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MILITARY STANDARD

IDENTIFICATION OF CABLE USED FOR TRANSMISSION OF TELEPHONE, TELEGRAPH, AND TELETYPE SIGNALS

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1. SCOPE

This standard establishes a uniform identification code for all wires and cables used by the Departments of the Army, Navy, and Air Force for transmission of telephone, telegraph, and teletype signals. The color codes of this standard also apply to singles, pairs, triples, and quads when used in any other applications, such as, in intercommunication, loudspeaker, and microphone cables.

2. APPLICABLE DOCUMENTS

2.1 The following document, of the issue in effect on date of invitation for bids, forms a part of this standard.

STANDARD

MILITARY

MIL-STD-104 — Limits for Electrical Insulation Color.

MIL-STD-686 — Cable and Cord, Electrical; Identification Marking and Color Coding of.

(Copies of specifications, standards, drawings, and publications required by contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer. Both the title and number or symbol should be stipulated when requesting copies.)

3. DEFINITIONS

For the purpose of this standard the following definitions shall apply:

3.1 SWITCHBOARD CABLES. Cables used for internal wiring and interconnection of switchboard and smiliar equipment.

3.2 SINGLES. Single insulated conductors used in telephone switchboard cables with pairs and triples.

3.3 PAIRS. Two insulated conductors twisted together and used for the transmission of audiofrequency signals.

3.4 TRIPLES. Three insulated conductors twisted together and used in telephone switchboard cables.

3.5 QUADS. Four insulated conductors twisted together with opposite conductors used as pairs (star quad) or twisted together (multiple quad).

3.6 CONCENTRIC-LAYER CONSTRUCTION. Arrangement of conductors in concentric layers, the center layer consisting of one or more singles, pairs, triples, or quads, and each additional layer consisting of one thickness of singles, pairs, triples, or quads (see fig. 1).

3.7 UNIT. A specified number of singles, pairs, triples, or quads twisted together to form a compact cable.

3.8 UNIT CONSTRUCTION. A type of construction in which a number of units are combined to form a cable (see fig. 2).

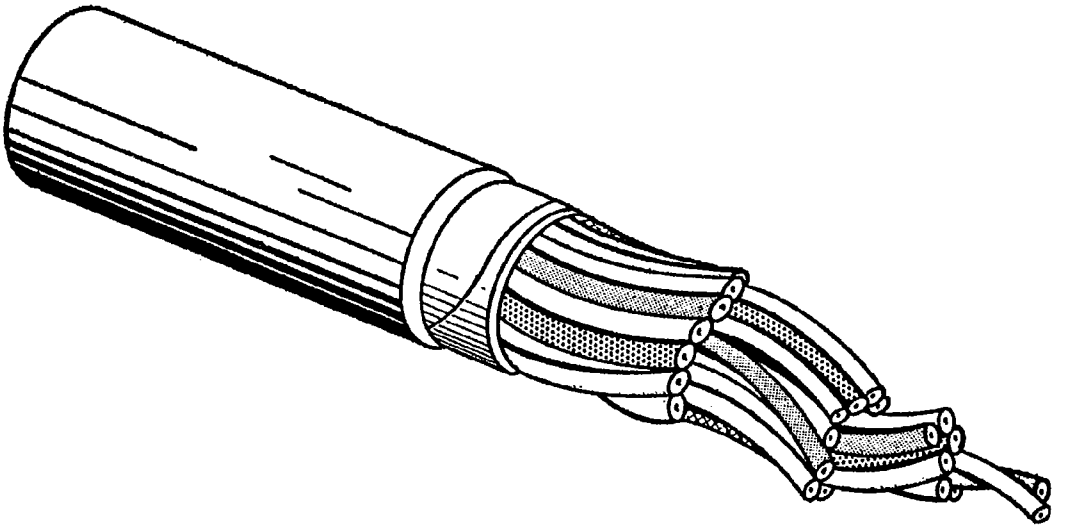

FIGURE 1. *Example of concentric-layer construction for plastic-, rubber-, and fabric-insulated pairs.*

