treated nets.

4.5.2.1.1 Weight increase. Weight increase of the treated net mesh shall be determined in accordance with FED-STD-191, method 5041, except specimens shall be 1 square yard of net. Nonconformance to 3.4.1 shall constitute failure of this test.

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TABLE IV. Test schedule.

Type of inspection			Test	Test paragraph	Requirement paragraph
1	2	3			
1	2	3	4	5	6
			<u>Treated nets</u>		
1	X	-	Weight increase.	4.5.2.1.1	3.4.1
2	X	X	Weight increase after water immersion.	4.5.2.1.2	3.4.1.1
3	X	X	Breaking strength.	4.5.2.1.3	3.4.1.2
4	X	-	After accelerated weathering.	4.5.2.1.3.1	3.4.1.2.1
5	X	-	After accelerated aging.	4.5.2.1.3.2	3.4.1.2.1
6	X	-	After water immersion.	4.5.2.1.3.3	3.4.1.2.1
7	X	-	After petroleum immersion.	4.5.2.1.3.4	3.4.1.2.1
8	X	-	After salt fog exposure.	4.5.2.1.3.5	3.4.1.2.1
9	X	-	Stiffness.	4.5.2.1.4	3.4.1.3
10	X	-	Solubility.	4.5.2.1.5	3.4.1.4
11	X	-	Flame resistance.	4.5.2.1.6	3.4.1.5
12	X	-	Fungus resistance.	4.5.2.1.7	3.4.1.6
			<u>Finished cloth</u>		
1	X	-	Weight after processing.	4.5.2.2.1.1	3.5.4
2	X	X	Weight increase after water immersion.	4.5.2.2.1.2	3.5.4.1
3	X	-	Stiffness.	4.5.2.2.2	3.5.4.2
4	X	-	Tackiness.	4.5.2.2.3	3.5.4.3
5	X	-	Solubility.	4.5.2.2.4	3.5.4.4
6	X	-	Breaking strength.	4.5.2.2.5	3.5.4.5
7	X	X	After accelerated weathering.	4.5.2.2.5.1	3.5.4.5.1
8	X	-	After accelerated aging.	4.5.2.2.5.2	3.5.4.5.1
9	X	-	After accelerated fading.	4.5.2.2.5.3	3.5.4.5.1
10	X	-	After water immersion.	4.5.2.2.5.4	3.5.4.5.1
11	X	-	After petroleum immersion.	4.5.2.2.5.5	3.5.4.5.1
12	X	-	After salt fog.	4.5.2.2.5.6	3.5.4.5.1
13	X	-	After humidity.	4.5.2.2.5.7	3.5.4.5.1
14	X	X	Flame resistance.	4.5.2.2.6.1	3.5.4.6
15	X	-	After accelerated weathering.	4.5.2.2.6.2	3.5.4.6
16	X	-	After accelerated fading.	4.5.2.2.6.3	3.5.4.6

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TABLE IV. Test schedule. (Cont'd)

Type of inspection			Test	Test paragraph	Requirement paragraph
1	2	3			
1	2	3	4	5	6
17	X	-	After leaching.	4.5.2.2.6.4	3.5.4.6
18	X	X	Color.	4.5.2.2.7	3.5.4.7
19	X	-	After accelerated weathering.	4.5.2.2.7.1	3.5.4.7
20	X	-	After accelerated fading.	4.5.2.2.7.2	3.5.4.7
21	X	-	After humidity.	4.5.2.2.7.3	3.5.4.7
22	X	-	After salt fog.	4.5.2.2.7.4	3.5.4.7
23	X	-	Fungus resistance.	4.5.2.2.7.5	3.5.4.7
24	X	-	Crocking.	4.5.2.2.8	3.5.4.8
25	X	X	Specular gloss.	4.5.2.2.9	3.5.4.9
26	X	X	Spectral reflectance.	4.5.2.2.10	3.5.4.10
27	X	-	After accelerated weathering.	4.5.2.2.10.2	3.5.4.10
28	X	-	After accelerated fading.	4.5.2.2.10.3	3.5.4.10
29	X	-	After salt fog.	4.5.2.2.10.4	3.5.4.10
30	X	-	After fungus resistance.	4.5.2.2.10.5	3.5.4.10
31	X	-	After humidity.	4.5.2.2.10.6	3.5.4.10
32	X	-	Fungus resistance.	4.5.2.2.11	3.5.4.11
33	X	X	Tear strength.	4.5.2.2.12	3.5.4.12
34	X	X	Radar properties (cloth).	4.5.2.2.13	3.5.1, 3.5.2
35	X	-	Radar properties (finished screen).	4.5.2.2.14	3.5.2.1

4.5.2.1.2 Weight increase after water immersion. Weight increase of the treated net mesh after immersion in water shall be determined in accordance with ASTM D 471 except the specimens shall not be dipped into acetone. The cut ends of the specimens shall be sealed, each approximately 2-1/2 inches x 2-1/2 inches, shall be tested for weight increase after the treated net has been immersed in a continuous container of distilled water for 24 hours at $73 \pm 2^\circ$ F. Nonconformance to 3.4.1.1 shall constitute failure of this test.

4.5.2.1.3 Breaking strength. The breaking strength of the treated net mesh shall be tested in accordance with FED-STD-191, method 5102, with modifications as specified herein. The test specimen shall consist of one finished square mesh complete with four knots and cut from the net with a minimum of 1/2 inch extra twine past the knots. The specimen-holding device as shown in figure 12

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shall consist of either rods or hooks 5/16 inch diameter and of sufficient length to avoid slippage of the net mesh while testing. The rods or hooks shall have round and smooth surfaces. The gauge length shall be 3 inches at the start of the test. The test specimen shall be placed on the rods or hooks as shown in figure 12. Nonconformance to 3.4.1.2 shall constitute failure of this test.

4.5.2.1.3.1 Accelerated weathering. The treated net shall be conditioned in accordance with ASTM G 26, method A, BH for 300 hours and tested as specified in 4.5.2.1.3. Nonconformance to 3.4.1.2.1 shall constitute failure of this test.

4.5.2.1.3.2 Accelerated aging. The treated net shall be conditioned in accordance with FED-STD-191, method 5851, for 150 hours at 175 ± 2 °F, and tested as specified in 4.5.2.1.3. Nonconformance to 3.4.1.2.1 shall constitute failure of this test.

4.5.2.1.3.3 Water immersion. The treated net mesh shall be immersed in distilled water for 24 hours at 160 ± 2 °F, tested as specified in 4.5.2.1.3. Nonconformance to 3.4.1.2.1 shall constitute failure of this test.

4.5.2.1.3.4 Petroleum immersion. The treated net shall be conditioned in accordance with FED-SID-601, method 6001, in medium No. 5 for 2 hours at 73 ± 2 °F, and tested as specified in 4.5.2.1.3. Nonconformance to 3.4.1.2.1 shall constitute failure of this test.

4.5.2.1.3.5 Salt fog exposure. The treated net mesh shall be conditioned in accordance with ASTM B 117, for 300 hours and tested as specified in 4.5.2.1.3. Nonconformance to 3.4.1.2.1 shall constitute failure of this test.

4.5.2.1.4 Stiffness. Sample pieces of treated twine shall be tested as specified in 4.5.2.1.4.1. Specimens shall be tested at standard conditions, and after exposure for 94 hours, ± 1 hour, in a chamber maintained at $-40 \pm$ °F. Nonconformance to 3.4.1.3 shall constitute failure of this test.

4.5.2.1.4.1 Torsional stiffness ratio.

4.5.2.1.4.1.1 Test specimens. shall be 2 inch samples of treated mine.

4.5.2.1.4.1.2 Test apparatus. The test apparatus shall be a Gehman torsional tester conforming to ASTM D 1053 except that only the torsion apparatus, the stand, and a suitable bracket to hold the lower clamp are required. A beryllium-copper-type tension wire of appropriate torsion constant shall be used.

4.5.2.1.4.1.3 Test procedure. The test procedure shall be as follows:

- a. With the specimen and the test apparatus at 73 ± 5 °F, the lower end of the specimen shall be secured in the rigidly mounted clamps of the test apparatus and the upper end shall be secured in the upper pinch clamp attached to the lower end of the torsional wire.
- b. The pointer shall be adjusted to the zero position by rotating the protractor scale. The torsional head shall be turned 180 degrees, and the pointer reading shall be recorded after a period of 10 seconds.
- c. After conducting the tests specified in a and b, above, the specimen

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shall be placed in a chamber with an atmosphere of air or a mixture of air and diocide at -40 ± 2 °F, for 94 hours, ± 1 hour. The torsional apparatus and tongs for handling specimens shall be conditioned in the chamber for not less than 2 hours before use.

- d. The tests specified in a and b, above, shall be repeated while specimens and apparatus are still in the conditioning chamber at -40 ± 2 F°

4.5.2.1.4.1.4 Calculations. The tests shall be conducted on three specimens and the results shall be averaged. The torsional stiffness ratio at -40 °F shall be calculated by means of the following formula:

Torsional stiffness ratio at -40 °F =

$$\frac{\text{Torsional stiffness factor at } -40 \text{ °F}}{\text{Torsional stiffness factor at } 73 \text{ °F}}$$

Where torsional stiffness factor =

$$\frac{180 \text{ degrees} - \text{angle of twist of specimen}}{\text{Angle of twist of specimen}}$$

4.5.2.1.5 Volubility. A 6 inch square specimen of the finished net shall be immersed for 24 hours in a 400 cubic centimeter glass beaker filled with distilled water at a temperature of 160 ± 10 °F. Nonconformance to 3.4.1.4 shall constitute failure of this test.

4.5.2.1.6 Flame resistance. The flame resistance of the finished treated net mesh twine shall be tested in accordance with FED-STD-191, method 5903, except the specimens shall be one length of net twine with knots sufficient to test in the apparatus. Nonconformance to 3.4.1.5 shall constitute failure of this test.

4.5.2.1.7 Fungus resistance. The treated net mesh shall be in accordance with FED-STD-191, method 5750, that the test organism shall be aspergill= niger ATCC No. 6275 or QM 458 (see 6.4). Nonconformance to 3.4.1.6 shall constitute failure of this test.

4.5.2.2 Finished Cloth.

4.5.2.2.1 Weight.

4.5.2.2.1.1 Weight after processing. Weight of the finished cloth shall be tested in accordance with FED-STD=191, method 5041. Three specimens for each test, each 2 inches square, shall be used. Nonconformance to 3.5.4 shall constitute failure of this test.

4.5.2.2.1.2 Weight increase after water immersion. Weight increase of the finished cloth after immersion in water shall be determined in accordance with ASTM D 471, except the Specimens shall not be dipped into acetone. Ten Specimens, each 2 inches square, shall be tested for weight increase after the finished cloth has been immersed in a container of distilled water for 24 hours at 73 ± 2 °F. Nonconformance to 3.5.4.1 shall constitute failure of this test.

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4.5.2.2.2 Stiffness. The stiffness of the finished cloth shall be tested in accordance with FED-STD-191, method 5204. Specimens shall be tested after exposure for 94 hours \pm 1 hour, in a chamber at -40° F. For finished cloth manufactured with polyvinyl chloride plastisol materials, the -40° F exposure time may be reduced to less than 2 hours. Nonconformance to 3.5.4.2 shall constitute failure of this test.

4.5.2.2.3 Tackiness. The finished cloth shall be tested in accordance with FED-STD-406, method 1131. A specimen of finished cloth, 2 x 6 inches, shall be conditioned for 3 hours at $100 \pm 5^{\circ}$ F, and 95 to 100 percent relative humidity. The cloth shall be folded and a pressure of 2 pounds per square inch shall be applied for a period of 4 hours at $180 \pm 5^{\circ}$ F. Nonconformance to 3.5.4.3 shall constitute failure of this test.

4.5.2.2.4 Volubility. A 2 x 6 inch specimen of the finished cloth shall be immersed for 24 hours in a 400 cubic centimeter glass beaker filled with distilled water at a temperature of $70 \pm 10^{\circ}$ F. Nonconformance to 3.5.4.4 shall constitute failure of this test.

4.5.2.2.5 Breaking strength. The breaking strength of the finished cloth shall be tested in accordance with ASTM D 1682, grab method. Nonconformance to 3.5.4.5 shall constitute failure of this test.

4.5.2.2.5.1 Accelerated weathering. The finished cloth shall be conditioned in accordance with ASTM G 26, method A, type BH, for 300 hours and tested as specified in 4.5.2.2.5. Nonconformance to 3.5.4.5.1 shall constitute failure of this test.

4.5.2.2.5.2 Accelerate aging. The finished cloth shall be conditioned in accordance with FED-STD-191, method 5851, for 10 days at $175 \pm 5^{\circ}$ F, and tested as specified in 4.5.2.2.5. Nonconformance to 3.5.4.5.1 shall constitute failure of this test.

4.5.2.2.5.3 Accelerated fading. The finished cloth shall be conditioned in accordance with FED-STD-191, method 5660, for 140 hours and tested as specified in 4.5.2.2.5. Nonconformance to 3.5.4.5.1 shall constitute failure of this test.

4.5.2.2.5.4 Water immersion. The finished cloth shall be immersed in distilled water for 24 hours at $73 \pm 2^{\circ}$ F, and tested as specified in 4.5.2.2.5. Nonconformance to 3.5.4.5.1 shall constitute failure of this test.

4.5.2.2.5.5 Petroleum immersion. The finished cloth shall be immersed in medium No.5 for 2 hours at $73 \pm 2^{\circ}$ F, in accordance with FED-STD-601 method 6001, and tested as specified in 4.5.2.2.5. Nonconformance to 3.5.4.5.1 shall constitute failure of this test.

4.5.2.2.5.6 Salt fog. The finished cloth shall be conditioned for 300 hours in accordance with ASTM B 117 and tested as specified in 4.5.2.2.5. Nonconformance to 3.5.4.5.1 shall constitute failure of this test.

4.5.2.2.5.7 Humidity. The finished cloth shall be conditioned for 14 days in accordance with ASTM D 2247 and tested as specified in 4.5.2.2.5. Nonconformance to 3.5.4.5.1 shall constitute failure of this test.

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4.5.2.2.6 Flame resistance. Test specimens shall be prepared by attaching 12 inch x 12 inch incised color-coated cloths to 12 inch x 12 inch nets with attachment rings. The incising pattern shall be as specified on drawing 13226E1349-1. Two specimens shall be fabricated from each sample for finished cloth (see 4.4.2.3) for each color represented. Specimens shall not be selected from the same roll. Each specimen shall be attached to and hung from a horizontal support with the direction of the incising pattern (see arrow on drawing 13226E1349-1) perpendicular to support, so that the entire 12 inch X 12 inch area is exposed. The middle of the bottom edge of the specimen shall be positioned in the center of a 1-1/2 inch burner flame. The burner, gas regulator valve, and fuel shall be as specified in FED-STD-191, method 5903. The flame shall be applied as specified in method 5903 for 15 seconds, then removed. Nonconformance to 3.5.4.6 of more than three of the specimens or two of the same color shall constitute failure of this test.

4.5.2.2.6.1 Finished cloth, initially. The finished cloth shall be tested as specified in 4.5.2.2.6. Nonconformance to 3.5.4.6 shall constitute failure of this test.

4.5.2.2.6.2 Accelerated weathering. The finished cloth shall be conditioned in accordance with ASTM G 26, method A, type BH for 300 hours and tested as specified in 4.5.2.2.6. Nonconformance to 3.5.4.6 shall constitute failure of this test.

4.5.2.2.6.3 Accelerated fading. The finished cloth shall be conditioned in accordance with FED-STD-191, method 5660, for 140 hours and tested as specified in 4.5.2.2.6. Nonconformance to 3.5.4.6 shall constitute failure of this test.

4.5.2.2.6.4 Leaching. The finished cloth shall be conditioned by placing the specimens in a distilled water bath for 24 hours at a temperature of $120 \pm 5^\circ\text{F}$. After leaching, the specimens shall be dried at room temperature for 8 hours and then conditioned at 120°F for 40 hours. The specimens shall then be tested as specified in 4.5.2.2.6. Nonconformance to 3.5.4.6 shall constitute failure of this test.

4.5.2.2.7 Color. The finished cloth shall be tested for color in accordance with ASTM E 308 using standard illuminant C. The chromaticity coefficient (x, y) and visual reflectance (Y) shall be determined for six samples of each color. Nonconformance to 3.5.4.7 shall constitute failure of this test.

4.5.2.2.7.1 Accelerated weathering. The finished cloth shall be conditioned in accordance with ASTM G 26, method A, type BH for 300 hours and tested as specified in 4.5.2.2.7. Nonconformance to 3.5.4.7 shall constitute failure of this test.

4.5.2.2.7.2 Accelerated fading. The finished cloth shall be conditioned in accordance with FED-STD-191, method 5660, for 140 hours and tested as specified in 4.5.2.2.7. Nonconformance to 3.5.4.7 shall constitute failure of this test.

4.5.2.2.7.3 Humidity. The finished cloth shall be conditioned in accordance with ASTM D 2247 for 14 days and tested as specified in 4.5.2.2.7. Nonconformance to 3.5.4.7 shall constitute failure of this test.

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4.5.2.2.7.4 Salt fog. The finished cloth shall be conditioned_ in accordance with- B 117, for 300 hairs and tested as specified in 4.5.2.2.7. Nonconformance to 3.5.4.7 shall constitute failure of this test.

