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AS6070™/5

FEDERAL SUPPLY CLASS
6145

RATIONALE

LIMITED SCOPE REVISION IS REQUIRED TO CORRECT THE ATTENUATION, PSNEXT, ACR-F, PSACR-F EQUATIONS AND TABULATED VALUES, CLARIFY PROPAGATION DELAY REQUIREMENTS, AND CLARIFY EXPANDED PTFE/PTFE TAPE PRIMARY INSULATION CONSTRUCTION IN TABLE 3.

NOTICE

THE COMPLETE REQUIREMENTS FOR PROCURING THE PRODUCT DESCRIBED HEREIN SHALL CONSIST OF THIS DOCUMENT AND THE LATEST ISSUE OF AS6070.

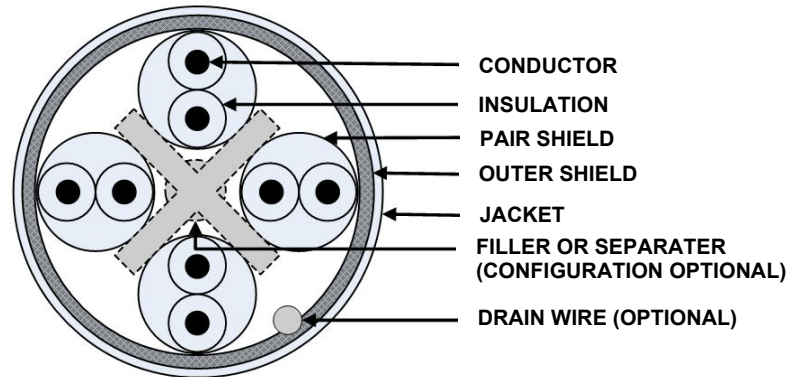


FIGURE 1 - FOUR PAIR CONFIGURATION (DESIGN SHOWN IS NOTIONAL)

1.0 CONSTRUCTION DETAILS

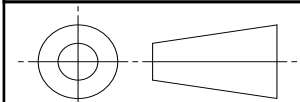
TABLE 1

COMPONENT	MATERIAL		REQUIREMENT
CONDUCTOR	24 AWG 19X36 SILVER PLATED COPPER OR COPPER ALLOY ^{1/} 26 AWG 19X38 SILVER PLATED COPPER ALLOY ^{2/}		.0254 INCH MAXIMUM .0204 INCH MAXIMUM
INSULATION	FLUOROPOLYMER	24 AWG 26 AWG	.060 INCH NOMINAL .050 INCH NOMINAL
INSULATED CONDUCTOR COLORS	PAIR 1: WHITE/BLUE & BLUE OR WHITE & BLUE ^{3/} PAIR 2: WHITE/ORANGE & ORANGE OR WHITE & ORANGE ^{3/} PAIR 3: WHITE/GREEN & GREEN OR WHITE & GREEN ^{3/} PAIR 4: WHITE/BROWN & BROWN OR WHITE & BROWN ^{3/}		
BINDER	PTFE (POLYTETRAFLUOROETHYLENE) TAPE (OPTIONAL)		
INNER OR PAIR SHIELD	FLAT SILVER PLATED COPPER OR ALUMINUM/POLYIMIDE FOIL (OPTIONAL)		COPPER BRAID (92% COVERAGE) FOIL (100% COVERAGE)
OUTER SHIELD	38 OR 40 AWG ROUND SILVER PLATED COPPER BRAID		92% MINIMUM COVERAGE
DRAIN WIRE	OPTIONAL		
COLOR	SEE TABLE 3		

^{1/} SIZE 24 CONDUCTOR SHALL BE ANNEALED COPPER TYPE SCC; COPPER ALLOY SCA OF AS29606 TABLES 3 AND 4.
^{2/} SIZE 26 CONDUCTOR SHALL BE ANNEALED COPPER TYPE SCC; COPPER ALLOY SCA OF AS29606 TABLES 3 AND 4.
^{3/} PAIRS CONTAINING SOLID WHITE WIRE NOT FOR U.S. DEPARTMENT OF DEFENSE (NAVY) USE.

For more information on this standard, visit
<https://www.sae.org/standards/content/AS6070/5B/>

THIRD ANGLE PROJECTION



CUSTODIAN: AE-8/AE-8D

PROCUREMENT SPECIFICATION: AS6070



AEROSPACE STANDARD

CABLE, HIGH PERFORMANCE,
4 PAIR, SHIELDED, 100 OHM,
200 °C, ETHERNET 1000 BASE T

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TABLE 2

LIGHT/STANDARD CABLE REQUIREMENTS			
CABLE	CONDUCTOR	WEIGHT	DIAMETER
LIGHT	24 AWG	45.0 POUNDS/1000 FEET MAXIMUM	.270 INCH MAXIMUM
	26 AWG	35.0 POUNDS/1000 FEET MAXIMUM	.230 INCH MAXIMUM
STANDARD	24 AWG	57.0 POUNDS/1000 FEET MAXIMUM	.300 INCH MAXIMUM
	26 AWG	45.0 POUNDS/1000 FEET MAXIMUM	.250 INCH MAXIMUM