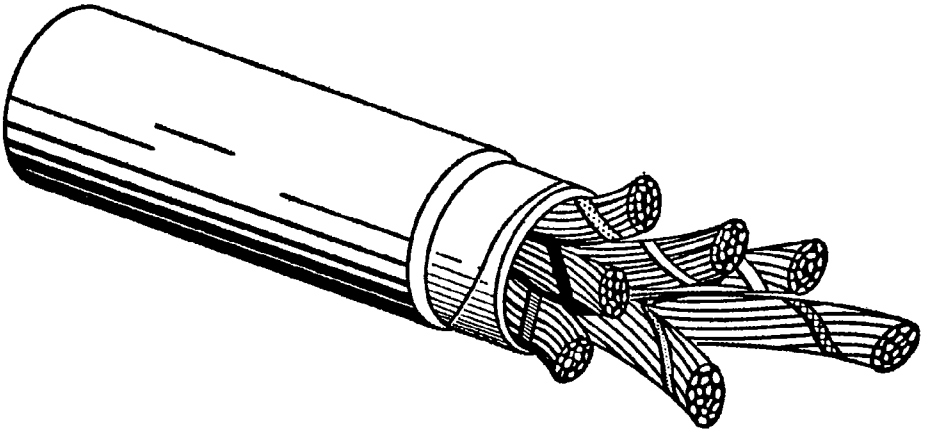

FIGURE 2. *Example of unit construction for plastic-, rubber-, and fabric-insulated pairs.*

4. GENERAL REQUIREMENTS

4.1 DATA TO BE MARKED ON OUTER CABLE JACKET. Except as specified in 5.14, the following data shall be marked along one side of the entire length of the cable jacket with 1-foot separations, in accordance with 5.11.

(a) Government specification, (if one exists) type designation, class and manufacturer's name or trademark,

or

(b) Manufacturers name and commercial type designation when there is no existing Government specification.

5. DETAILED REQUIREMENTS

5.1 SINGLE-PAIR CABLES.

5.1.1 *Inside applications.* Single-pair cables used for inside applications, such as distributing frame wire, cross-connect wire, and station wire, shall be color coded as follows: the insulation of one conductor shall be black and that of its mate, white. Outer coverings, if used, shall not be color coded.

5.1.2 *Outside applications.* Single-pair cables used for outside applications, such as field telephone (infantry) wire, drop wire, block wire, and bridle wire, shall be identified as follows: both conductors shall have black insulation; one conductor shall have no identification of any kind; the other conductor shall be identified by two longitudinal ridges in the outer covering. The ridges shall be spaced approximately 45° apart radially, except when applied to single-pair telephone drop wire (parallel conductors). In single-pair telephone drop wire, ridges shall be located on one of the semicircular surfaces of the jacket, one ridge being approximately 45° above, and the other approximately 45° below, the major axis of the wire cross section.

5.2 MULTIPAIR CABLES. With the exception of cables covered by paragraphs 5.2.4, 5.2.5, and 5.13, multipair cables shall be coded according to types of insulating material: plastic; woven, wrapped, or braided fabric; natural or synthetic rubber; and paper.

5.2.1 *Plastic-insulated conductors.* Conductortors insulated with plastic shall be color coded as follows:

5.2.1.1 *1 through 25 pairs.* Cables consisting of 25 fewer pairs shall be color coded in accordance with Table I.

5.2.1.2 *26 through 600 pairs.* Cables containing 26 through 600 pairs shall consist of 25-pair units, each unit color coded in accordance with Table I. Each unit shall be bound with a binding tape as specified in paragraph 5.10. For optimum lay-up, a unit of 25 pairs coded in accordance with Table I may be made up of two 8-pair and one 9-pair sub unit or one 12-pair and one 13-pair subunit, in that order of preference. Each subunit in a particular unit shall be bound with the binding tape of that particular unit.

5.2.1.3 *More than 600 pairs.* Cables containing more than 600 pairs shall consist of 50-or 100-pair units color coded as follows:

5.2.1.3.1 *50-pair units.*

(a) *First group of 25 pairs.* The first group (center group) of 25 pairs shall be color coded in accordance with Table I.

(b) *Second group of 25 pairs.* The second group (outside group) of 25 pairs shall be color coded in accordance with table I, and narrow, black, circumferential bands shall be applied to the white and yellow insulated conductors; and narrow, white, circumferential bands shall be applied to the red, violet, and black insulated conductors, in accordance with paragraph 5.12.

5.2.1.3.2 *100-pair units.*

(a) *First group of 25 pairs.* The first group (center group) of 25 pairs shall be color coded in accordance with table I.

(b) *Second group of 25 pairs.* The second group of 25 pairs shall be color coded in accordance with table I, and narrow, black circumferential bands shall be applied to the white and yellow insulated conductors; and narrow, white, circumferential bands shall be applied to the red, violet, and black insulated conductors, in accordance with paragraph 5.12.