4.5.2.2.7.5 Fungus resistance. The finished cloth shall be conditioned in accordance with FED-STD-191, method 5750, except that the test organism shall be aspergillus niger ATCC No. 6275 or QM 458 (see 6.4), and tested as specified in 4.5.2.2.7. Nonconformance to 3.5.4.7 shall constitute failure of this test.

4.5.2.2.8 Crocking. The finished cloth shall be tested in accordance with FED-STD-191, method 5651, wet and dry, method B. Nonconformance to 3.5.4.8 shall constitute failure of this test.

4.5.2.2.9 Specular gloss. The specular gloss of the finished cloth shall be tested in accordance with ASTM D 523 at 60 degrees and 85 degrees. Two measurements shall be made oriented 90 degrees to each other and averaged. Nonconformance to 3.5.4.9 shall constitute failure of this test.

4.5.2.2.10 Spectral reflectance. The finished cloth shall be tested in accordance with FED-STD-141, method 6241. The ordinates shall be those specified in table V. The reflectance values shall be obtained by averaging the reflectance percentage at the wavelength ordinates. Nonconformance to 3.5.4.10 shall constitute failure of this test.

TABLE V. Selected ordinates for determining infrared, ultraviolet, red reflectance values from spectrophotometric curves.

Ordinates red region (nanometers)	Ordinates ultraviolet region (nanometers)	Ordinates infrared region (nanometers)	
620.0	350.0	714.0	793.0
626.0	355.0	725.0	797.0
638.0	360.0	730.0	802.0
645.0		737.0	807.0
649.0		742.0	811.0
652.0		747.0	816.0
653.0		751.0	821.0
655.0		756.0	826.0
658.0		760.0	831.0
663.0		764.0	836.0
		769.0	842.0
		773.0	848.0
		777.0	855.0
		783.0	862.0
		787.0	873.0

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4.5.2.2.10.2 Accelerated weathering. The finished cloth shall be conditioned in accordance with ASTM G 26, method A, for 300 hours and tested as specified in 4.5.2.2.10. Nonconformance to 3.5.4.10 shall constitute failure of this test.

4.5.2.2.10.3 Accelerated fading. The finished cloth shall be conditioned in accordance with FED-STD-191, method 5660, for 140 hours and tested specified in 4.5.2.2.10.4 Nonconformance to 3.5.4.10 shall constitute failure of this test.

4.5.2.2.10.4 Salt fog. The finished cloth shall be conditioned in accordance with ASTM B 117 for 300 hours and tested as specified in 4.5.2.2.10. Nonconformance to 3.5.4.10 shall constitute failure of this test.

4.5.2.2.10.5 Fungus resistance. The finished cloth shall be conditioned in accordance with FED-STD-191, method 5750, except that the test organism shall be aspergillus niger ATCC No. 6275 or QM 458 (see 6.4), tested as specified in 4.5.2.2.10. nonconformance to 3.5.4.10 Shall constitute failure of this test.

4.5.2.2.10.6 Humidity. The finished cloth shall be conditioned in accordance with ASTM D 2247 for 14 days and tested as specified in 4.5.2.2.10. Nonconformance to 3.5.4.10 shall constitute failure of this test.

4.5.2.2.11 Fungus resistance. The finished cloth shall be tested in accordance with FED-STD-191, method 5750, except that the test organism shall be aspergillus niger ATCC No. 6275 QM 458 (see 6.4). Nonconformance to 3.5.4.11 shall constitute failure of this test.

4.5.2.2.12 Tear strength. The finished cloth shall be tested in accordance with FED-STD-191, method 5134 except with the following modifications:

- a. The specimen size shall be 1 inch x 8 inches.
- b. The test shall be performed only with specimens with the short distance (1 inch width) parallel to the warp yarns.
- c. The apparatus used shall be the constant-rate-of-extension (CRE) tester and the tester shall be operated at a uniform pulling speed of 2.0 ± 0.1 inch minimum.

Nonconformance to 3.5.4.12 shall constitute failure of this test.

4.5.2.2.13 Radar properties for cloth. The finished cloth, type I, type II, type III and type IV, shall be 100 percent tested. Transmission measurements shall be made on type II cloth at $6.0 \text{ GHz} \pm 1.0 \text{ GHz}$, $10.0 \text{ GHz} \pm 1.0 \text{ GHz}$ and $17.0 \text{ GHz} \pm 1.0 \text{ GHz}$. Transmission measurements shall be made on type III cloth at $6.0 \text{ GHz} \pm 1.0 \text{ GHz}$, $10.0 \text{ GHz} \pm 1.0 \text{ GHz}$, $17.0 \text{ GHz} \pm 1.0 \text{ GHz}$ and $35.0 \text{ GHz} \pm 1.0 \text{ GHz}$. Transmission measurements shall be made on type IV cloth at $6.0 \text{ GHz} \pm 1.0 \text{ GHz}$, $10.0 \text{ GHz} \pm 1.0 \text{ GHz}$, $17.0 \text{ GHz} \pm 1.0 \text{ GHz}$, $35.0 \text{ GHz} \pm 1.0 \text{ GHz}$ and $94.0 \text{ GHz} \pm 1.0 \text{ GHz}$. The transmission measurements shall be averaged for each frequency over an area of not more than 100 square feet of camouflage cloth. Transmission measurements shall be taken in both the horizontal and vertical polarizations. The measured power attenuation of both polarizations for each specific frequency shall be averaged over a ± 100.0 megahertz (MHz) minimum bandwidth for each frequency. The transmission measurements shall be made in a radar monitor that measures true transmission. A true transmission measurement shall be obtained by eliminating signal paths other than the direct path existing between the transmit and

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receive horns, and reduction of direct path multiple reflections through the use of power attenuation averaging. Not more than 7000 square yards of material shall constitute a roll. Transmission values of both polarizations shall be averaged independently from each other for frequency. Nonconformance of the averaged transmission value for each polarization for each frequency to 3.5.1 for type I cloth shall constitute failure of this test. Nonconformance of the averaged transmission value for each polarization for each frequency to 3.5.2 of more than 5 percent of a roll of type II, Type III or type IV cloth shall constitute failure of this test. Defective cloth above 5 percent be removed and the roll retested.

4.5.2.2.14 Radar properties for finished screen. A hexagon screen shall be unpacked, deployed using for 8 foot support poles with spreaders, and repacked in the case for 112 cycles. Type II screen shall be measured at 6.0 GHz \pm 1.0 GHz, 10.0 GHz \pm 1.0 GHz and 17.0 GHz \pm 1.0 GHz; type III screens shall be measured at 6.0 GHz \pm 1.0 GHz, 10.0 GHz \pm 1.0 GHz, 17.0 GHz \pm 1.0 GHz and 35.0 GHz \pm 1.0 GHz; and type IV screens shall be measured at 6.0 GHz \pm 1.0 GHz, 10.0 GHz \pm 1.0 GHz, 17.0 GHz \pm 1.0 GHz, 35.0 GHz \pm 1.0 GHz and 94.0 GHz \pm 1.0 GHz using a microwave transmitter with the receiving horn located in the far field in an anechoic chamber or in an interference-free environment. The screen shall be inserted between the horns and viewed at normal incidence. The measurement shall be made in raster fashion by passing the screen horizontally across the radar beam and averaging each signal over the entire area of the screen. Any repairs to the screen shall not be made until the radar test has been completed. Nonconformance to 3.5.2.1 shall constitute failure of this test.

4.6 Inspection of packaging.

4.6.1 First article pack inspection. The first article pack shall be examined for the defects specified in 4.6.2.3. Presence of one or more defects shall be cause for rejection.

4.6.2 Quality conformance inspection of packaging.

4.6.2.1 Unit of product. For the purpose of inspection, a completed pack prepared for shipment shall be considered a unit of product.

4.6.2.2 Sampling. Sampling for examination shall be in accordance with MIL-STD-105.

4.6.2.3 Examination. Samples selected in accordance with 4.6.2.2 shall be examined for the following defects. AQL shall be 2.5 percent defective.

Special note: Acceptance criteria for Workmanship standards in packaging shall conform to 30.4 of the appendix for all specified level of packaging and as referenced herein.

No. Defect

138. Repair kit components not placed in interlocking seal closure plastic bag as specified.	5.2.1	5.2.2	5.2.3
139. Unlike repair kit components mixed within interlocking seal closure bag.	5.2.1	5.2.2	5.2.3

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140.	Quantity of repair kit components placed in interlocking sealclosure plastic bag not as specified.	5.2.1	5.2.2	5.2.3
141.	Sealed plastic bags containing repair kit components not placed in repair kit case as specified.	5.2.1	5.2.2	5.2.3
142.	Screens not folded as specified.	5.2.1	5.2.2	5.2.3
143.	Components not positioned inside transport case as specified.	5.2.1	5.2.2	5.2.3
144.	Filled transport case not placed inside polyethylene bag as specified.	5.2.1	5.2.2	
145.	Polyethylene bag not as specified.	5.2.1	5.2.2	
146.	Bag not compressed around transport case by vacuum as specified.	5.2.1	5.2.2	
147.	Bag not properly heat sealed to retain vacuum (see 30.4.2).	5.2.1	5.2.2	
148.	Preserved screening system not placed in specified close-fitting box.	5.2.1	5.2.2	5.2.3
149.	Close-fitting box not assembled and closed as specified (see 30.4.1 and 30.4.3).	5.2.1	5.2.2	5.2.3
150.	Preserved screening systems not unitized as specified.	5.3.1		5.3.2
151.	Pallet not the style specified.	5.3.1		5.3.2
152.	Pallet deckboards not as specified.	5.3.1.1.1		
153.	Pallet deckboards not positioned on top and bottom decks as specified.	5.3.1.1.1		
154.	Pallet stringers not as specified.	5.3.1.1.2		
155.	Pallet size not within specified tolerance.	5.3.1.1.3		
156.	Cartons not secured to pallet as specified (see 30.4.4).	5.3.1.2		5.3.2
157.1	Marking nut as specified.	5.4.1	5.4.1	5.4.1

5. PACKAGING

5.1 First article pack. The contractor shall furnish a first article pack for examination within the time frame specified (see 6.2) to prove prior to starting production packaging that the applied preservation, packing, and marking comply with the packaging requirements of this specification. Examination shall be as specified in section 4 and shall be subject to surveillance and approval by the Government (see 6.5). The first article pack may be prepared utilizing either the first article model or a production camouflage screening system. When the first article model is utilized, and preservation and packing shall be removed by the contractor at no expense to the Government, when requested by the Government to facilitate comparison between the first title article and production camouflage screening systems.

5.2 Preservation. Preservation shall be level A, B, or C, as specified (see 6.2).

5.2.1 Level A. The repair kit component shall be placed in the repair kit case. Prior to placement within the case, small like components or the kit shall be placed in inter-locking seal closure plastic bags conforming to PPP-B-26, type II, style 3 in the following quantities; STRAPS = 200 = each per

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plastic bag; PINS - 30 each per plastic bag; BRACKETS = 30 each per plastic bag. Each screen shall be neatly and compactly folded. The filled repair kit case, folded screens and all other components required for one complete screening system shall be placed in the transport case. Each filled transport case shall then be placed in a plastic bag of material conforming to L-P-378, type I, class I, grade C, finish I, film thickness 0.006 inch. The bag shall be tightly compressed around the transport case by vacuum and the bag closed by heat sealing. The sealed bag containing the complete screening system shall then be placed in a close-fitting box conforming to PPP-B-636, V3s, style FTC-L. The approximate sizes of the boxes shall be 44 inches X 24 inches X 6 inches for classes 1 and 2 systems and 44 inches X 24 inches X 8 inches for the class 3 system. The boxes shall be assembled and closed as specified in the appendix to the box specification.

5.2.2 Level B. Each complete screening system shall be preserved as specified in 5.2.1, except the box shall conform to PPP-B-636, type CF, class domestic, variety SW, grade 275, style FTC-L. Box assembly and closure shall be in accordance with the appendix to the box specification.

5.2.3 Level C. Each complete screening system shall be preserved as specified in 5.2.2 for level NB except the filled transport case shall not be placed in the vacuum sealed plastic bag, and the suggested depth of the style FTC-L (see 5.2.1), shall be adjusted accordingly.

5.3 Packing. Packing shall be level A or C, as specified (see 6.2).

5.3.1 Level A. Ten screening systems, preserved as specified in 5.2, shall be unitized in two stacks side by side, five cartons high, on a reversible, two-way entry, flush, stringer type, hardwood pallet.

5.3.1.1 Pallet. The quality of the lumber and assembly workmanship shall be in accordance with commercially acceptable practices.

5.3.1.1.1 Deckboards. The deckboards shall have a minimum thickness of 9/16 inches and a minimum width of 3-1/2 inches or 5-1/2 inches, as applicable. 5-1/2 inch width deckboard shall be centered on the stringer length both the top and bottom decks. Two 3-1/2 inch width deckboards shall be evenly spaced on each side of the centered 5-1/2 inch width boards on both top and bottom decks as shown in figure 13.

5.3.1.1.2 Stringers. The lumber used for the stringers shall have a minimum thickness of 1-1/2 inches and a minimum width of 2-5/8 inches. Three stringers shall be required per pallet and they shall be positioned as shown in figure 13.

5.3.1.1.3 Size. The length of the pallet (the stringer length shall be equal to the outside dimension (+ zero inches, -1/2 inch) of the two side-by-side screen cartons. The width of the pallet (the deckboard length shall be equal to the outside dimension (+ zero inches, -1/2 inch) of the screen carton length.

5.1.2 Strapping. The cartons shall be secured to the pallet with five straps conforming to QQ-S-781, type I or IV, regular duty, size 1/2 inch, finish A, with a minimum thickness of 0.015 inches, or with nonmetallic strapping conforming to PPP-S0760, type II or III, with a minimum thickness of 0.020 inches. Three straps shall be applied lengthwise to the pallet and two straps

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shall be applied girthwise to the pallet (see figure 13). Fiberboard or plastic edge protectors of adequate design and size shall be placed between the carton edges and to prevent excessive tearing and crushing of the carton.

5.3.2 Level C. camouflage screening systems, preserved as specified in 5.2, shall be unitized in accordance with MIL-STD-1190.

5.4 Marking.

5.4.1 Levels A, B and C. In addition to any special or other identification markings required by the contract or purchase order, each container and unitized load shall be marked in accordance with MIL-STD-129.

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. The camouflage screening system is intended for use as temporary or semipermanent concealment of various types of tactical equipment and field installations from hostile visual, radar, and infrared

6.2 Acquisition requirements. Acquisition documents shall specify the following:

- a. Title, number, and date of the specification.
- b. Issue of DODISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.1.1 and 2.2).
- c. Type and class required (see 1.2 and 4.4.1.3).
- d. When a first article is not required for inspection and approval and number of units required (see 3.2 and 6.3).
- e. When a color validation test is required (see 4.4.4.2.3).
- f. When a radar validation test is required (see 4.4.4.2.4).
- g. Time frame required for submission of first article pack (see 5.1).
- h. Level of preservation and packing required (see 5.2 and 5.3 respectively).
- i. Any special marking (see 5.4.1).

6.3 First article. When a first article inspection is required, the item(s) should be an initial production model. The first article should consist of one or more units. The contracting officer should include specific instructions in acquisition documents regarding arrangements for examinations, approval of the first article test results and disposition of the first articles. Invitation for bids should provide that the Government reserves the right to waive the requirements for samples for first article inspection to those bidders offering a product which has been previously acquired or tested by the Government, and that bidders offering such products, who wish to rely on such production or test, must furnish evidence with the bid that prior Government approval is presently appropriate for the pending contract. Bidders should not submit alternate bids unless specifically requested to do so in the solicitation.

6.3.1 Finished cloth. A minimum of 100 square feet of finished cloth used for first article test, Types I, II, III and IV, shall remain at the contractor's plant for the duration of the contract, to be used as a testing standard.

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6.4 Fungus. Cultures of the organism used in the fungus resistance tests may be obtained from Dr. Emmory G. Simmons, P.O. Box 1056, Crawfordsville, IN 47933.

6.5 First article pack. Any changes of deviations fo production packs from the approved first article pack will be subject to the approval of the contracting officer. Approval of the first article pack will not relieve the contractor of his obligation to preserve, package, pack, and mark the camouflage screening systems in accordance with this specification.

6.6 Levels A and B preservation. The intent of the polyethylene bag is to provide th means for compressing the illed transport case, this reducing the cube. The moisture barrier chatacteristics offered by the bag's application is secondary.