- 2.0 CABLE CONFIGURATION: CABLE CONSTRUCTION SHALL BE IN ACCORDANCE WITH TABLE 1. THE CABLE SHALL HAVE THE FOLLOWING OPERATING CHARACTERISTICS AND DESIGN REQUIREMENTS:
- 2.1 CONTINUOUS WORKING VOLTAGE: 60 V (SEE NOTE 1).
- 2.2 OPERATING FREQUENCY: 1 TO 250 MHz.
- 2.3 OPERATING TEMPERATURE RATING: -55 °C MINIMUM TO +200 °C MAXIMUM.
- 2.4 CONDUCTOR DCR (PRIOR TO INSULATING) AT 20 °C:
- | | |
|-------------------------------------|-----------------------------|
| 24 AWG ANNEALED COPPER | 24.3 OHMS/1000 FEET MAXIMUM |
| 24 AWG COPPER ALLOY (HIGH STRENGTH) | 28.4 OHMS/1000 FEET MAXIMUM |
| 26 AWG COPPER ALLOY (HIGH STRENGTH) | 44.8 OHMS/1000 FEET MAXIMUM |
- 2.5 CABLE MINIMUM BEND RADIUS: 7 TIMES DIAMETER
- 3.0 PERFORMANCE REQUIREMENTS ARE IN ACCORDANCE WITH AS6070 UNLESS OTHERWISE SPECIFIED.
- 3.1 LIFE CYCLE: OVEN TEMPERATURE: 200 °C ± 5 °C. WIRE INSULATION SHALL NOT SHRINK MORE THAN .090 INCH AND JACKET INSULATION SHALL NOT SHRINK MORE THAN .150 INCH. NO MANDREL OR WEIGHTS ARE REQUIRED DURING THE LIFE CYCLE TEST. PERFORM THE BEND TEST AFTER OVEN AGING. JACKET AND COMPONENT WIRES SHALL MEET DIELECTRIC WITHSTAND REQUIREMENTS.
- 3.2 BEND: REQUIRED AFTER LIFE CYCLE AND FLUID IMMERSION. THE JACKET AND COMPONENT WIRES SHALL MEET DIELECTRIC WITHSTAND REQUIREMENTS. MANDREL SIZE: 10 TIMES CABLE DIAMETER (±10%). WEIGHTS: NONE. WRAP CABLE BY HAND AROUND MANDREL WITH SUFFICIENT TENSION TO HOLD CABLE FIRMLY AGAINST MANDREL.
- 3.3 BLOCKING: OVEN TEMPERATURE: 200 °C ± 5 °C; MANDREL SIZE: 10 TIMES CABLE DIAMETER (±10%). NO BLOCKING BETWEEN ADJACENT LAYERS ALLOWED. JACKET AND COMPONENT WIRES SHALL MEET DIELECTRIC WITHSTAND REQUIREMENTS.
- 3.4 COLD BEND: COLD CHAMBER TEMPERATURE: -55 °C ± 5 °C; MANDREL SIZE: 10 TIMES CABLE DIAMETER (±10%). NO CRACKING OF JACKET ALLOWED. JACKET AND COMPONENT WIRES SHALL MEET DIELECTRIC WITHSTAND REQUIREMENTS. A SINGLE TEST WEIGHT SHALL BE ATTACHED TO ALL THE COMPONENT WIRES TO HOLD THE CABLE TAUT ON THE MANDREL.
- 3.5 ALLOY CONDUCTOR ELONGATION AND TENSILE BREAK STRENGTH SHALL BE IN ACCORDANCE WITH AS29606:
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| 24 AWG ANNEALED COPPER (SCC): REFER TO AS29606 TABLE 4A. |
| 24 AWG HIGH STRENGTH COPPER-ALLOY (SCA): REFER TO AS29606 TABLE 4C. |
| 26 AWG ANNEALED COPPER (SCC): REFER TO AS29606 TABLE 4A. |
| 26 AWG HIGH STRENGTH COPPER-ALLOY (SCA): REFER TO AS29606 TABLE 4C. |
- 3.6 DRY DIELECTRIC WITHSTAND - COMPONENT WIRES: COMPONENT WIRES SHALL WITHSTAND 1500 V RMS FOR BOTH INITIAL QUALIFICATION AND QUALITY CONFORMANCE TESTING. THE WITHSTAND VOLTAGE SHALL BE APPLIED FOR 1 MINUTE WIRE TO WIRE AND WIRE TO SHIELD. NO SPECIAL PREPARATION OR CONDITIONS APPLY. THERE SHALL BE NO EVIDENCE OF DAMAGE TO WIRE PAIR INSULATION.
- 3.7 DIMENSIONAL: SEE TABLE 1.
- 3.8 FLAMMABILITY: MAXIMUM FLAME TRAVEL SHALL BE 3 INCHES, THERE SHALL BE NO EVIDENCE OF FLAMING PARTICLES AND FLAME EXTINGUISH TIME SHALL BE 5 SECONDS MAXIMUM.
- 3.9 FLUID IMMERSION: AFTER THE FLUID IMMERSION TEST THE DIAMETER OF THE CABLE SHALL NOT CHANGE MORE THAN 5%. JACKET SHALL NOT CRACK. AFTER BEND TEST, THE JACKET AND COMPONENT WIRES SHALL MEET DIELECTRIC WITHSTAND REQUIREMENTS.

	AEROSPACE STANDARD	AS6070™/5	REV.
	CABLE, HIGH PERFORMANCE, 4 PAIR, SHIELDED, 100 OHM, 200 °C, ETHERNET 1000 BASE T	SHEET 2 OF 5	B



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