(c) *Third group of 25 pairs.* The third

group of 25 pairs shall be color coded in accordance with table I, and wide, black, circumferential bands shall be applied to the white and yellow insulated conductors; and wide, white circumferential bands shall be applied to the red, violet, and black insulated conductors, in accordance with paragraph 5.12.

(d) *Fourth group of 25 pairs.* The fourth group (outside group) of 25 pairs shall be color coded in accordance with table I.

5.2.1.3.3 *Unit binding tapes.* Each unit of 50 or 100 pairs shall be bound with a binding tape as specified in paragraph 5.10.

TABLE I. *Color code for plastic-insulated pairs (excluding pairs covered by paragraphs 5.2.4, 5.2.5, and 5.13)*

Pair No.	Wire (ring)	Mate (tip)
1	Blue	White
2	Orange	White
3	Green	White
4	Brown	White
5	Gray (Slate)	White
6	Blue	Red
7	Orange	Red
8	Green	Red
9	Brown	Red
10	Gray (Slate)	Red
11	Blue	Black
12	Orange	Black
13	Green	Black
14	Brown	Black
15	Gray (Slate)	Black
16	Blue	Yellow
17	Orange	Yellow
18	Green	Yellow
19	Brown	Yellow
20	Gray (Slate)	Yellow
21	Blue	Violet
22	Orange	Violet
23	Green	Violet
24	Brown	Violet
25	Gray (Slate)	Violet

5.2.2 *Conductors insulated with woven, wrapped, or braided fabric and natural or synthetic rubber.* Conductors insulated with woven, wrapped, or braided fabric, or natural or synthetic rubber shall be color coded as follows.

5.2.2.1 *1 through 26 pairs.* Cables consisting of 26 or fewer pairs shall be color coded in accordance with table II.

5.2.2.2 *27 through 606 pairs.* Cables containing 27 through 606 pairs shall consist of 25- and 26-pair units color coded as follows:

5.2.2.2.1 *25-pair units.* Units of 25 pairs shall be color coded in accordance with table II. For optimum lay-up, a unit of 25 pairs coded in accordance with table II, may be made up of two 8-pair and one 9-pair subunit; or one 12-pair and one 13-pair subunit in that order of preference. Each subunit in a particular unit shall be bound with the binding tape of that particular unit.

5.2.2.2.2 *26-pair units.* Units of 26 pairs shall be color coded in accordance with table II. For optimum lay-up, a unit of 26 pairs coded in accordance with table II, may be made up of one 8-pair and two 9-pair subunits, or two 13-pair subunits, in that order of preference. Each subunit in a particular unit shall be bound with the binding tape of that particular unit.

5.2.2.2.3 *Unit binding tapes.* Each unit of 25 or 26 pairs shall be bound with a binding tape as specified in paragraph 5.10.

5.2.3 *Paper-insulated conductors.* Conductors insulated with paper shall be color coded as follows:

5.2.3.1 *1 through 51 pairs.* Cables consisting of 51 or fewer pairs shall be color coded in accordance wiith tables IIIa and IIIb.

5.2.3.2 *More than 51 pairs.* Cables containing more than 51 pairs shall consist of 25- and 26-, 50, and 51-, or 101-pair units color coded in accordance with tables IVa and IVb. Each unit shall be bound with a binding string as shown in table IVc.

TABLE II. *Color code for woven, wrapped, or braided fabric and natural or synthetic rubber-insulated pairs (excluding pairs covered by paragraphs 5.2.4, 5.2.5, and 5.13)*

Pair No.	Wire (ring)	Mate (tip)
1	Blue	White
2	Orange	White
3	Green	White
4	Brown	White
5	Gray (Slate)	White
6	Blue	Red
7	Orange	Red
8	Green	Red
9	Brown	Red
10	Gray (Slate)	Red
11	Blue	Black
12	Orange	Black
13	Green	Black
14	Brown	Black
15	Gray (Slate)	Black
16	Blue	Yellow
17	Orange	Yellow
18	Green	Yellow
19	Brown	Yellow
20	Gray (Slate)	Yellow
21	Blue	Violet
22	Orange	Violet
23	Green	Violet
24	Brown	Violet
25	Gray (Slate)	Violet
26	Black	Yellow

TABLE IIIa. *Color code for 19- and 22-gage (AWG) paper-insulated pairs (maximum of 51 pairs)*