6.7 Subject term (key word) listing.

Net, camouflage
Screen, camouflage

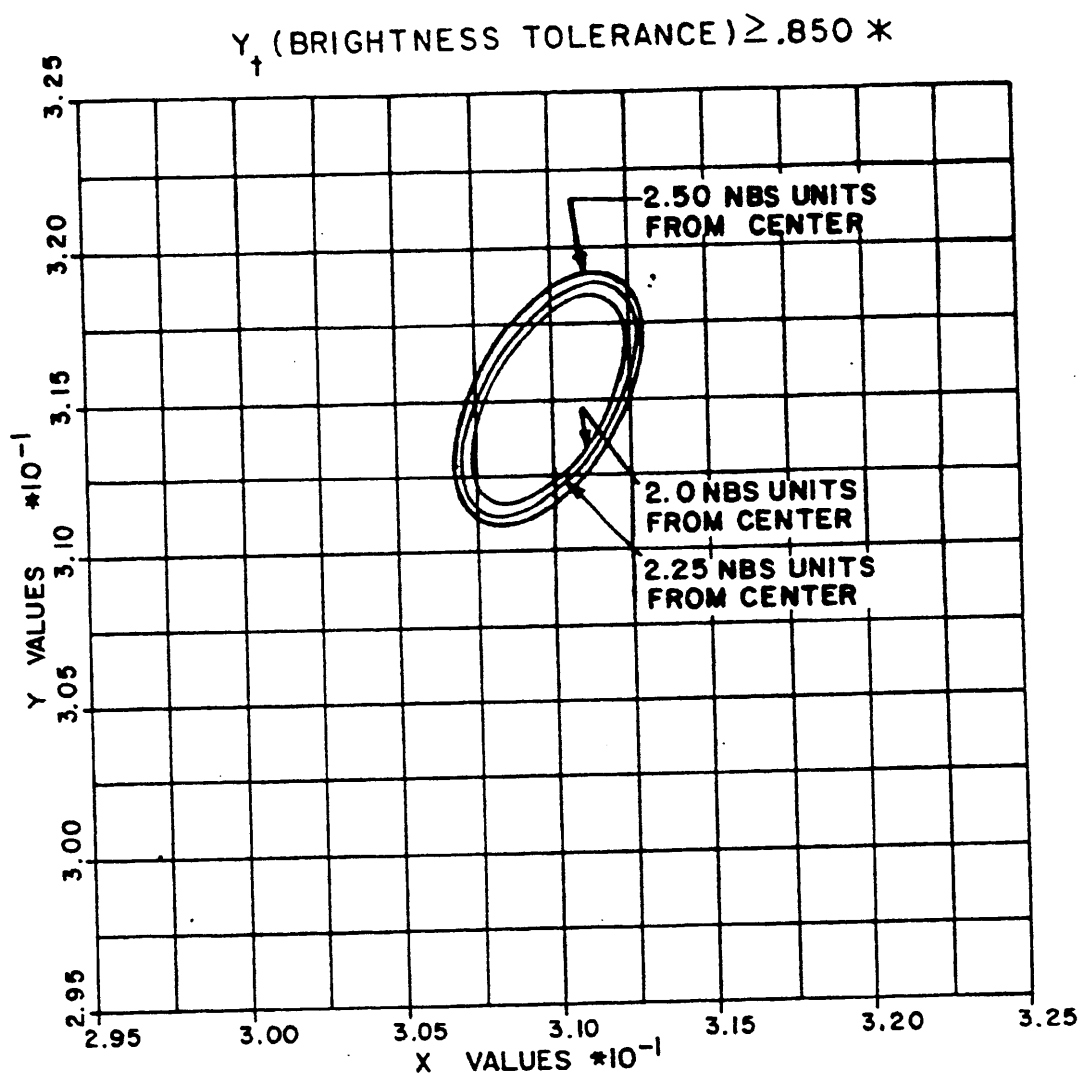
6.8 Changes from previous issue. Marginal notations are not used in this revision to changes with respect to the previous issue due to the extensiveness of the changes.

Custodians:
Army-ME
Navy-MC
Air Force -99

Preparing activity:
Army-ME

Project 1080-0080

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NOTE:

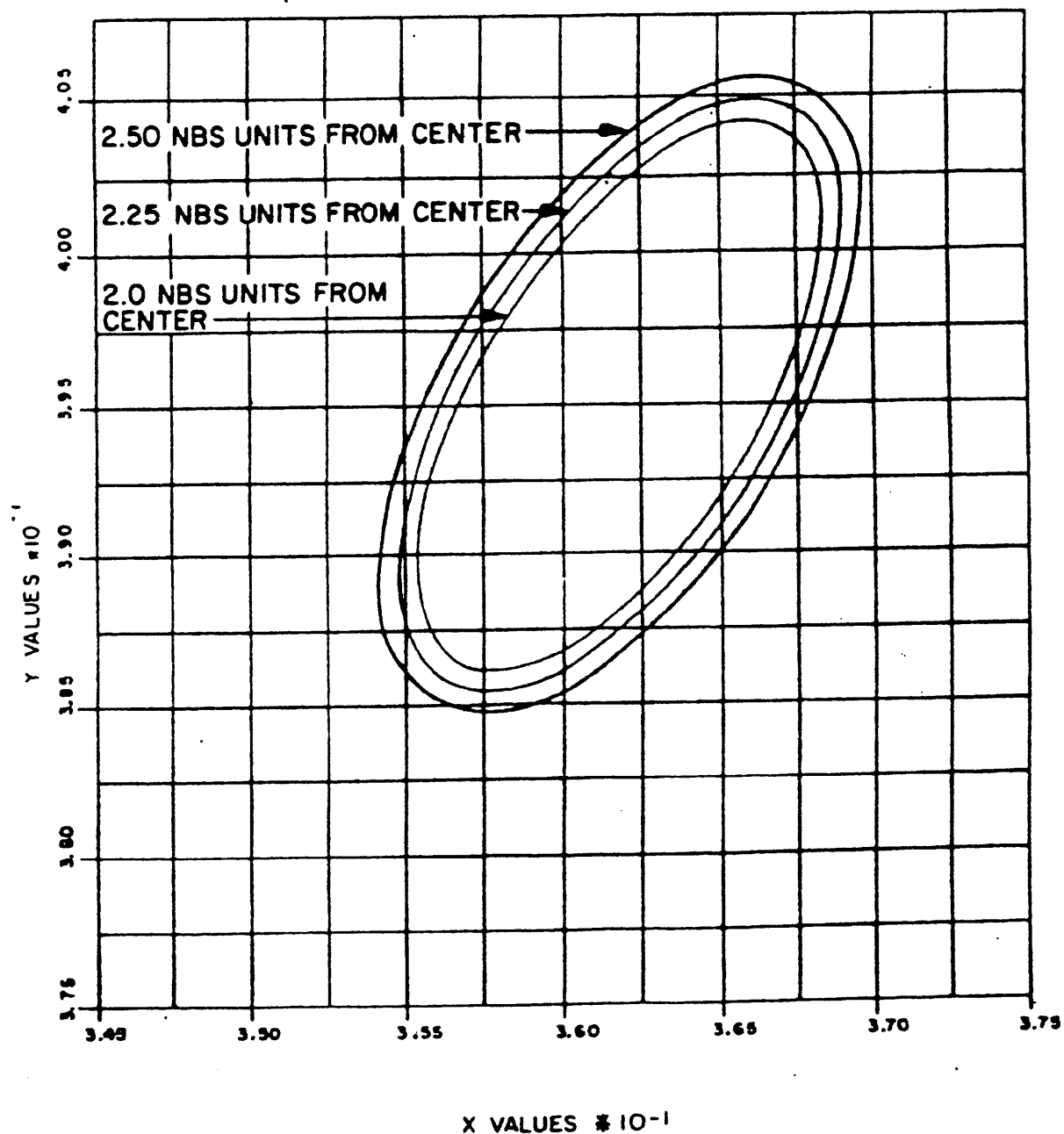
COLOR ELLIPSES ARE 2.0 AND 2.25 NBS UNITS FROM CENTER VALUES AFTER ENVIRONMENTAL EXPOSURE THE ELLIPSE OF 2.50 NBS UNITS FROM CENTER VALUES WILL BE APPLICABLE.

*AFTER ENVIRONMENTAL EXPOSURE THE Y (BRIGHTNESS) WILL BE $\geq .830$.

FIGURE 1. Chromaticity diagram for camouflage cloth color-white (snow).

A-3953D

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 Y_T (BRIGHTNESS TOLERANCE) .094-.108


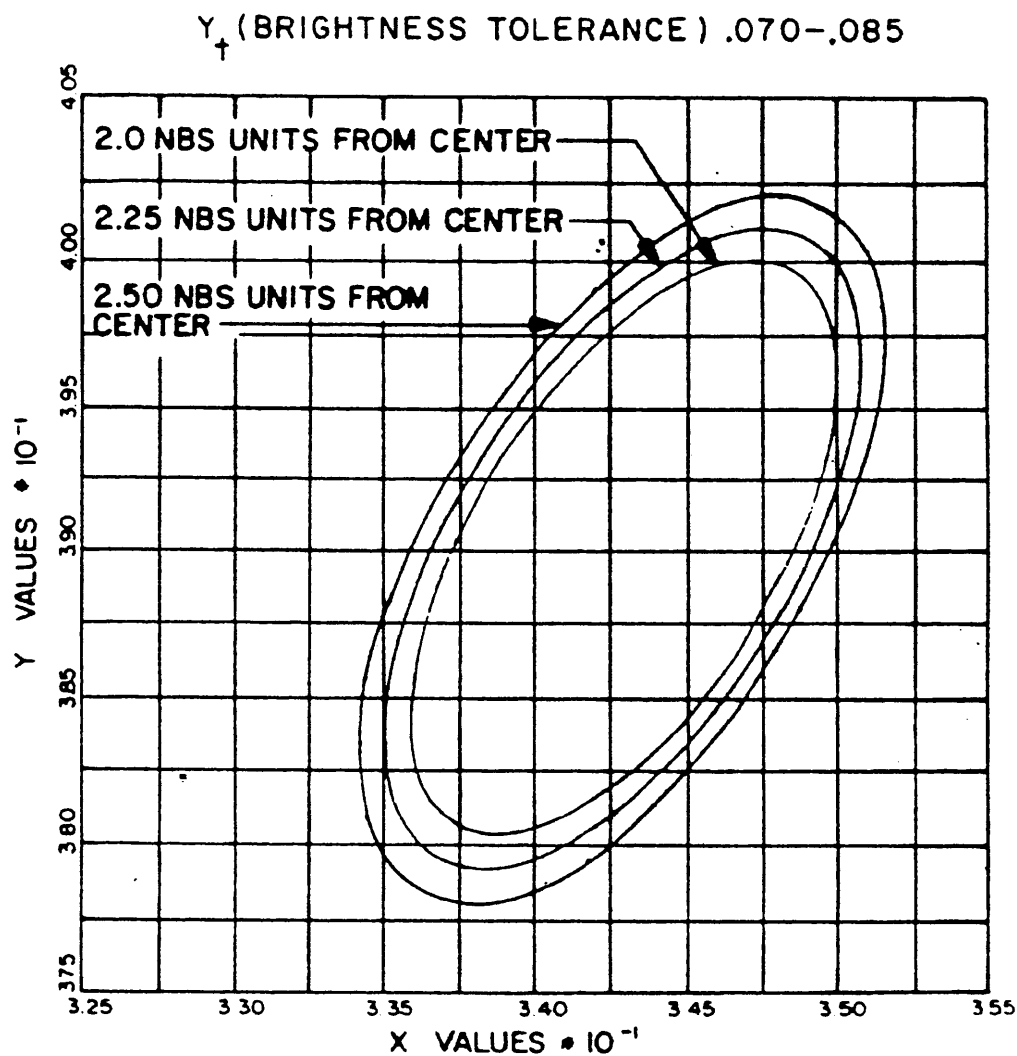
NOTE:

COLOR ELLIPSES ARE 2.0 AND 2.25 NBS UNITS FROM CENTER VALUES.
 AFTER EXPOSURE THE ELLIPSE OF 2.50 NBS UNITS
 FROM CENTER VALUES WILL BE APPLICABLE.

FIGURE 2. Chromaticity diagram for camouflage cloth color-light green (woodland).

X-4008A

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**NOTE :**

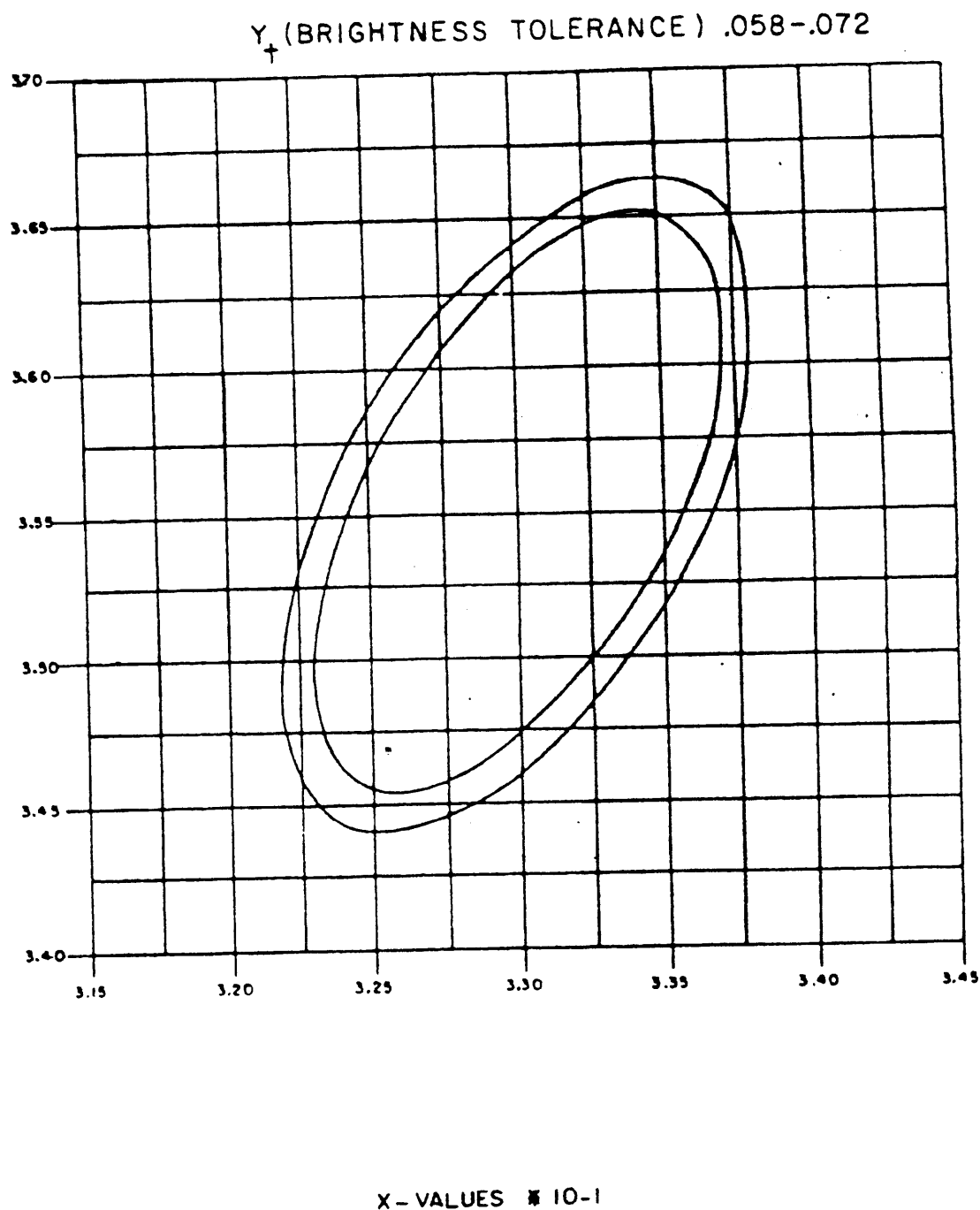
COLOR ELLIPSES ARE 2.0 AND 2.25 NBS UNITS FROM CENTER VALUES. AFTER ENVIRONMENTAL EXPOSURE THE ELLIPSE OF 2.50 NBS UNITS FROM CENTER VALUES WILL BE APPLICABLE.

⌘ AFTER ENVIRONMENTAL EXPOSURE THE Y (BRIGHTNESS) WILL BE .070-.086.

FIGURE 3. Chromaticity diagram for camouflage cloth color-dark green (woodland).