No. pairs in cable	Center		First layer		Second layer		Third layer		Fourth layer		Spare pair	
	Wire	Mate	Wire	Mate	Wire	Mate	Wire	Mate	Wire	Mate	Wire	Mate
6	Red	White	Green	White	—	—	—	—	—	—	Red	Blue
11	Green	White	Blue	White	—	—	—	—	—	—	Red	Blue
16	Red	White	Green	White	Blue	White	—	—	—	—	Red	Blue
26	Green	White	Blue	White	Red	White	—	—	—	—	Red	Blue
51	Red	White	Green	White	Blue	White	Red	White	Green	White	Red	Blue

TABLE IIIb. *Color code for 24- and 26-gage (AWG) paper-insulated pairs (maximum of 51 pairs)*

No. pairs in cable	All pairs except spare pair		Spare pair	
	Wire	Mate	Wire	Mate
11	Green	White	Red	Blue
16	Green	White	Red	Blue
26	Green	White	Red	Blue
51	Green	White	Red	Blue

TABLE IVa. *Color code for 19- and 22-gage (AWG) paper-insulated pairs (more than 51 pairs)*

No. pairs in unit	Unit designation	Center		Layer									
				First		Second		Third		Fourth		Spare pair	
		Wire	Mate	Wire	Mate	Wire	Mate	Wire	Mate	Wire	Mate	Wire	Mate
25	Green-White	Blue	White	Red	White	Green	White	—	—	—	—	—	—
25	Red-White	Green	White	Blue	White	Red	White	—	—	—	—	—	—
25	Blue White	Red	White	Green	White	Blue	White	—	—	—	—	—	—
26	Green-White	Blue	White	Red	White	Green	White	—	—	—	—	Red	Blue
26	Red-White	Green	White	Blue	White	Red	White	—	—	—	—	Red	Blue
26	Blue-White	Red	White	Green	White	Blue	White	—	—	—	—	Red	Blue
50	Green-White	Red	White	Green	White	Blue	White	Red	White	Green	White	—	—
50	Red-White	Blue	White	Red	White	Green	White	Blue	White	Red	White	—	—
50	Blue-White	Green	White	Blue	White	Red	White	Green	White	Blue		—	—
51	Green-White	Red	White	Green	White	Blue	White	Red	White	Green	White	Red	Blue
51	Red-White	Blue	White	Red	White	Green	White	Blue	White	Red	White	Red	Blue
51	Blue-White	Green	White	Blue	White	Red	White	Green	White	Blue	White	Red	Blue

TABLE IVb. *Color code for 24- and 26-gage (AWG) paper-insulated pairs (more than 51 pairs)*

		All pairs except spare pair		Spare pair	
No. pairs in unit	Unit designation	Wire	Mate	Wire	Mate
50	Green-White	Green	White	—	—
50	Red-White	Red	White	—	—
50	Blue-White	Blue	White	—	—
51	Green-White	Green	White	Red	Blue
51	Red-White	Red	White	Red	Blue
51	Blue-White	Blue	White	Red	Blue
101	Green-White	Red	White	Red	Blue
101	Blue-White	Blue	White	Red	Blue

TABLE IVc. *Color code for binding string for paper-insulated pairs*

Gage (AWG)	Cable layer No.*	Binding string colors	
		25-pair unit	*26-pair unit*
19	1	Blue	Blue-Black
	2	Blue-Green	Blue-Green-Black
	3	Blue	Blue-Black
		50-pair unit	*51-pair unit*
22	1	White	White-Black
	2	White-Green	White-Green-Black
	3	White	White-Black
		50-pair unit	*51- or 101-pair unit*
24	1	Red	Red-Black
	2	Red-Green	Red-Green-Black
	3	Red	Red-Black
		50-pair unit	*51- or 101-pair unit*
26	1	Orange	Orange-Black
		Orange-Green	Orange-Green-Black
		Orange	Orange-Black

* The units in the center of the cable constitute layer 3; the units in the outside ring of the cable constitute layer 1; and the units between the outside ring and the center of the cable constitute layer 2.

5.2.4 *Switchboard cable.* Multipair switchboard cables shall be color coded as follows:

5.2.4.1 *2 through 20 pairs.* Cables containing 20 or fewer pairs shall be color coded in accordance with table V.

5.2.4.2 *More than 20 pairs.* Cables containing more than 20 pairs shall consist of units with a maximum of 20 pairs each. Each unit shall be color coded in accordance with table V. Each unit shall be bound with a binding tape as specified in paragraph 5.10.

5.2.5 *Individually jacketed pairs.* When multipair cables are composed of individual pairs, each having a common jacket in addition to the cable jacket, they shall be color coded as follows: the insulation of one conductor of each pair shall be black and that of its mate, white. A jacket shall be placed over each pair. These jackets shall be identified by sequential numbers for differentiation between pairs. The number for each pair shall be marked in accordance with paragraph 5.11 and shall be spaced at intervals of 2 inches throughout the length of the jacket. When a shield is used as the outer covering, a jacket shall be placed over the shield.

TABLE V. *Color code for pairs used in switchboard cables*

Pair No.	Wire		Mate	
	Body	Single narrow band	Body	Double narrow band
1	Blue	White	Blue	White
2	Orange	White	Orange	White
3	Green	White	Green	White
4	Brown	White	Brown	White
5	Gray (Slate)	White	Gray (Slate)	White
6	Blue	Red	Blue	Red
7	Orange	Red	Orange	Red
8	Green	Red	Green	Red
9	Brown	Red	Brown	Red
10	Gray (Slate)	Red	Gray (Slate)	Red
11	Blue	Black	Blue	Black
12	Orange	Black	Orange	Black
13	Green	Black	Green	Black
14	Brown	Black	Brown	Black
15	Gray (Slate)	Black	Gray (Slate)	Black
16	Blue	Yellow	Blue	Yellow
17	Orange	Yellow	Orange	Yellow
18	Green	Yellow	Green	Yellow
19	Brown	Yellow	Brown	Yellow
20	Gray (Slate)	Yellow	Gray (Slate)	Yellow
1 (Spare)	White	Black	White	Black
2 (Spare)	White	Yellow	White	Yellow
3 (Spare)	Red	White	Red	White
4 (Spare)	Red	Yellow	Red	Yellow
5 (Spare)	Red	Black	Red	Black

Note. When spare pairs are required, it is necessary to include them in units as long as they are contained within the cable jacket; however, they shall be color coded consecutively from 1 through 5 as shown in the table.

5.3 *Singles.* Singles shall be color coded in accordance with table VI. When more than 20 singles are required, the sequence shall be repeated.

5.4 INDIVIDUAL TRIPLES.

5.4.1 *Inside applications.* Individual triples (e-conductor cables) used for inside application, such as distributing frame wire and station wire, shall be color coded as follows: the insulation of one conductor shall be black; the insulation of the second conductor shall be white; and the insulation of the third conductor (used for ground) shall be red. Outer coverings, if used, shall not be color coded.

5.4.2 *Outside applications.* Individual triples used for outside applications, such as drop wire, shall be identified as follows: the color of the outer covering of all three conductors shall be black; one conductor shall have no identification, the second conductor shall be identified by two longitudinal ridges in the outer covering, the third conductor shall be identified by three longitudinal ridges in the outer covering. The ridges shall be spaced approximately 45° apart radially.

5.5 MULTITRIPLES.

5.5.1 *2 through 20 triples.* Cables containing 20 or fewer triples shall be color coded in accordance wiith table VII.

5.5.2 *More than 20 triples.* Cables containing more than 20 triples shall consist of units with a maximum of 20 triples each.

Each unit shall be color coded in accordance with table VII. Each unit shall be bound with a binding tape as specified in paragraph 5.10

5.5.3 *Individually jacketed triples.* When multitriple cables are composed of individual triples, each having a common jacket in addition to the cable jacket, they shall be color coded as follows: the insulation of one conductor shall be black, the insulation of the second conductor shall be red. A jacket shall be placed over each triple. These jackets shall be identified by sequential numbers for differentiation between triples. The number for each triple shall be marked in accordance wiith 5.11 and shall be applied at intervals of 2 inches throughout the length of the jacket. If a shield is used as the outer covering, the jacket shall be placed over the shield.

TABLE VI. *Color code for singles*

Single No.	Body	Single wide band
1	Blue	White
2	Orange	White
3	Green	White
4	Brown	White
5	Gray	White
6	Blue	Red
7	Orange	Red
8	Green	Red
9	Brown	Red
10	Gray	Red
11	Blue	Black
12	Orange	Black
13	Green	Black
14	Brown	Black
15	Gray	Black
16	Blue	Yellow
17	Orange	Yellow
18	Green	Yellow
19	Brown	Yellow
20	Gray	Yellow
1 (spare)	White	Black
2 (spare)	White	Yellow
3 (spare)	Red	White
4 (spare)	Red	Yellow
5 (spare)	Red	Black

Note. When spare singles are required, it is not necessary to include them in the units as long as they are contained within the cable jacket; however, they shall be color coded consecutively from 1 through 5 as shown in the table.