X-4009A

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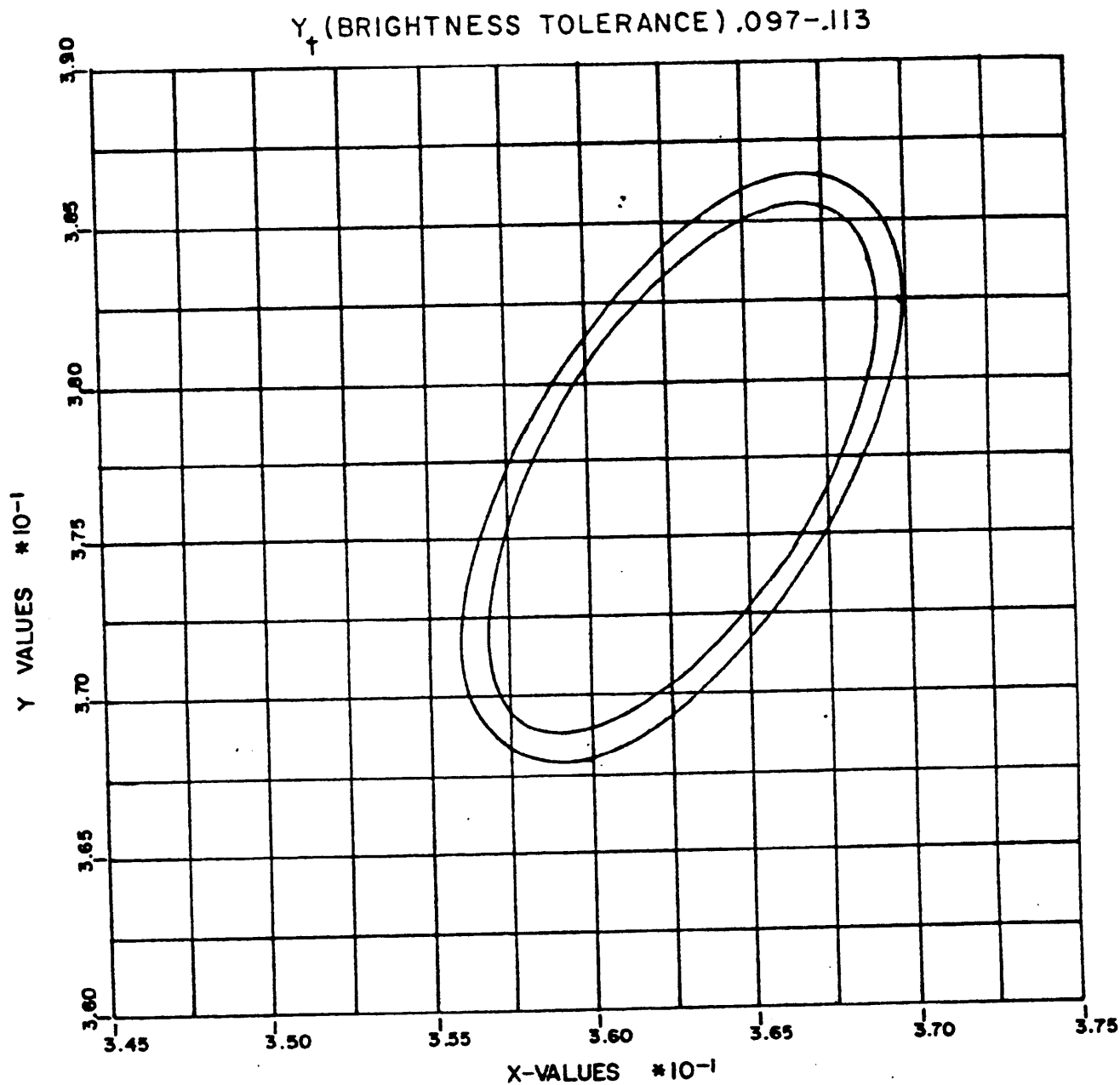


NOTE:
 COLOR ELLIPSE IS 2.00 AND 2.25 NBS UNITS FROM CENTER VALUES.
 AFTER ENVIRONMENTAL EXPOSURE ALLOWABLE Y (BRIGHTNESS) IS
 .058-.074.

**FIGURE 4. Chromaticity diagram for camouflage cloth color-
forest green (woodland and snow)**

X-4010A

MIL-C-53004B

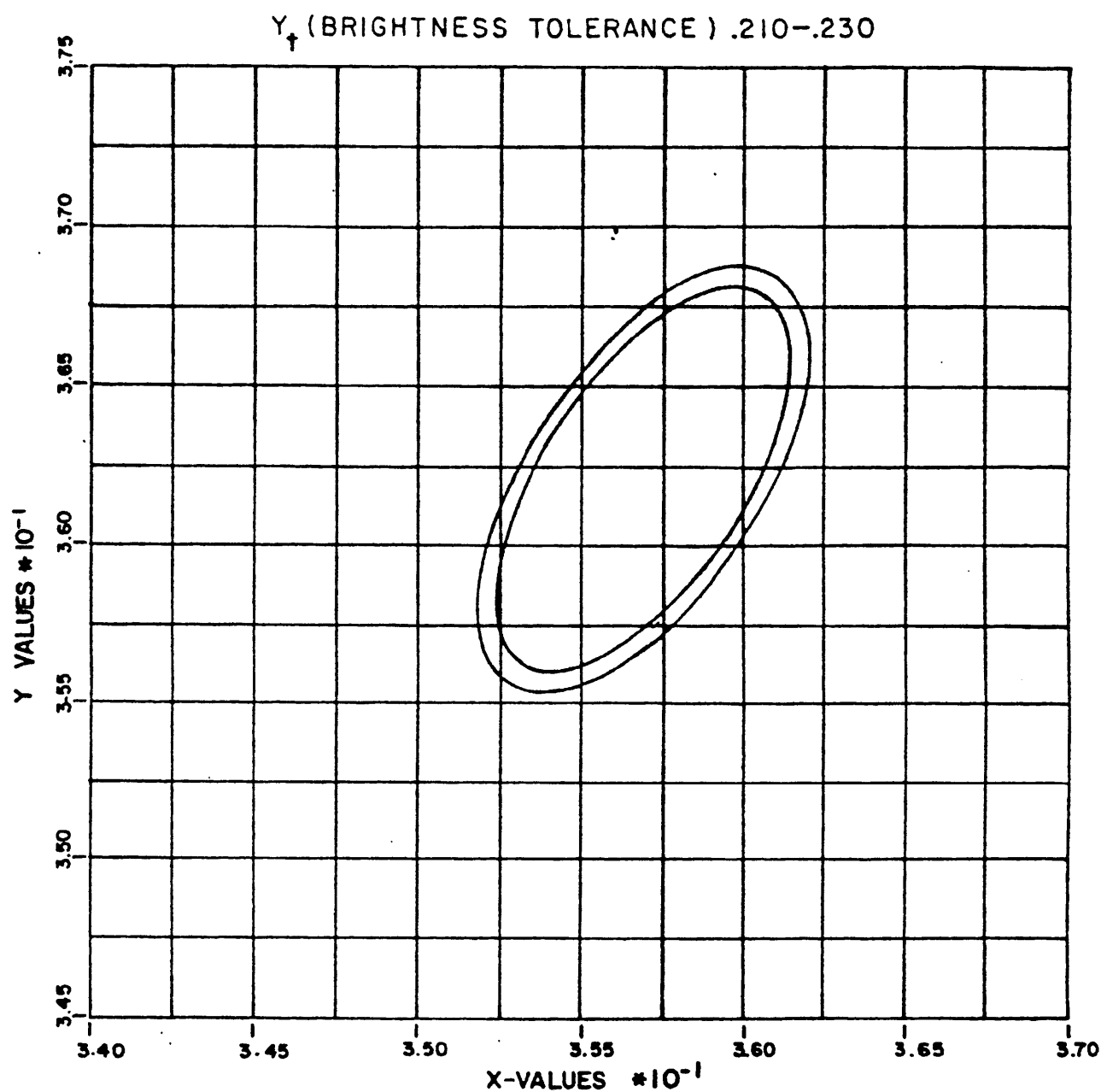


NOTE:
COLOR ELLIPSE IS 2.00 AND 2.25 NBS UNITS FROM CENTER VALUES.

FIGURE 5. Chromaticity diagram for camouflage cloth color-olive (woodland).

X-2571C

MIL-C-53004B



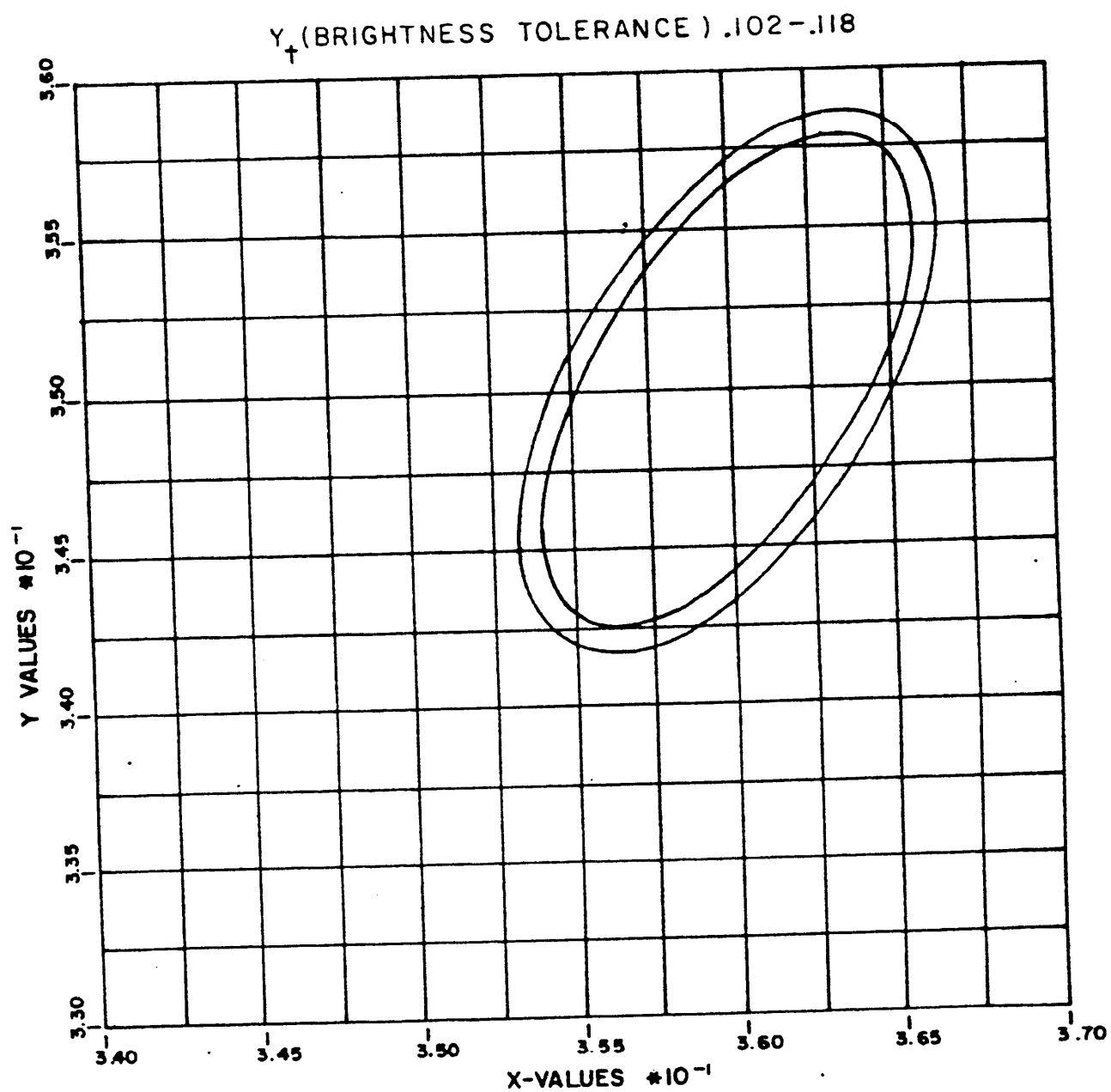
NOTE:

COLOR ELLIPSE IS 2.00 AND 2.25 NBS UNITS FROM CENTER VALUES.

FIGURE 6. Chromaticity diagram camouflage cloth color-khaki (woodland).

X-2572C

MIL-C-53004B

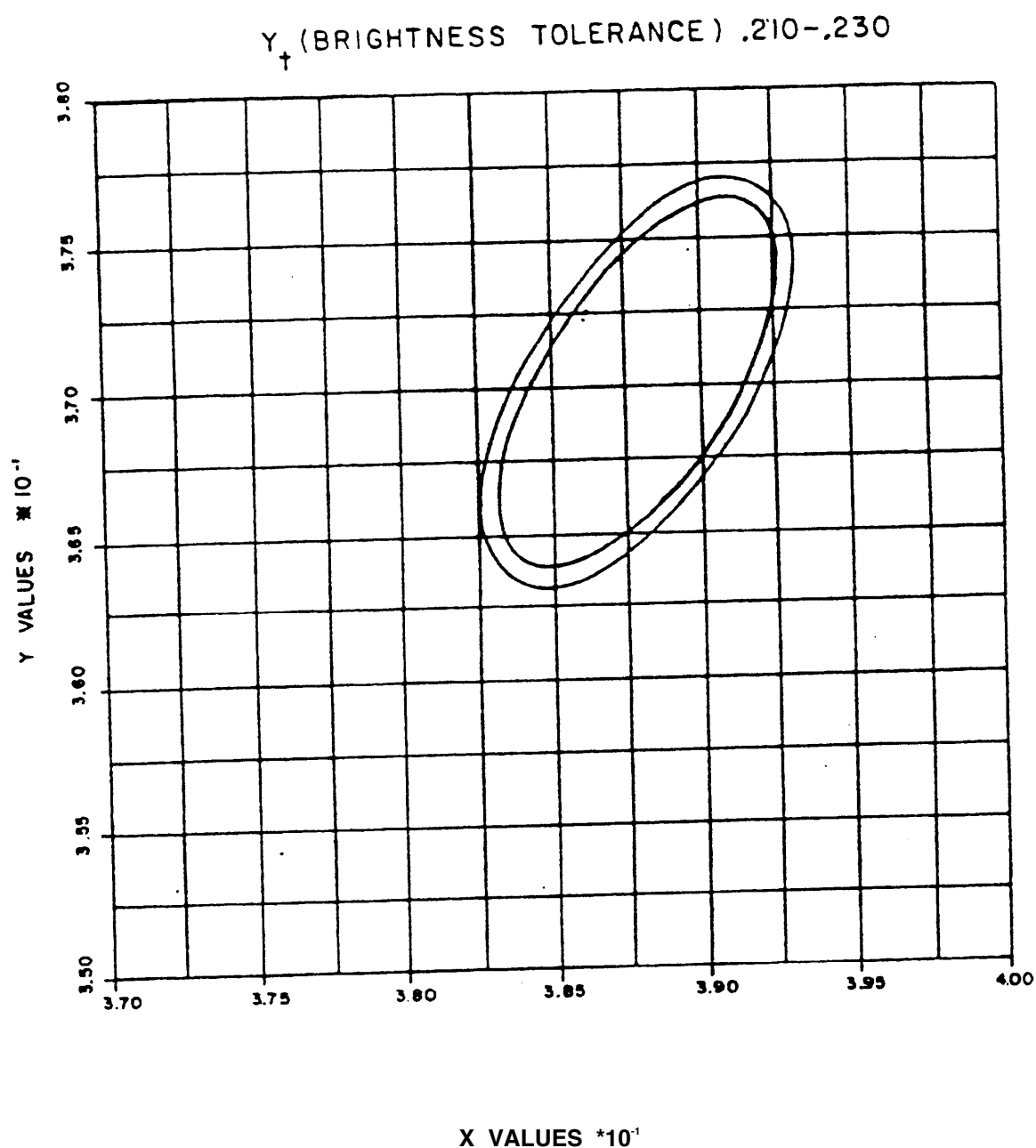


NOTE:
COLOR ELLIPSE IS 2.00 AND 2.25 NBS UNITS FROM CENTER VALUES.