TABLE VII. *Color code for triples*

Triple No.	First wire		Second wire		Third wire	
	Body	Single narrow band	Body	Double narrow band	Body	Single wide band
1	Blue	White	Blue	White	Blue	White
2	Orange	White	Orange	White	Orange	White
3	Green	White	Green	White	Green	White
4	Brown	White	Brown	White	Brown	White
5	Gray	White	Gray	White	Gray	White
6	Blue	Red	Blue	Red	Blue	Red
7	Orange	Red	Orange	Red	Orange	Red
8	Green	Red	Green	Red	Green	Red
9	Brown	Red	Brown	Red	Brown	Red
10	Gray	Red	Gray	Red	Gray	Red
11	Blue	Black	Blue	Black	Blue	Black
12	Orange	Black	Orange	Black	Orange	Black
13	Green	Black	Green	Black	Green	Black
14	Brown	Black	Brown	Black	Brown	Black
15	Gray	Black	Gray	Black	Gray	Black
16	Blue	Yellow	Blue	Yellow	Blue	Yellow
17	Orange	Yellow	Orange	Yellow	Orange	Yellow
18	Green	Yellow	Green	Yellow	Green	Yellow
19	Brown	Yellow	Brown	Yellow	Brown	Yellow
20	Gray	Yellow	Gray	Yellow	Gray	Yellow
1 (spare)	White	Black	White	Black	White	Black
2 (spare)	White	Yellow	White	Yellow	White	Yellow
3 (spare)	Red	White	Red	White	Red	White
4 (spare)	Red	Yellow	Red	Yellow	Red	Yellow
5 (spare)	Red	Black	Red	Black	Red	Black

Note. When spare triples are required, it is not necessary to include them in the units as long as they are contained within the cable jacket: however, they shall be color coded consecutively from 1 through 5 as shown in the table.

5.6 INDIVIDUAL QUADS.

5.6.1 *Inside applications.* Individual quads (4-conductor cables) used for inside applications, such as station wire, shall be color coded as follows: the insulation of one conductor of the first pair shall be black and that of its mate white; the insulation of one conductor of the second pair shall be red and that of its mate, green. Outer coverings, when used, shall not be color coded.

5.6.2 *Outside applications. Each pair of* an individual quad used for outside applications, such as service cable, shall be identified in accordance with 5.1.2.

5.7 MULTIQUADS. With the exception of the cables covered by 5.7.3, multiquads shall be color coded according to types of insulating material: plastic; woven, wrapped, or braided fabric; and paper.

5.7.1 *Plastic-and fabric-insulated conductors.* Conductors insulated with plastic or fabric shall be color coded as follows:

5.7.1.1 *2 through 20 quads.* Cables containing 20 or fewer quads shall be color coded in accordance with table VIII.

5.7.1.2 *More than 20 quads.* Cables containing 20 or fewer quads shall consist of units with a maximum of 20 quads each. Each unit shall be color coded in accordance with table VIII and shall be bound with a binding tape as specified in 5.10.

5.7.2 *Paper-insulated conductors.* Conductors insulated with paper shall be color coded in accordance with table II.

5.7.3 *Individually jacketed quads.* When multi-quad cables are composed of individual quads, each having a common jacket in addition to the cable jacket, they shall be color coded as follows: the insulation of one conductor of the first pair shall be black and that of its mate, white; the insulation of one conductor of the second pair shall be red and that of its mate, green. A jacket shall be placed over each quad. These jackets shall be identified by sequential numbers for differentiation between quads. The number for each quad shall be marked in accordance with paragraph 5.11 and shall be appliead at intervals of 2 inches throughout the length of the jacket. If a shield is used as the outer covering, a jacket shall be placed over the shield.

5.8 MIXED CABLES. If cables covered by this standard are contained in the same jacket with other types of cable, such as rf and multiconductor electrical cable, each type of cable shall be identified as specified for that type of cable. When telephone switchboard cable is composed of combinations of pairs, singles, triples, and quads, the color code specified for each type shall be used. When singles are used with pairs, triples, or quads, the singles shall be grouped into units with a maximum of 20 singles each. Each unit of singles shall be bound with a binding tape as specified in paragraph 5.10.