**FIGURE 7. Chromaticity diagram for camouflage cloth
color-brown (woodland)**

X-2573C

MIL-C-53004B



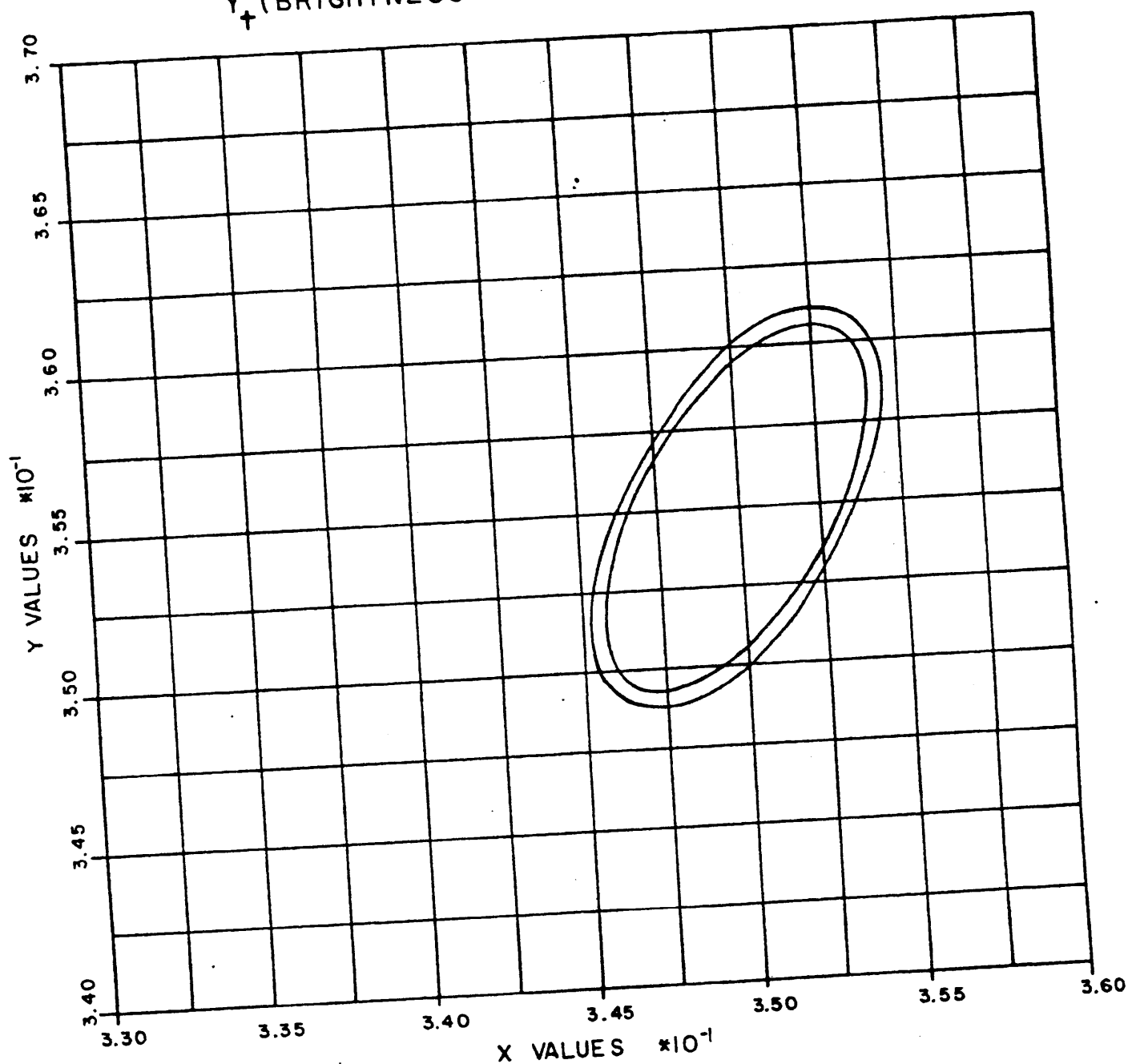
NOTE:

COLOR ELLIPSE IS 2.00 ANBD 2.25 NBS UNITS FROM CENTER Text
VALUES

**FIGURE 8. Chromaticity diagram or camouflage cloth color-
tan (woodland snow)**

X-4011A

MIL-C-53004B

 Y_{\dagger} (BRIGHTNESS TOLERANCE) .242-.264


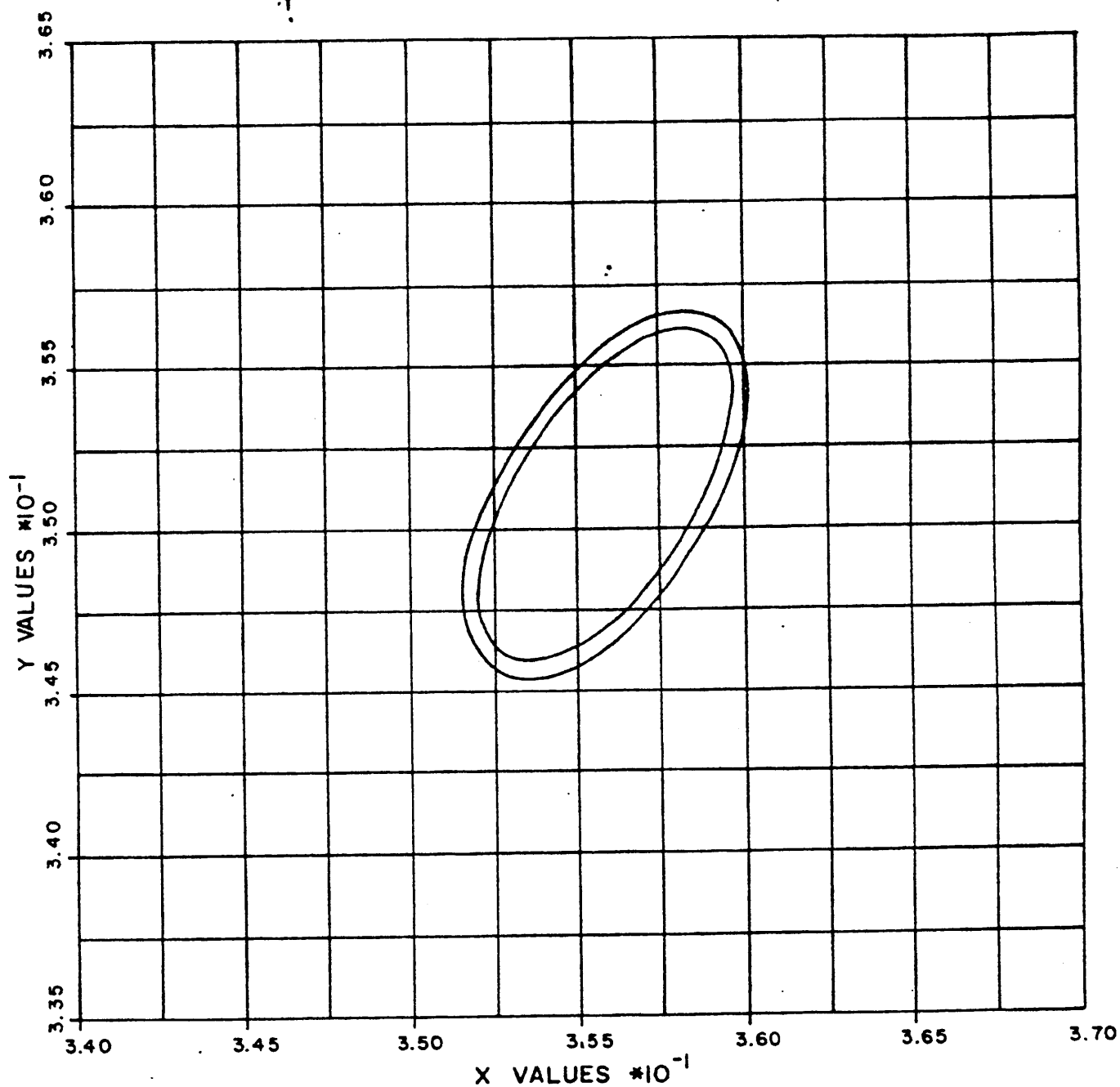
NOTE:

COLOR ELLIPSE IS 2.00 AND 2.25 NBS UNITS FROM CENTER VALUES.

FIGURE 9. Chromaticity diagram for camouflage cloth color-khaki (desert).

X-3111B

MIL-C-53004B

Y_t (BRIGHTNESS TOLERANCE) .336-.361

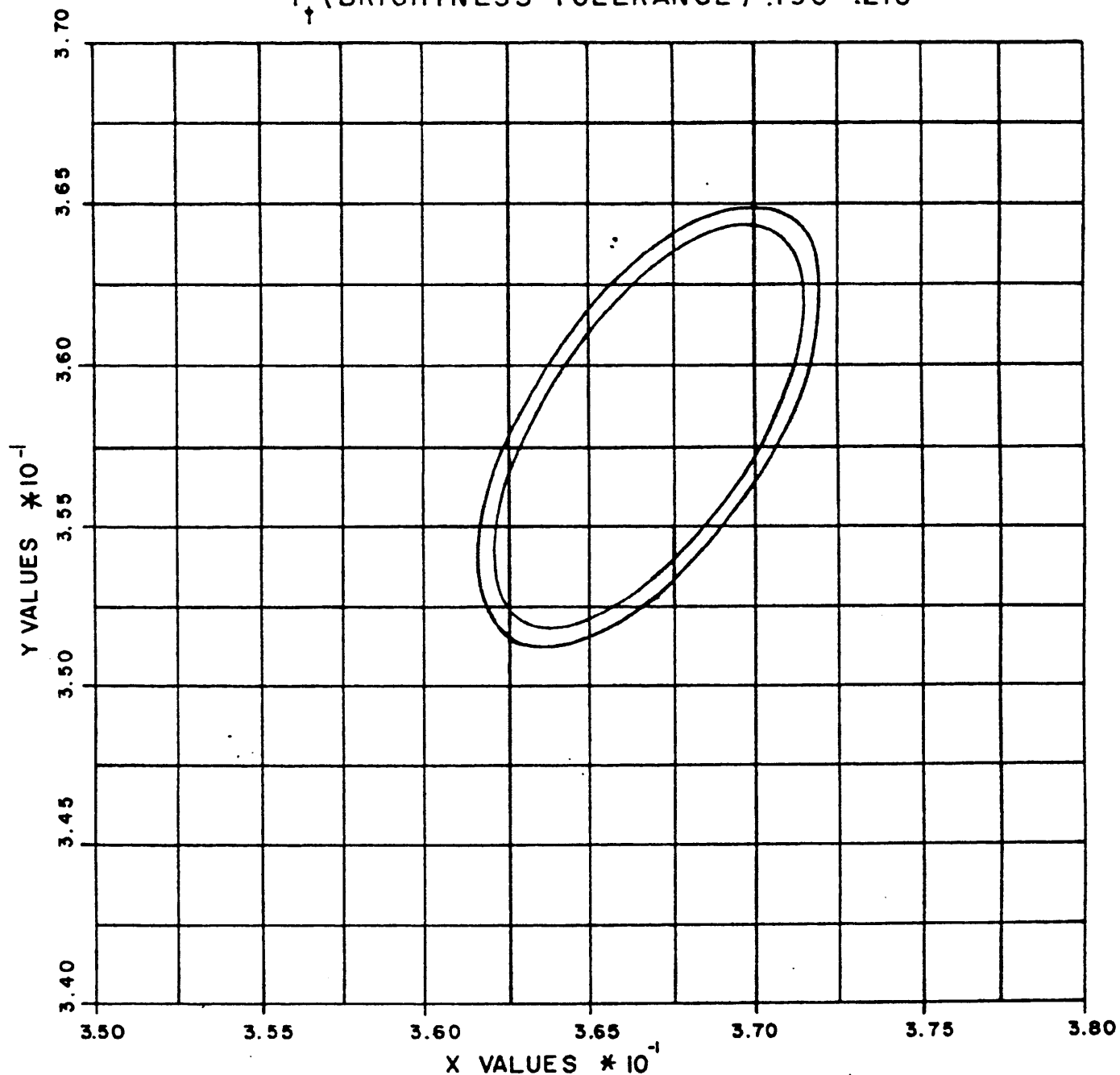
NOTE:

COLOR ELLIPSE IS 2.00 AND 2.25 NBS UNITS FROM CENTER VALUES.

FIGURE 10. Chromaticity diagram for camouflage cloth color-tan (desert).

X-3112B

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Y_↑ (BRIGHTNESS TOLERANCE) .190-.210

NOTE:

COLOR ELLIPSE IS 2.00 AND 2.25 NBS UNITS FROM CENTER VALUES.

FIGURE 11. Chromaticity diagram for camouflage cloth color-light brown (desert)

X-3115C

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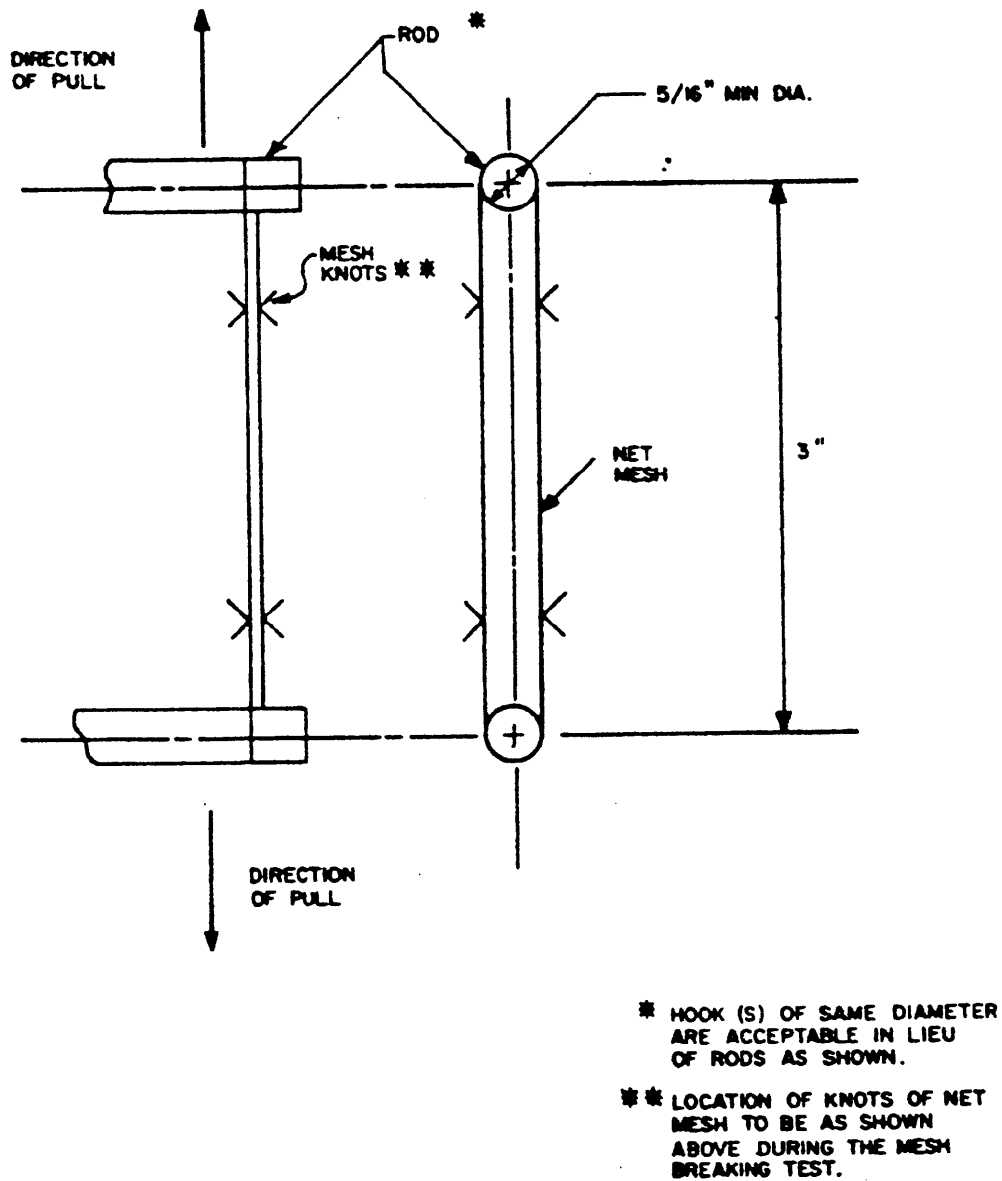
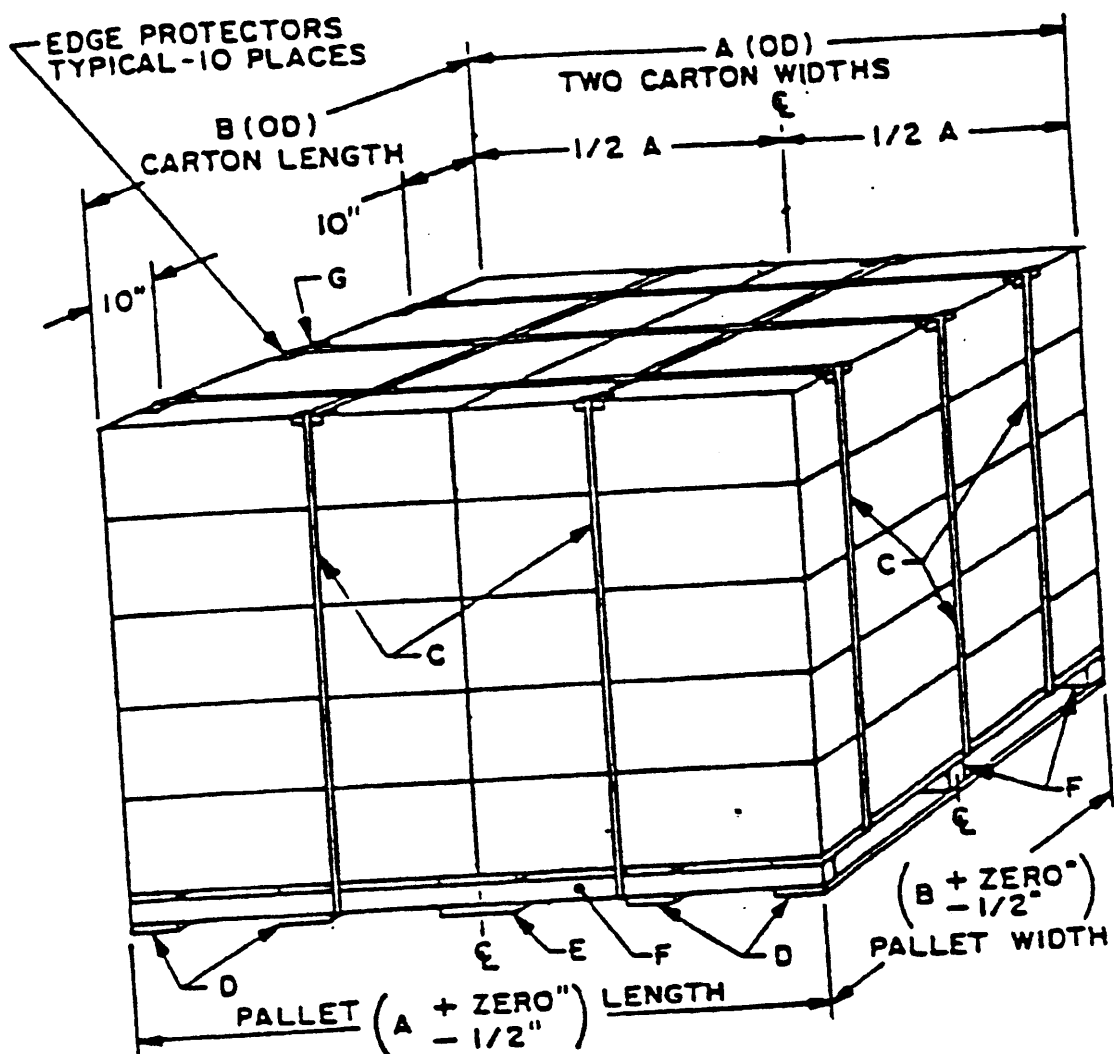


FIGURE 12. Mesh breaking strength-test specimen setup.