TABLE VIII. *Color code for plastic-and fabric-insulated quads*

Quad No.	Pair No. 1				Pair No. 2			
	Wire		Mate		Wire		Mate	
	Body	Single narrow band	Body	Double narrow band	Body	Single wide band	Body	Double wide band
1	Blue	White	Blue	White	Blue	White	Blue	White
2	Orange	White	Orange	White	Orange	White	Orange	White
3	Green	White	Green	White	Green	White	Green	White
4	Brown	White	Brown	White	Brown	White	Brown	White
5	Gray	White	Gray	White	Gray	White	Gray	White
6	Blue	Red	Blue	Red	Blue	Red	Blue	Red
7	Orange	Red	Orange	Red	Orange	Red	Orange	Red
8	Green	Red	Green	Red	Green	Red	Green	Red
9	Brown	Red	Brown	Red	Brown	Red	Brown	Red
10	Gray	Red	Gray	Red	Gray	Red	Gray	Red
11	Blue	Black	Blue	Black	Blue	Black	Blue	Black
12	Orange	Black	Orange	Black	Orange	Black	Orange	Black
13	Green	Black	Green	Black	Green	Black	Green	Black
14	Brown	Black	Brown	Black	Brown	Black	Brown	Black
15	Gray	Black	Gray	Black	Gray	Black	Gray	Black
16	Blue	Yellow	Blue	Yellow	Blue	Yellow	Blue	Yellow
17	Orange	Yellow	Orange	Yellow	Orange	Yellow	Orange	Yellow
18	Green	Yellow	Green	Yellow	Green	Yellow	Green	Yellow
19	Brown	Yellow	Brown	Yellow	Brown	Yellow	Brown	Yellow
20	Gray	Yellow	Gray	Yellow	Gray	Yellow	Gray	Yellow
1 (spare)	White	Black	White	Black	White	Black	White	Black
2 (spare)	White	Yellow	White	Yellow	White	Yellow	White	Yellow
3 (spare)	Red	White	Red	White	Red	White	Red	White
4 (spare)	Red	Yellow	Red	Yellow	Red	Yellow	Red	Yellow
5 (spare)	Red	Black	Red	Black	Red	Black	Red	Black

Note. When spare quads are required, it is not necessary to include them in the units as long as they are contained within the cable jacket; however, they shall be color coded consecutively from 1 through 5 as shown in the table.

TABLE IXa. *Color code for 19-gage (AWG) paper-insulated quads*

No. of quad	Pair No. 1		Pair No. 2	
	Color of insulation	Stain color	Color of insulation	Stain color
1	White	Black	Blue	None
2	Orange	None	Green	None
3	White	None	Red	None
4	White	Green	Orange	Black
5	Orange	Green	Red	None
6	White	Green	Blue	None
7	Orange	Green	Green	None
8	White	None	Red	Black
9	White	Black	Orange	Black
10	Orange	None	Red	Black

TABLE IXb. *Color code for 13-, 16-, and 22-gage (AWG) paper-insulated quads*

No. of quad	Pair No. 1 Color of insulation	Pair No. 2 Color of insulation
1	White	Blue
2	Red	Green
3	Red	Orange
4	White	Red
5	Red	Blue

5.9 COLORS.

5.9.1 *Plastic, natural and synthetic rubber, and fabric insulation.* Colors for plastic, natural and synthetic rubber, and fabric insulation (except tan and pink) shall fall within the limits of the standard color chips of Standard MIL-STD-104.

5.9.2 *Paper insulation.* Colors used for paper insulation shall be readily distinguishable from each other.

5.10 *Binding tapes.* The binding tapes shall be 3/16 to 1/4 inch wide. The unit number and color designation for each unit, as indicated in table X, shall be printed on the binding tape with durable ink in capital characters at least 1/8 inch high. The marking shall be repeated throughout the length of the binding tape and shall be separated by 1-inch spaces.

5.11 MARKING.

5.11.1 *Methods of marking.* The jacket of an individual pair, triple, or quad shall be marked by surface printing or stamping.

5.11.2 *Color of marking.* Characters shall be marked in either black or white to provide good contrast with the color of the surface to which they are applied.

5.11.3 *Size of marking.* The height of the marking shall not be less than 1/6 (0.0625) inch.

5.11.4 *Legibility and permanence of marking.* The marking shall be legible and durable and shall not rub off or become illegible on exposure to elements or contact incident to normal handling, shipment, and storage. The marking shall be accomplished in a manner which will not adversely effect the cable characteristics, and shall remain legible after being subjected to the applicable specification marking tests.