X-2581B

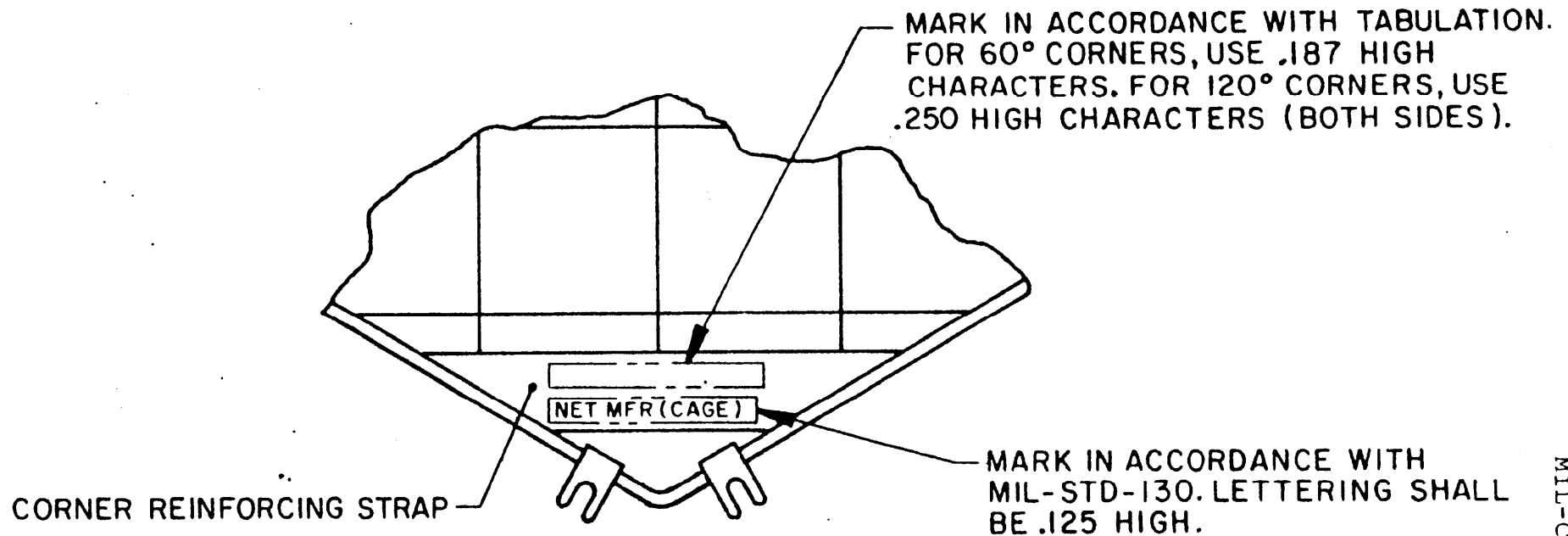
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- A • AS SHOWN
- B • AS SHOWN
- C • STRAPPING
- D • 3-1/2" MIN WIDTH BOARDS
- E • 5-1/2" MIN WIDTH BOARDS
- F • STRINGERS
- G • EDGE PROTECTORS

FIGURE 13. Unitization of screening systems.

X-4162A



CLASS	SIDE 1	SIDE 2
CLASS 1, WOODLAND	SPRING / SUMMER	FALL / WINTER
CLASS 2, DESERT	TAN / ARID	GREY / SEMI-ARID
CLASS 3, SNOW	TOTAL SNOW	PARTIAL SNOW

FIGURE 14. Identification of color blend sides of screens.

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APPENDIX

WORKMANSHIP STANDARDS

FOR CAMOUFLAGE SCREENING SYSTEMS

10. SCOPE

10.1 Scope. This appendix covers acceptance criteria for workmanship in the manufacture of camouflage systems to achieve uniformity in appearance and quality.

20. APPLICABLE DOCUMENTS

This section is not applicable to this appendix.

30. REQUIREMENTS

30.1 Completed screen (hexagon or rhombic), net and garnished net in the repair kit, where applicable. For the purpose of inspection the completed screen or net shall be mounted on an inspection fixture. The completed screen or net will be mounted on four points (including corner) per side. The completed screen or net due to the mounting of the completed screen, the screen shall be repaired but the lot will not be rejected.

30.1.1 Pattern incising. Where there is evidence of discontinuity or a variation of incising cut of a pattern completescreen, it shall be acceptable only when there is no more than nine square feet per hex screen and three square feet per diamond screen.

30.1.2 Pattern location.

- a. Because patterns have to be located and stretched manually by numerous operators, variations in the stretch will be noticeable. However, the pattern shall not be considered overstretched or unacceptable unless the pattern exhibits tearing of cloth in excess of that permitted by torn pattern standard.
- b. If a pattern has been reworked to remove defective material, replacement of material only in area of removal is acceptable.
- c. Patterns where the outside perimeters just meet, are joined to one another, or lap over another pattern on the same or opposite sides of the net are "Acceptable". However, if a pattern overlap obliterates the continuity of a narrow pattern to the extent that the color of that area has been obscured, it shall be deemed "Unacceptable".

30.1.3 Pattern attachment.

- a. Around the perimeter of a single pattern garnish attachment rings shall be spaced at 4-3/4 inches or closer.
- b. If a spacing on a pattern perimeter is observed which is more than 4-3/4 inches but less than or equal to 10-3/4 inches, without a ring, it shall not be considered a defect. The missing rings shall be installed on the screen in order to meet the requirement of a, above.

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- c. If the spacing on a pattern perimeter is observed which is greater than 10-3/4 inches without a ring, the pattern shall be considered a defect.
- d. In the field of a single pattern, rings shall be spaced at 6-3/4 inches or closer.
- e. If an area is observed which is more than 6-3/4 in diameter but less than or equal to 15-3/4 inches in diameter, without a ring, the pattern shall not be considered a defect. The missing rings shall be installed on the screen in order to meet the requirements of d, above.
- f. In the field of a single pattern if any area is observed, which is greater than 15-3/4 inches in diameter, without a ring, the pattern shall be considered a defect.

Acceptance and rejection

For each hexagon screen the sample size shall be eight randomly selected patterns. The screen shall be rejected if two defects are observed.

For each rhombic screen the sample size shall be five randomly selected patterns. The screen shall be rejected if one defect is observed.

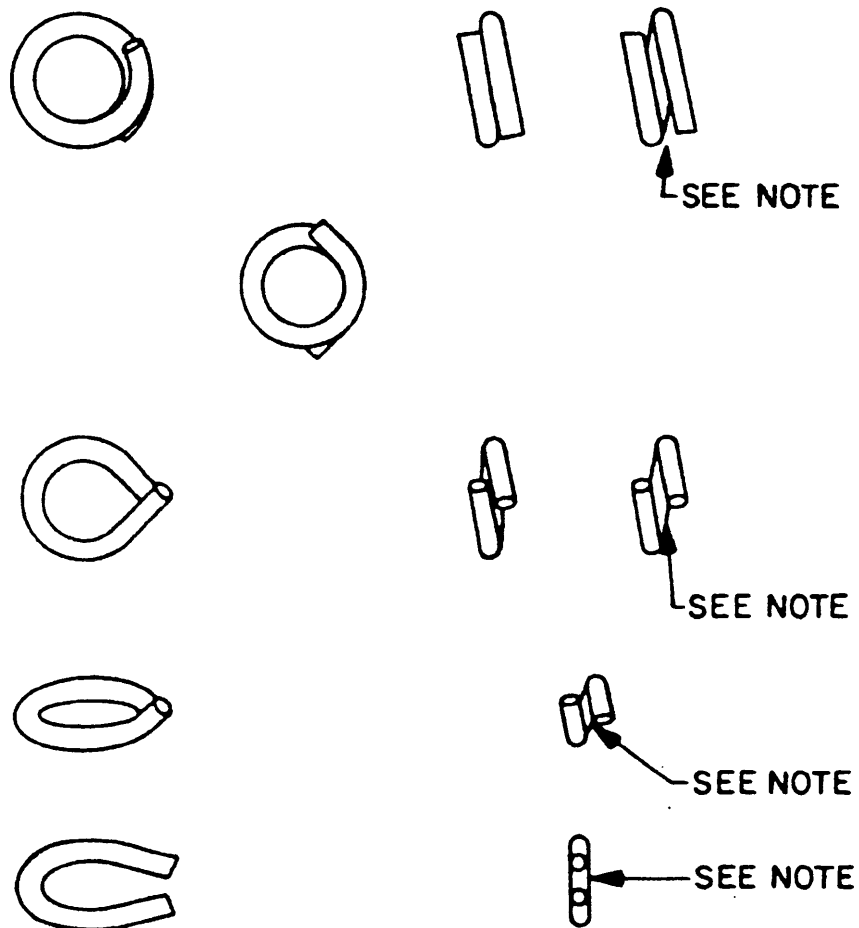
Note: Judgement of 6-3/4 inches or 4-3/4 inches can be made by counting the meshes in the netting between rings, "diagonals do not count".

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30.1.4 Garnish attachment ring.

Acceptable
Typically formed rings



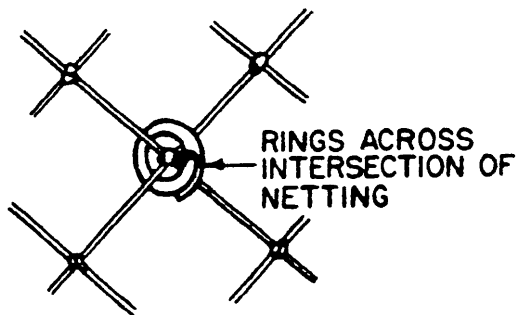
Note - The ring opening shall not allow the net mesh to slip out of the ring without the use of force. Rings with openings allowing the net mesh to slip out of the ring shall be considered as a defect.

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Unacceptable



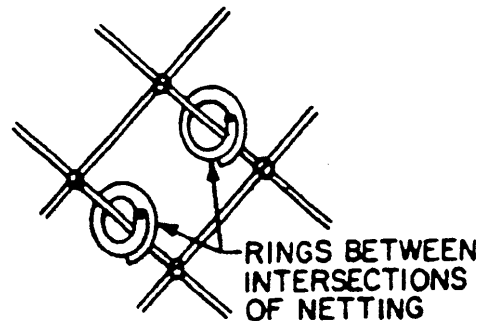
Ring is across an intersection of netting and will not slide.

Typically malformed rings attached only to netting are not acceptable.

Typically malformed rings attached to cloth only are not acceptable.

The ring will not slide on netting if finger pressure is applied. (Usually caught on net).

Acceptable



Typically formed rings attached only to netting shall be acceptable, if not over the limits specified in 4.4.1.2.

Typically formed rings attached to cloth only shall be acceptable, if not over the limits specified in 4.4.1.2.

The ring slides on netting with finger pressure applied.

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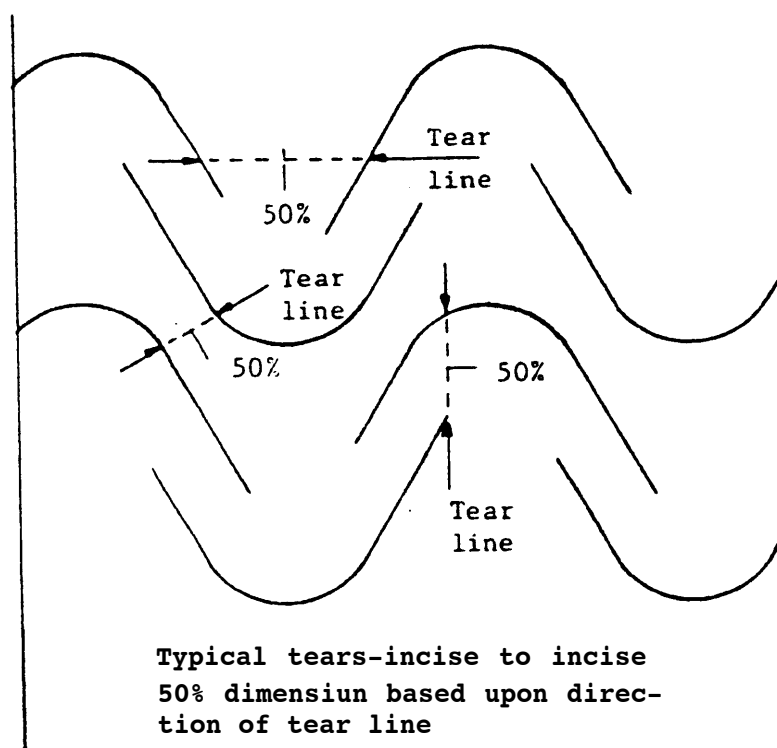
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30.1.5 Pattern hangdown.Unacceptable

Hangdown of patterns on a net exceeding 12 inches.

Acceptable

Hangdown of patterns on a net not exceeding 12 inches.

30.1.6 Torn patterns.Unacceptable

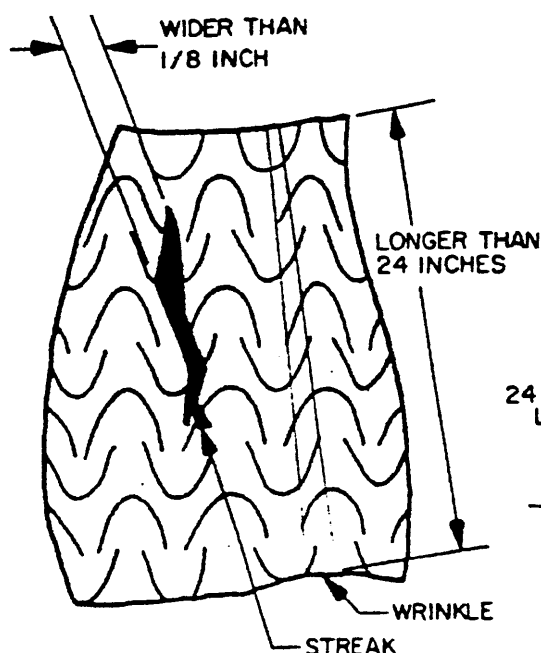
- (a) More than two tears per individual pattern.
- (b) More than 5 rhombic & 15 hex patterns per net containing two tears.

Acceptable

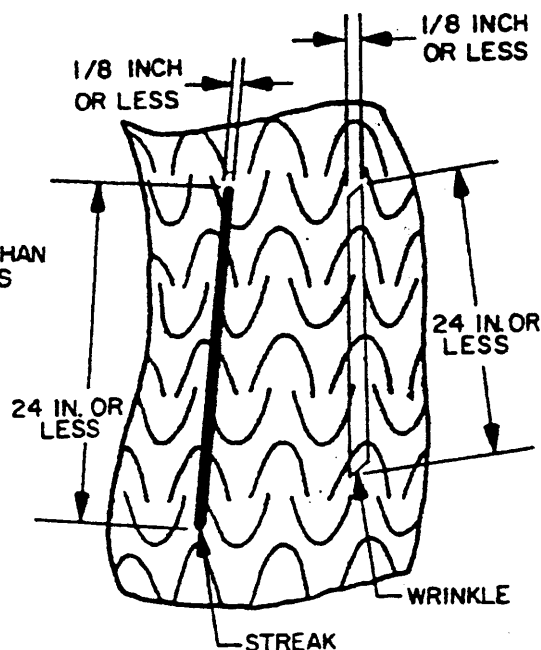
- (a) Two tears per pattern.
- (b) Maximum of 5 patterns on rhombic & 15 patterns on hex nets may contain two tears.
- (c) Tears of less than 50% (incise to incise) do not count as torn patterns.

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APPENDIX

30.1.7 Discontinuity of color on pattens.Unacceptable

Wrinkles or streaking wider than 1/8 inch, or more than 24 inches long when stretched and installed on netting.

Acceptable

Wrinkles or streaking not wider than 1/8 inch and no longer than 24 inches in any one patten (exclusive of all areas).

Note: (1) Color of wrinkled areas include the color on the opposite side and the color of the base cloth. Color of streaks are darker areas of the specified color.

(2) Not more than 30% of the patterns in a screen may contain such defects.

(3) Wrinkles in the cloth which do not open in the process of stretching the patterns to install on netting shall be acceptable.

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30.1.8 color coated cloth, material seams(patterns).

UnacceptableAcceptable

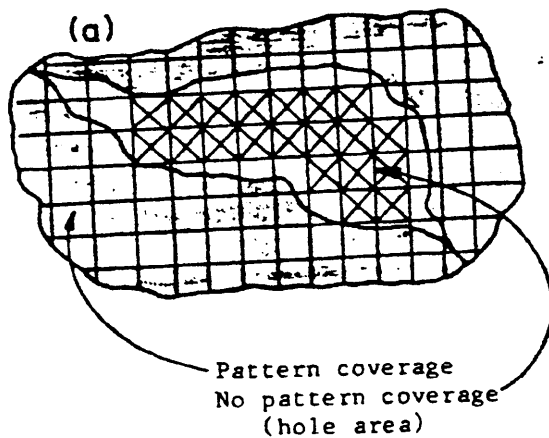
- | | |
|--|--|
| a . Stitched seams are unacceptable. | a. Seams which are of overlap type either bonded together with adhesive or a heat seal method. |
| b . overlap bonded seams where edges are Unbonded over 1/2 inch. | b. Unbonded edges shall be 1/2 inch wide or less. |
| c . Total overlap exceeding four inches. | c. Total overlap not exceeding four inches. |

Note: Stitched seams where base material is spliced, (prior to color coating) are acceptable when they meet the acceptance requirements for "Discontinuity of color on patterns" in 30.1.7.

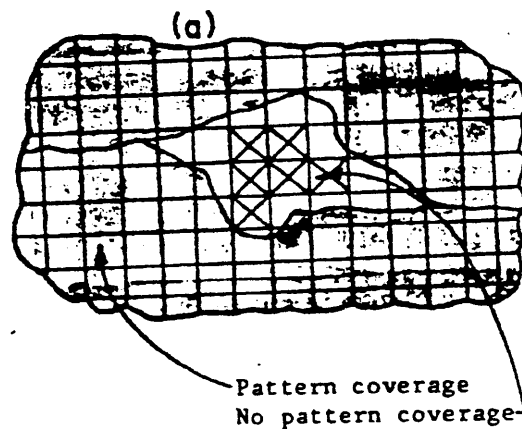
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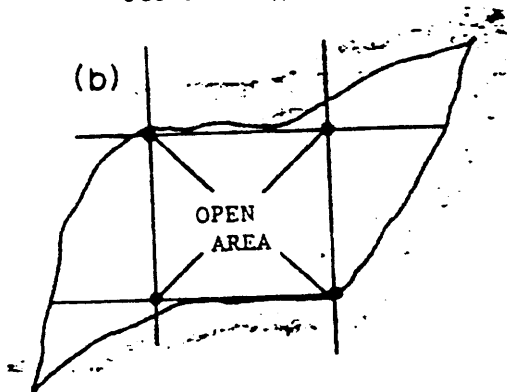
30.1.9 Hole areas (areas without pattern coverage).

Unacceptable

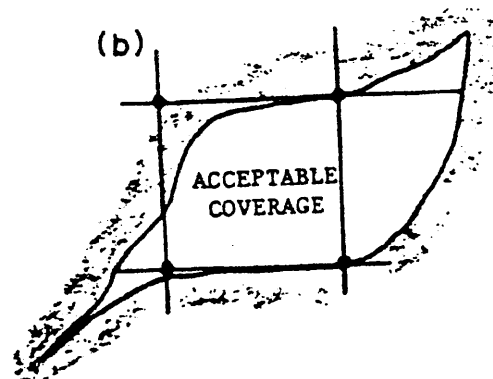
More than 81 square inches without coverage each hole.

Acceptable

Less than 81 square inches with coverage each hole.



Pattern butting against mesh.
This condition shall be considered unacceptable when counting meshes (mesh in question shall be counted).



Pattern overlapping mesh.
This condition shall be considered acceptable when counting meshes (mesh in question shall not be counted).

- Note: (1) One (1) mesh of netting will approximately equal 5 square inches
- (2) Only squares where no overlap by any part of a pattern shall be counted as a defect (reference unacceptable condition (b) above) Determination of overlap shall be made with the net in an "as is" condition when it is presented for inspection.

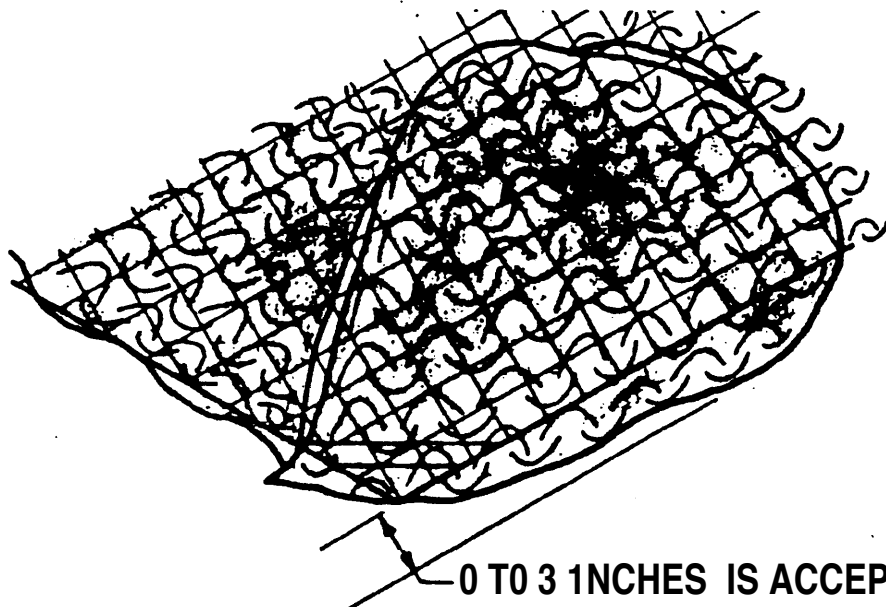
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- (3) A total of 16 meshes shall be considered 81 square inches.
- (4) Area from corner patches to edge cord shall not be considered a hole area.
- (5) Cumulative normally acceptable hole areas which exceed 81 square inches on a rhombic net and 243 square inches on a hexagon net are "Unacceptable".
- (6) When cloth overlaps a mesh, it is covered. If it just butts against a mesh, it shall be considered open. This judgement shall be made on the net as it hangs on the inspection fixture. Pulling, collapsing or any other type of handling is not permitted when making this determination.

30.1.10 Overlay. Overlay is a condition where the pattern(s) extend past and hang down over the edge cord around the perimeter of the net.

- (a) Overlay may be present around the entire perimeter of a net.
- (b) Overlay may extend beyond the edge cord up to a maximum of three (3) inches in an unstretched condition.



30.1.11 Edge cord. Severed threads within a strand do not constitute a cut. Any one strand that is severed constitutes a cut and is not acceptable.

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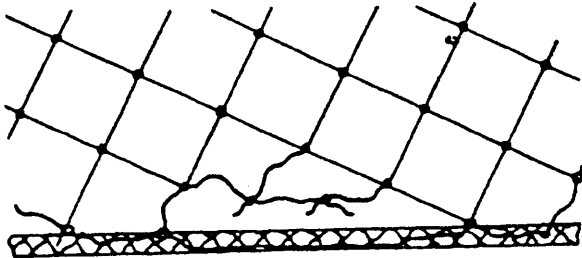
APPENDIX

30.1.12 Netting.

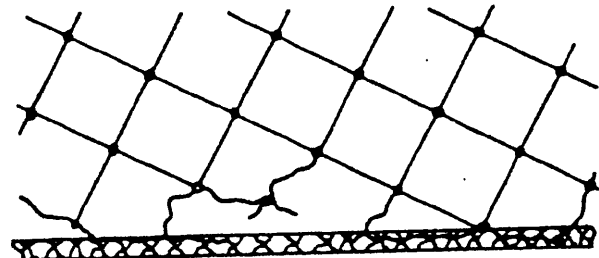
Unacceptable

Acceptable

Netting loose from edge cord

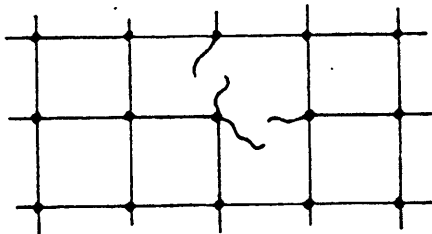


Two or more meshes unattached to edge cord.

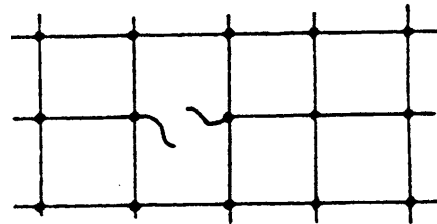


One mesh unattached to edge cord. Maximum of one unattached mesh per each side of the net but not to exceed three (3) per (perimeter) hexagon and two (2) perimeter rhombic.

Broken/cut netting

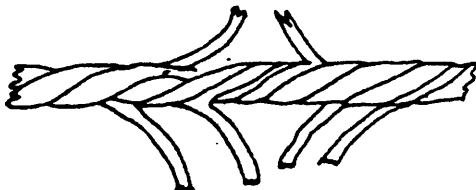


Two or more adjacent mesh bars broken or cut.

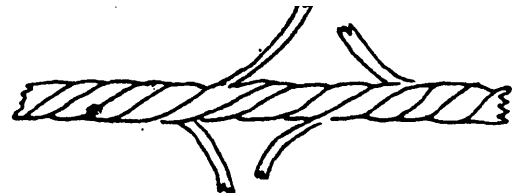


Single mesh bar broken or cut; three allowed per hexagon, one allowed per rhombic.

Frayed netting.



Three or more strands severed, considered as a broken/cut mesh bar.



Maximum of two strands severed, not considered as a defect.

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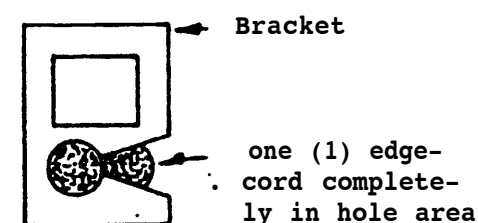
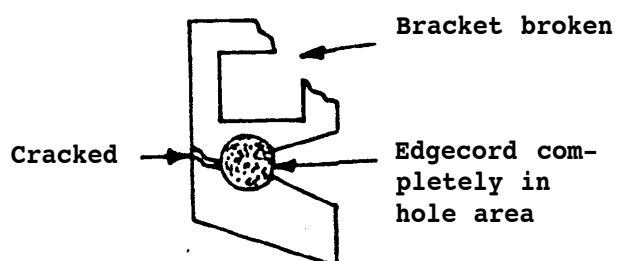
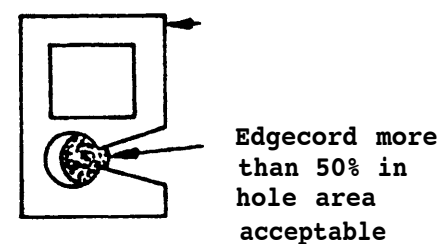
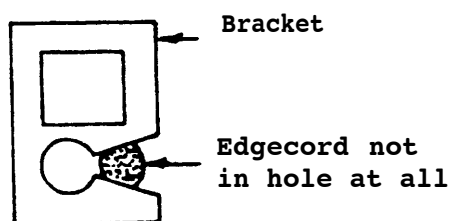
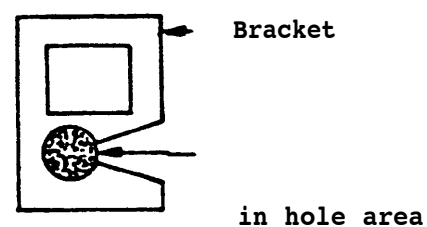
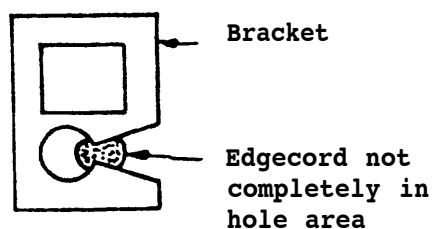
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APPENDIX

30.1.13 Bracket to net assembly.

Unacceptable

Acceptable



(Condition occurs at edge of cord splice)

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30.1.14 Missing brackets (at final net inspection only).UnacceptableHexagon screen

More than one (1) bracket missing on a side or more than three (3) total missing on a screen.

Rhombic screen

More than one (1) bracket missing on a side or more than two (2) missing on a screen.

AcceptableHexagon screen

No more than one (1) bracket, missing on a side or three (3) missing on a screen.

Rhombic screen

No more than one (1) bracket missing on a side or two (2) missing on a screen.

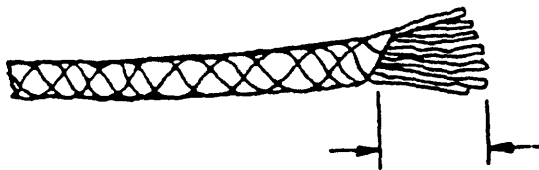
Note: All brackets found to be missing during the manufacturing or inspection of screens shall be replaced.

30.2 Repair kit assembly.

30.2.1 Edge cord. Severed threads within a strand do not constitute a cut. Any one strand that is severed constitutes a cut and is not acceptable.

Unacceptable

5/8 inch



Frayed ends exceeding 1/2 inch not acceptable.

Acceptable

1/4 inch



Frayed ends less than 1/2 inch acceptable.

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30.2.2 Twine.

Unacceptable



No knots acceptable

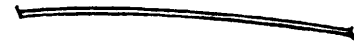


No untwisting acceptable



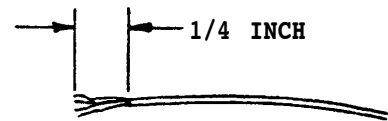
Frayed ends exceeding 1/2 inch not acceptable.

Acceptable



Without knots acceptable

Absence of untwisting



Frayed ends less than 1/2 inch acceptable.

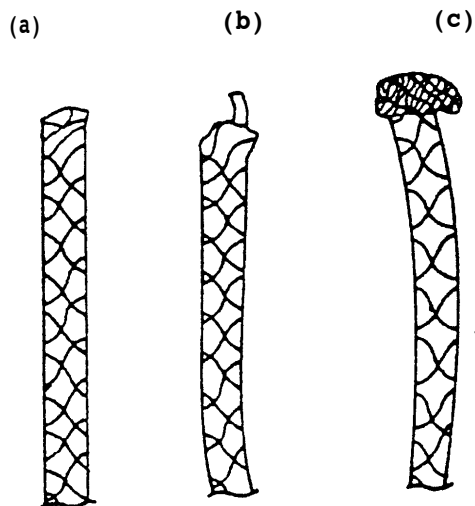
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APPENDIX

30.3 Lanyard assembly.

30.3.1 Sealing of cord ends.

Unacceptable



- (a) No heat seal, will unravel in use.
- (b) Partially heat sealed in an unraveled condition.
- (c) Heat either applied too long or was unraveled some prior to sealing and produced a large knobish end.

Acceptable



- (a) Heat sealed preferred condition, end completely sealed, no unravel present and no large knobish end.

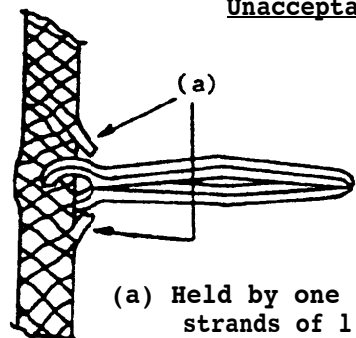
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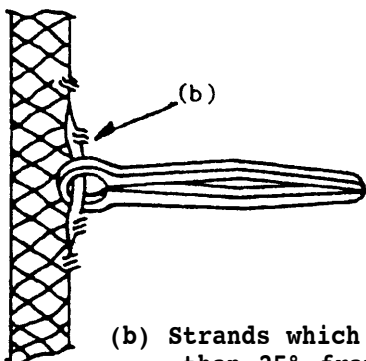
APPENDIX

30.3.2 Assembly of pins to cord.

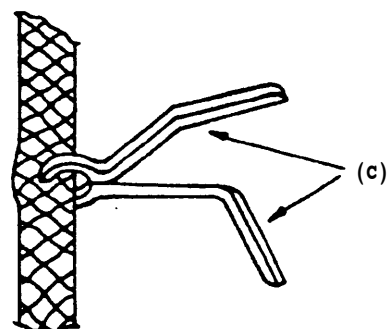
Unacceptable



(a) Held by one (1) or more strands of 1 lanyard but one (1) is complete severed.

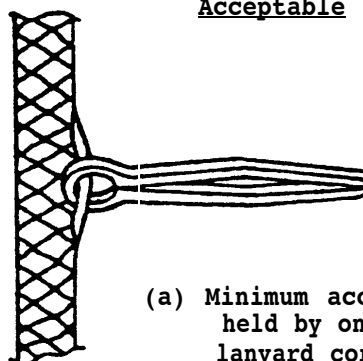


(b) Strands which exhibit it more than 25% fraying per strand are not acceptable.



(c) Malformed QCD pin not acceptable.

Acceptable



(a) Minimum acceptable - held by one strand of lanyard cord.

Note: Three to five strands in ring desired.

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Unacceptable

When inserted QCD pin is held by one (1) strand only, and that strand is partially broken, it shall be unacceptable.

Acceptable

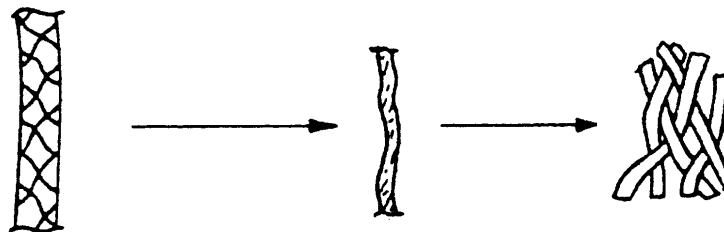
Chafing of the strands is acceptable if any single strand exhibits not more than 25% of its plies frayed around (and/or through) the insertion area with not more than 3 strands affected.