5.12 CIRCUMFERENTIAL BANDS. The wide and narrow bands specified in tables V, VI, VII, and VIII shall be applied to the individual conductors after application of the body colors specified in these tables. Bands shall be applied throughout the length of each conductor and shall be separated by 1/2-inch spaces.

5.12.1 *Narrow bands.* Single narrow bands shall be approximately 1/8 inch wide. Each narrow band of a double narrow band shall be approximately 1/8 inch wide and shall be separated from the other narrow band by approximately 1/16 inch. Each band shall cover approximately 70 percent of the circumference of the insulated conductor.

TABLE X. *Identification code for unit binding tapes*

Unit No.	Color designation
1	Blue-White
2	Orange-White
3	Green-White
4	Brown-White
5	Gray-White
6	Blue-Red
7	Orange-Red
8	Green-Red
9	Brown-Red
10	Gray-Red
11	Blue-Black
12	Orange-Black
13	Green-Black
14	Brown-Black
15	Gray-Black
16	Blue-Yellow
17	Orange-Yellow
18	Green-Yellow
19	Brown-Yellow
20	Gray-Yellow
21	Blue-Violet
22	Orange-Violet
23	Green-Violet
24	Brown-Violet
25	Gray-Violet

5.12.2 *Wide bands.* Single wide bands shall be approximately 5/16 inch wide. Each wide band of a double wide band shall be approximately 5/16 inch wide and shall be separated from the other wide band by approximately 1/16 inch. Each band shall cover approximately 70 percent of the circumference of the insulated conductor.

5.13 *Shipboard telephone cables.* Shipboard telephone cables shall be identified as follows:

5.13.1 *Type TTTI-1.* Type TTTI-1 (5-pair) shall be color coded in accordance with table I. Type TTTI-1 (single-conductor cable) shall be identified in accordance with MIL-STD-686.

5.13.2 *Types TTHFWA, TTOP, and TSP.* Types TTHFWA, TTOP, and TSP shall be color coded in accordance with table XI.

5.14 INTERCOMMUNICATION CABLES. Intercommunication cables which consist of pairs or singles shall be identified in accordance with paragraphs 5.2.4 and 5.3, except for shipboard cables specified in paragraph 5.13.

5.15 ARMORED CABLES. When armor is used as an outer cable covering, the data specified in 4.1 shall be printed on a marker type with durable ink in capital characters at least 1/16 inch high. The marking shall be repeated throughout the length of the marker tape with separations of not more than 1 foot. The tape shall be located under the jacket or between the armor and the jacket.

TABLE XI. *Color code for pairs used in shipboard telephone cable (types TTHFWA, TTOP and TSP)*

Pair No.	Wire	Mate	Pair No.	Wire	Mate
1	White	Black	31	Orange	Green
2	Red	Black	32	Blue	Green
3	Green	Black	33	Brown	Green
4	Orange	Black	34	Gray	Green
5	Blue	Black	35	Yellow	Green
6	Brown	Black	36	Purple	Green
7	Gray	Black	37	Tan	Green
8	Yellow	Black	38	Pink	Green
9	Purple	Black	39	Blue	Orange
10	Tan	Black	40	Brown	Orange
11	Pink	Black	41	Gray	Orange
12	Red	White	42	Yellow	Orange
13	Green	White	43	Purple	Orange
14	Orange	White	44	Tan	Orange
15	Blue	White	45	Pink	Orange
16	Brown	White	46	Brown	Blue
17	Gray	White	47	Gray	Blue
18	Yellow	White	48	Yellow	Blue
19	Purple	White	49	Purple	Blue
20	Tan	White	50	Tan	Blue
21	Pink	White	51	Pink	Blue
22	Green	Red	52	Gray	Brown
23	Orange	Red	53	Yellow	Brown
24	Blue	Red	54	Purple	Brown
25	Brown	Red	55	Tan	Brown
26	Gray	Red	56	Pink	Brown
27	Yellow	Red	57	Yellow	Gray
28	Purple	Red	58	Purple	Gray
29	Tan	Red	59	Tan	Gray
30	Pink	Red	60	Pink	Gray

6. NOTES

6.1 Copies of this standard for military use may be obtained as indicated in the foreword to, or general provisions of, the Index of Military Specifications and Standards.

6.1.1 The title and identifying number or symbol should be stipulated when requesting copies of military standards.

Notice. When Government drawings, specifications, or other data are used for any purpose other than in connection with a definitely related Government procurement operation, the United States Government thereby incurs no responsibility nor any obligation whatsoever; and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data, is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use, or sell any patented invention that may in any way be related thereto.

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