Note: Below are visual definition of terms used above.

Lanyard cord

Strand

Plies

**X-4046**

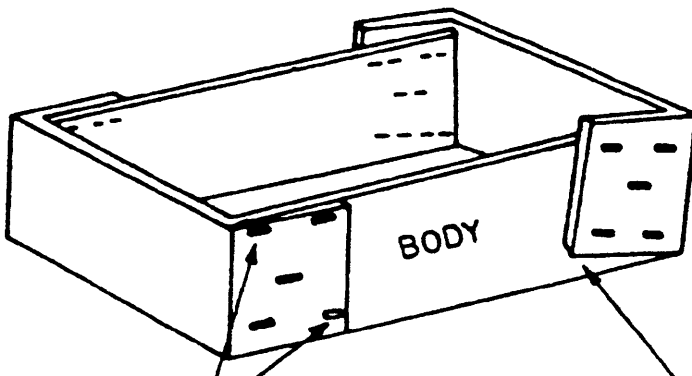
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APPENDIX

30.4 Packaging.

30.4.1 Box assembly.

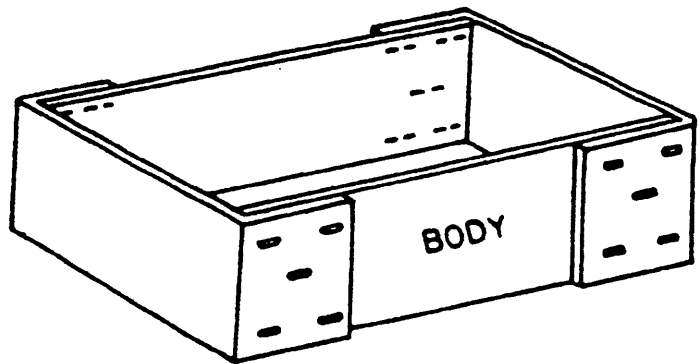
Unacceptable



Staples closer than one (1) inch to free edges are not acceptable.

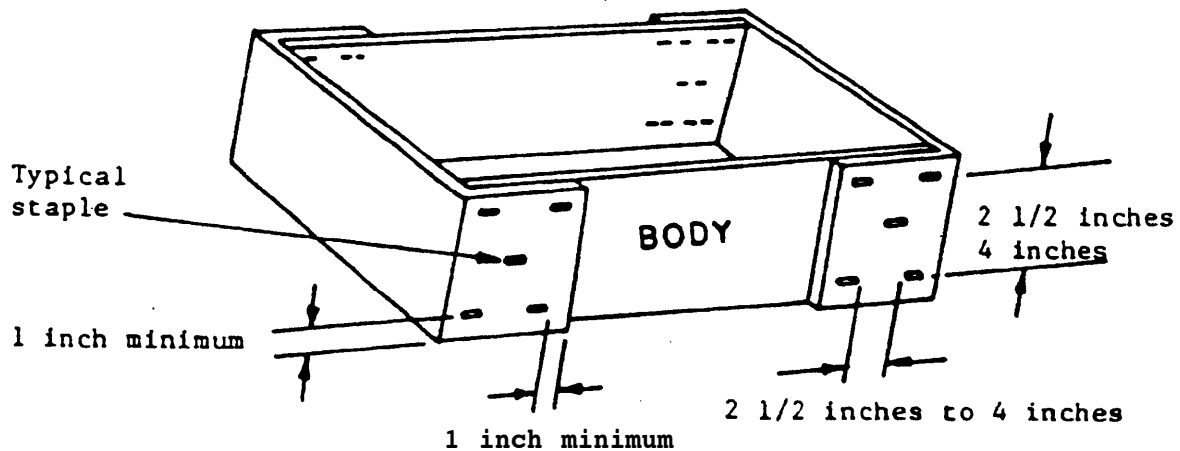
Flaps more than 1/4 inch above edge of side wall are not acceptable.

Acceptable



Typically preferred

Folding, staple location and pattern.

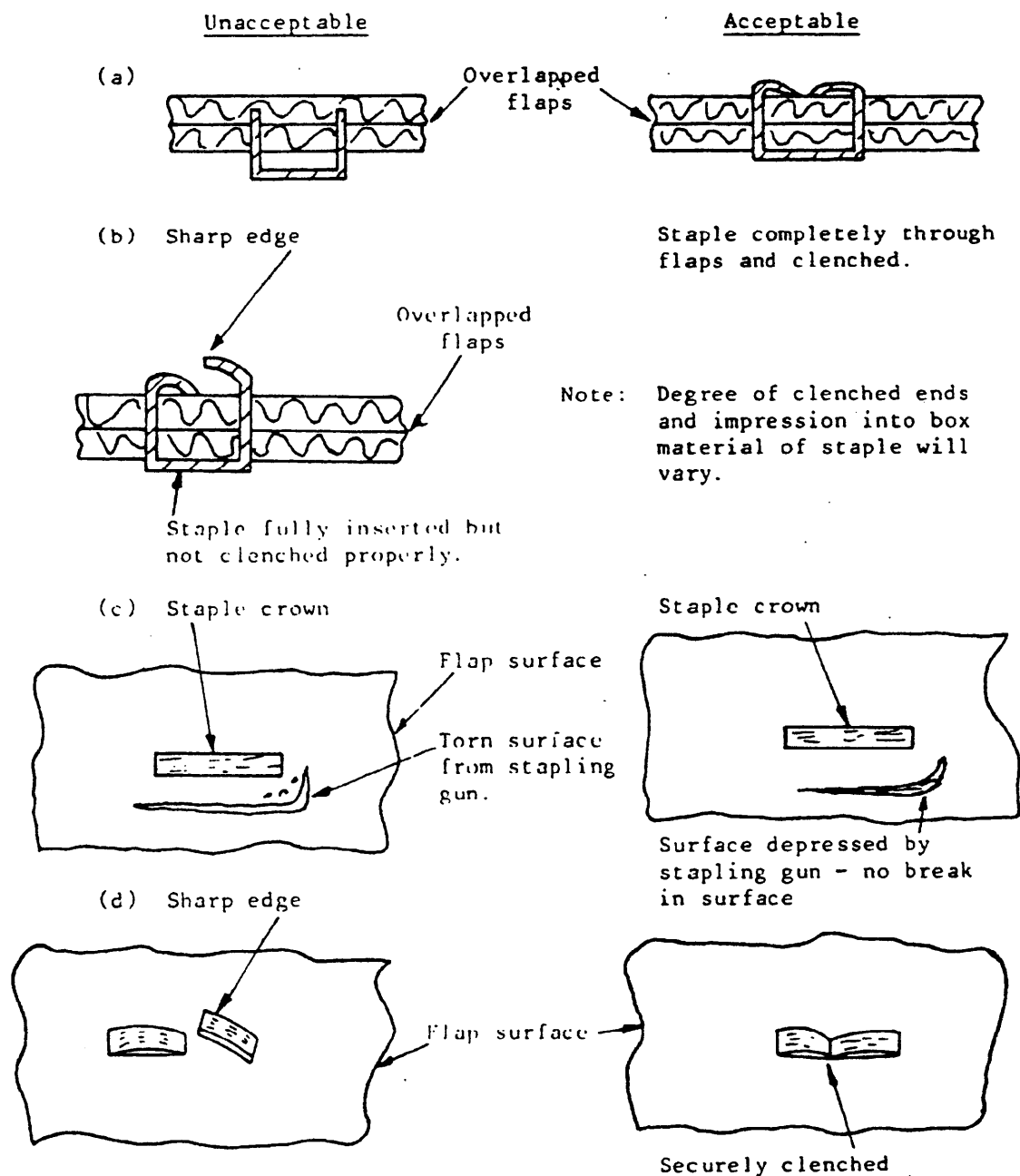


Acceptable dimensions for assembly

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Top or body of a container which exhibits punctures through the wall which exceed 1/2 inch square or which exhibits tears or separations of fiberboard material in excess of one (1) inch in length.

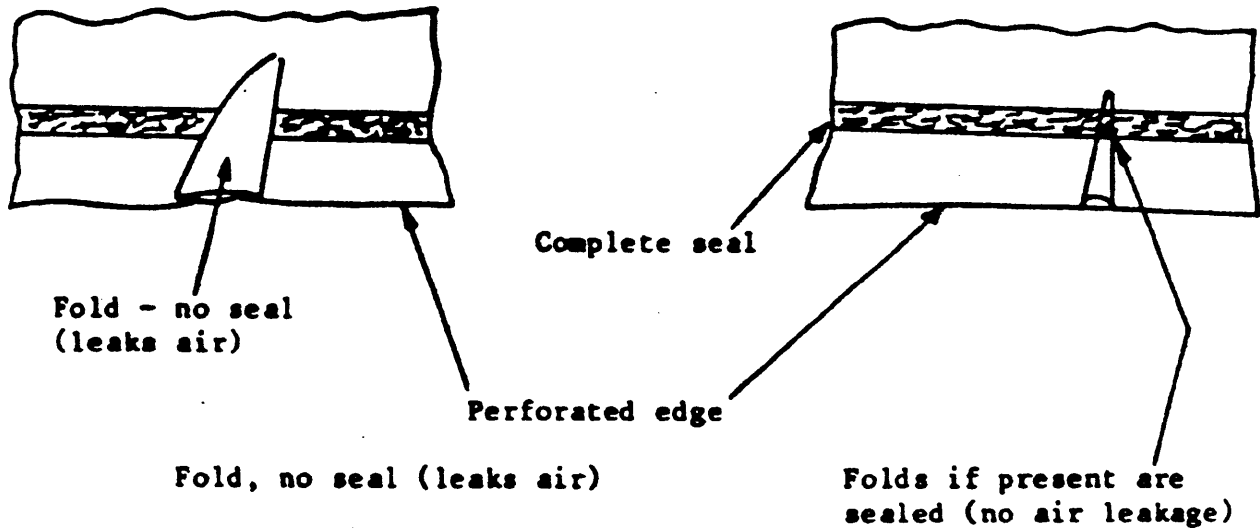
Completed container which contains not more than two (2) punctures which are 1/2 inch or less, or which contains not more than two (2) tears or separations which are one (1) inch in length or less.

Note: If not more than 10% of unacceptable conditions (u) and (c) are present on 1 completed box assembly, it shall be considered acceptable.

30.4.2 Polybag, heat seal.

Unacceptable

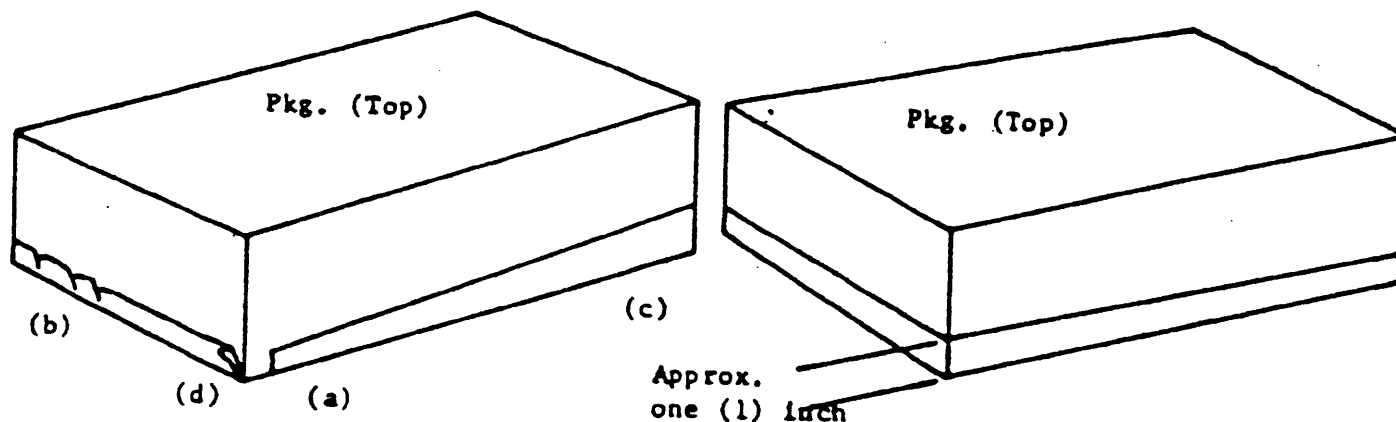
Acceptable.



X-4050B

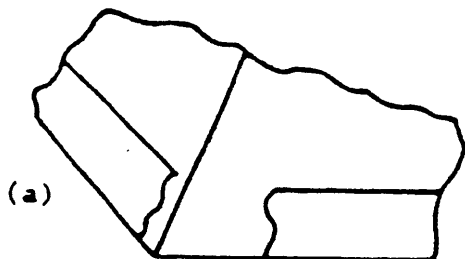
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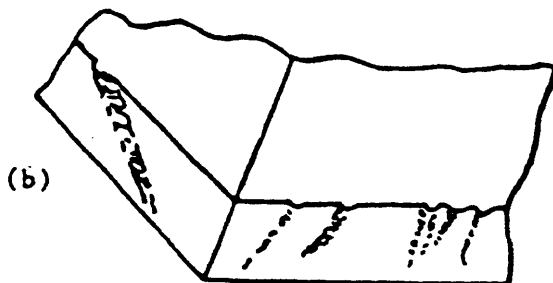
30.4.3 Box closure.UnacceptableAcceptable

- (a) Tape incomplete application
- (b) Excessive wrinkles
- (c) Tape unevenly applied
- (d) Tape not sticking

Preferred condition, complete Application, no wrinkles, not unevenly applied and well stuck to carton all over.



- (a) Tape must meet or overlap to be acceptable. (Length of overlap may vary.)

Incomplete application

- (b) Note: Folding of tape is necessary at the corner proper, and acceptable.

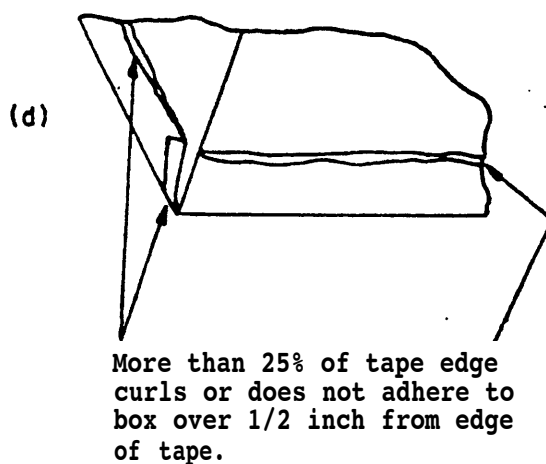
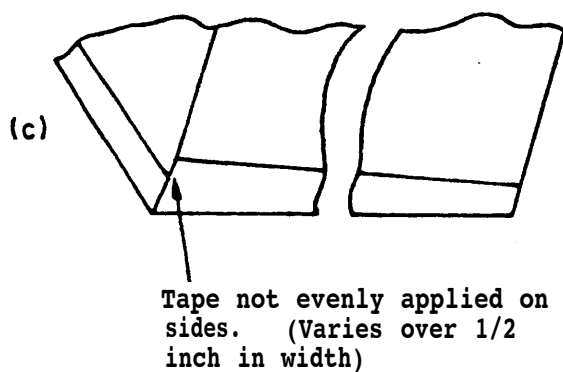
Excessive amount of wrinkles on more than 10% of a side and significant in size.

Amount of wrinkles on not more than 10% of 1 side of significant size and/or not more than 20% which are superficial in nature.

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Unacceptable



Acceptable

(c) Taping acceptable when it varies in width less than 1/2 inch on a side.

(d) Conditions where less than 25% of tape edge curls does not adhere to box over 1/2 inch from edge of tape are acceptable.

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30.4.4 Strapping application and pallet quality.

Unacceptable

- a. Tension so great that strapping tears and cuts completely through carton edges.
- b. Strapping not within two inches of being parallel to the carton edges.
- c. Strapping loose to the point that it can be easily moved sideways at the box or pallet edges where it had been applied.
- d. Major damage to pallet such as broken stringers or deckboards.

Acceptable

- a. Strapping tension firm but does not tear or cut completely through carton edges.
- b. Strapping parallel to carton edges within two inches.
- c. Strapping which is applied firmly and cannot be easily moved sideways at the box or pallet edges.
- d. Minor departures in pallet quality such as checks, shakes, splits, any of which are fine, straight through, not longer than one-half the length of the piece. No restriction on location providing it does not run out of the width of the piece.

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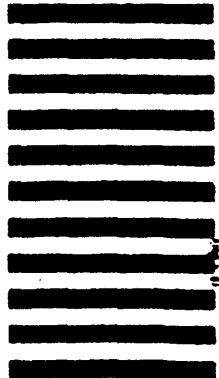
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(See Instructions - Reverse Side)

1. DOCUMENT NUMBER

MIL-G-53004B

2. DOCUMENT TITLE

Camouflage Screening Systems, Modular, Light-weight, Synthetic, Woodland, Desert and Snow

3a. NAME OF SUBMITTING ORGANIZATION

4. TYPE OF ORGANIZATION (Mark one)

☐

VENDOR

☐

USER

☐

MANUFACTURER

☐

OTHER (Specify):

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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

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